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AICRP on COTTON

ALL INDIA COORDINATED RESEARCH PROJECT ON COTTON

ANNUAL REPORT:2020-21



Project Coordinator (Cotton Improvement)
ICAR- All India Coordinated Research Project on Cotton
ICAR-Central Institute for Cotton Research
Regional Station, Coimbatore- 641003
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Published By **Dr. A. H. Prakash,**
Project Coordinator (Cotton Improvement),
ICAR – Central Institute for Cotton Research,
Regional Station, Coimbatore – 641 003.

Compiled & Edited by Dr. A. H. Prakash, Project Coordinator & Head
Dr. S. Manickam, Principal Investigator (Breeding)
Dr. K. Sankaranarayanan, Principal Investigator (Agronomy)
Dr. Risihikumar, Principal Investigator (Entomology)
Dr. S. K. Sain, Principal Investigator (Plant Pathology)
Dr. P. K. Mandhyan, Principal Investigator (Fibre Technology)
Dr. M. Sabesh, Senior Scientist (Computer Application)
Sh. S Sathya Kumar ACTO, CICR, Cbe

Cover Page Design by: Dr. M. Sabesh, Senior Scientist, ICAR-CICR, RS, Coimbatore

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Preface

Indian agriculture provides around 58% of livelihood to Indians. In recent data, agriculture is the primary source of income for half of the population that contributed 17% to 18% to their GDP.

Indian economy is agro-based and agriculture is its mainstay as it constitutes the backbone of the rural livelihood security system. Agriculture has been and still continues to be the life line of the Indian economy since economic security is essentially predicted upon the agricultural and allied sectors. The agriculture sector encompasses crop production, animal husbandry, fisheries, agri-business, etc. Crop production depends upon crucial inputs such as good seeds, fertilizers, pesticides, irrigation, human labour, machinery and management.

Demands for natural fiber and cotton products has led to progressive scientific advances on cotton biotechnology and decoding of cotton genomes have resulted in the development of novel cotton cultivars with high yield, early maturity, improved resistance to pests, and superior fiber quality; however, a negative correlation between fiber traits and yield components/maturity as well as genetic "bottlenecks" in cultivar germplasm still hinders to overcome conventionally longstanding problems of simultaneous yield and quality improvements in cotton

The resilient Breeding programmes, location-specific production and cotton protection technologies like Integrated Nutrient management, Integrated Weed Management, Integrated pest management etc. Interactive Public-Private partnership programmes, especially in the evaluation of the production potential of Bt cotton hybrids, led to revolution in cotton production in the country. During the year 2020-21, the total acreage in India was around 129 lakh ha and production is expected to be around 371 lakh bales of 170 kg with a productivity of 485 kg lint/ha.

Twenty two non Bt Variety / Hybrid and sixty nine Bt varieties/ Hybrids was identified for release during 2020-21 for various agro-climatic regions. In addition to accelerate agricultural development, we are working as a nodal center under PPV & FRA to protect plant breeders' right to stimulate investment for research and development for the development of new plant varieties.

Leading from the front is **Dr. Trilochan Mohapatra**, Secretary, DARE, Ministry of Agriculture and Farmers Welfare & Director General, ICAR, New Delhi. I express my deep sense of gratitude to our Hon'ble Director General, ICAR, for his valuable guidance and direction in running the activities of AICRP on cotton.

I place on record my sincere thanks to **Dr. T.R. Sharma**, Hon'ble Deputy Director General (Crop Science), ICAR, New Delhi for constant encouragement and guidance for the progress of AICRP. **Dr. R.K. Singh**, Assistant Director General (Commercial Crops), ICAR, New Delhi, **Dr. Y.G. Prasad,** Director, ICAR-CICR, Nagpur, and **Dr. (Mrs.) Sujata Saxena,** Director, ICAR-CIRCOT, Mumbai, who have been very helpful and remain as sources of strength and knowledge for efficient running of the AICRP programme, for which I am greatly indebted to them.

It is a great pleasure to acknowledge the full cooperation extended by **Dr. S. Manickam**, Principal Investigator (Plant Breeding), **Dr. K. Sankaranarayanan**, Principal Investigator (Agronomy), **Dr. Rishi Kumar,** Principal Investigator (Entomology), **Dr. Satish Sain**, Principal Investigator (Pathology),

Dr. P. K. Mandhyan, Principal Investigator (Fiber Technology), **Dr. M. Sabesh** (Scientist-Computer Applications) and **Dr. (Mrs.) S. Usha Rani** (Pr. Scientist, Extension), **Dr K. Rathinavel**, Principal Scientist (Seed Tech.,), in running various technical activities of this huge Project. The Scientists and Staff of ICAR-CICR, Regional Station, Coimbatore deserve a special mention for extending whole-hearted support in the general activities of the Project, without whom it would be very difficult to carry out the assignments. I acknowledge the sincere efforts put in by my team **Sh. S. Sathyakumar** (Assistant Chief Technical Officer), **Sh. N. Ramesh** (Assistant) and **Sh. K. Vedavyas** (Stenographer), ICAR-CICR, RS, Coimbatore for assisting me in the regular correspondence, Administrative and financial matters. I also would like to place on record the timely assistance rendered by **Sh. A. Goswami** (Senior Administrative Officer), **Sh. Sorte** (Sr. Finance & Accounts Officer) and their team at CICR, Nagpur without whom the timely disbursal of funds to participating Centres would have been impossible. It is a testimony to the quality, dedication and professionalism of our AICRP scientists that we have seen significant progress on implementing both the new organizational structure and made a significant start on improving knowledge-sharing and increasing multidisciplinary projects.

Key issues affecting agricultural productivity include the decreasing sizes of agricultural land holdings, continued dependence on the monsoon, inadequate access to irrigation, imbalanced use of soil nutrients resulting in loss of fertility of soil, uneven access to modern technology in different parts of the country, lack of access to formal agricultural credit and failure to provide remunerative prices to farmers.

There should be a paradigm shift in how agriculture is viewed, “from a rural livelihood sector to a modern business enterprise” Cotton industry per se needs to enhance the scientific research capability, acquire new talent and facilitate the local and global exchange of ideas required to strengthen our adaptive capacity. Let us join hands and ensure we are prepared and ready to respond to the changing environment.



A. H. Prakash
Project Coordinator (Cotton Improvement)

PROJECT COORDINATOR REPORT

Introduction

All India Coordinated Research Project (AICRP) on Cottonhas made significant achievements and contributions since its inception in 1967, in the discipline of crop improvement,agronomical practices, entomology, plant pathology and Fibre quality standards. AICRP on Cottonhas focused on formulating innovative methodologies and technical programmes for the varied agroecological condition of India for developing improved cotton varieties and economically viable agronomical practices along with eco-friendly and cost-effective plant protection strategies for increasing cotton productivity of thecountry with the focus on remunerative income to farmers.

It is to mention that despite the Covid situations across the globe, both cotton producing and consuming countries have fulfilled the push and pull of cotton as a commodity in a good-naturedly manner. There were some little turbulences in supply chain across the globe, which has been amply handled by the Indian government agencies and stakeholders for appropriate uptake with available resources.

Indian Cotton Scenario: 2020-21

India remains the leading country in terms of area under cotton cultivation and raw cottonproduction in the world. As per Committee on Cotton Production and Consumption (COCPC) estimate, cotton production in India during 2020-21 isexpected to produce 371 lakh bales of 170 kg from 129.57 lakh hectares with a productivity of 487 kglint/ha (COCPC as on 25:01:2021). During the current year 2020-21, Gujarat, Maharashtra andTelangana were the major cotton growing states covering around 68% (88.3 lakh hectare) in areaunder cotton cultivation and 63% (236 lakh bales) of cotton production in India.

Cotton area of around 19.10lakh ha (Punjab-5.01, Haryana-7.37& Rajasthan-6.72) was sownunder cotton during 2020-21 in North zone compared to last year. In central zone, there was a decrease in cotton area from 77.34 to 71.01 lakh hectare compared to last year. Though the area under cotton reduced from 26.53 to 22.73 lakh hectare in Gujarat, due to productivity enhancement from 570 to 677 kg/ha compared to last year, could able to produce 90.50 lakh bales and maintains largest cotton producing state in India. In south zone, after the split of Telangana from Andhra Pradesh, Telangana state gradually increases area under cotton and production despite fluctuation in cotton productivity.

Due to Covid triggered lockdown of many industries including textile industries across the country, consumption of cotton by the domestic industries has reduced in 2019-20 especially in the last quarter. However, third and fourth quarter of 2020-21, due to diminishing Covid scenario in the country and some relaxation in lockdown, the textile industries started its operation and the domestic cotton consumption increased from 233 to 286 lakh bales in 2020-21.In the process, holding stock increased on an average 50 to 110 lakh bales in past two years. It is to be mentioned that the constant cotton production and swift government decisions and policies during the precarious situation of Covid, India reduced the import of cotton and increased the export from 47 (2019-20) to 75 (2020-21) lakh bales which is huge quantum since 2014-15.

State wise Cotton Area (in Lakh ha)

STATE	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Punjab	5.60	4.80	4.46	4.20	3.39	2.85	2.91	2.68	3.92	5.01
Haryana	6.41	6.14	5.36	6.48	6.15	5.70	6.65	7.08	7.23	7.37
Rajasthan	4.70	4.50	3.93	4.87	4.48	4.71	5.84	6.29	7.61	6.72
NORTH ZONE	**16.71**	**15.44**	**13.75**	**15.55**	**14.02**	**13.26**	**15.40**	**16.05**	**18.76**	**19.10**
Gujarat	29.62	24.97	25.19	27.73	27.22	23.82	26.24	26.60	26.53	22.73
Maharashtra	41.25	41.46	41.92	41.90	42.07	38.00	43.51	42.18	44.31	41.84
Madhya	7.06	6.08	5.14	5.74	5.63	5.99	6.03	6.14	6.50	6.44
CENTRAL	**77.93**	**72.51**	**72.25**	**75.37**	**74.92**	**67.81**	**75.78**	**74.92**	**77.34**	**71.01**
Telangana				17.13	17.73	14.09	18.97	18.39	21.27	23.73
Andhra	18.79	24.00	23.89	8.21	6.66	4.72	6.46	6.20	6.54	5.24
Karnataka	5.54	4.85	6.62	8.75	6.42	5.10	5.47	7.18	6.37	7.21
Tamil Nadu	1.33	1.28	1.52	1.87	1.42	1.42	1.83	1.33	1.70	1.55
SOUTH ZONE	**25.66**	**30.13**	**32.03**	**35.96**	**32.23**	**25.33**	**32.73**	**33.10**	**35.88**	**37.73**
Odisha	1.02	1.19	1.24	1.27	1.25	1.36	1.45	1.57	1.70	1.68
Others	0.46	0.51	0.33	0.31	0.50	0.50	0.50	0.50	0.05	0.05
TOTAL	**121.78**	**119.78**	**119.60**	**128.46**	**122.92**	**108.26**	**125.86**	**126.14**	**133.73**	**129.57**

State wise Cotton Production (in Lakh bales of 170 kg)

STATE	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Punjab	20.00	21.00	21.00	13.00	6.25	9.00	11.76	8.50	9.50	12.00
Haryana	26.00	26.00	24.00	23.00	14.50	20.50	21.48	23.00	26.50	25.00
Rajasthan	18.00	17.00	14.00	17.00	15.00	16.50	23.26	27.50	29.00	27.00
NORTH ZONE	**64.00**	**64.00**	**59.00**	**53.00**	**35.75**	**46.00**	**56.50**	**59.00**	**65.00**	**64.00**
Gujarat	122.00	93.00	124.00	112.00	90.00	95.00	103.84	90.00	89.00	90.50
Maharashtra	76.00	81.00	84.00	80.00	76.00	88.50	83.35	76.00	87.00	86.00
Madhya	18.00	19.00	19.00	19.00	18.00	20.50	22.14	23.00	20.00	21.00
CENTRAL ZONE	**216.00**	**193.00**	**227.00**	**211.00**	**184.00**	**204.00**	**209.33**	**189.00**	**196.00**	**197.50**
Telangana				50.50	58.00	48.00	54.44	42.00	54.00	60.00
Andhra Pradesh	60.00	84.00	78.00	26.50	23.75	19.00	21.26	15.00	18.00	18.00
Karnataka	15.00	17.00	23.00	34.00	19.50	18.00	17.32	16.00	20.00	20.00
Tamil Nadu	6.50	6.00	5.00	6.00	6.00	5.00	5.50	6.00	6.00	5.00
SOUTH ZONE	**81.50**	**107.00**	**106.00**	**117.00**	**107.25**	**90.00**	**98.52**	**79.00**	**98.00**	**103.00**
Orisha	3.50	4.00	4.00	3.00	3.00	3.00	3.65	4.00	4.00	4.50
Others	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Total	**367.00**	**370.00**	**398.00**	**386.00**	**332.00**	**345.00**	**370.00**	**333.00**	**365.00**	**371.00**

State wise Cotton Productivity (in kg/ha)

State	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Punjab	607	744	800	526	313	536	687	539	412	407
Haryana	690	719	761	603	401	611	549	552	623	577
Rajasthan	651	642	605	593	569	595	677	743	648	683
NORTH ZONE	**651**	**704**	**729**	**579**	**433**	**590**	**624**	**625**	**589**	570
Gujarat	700	633	837	687	562	678	673	575	570	677
Maharashtra	313	332	341	324	307	396	326	306	334	349
Madhya Pradesh	433	531	628	563	544	582	624	637	523	554
CENTRAL ZONE	**471**	**452**	**534**	**476**	**418**	**511**	**470**	**429**	**431**	473
Telangana				501	556	579	488	388	432	430
Andhra Pradesh	543	595	555	549	606	684	559	411	468	584
Karnataka	460	596	590	661	516	600	538	379	534	472
Tamil Nadu	831	797	559	545	718	599	511	767	600	548
SOUTH ZONE	**540**	**604**	**561**	**553**	**566**	**604**	**512**	**406**	**464**	464
Odisha	583	571	548	401	408	375	428	433	400	455
India	**512**	**525**	**565**	**511**	**458**	**542**	**500**	449	464	487

P: Provisional, as estimated by Committee on Cotton Production and Consumption (COCPC) in its meeting held on 25.01.2021

Cotton Balance Sheet (in lakh bales of 170 kg)

	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20P	2020-21P
SUPPLY										
Opening stock	45.77	40.00	40.00	33.00	66.00	36.44	43.76	42.91	56.52	120.95
Crop	367.00	370.00	398.00	386.00	332.00	345.00	370.00	333.00	365.00	371.00
Import	7.51	14.59	11.51	14.39	22.79	30.94	15.80	35.37	15.50	11.00
Total Supply	**420.28**	**424.59**	**449.51**	**433.39**	**420.79**	**412.38**	**429.56**	**411.28**	**437.02**	**502.95**
DEMAND										
Mill Consumption	223.59	251.74	268.03	278.06	270.20	262.70	280.11	270.78	233.70	286.00
S.S.I Consumption	22.12	23.59	25.20	26.38	27.08	26.21	26.18	22.43	20.33	26.00
Non-Mill Consumption	5.00	7.83	6.32	5.00	18.00	21.50	12.77	18.00	15.00	18.00
Export	129.57	101.43	116.96	57.72	69.07	58.21	67.59	43.55	47.04	75.00
Total Demand	**380.28**	**384.59**	**416.51**	**367.16**	**384.35**	**368.62**	**386.65**	**354.76**	**316.07**	**405.00**
Closing Stock	40.00	40.00	33.00	66.00	36.44	43.76	42.91	56.52	120.95	97.95

P: Provisional, as estimated by Committee on Cotton Production and Consumption (COCPC) in its meeting held on 25.01.2021

World Cotton Scenario: 2020-21

India is the largest country in world in terms of area under cotton is 133.50 lakh hectare which is 41% of the world cotton area. In terms of production, the country sharing the leading position with China at 290 lakh bales of 480 lb (equivalent to 371 lakh bales of 170 kg). Per hectare productivity in India still much lower compared to many leading cotton growing countries. The domestic consumption has significantly increased compared to last year at 14 to 15 % especially in China and India. There is significant upsurge in import of raw cotton in China and Pakistan and sustained import in Bangladesh and Vietnam. India stands third largest country to export raw cotton after the US and Brazil.

Country	Area Harvested	Production	Yield	Domestic Consumption	Import	Export
Argentina	440 (415)	1,350 (1,300)	668 (682)	525 (480)	5 (0)	550 (388)
Australia	275 (60)	2,600 (625)	2,059 (2,268)	35 (35)	0 (0)	1,400 (1,360)
Bangladesh	45 (45)	145 (142)	702 (687)	7,510 (6,910)	7,200 (7,500)	0 (0)
Benin	615 (665)	1,350 (1425)	478 (467)	15 (15)	0 (0)	1,300 (1,200)
Brazil	1,450 (1,665)	11,500 (13,780)	1,727 (1,802)	3,003 (2,700)	25 (5)	10,000 (8,937)
Burkina	550 (580)	900 (880)	356 (330)	25 (25)	0 (0)	800 (930)
Cameroon	250 (250)	640 (645)	557 (562)	20 (20)	0 (0)	575 (500)
Chad	250 (250)	330 (325)	287 (283)	10 (10)	0 (0)	225 (170)
China	3,250 (3,450)	29,000 (27,250)	1,943 (1,720)	39,500 (33,000)	11,000 (7,136)	125 (157)
Cote d'Ivoire	435 (408)	1,025 (990)	513 (528)	30 (30)	0 (0)	1,050 (643)
Egypt	65 (100)	215 (305)	720 (664)	570 (560)	550 (450)	200 (225)
Ethiopia	82 (80)	240 (250)	637 (680)	275 (250)	20 (30)	5 (10)
India	**13,350 (13,500)**	**29,000 (29,500)**	**473 (476)**	**24,300 (20,000)**	**800 (2,280)**	**5,700 (3,200)**
Mali	165 (735)	285 (1,350)	376 (400)	25 (25)	0 (0)	600 (1,175)
Pakistan	2,200 (2,450)	4,500 (6,200)	445 (551)	10,325 (9,225)	5,200 (3,975)	50 (55)
Tajikistan	160 (180)	500 (585)	680 (708)	80 (70)	0 (0)	450 (434)
Turkmenistan	600 (545)	1,000 (920)	363 (368)	800 (725)	0 (0)	150 (100)
United States	3,521 (4,700)	14,700 (19,913)	909 (922)	2,253 (1,989)	3 (3)	15,500 (15,527)
Uzbekistan	975 (1,010)	3,500 (3,500)	782 (754)	3,150 (3,000)	0 (0)	300 (300)
Vietnam	1 (1)	3 (3)	653 (653)	6,800 (6,300)	6,800 (6,480)	0 (0)
World	**32,196 (35,029)**	**1,13,315 (1,22,118)**	**766 (759)**	**1,17,546 (1,02,571)**	**44,525 (40,676)**	**44,542 (41,331)**

Note: Figures in braces pertains to 2019-20; Area in 1000 ha; yield in kg/ha; quantity in 1000 bales of 480 lb. Source: USDA accessed on 03:04:2021.

List of Bt cotton identified during 2020-21

During the VIC meeting conducted on virtual mode, the following varieties/hybrids were identified for cultivation.

S. No.	Name of Variety / hybrid	Species	Name of the Applicant	VIC Date
1	ACH 1155 BG II	H X H	Ajeet Seeds Pvt Ltd	22/06/2020
2	ACH 121-2 BG II	H X H	Ajeet Seeds Pvt Ltd	22/06/2020
3	ACH 171-2 BG II	H X H	Ajeet Seeds Pvt Ltd	22/06/2020
4	ACH 900-2 BG II	H X H	Ajeet Seeds Pvt Ltd	22/06/2020
5	ACH 900-2 BG II	H X H	Ajeet Seeds Pvt Ltd	22/06/2020
6	ACH 945-2 BG II	H X H	Ajeet Seeds Pvt Ltd	22/06/2020
7	ACH 955-2 BG II	H X H	Ajeet Seeds Pvt Ltd	22/06/2020
8	ARCH 045 BG II	H X H	Ankur Seeds Pvt Ltd	22/06/2020
9	ARCH 045BG II	H X H	Ankur Seeds Pvt Ltd	22/06/2020
10	ARCH 501 BG II	H X H	Ankur Seeds Pvt Ltd	22/06/2020
11	ARCH 777 BG II	H X H	Ankur Seeds Pvt Ltd	22/06/2020
12	ARCH 888 BG II	H X H	Ankur Seeds Pvt Ltd	22/06/2020
13	ARCH 888 BG II	H X H	Ankur Seeds Pvt Ltd	22/06/2020
14	ATCH 605 BG II	H X H	AgriTop Seeds Pvt Ltd	22/06/2020
15	ATCH 704 BG II	H X H	AgriTop Seeds Pvt Ltd	22/06/2020
16	Bio 6524 BG II	H X H	Bioseed Research India	22/06/2020
17	BIO GHH 033-2 BG II	H X H	Bioseed Research India	22/06/2020
18	BIO GHH 324-2 BG II	H X H	Bioseed Research India	22/06/2020
19	C 344 BG II	H X H	Mahyco Pvt Ltd	22/06/2020
20	C 352 BG II	H X H	Mahyco Pvt Ltd	22/06/2020
21	C 363 BG II	H X H	Mahyco Pvt Ltd	22/06/2020
22	C 366 BG II	H X H	Mahyco Pvt Ltd	22/06/2020
23	C 9313 BG II	H X H	Mahyco Pvt Ltd	22/06/2020
24	C 9333 BG II	H X H	Mahyco Pvt Ltd	22/06/2020
25	C 9344 BG II	H X H	Mahyco Pvt Ltd	22/06/2020
26	C 9391 BG II	H X H	Mahyco Pvt Ltd	22/06/2020
27	C 9397 BG II	H X H	Mahyco Pvt Ltd	22/06/2020
28	C331 BG II	H X H	Mahyco Pvt Ltd	22/06/2020
29	CCH 666 BG II	H X H	Crystal Crop Protection Ltd	22/06/2020
30	Daftari 165 BG II	H X H	DaftariAgro Biotech Pvt Ltd	22/06/2020
31	Daftari 333 BG II	H X H	DaftariAgro Biotech Pvt Ltd	22/06/2020
32	Goldstar BG II	H X H	Solar Agro Tech Pvt Ltd	22/06/2020
33	JBG 4 BG II	H X H	JAU, Junagadh	22/06/2020
34	JKCH 15551 BG II	H X H	JK Agri Genetics Ltd	22/06/2020
35	KCH 301 BG II	H X H	Kaveri Seed Company Ltd	22/06/2020
36	KCH 305 BG II	H X H	Kaveri Seed Company Ltd	22/06/2020
37	KCH 305 BG II	H X H	Kaveri Seed Company Ltd	22/06/2020
38	KCH 307 BG II	H X H	Kaveri Seed Company Ltd	22/06/2020
39	MC 5401 BG II	H X H	Rallis India Ltd	22/06/2020

40	MC 5403 BG II	H X H	Rallis India Ltd	22/06/2020
41	MC 5405 BG II	H X H	Rallis India Ltd	22/06/2020
42	MC 5408 BG II	H X H	Rallis India Ltd	22/06/2020
43	MC 5431 BG II	H X H	Rallis India Ltd	22/06/2020
44	MC 5431 BG II	H X H	Rallis India Ltd	22/06/2020
45	MC 5516 BG II	H X B	Rallis India Ltd	22/06/2020
46	NBC 1103 BG II	H X H	Nath Bio-Genes (I) Ltd	22/06/2020
47	NBC 1111 BG II	H X H	Nath Bio-Genes (I) Ltd	22/06/2020
48	NBC 1821 BG II	H X H	Nath Bio-Genes (I) Ltd	22/06/2020
49	NBC 1821 BG II	H X H	Nath Bio-Genes (I) Ltd	22/06/2020
50	NBHB 1851 BG II	H X B	Nath Bio-Genes (I) Ltd	22/06/2020
51	Neo 1635 BG II	H X H	Neo Seeds India Pvt Ltd	22/06/2020
52	Neo 1635 BG II	H X H	Neo Seeds India Pvt Ltd	22/06/2020
53	Neo 1655 BG II	H X H	Neo Seeds India Pvt Ltd	22/06/2020
54	PCH 5677 Bt 2	H X H	Prabhat Agri Biotech	22/06/2020
55	PRCH 2799 Bt2	H X H	Pravardhan Seeds (P) Ltd	22/06/2020
56	RCH 929 BG II	H X H	Rasi Seeds Pvt Ltd	22/06/2020
57	RCH 933 BG II	H X H	Rasi Seeds Pvt Ltd	22/06/2020
58	RCH 938 BG II	H X H	Rasi Seeds Pvt Ltd	22/06/2020
59	RCH 947 BG II	H X H	Rasi Seeds Pvt Ltd	22/06/2020
60	RCH 947 BG II	H X H	Rasi Seeds Pvt Ltd	22/06/2020
61	RCH 951 BG II	H X H	Rasi Seeds Pvt Ltd	22/06/2020
62	RCH 953 BG II	H X H	Rasi Seeds Pvt Ltd	22/06/2020
63	RCH 956 BG II	H X H	Rasi Seeds Pvt Ltd	22/06/2020
64	Samir BG II	H X H	Ankur Seeds Pvt Ltd	22/06/2020
65	SP 7670 BG II	H X H	Bayer Bioscience Pvt Ltd	22/06/2020
66	SRCH 153 BG II	H X H	Sri Rama Agrigenetics (I) Pvt Ltd	22/06/2020
67	SRCH 207 BG II	H X H	Sri Rama Agrigenetics (I) Pvt Ltd	22/06/2020
68	YC 7963 Bt 2	G. hirsutum	Yaaganti Seeds (I) Ltd	22/06/2020
69	YCH 7475 Bt 2	H X H	Yaaganti Seeds (I) Ltd	22/06/2020

List of Non-Bt cotton identified during 2020-21

S. No.	Name of Variety / hybrid	Species	Year
1	RS 2818	*G. hirsutum*	2020
2	RS 2827	*G. hirsutum*	2020
3	BS 30	*G. hirsutum*	2020
4	BS 30*	*G. hirsutum*	2020
5	ARBC 1601	*G. hirsutum*	2020
6	DB 1602	*G. barbadense*	2020
7	SBSG 1-5	*G. barbadense*	2020
8	CPD 1652	*G. hirsutum*	2020
9	AKH 09-5	*G. hirsutum*	2020
10	ARBC 1651	*G. hirsutum*	2020
11	ARBC 1651*	*G. hirsutum*	2020
12	CNA 1032	*G. arboreum*	2020
13	PA 810	*G. arboreum*	2020
14	DB 1602	*G. barbadense*	2020
15	DB 1601	*G. barbadense*	2020
16	CCB 51	*G. barbadense*	2020
17	ARBHB 1601	*G. hirsutum X G. barbadense*	2020
18	CPD 1652	*G. hirsutum*	2020
19	SCS 1061	*G. hirsutum*	2020
20	DSC 1651	*G. hirsutum*	2020
21	JLA 1110	*G. arboreum*	2020
22	TCB 37 (CO 18)	*G. barbadense*	2020

List of Bt cotton varieties notified during 2020-21

S. No.	Name	Species	Notification	Year	Institution	States
1	CICR Bt 6 (RS 2013)	G. hirsutum	S. O. 3482 (E)	10-07-2020	CICR, Sirsa	Haryana & Punjab
2	ICAR-CICR GJHV 374 Bt	G. hirsutum	S. O. 3482 (E)	10-07-2020	CICR, Nagpur	Maharashtra
3	ICAR-CICR PKV 081 Bt	G. hirsutum	S. O. 3482 (E)	10-07-2020	CICR, Nagpur	Maharashtra
4	ICAR-CICR Rajat Bt	G. hirsutum	S. O. 3482 (E)	10-07-2020	CICR, Nagpur	Maharashtra
5	ICAR-CICR Suraj Bt	G. hirsutum	S. O. 3482 (E)	10-07-2020	CICR, Nagpur	Maharashtra, Gujarat, Madhya Pradesh
6	PAU Bt3 (FBt 16-4)	G. hirsutum	S. O. 3482 (E)	10-07-2020	PAU, Faridkot	Punjab, Haryana & Rajasthan
7	CICR 16 Bt	G. hirsutum	S. O. 3482 (E)	10-07-2020	CICR, Nagpur	Maharashtra, Gujarat, Madhya Pradesh
8	CICR 23 Bt	G. hirsutum	S. O. 3482 (E)	10-07-2020	CICR, Nagpur	Karnataka, Andhra Pradesh, Telengana& Tamil Nadu

List of Bt cotton Hybrids notified during 2020-21

S. No.	Name of Variety / hybrid	Species	Name of the Applicant	Notification	Year	Zone	Condition
1	ACH 1155-2 BG II	H X H	Ajeet Seeds Pvt Ltd	S. O.	10-07-	South	Irrigate
2	DCH 32 BG II	H X B	KSSCL, Dharwad	S. O.	10-07-	Karnataka	Irrigate
3	Hemang BG II	H X H	Ankur Seeds Pvt Ltd	S. O. 3482 (E)	10-07-2020	Central	Rainfed
4	INDAM 1642 BG II	H X H	Indo-American Hybrid Seeds (I) Pvt Ltd	S. O. 3482 (E)	10-07-2020	South	Irrigated
5	JKCH 15551	H X H	JK Agri Genetics Ltd	S. O.	10-07-	South	Irrigate
6	NBC 1103 BG II	H X H	Nath Bio-Genes (I) Ltd	S. O.	10-07-	Central	Rainfe
7	NBC 1111 BG II	H X H	Nath Bio-Genes (I) Ltd	S. O.	10-07-	South	Irrigate
8	NBHB 2205 BG II	H X B	Nath Bio-Genes (I) Ltd	S. O.	10-07-	South	Irrigate
9	NHH 44 BG II	H X H	MSSC, Akola	S. O.	10-07-	Maharashtra	Rainfe
10	PRCH 2799Bt 2	H X H	Pravardhan Seeds (P) Ltd	S. O.	10-07-	Central	Rainfe
11	Raguvir BGII	H X H	Ankur Seeds Pvt Ltd	S. O.	10-07-	North	Irrigate
12	Samir BG II	H X H	Ankur Seeds Pvt Ltd	S. O.	10-07-	South	Irrigate
13	ACH 1155 BG II	H X H	Ajeet Seeds Pvt Ltd	S. O. 500	29/1/20	South	Rainfe
14	ACH 121-2 BG II	H X H	Ajeet Seeds Pvt Ltd	S. O. 500	29/1/20	Gujarat	Rainfe
15	ACH 171-2 BG II	H X H	Ajeet Seeds Pvt Ltd	S. O. 500 (E)	29/1/2021	Maharashtra & Madhya Pradesh	Irrigated
16	ACH 900-2 BG II	H X H	Ajeet Seeds Pvt Ltd	S. O. 500	29/1/20	Central	Irrigate
17	ACH 900-2 BG II	H X H	Ajeet Seeds Pvt Ltd	S. O. 500	29/1/20	South	Irrigate
18	ACH 945-2 BG II	H X H	Ajeet Seeds Pvt Ltd	S. O. 500	29/1/20	North	Irrigate
19	ACH 955-2 BG II	H X H	Ajeet Seeds Pvt Ltd	S. O. 500	29/1/20	North	Irrigate
20	ARCH 045 BG II	H X H	Ankur Seeds Pvt Ltd	S. O. 500	29/1/20	South	Irrigate
21	ARCH 501 BG II	H X H	Ankur Seeds Pvt Ltd	S. O. 500	29/1/20	Central	Rainfe
22	ARCH 777 BG II	H X H	Ankur Seeds Pvt Ltd	S. O. 500	29/1/20	Central	Rainfe
23	ARCH 888 BG II	H X H	Ankur Seeds Pvt Ltd	S. O. 500	29/1/20	South	Irrigate
24	Bio 6524 BG II	H X H	Bioseed Research India	S. O. 500	29/1/20	Haryana	Irrigate
25	BIO GHH 033-2 BG II	H X H	Bioseed Research India	S. O. 500 (E)	29/1/2021	Central	Irrigated
26	BIO GHH 324-2 BG II	H X H	Bioseed Research India	S. O. 500 (E)	29/1/2021	Maharashtra	Rainfed
27	JKCH 15551 BG II	H X H	JK Agri Genetics Ltd	S. O. 500	29/1/20	Central	Irrigate
28	KCH 305 BG II	H X H	Kaveri Seed Company Ltd	S. O. 500	29/1/20	Central	Irrigate
29	KCH 305 BG II	H X H	Kaveri Seed Company Ltd	S. O. 500	29/1/20	South	Irrigate
30	KCH 307 BG II	H X H	Kaveri Seed Company Ltd	S. O. 500	29/1/20	North	Irrigate
31	MC 5403 BG II	H X H	Rallis India Ltd	S. O. 500	29/1/20	Punjab	Irrigate
32	MC 5405 BG II	H X H	Rallis India Ltd	S. O. 500	29/1/20	South	Rainfe
33	MC 5408 BG II	H X H	Rallis India Ltd	S. O. 500	29/1/20	North	Irrigate
34	MC 5431 BG II	H X H	Rallis India Ltd	S. O. 500	29/1/20	Central	Irrigate
35	MC 5431 BG II	H X H	Rallis India Ltd	S. O. 500	29/1/20	South	Irrigate
36	MC 5516 BG II	H X B	Rallis India Ltd	S. O. 500	29/1/20	South	Irrigate
37	NBC 1111 BG II	H X H	Nath Bio-Genes (I) Ltd	S. O. 500	29/1/20	Central	Irrigate
38	NBC 1821 BG II	H X H	Nath Bio-Genes (I) Ltd	S. O. 500	29/1/20	South	Irrigate
39	NBHB 1851 BG II	H X B	Nath Bio-Genes (I) Ltd	S. O. 500	29/1/20	South	Irrigate
40	Neo 1635 BG II	H X H	Neo Seeds India Pvt Ltd	S. O. 500	29/1/20	Central	Rainfe
41	Neo 1655 BG II	H X H	Neo Seeds India Pvt Ltd	S. O. 500	29/1/20	South	Rainfe
42	PRCH 2799 Bt2	H X H	Pravardhan Seeds (P) Ltd	S. O. 500	29/1/20	Central	Irrigate
43	RCH 846 BG II	H X H	Rasi Seeds Pvt Ltd	S. O. 500	29/1/20	North	Irrigate
44	RCH 926 BG II	H X H	Rasi Seeds Pvt Ltd	S. O. 500	29/1/20	North	Irrigate
45	RCH 929 BG II	H X H	Rasi Seeds Pvt Ltd	S. O. 500	29/1/20	Central	Rainfe
46	RCH 929 BG II	H X H	Rasi Seeds Pvt Ltd	S. O. 500	29/1/20	South	Rainfe
47	RCH 933 BG II	H X H	Rasi Seeds Pvt Ltd	S. O. 500	29/1/20	Central	Irrigate

48	RCH 938 BG II	H X H	Rasi Seeds Pvt Ltd	S. O. 500	29/1/20	North	Irrigate
49	RCH 947 BG II	H X H	Rasi Seeds Pvt Ltd	S. O. 500	29/1/20	Central	Irrigate
50	RCH 947 BG II	H X H	Rasi Seeds Pvt Ltd	S. O. 500	29/1/20	South	Irrigate
51	RCH 951 BG II	H X H	Rasi Seeds Pvt Ltd	S. O. 500	29/1/20	North	Irrigate
52	RCH 953 BG II	H X H	Rasi Seeds Pvt Ltd	S. O. 500	29/1/20	Central	Irrigate
53	RCH 956 BG II	H X H	Rasi Seeds Pvt Ltd	S. O. 500	29/1/20	Central	Rainfe
54	Samir BG II	H X H	Ankur Seeds Pvt Ltd	S. O. 500	29/1/20	Central	Irrigate
55	SP 7670 BG II	H X H	Bayer Bioscience Pvt Ltd	S. O. 500	29/1/20	South	Rainfe
56	YCH 7475 Bt 2	H X H	Yaaganti Seeds (I) Ltd	S. O. 500	29/1/20	Central	Irrigate

List of Non-Bt cotton Hybrids notified during 2020-21

ID	Name	Species	Notification	Year	Center/ State variety Release	Institution
1	G Cot 36 (GSHV 177)	G. hirsutum	S. O. 1498 (E)	2019	Central	NAU, Surat
2	G Cot 34 (GISV 272)	G. hirsutum	S. O. 1498 (E)	2019	Central	NAU, Surat
3	G. Cot 38 (GJHV 497)	G. hirsutum	S. O. 1498 (E)	2019	Central	JAU, Junagadh
4	SCS 1061	G. hirsutum	S. O. 1498 (E)	2019	Central	UAS, Raichur
5	NHH 715	H X H	S. O. 1498 (E)	2019	Central	VNMKV, Nanded
6	G. Cot.Hy.22 (GJHH 4)	H X H	S. O. 1498 (E)	2019	State	JAU, Junagadh
7	LD 1019	G. arboreum	S. O. 1498 (E)	2019	State	PAU, Ludhiana
8	GN Cot. Hy-18 (GSHH 2759)	H X H	S. O. 3220 (E)	2019	State	NAU, Surat
9	RVK 11 (Raj Vijay Kapas-11) (IH 11)	G. hirsutum	S. O. 3220 (E)	2019	Central	RVSKVV, Indore
10	PA 740	G. arboreum	S. O. 3220 (E)	2019	Central	VNMKV, Parbhani
11	G Cot 40 (GSHV 172)	G. hirsutum	S. O. 99 (E)	2020	Central	NAU, Surat
12	G COT 42 (GSHV 180)	G. hirsutum	S. O. 99 (E)	2020	Central	NAU, Surat
13	Sunantha (CCH 14-1)	G. hirsutum	S. O. 99 (E)	2020	Central	CICR, Coimbatore
14	BGDS 1033	G. hirsutum	S. O. 3482 (E)	2020	Central	UAS, Raichur
15	GTHV 13/28	G. hirsutum	S. O. 3482 (E)	2020	Central	SDAU, Talod
16	Phule JLA 0906 (JLA 0906)	G. arboreum	S. O. 3482 (E)	2020	Central	MPKV, Jalgaon
17	PA 812	G. arboreum	S. O. 3482 (E)	2020	Central	MAU, Parbhani
18	RS 2814	G. hirsutum	S. O. 3482 (E)	2020	Central	SKRAU,
19	CICR CNA 1028 (CNA 1028)	G. arboreum	S. O. 3482 (E)	2020	Central	CICR, Nagpur
20	CICR CNA 1032 (CNA 1032)	G. arboreum	S. O. 3482 (E)	2020	Central	CICR, Nagpur
21	Gujarat Anand Desi Cotton 3 (GADC 3: Wagad Gaurav) (GVhu 767)	G. herbaceum	S. O. 3482 (E)	2020	State	AAU, Viramngam
22	CO 17 (TCH 1819)	G. hirsutum	S. O. 3482 (E)	2020	State	TNAU, Coimbatore
23	Adilabad Kapas-1 (ADB-542)	G. hirsutum	S. O. 3482 (E)	2020	State	PJTSAU, Adilabad
24	BS 279	G. hirsutum	S. O. 500 (E)	2021	State	OUAT, Bhubaneswar
25	LAHB Cotton-1	H X B	S. O. 500 (E)	2021	Central	ANGRAU, Lam
26	LHDP Cotton-1	G. hirsutum	S. O. 500 (E)	2021	Central	ANGRAU, Lam
27	CICR-H Cotton (Suraksha)	G. hirsutum	S. O. 500 (E)	2021	Central	CICR, Coimbatore

Implementation of PVP legislation and DUS testing of cotton under ICAR and SAU system

Distinctiveness Uniformity and Stability testing of cotton genotypes has been done under the project centrally sponsored and funded by PPV &FRA in ICAR-Central Institute for Cotton Research, Regional Station, Coimbatore, ICAR-Central Institute for Cotton Research, Nagpur; National Seeds project Unit, UAS, Dharwad; Department of Cotton CCSHAU, Hisar; Regional Research Station Bhatinda, PAU and the Department of Cotton, MPKV, Rahuri

During the year 2020-21, the data base on extant cotton varieties, notified cotton varieties has been updated. Data base of registered tetraploid and diploid cotton varieties was acquired from PPV&FRA, New Delhi. Maintenance breeding and characterization and of 186 extant cotton varieties

were carried out in tetraploid and Diploid cotton viz.,141 in *G. hirsutum*, 35 in *G. arboreum,*three in*G.herbaceum*and seven in*G.barbadense.*

Field trials consists of 11 new candidate varieties viz., 2877/4088, 2880/3220, 2880/3220F_1, 2884/2112, 2884/2112F_1, 2870/2241, 2884/2088, 2884/2088F_1, 2884/2089, 2884/2089F_1, 2884/211, 2884/2111F_1, 2884/2113, 2884/2113F_1, 2870/2100, 2870/2100 F_1, 2870/2107, 2870/2107 F_1 along with 9 F1 hybrids of candidatesfor second year of testing. The F_1 seeds of nine candidate hybridswere produced at PPV&FRA center at Shivamogga. Five new candidate varieties viz., TC20SH$_1$, TC20SH$_2$, TC20ST$_1$, TC20ST$_2$, 2879/3887 for first year of testing along with 10 reference varieties were also sown. Field sowing was taken up on 28.8.2020 in randomized block design with 3 replications. Germination count at 12 DAS in corresponding plot was recorded in all the entries. Morphological characters such as Hypocotyl: Pigmentation, Leaf: Colour, Leaf: Hairiness, Leaf: Appearance, Leaf: Gossypol glands, Leaf: Nectaries, Leaf: Petiole pigmentation, Leaf: Shape, Plant: Stem hairiness, Plant: Stem pigmentation, Bract: Type, Flower: Time of flowering, Flower: Petal colour, Flower: Petal spot, Flower: Stigma, Flower: Anther Filament colouration , Flower: Pollen colour, Flower: Male Sterility, Boll: Bearing habit, Boll: Colour, Boll: Shape, Boll: Surface, Boll: Prominence of tip were recorded in 10 plants of all varieties. The data to be received from participating centers would be compiled and submitted to PPV&FRA for issue of registration certificate. Monitoring of DUS trials at the participating centers have also been done through online meetings on 9.10. 2020 at RRS Bathinda, 4.12.2020 at CICR, Nagpur and MPKV Rahuri and on 31.12.2020 at UAS Dharwad. One plant variety protection certificate has been received from PPV&FRA for the Gujarat Cotton 20.

Breeder Seed Production

S. No.	Centre Name	Variety	Year of Notification	Target (q)	Production	Surplus/Deficit (q)
1	MPKV, Rahuri	JLA 505		0.75	0.00	-0.75
		Total		**0.75**	**0.00**	**-0.75**
2	HAU, Hisar	H 1236		0.01	0.01	0.00
		H 1098i		0.01	0.01	0.00
		Total		**0.02**	**0.02**	**0.00**
3	CICR, Nagpur	CNHO 12	2010	0.01	0.01	0.00
		CICR 3	2010	0.20	0.20	0.00
		CICR 3 BT 6	2020	0.20	0.20	0.00
		SURAJ	2008	0.14	0.14	0.00
		SURABHI (VRS-7)	1997	1.10	1.10	0.00
		CCH 4474	2018	0.05	0.05	0.00
		CCH 12-2	2018	0.05	0.05	0.00
		Total		**1.75**		**0.00**
4	VNMKVV, Parbhani	NH-615		0.10	0.10	0.00
		NHH-44 (BN-1) (F)		0.05	0.05	0.00
		NHH-44 AC-738R		0.03	0.50	0.47
		Total		**0.18**	**0.65**	**0.47**
5	PAU, Ludhiana	LD 1019		0.10	1.50	1.40
		LD 949		0.10	2.00	1.90
		F-2228		1.21	2.20	0.99
		F-2383		0.31	0.35	0.04
		FDK-124		0.10	2.00	1.90
		Total		**1.82**	**8.05**	**6.23**
6	PDKV, Akola	AKA-7 (AKA 8307)		1.00	1.50	0.50
		AKH-081		0.04	0.10	0.06
		AKA-5 (AKH-605)		0.50	0.75	0.25

		PKHY-2 AK-32A		0.02	0.10	0.08
		PKHY-2 DHY-286R		0.01	0.10	0.09
		AKH-84635 NON BT		0.10	0.50	0.40
		Total		**1.67**	**3.05**	**1.38**
7	SKRAU, Bikaner	RG-8		1.00	2.24	1.24
		Total		**1.00**	**2.24**	**1.24**
		G. Total		**7.19**	**14.01**	**8.57**

Front Line Demonstrations (FLD) under National Food Security Mission (NFSM) (Commercial Crops)

Front Line Demonstration is a proven extension mechanism with the objectives of demonstrating the usefulness of the latest improved crop production and protection technologies to the farmers as well as extension workers with a view to reduce the time gap between technology generation and its adoption. It also enables the scientists to obtain direct feedback from cotton farmers and suitably reorient their research programs, develop appropriate technology packages and to create effective linkage among scientists, extension personnel and farmers. This novel programme was implemented in 1996 for cotton crop to demonstrate cotton production technologies through the networking centres of All India Coordinated Research Project (AICRP) on Cotton. Since then, AICRP on cotton has been conducting FLD on cotton through its network centers and by the ICAR- Central Institute for Cotton Research, Nagpur and its regional stations in Coimbatore and Sirsa. Until 2013, these demonstrations were conducted on Production Technology, Integrated Pest Management and on Farm implements under Technology Mission on Cotton, Mini Mission II. Since 2014-15, FLDs have been conducted under national Food Security Mission on Cotton (NFSM) – Commercial Crops. During the year 2020-21 under NFSM - Commercial Crops, a total of **500** FLDs on Integrated Crop Management (ICM), **296** Front Line Demonstrations on Desi / ELS cotton / ELS cotton seed production and **130** Front Line Demonstrations on intercropping with cotton were allotted to ICAR-AICRP on Cotton with a budget outlay of INR 77.00 lakh. Out of the allotted FLDs, a total of **514** Front Line Demonstrations on Integrated Crop Management on cotton, **271** Front Line Demonstrations on Desi / ELS cotton / ELS cotton seed production and **128** Front Line Demonstrations on intercropping with cotton were conducted by **nineteen**centers of All India Coordinated Research Project on Cotton.

While conducting the FLDs, main emphasis was given to the demonstrations for enhancing the production of cotton in low productivity areas / problematic areas. A baseline survey was conducted by the participating centers to know the resource endowments of the farmers and the level of cotton productivity. For selecting the beneficiaries and identifying the priority areas, village level Institutions were actively utilized. A list of beneficiaries and their plot numbers were notified in the local Block Development / Panchayat Office. Farmers were selected in consultation with local Agricultural Officers and Panchayat Samiti. These officials formed part of the FLD team. Bench mark survey was conducted before taking up the demonstration which included information on the crops and cropping system of the area, inter cropping, the average yieldsof cotton and the local practices adopted in terms of irrigation, use of fertilizer, plant protection, etc., Information on the cost of cultivation was also collected for the area as a whole. An impact analysis after the harvest was carried out in the light of reduction in insecticide use, reduction in cost of cultivation, awareness of modern technology etc., Further in accordance with the decision of Government of India (GOI) regarding implementation of Special Component Plan (SCP) for Scheduled Caste and Tribal Sub Plan (TSP) for Scheduled Tribes and Gender Budgeting, the beneficiaries were selected for the year's front line demonstration programme.

The centre wise details of FLDs conducted during 2020-21 with the budget outlay and average seed cotton yield obtained are given below.

Details of Front-Line Demonstrations conducted under NFSM-Commercial Crops through ICAR-AICRP on Cotton during 2020-21 with the budget outlay and average seed cotton yield obtained

(budget in lakh rupees; yield in kg/ha)

S. No	Centres	FLDs on ICM			FLDs on Desi / ELS cotton / ELS cotton seed production			FLDs on Intercropping in cotton		
		No. of FLDs*	Budget Outlay	Average Seed Cotton Yield in FLDs	No. of FLDs*	Budget outlay	Average Seed Cotton Yield in FLDs	No. of FLDs*	Budget outlay	Average Seed Cotton Yield in FLDs
1	PAU, Faridkot	30	2.40	2304	10	0.90	2080	-	-	-
2	CCSHAU, Hisar	30	2.40	2191	30	2.70	1537	-	-	-
3	SKRAU,	30	2.40	2351	30	2.70	2560	-	-	-
4	ICAR – CICR,	5	0.40	2087	1	0.09	688 (seed)	-	-	-
5	NAU, Surat	20	1.60	1363	10	0.90	787	-	-	-
6	JAU, Junagadh	40	3.20	2199	-	-	-	10	0.80	1856+453(IC)
7	PDKV, Akola	20	1.60	1481	40	3.60	1919	-	-	-
8	MAU, Nanded	40	3.20	1634	15	1.35	1665	20	1.60	1558+551(IC)
9	MPKV, Rahuri	30	2.40	2228	-	-	-	10	0.80	
10	ICAR-CICR,	24	1.92	1495	20	1.80	1440	18	1.44	1376+418(IC)
11	RVSKVV,	20	1.60	1656	-	-	-	20	1.60	1418
12	ANGRAU,	60	4.80	1226	-	-	-	-	-	-
13	RARS,	30	2.40	840	-	-	-	-	-	-
14	PJTSAU,	25	2.00	1871	-	-	-	10	0.80	1929
15	UAS, Dharwad	30	2.40	1604	20	1.80	1416	20	1.60	1501+505(IC)
16	UAS, Raichur	30	2.40	2999	15	1.35	2473	-	-	-
17	UAS,	30	2.40	1368	20	1.80	1481	-	-	-
18	TNAU,	20	1.60	2430	20	1.80	2100 (ELS)	20	1.60	Yet to get
19	ICAR-CICR,	-	-	-	40**	3.60	**	-	-	-
Grand Total		**514**	**41.12**		**271**	**24.39**		**128**	**10.24**	

(***-** No. of FLDs allotted in hectares; ** Conducted under Summer Irrigated Condition)

CROP IMPROVEMENT

National Trials – North Zone

Br. 02a - Initial Evaluation Trial of *G. hirsutum* (Irrigated)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Sriganganagar	Hisar	Sirsa (CICR)	Faridkot	Bathinda	Mean NZ	Rank
1.	101	F 2732	2857	1975	3049	3467	3082	**2886**	3
2.	102	PBH 197	2834	2140	1809	2697	2745	**2445**	9
3.	103	HS 310	1595	1276	1837	3340	2239	**2057**	12
4.	104	CSH 90	2856	2716	1982	3129	2930	**2723**	5
5.	105	**QC (CSH 3129)**	2181	1523	1513	2418	2733	**2074**	11
6.	106	RS 2958	2521	1523	1578	1197	1613	**1686**	13
7.	107	F 2743	3338	3333	3205	3539	3280	**3339**	1
8.	108	H 1569	3256	3087	2485	3374	2152	**2871**	4
9.	109	CSH 89	2734	2140	2392	2719	2395	**2476**	8
10.	110	**Local Check**	2852	2593	1758	3581	2016	**2560**	7
11.	111	PBH 79	2344	2263	2463	3539	2510	**2624**	6
12.	112	H 1480	2444	2469	2939	3543	3247	**2928**	2
13.	113	RS 2943	2500	782	575	435	1823	**1223**	14
14.	114	**ZC (F 2228)**	2858	2017	2077	3057	2115	**2425**	10
		CD @ 5 %	391	435	360	457	468		
		CV %	9	12	10	9	11		
		Local Checks	**RS 2013**	**H 1098i**	**CSH 3129**	**LH 2108**	**LH 2108**		

Br. 02a - Initial Evaluation Trial of *G. hirsutum* (Irrigated)
Lint Yield (kg/ha)

S. No.	Code No.	Entries	Sriganganagar	Hisar	Sirsa (CICR)	Faridkot	Bathinda	Mean NZ
1.	101	F 2732	971	686	963	1135	1057	**962**
2.	102	PBH 197	989	765	605	940	991	**858**
3.	103	HS 310	579	478	563	1155	758	**707**
4.	104	CSH 90	991	996	628	1066	979	**932**
5.	105	**QC (CSH 3129)**	759	490	468	739	892	**670**
6.	106	RS 2958	895	549	496	426	557	**585**
7.	107	F 2743	1162	1213	1058	1107	1080	**1124**
8.	108	H 1569	1198	1089	776	1093	713	**974**
9.	109	CSH 89	987	909	791	917	817	**884**
10.	110	**Local Check**	1084	897	545	1238	626	**878**
11.	111	PBH 79	823	782	852	1233	820	**902**
12.	112	H 1480	860	867	921	1166	1105	**984**
13.	113	RS 2943	958	260	181	153	562	**423**
14.	114	**ZC (F 2228)**	1012	722	645	1017	689	**817**

Ginning outturn (%)

S. No.	Code No.	Entries	Sriganganagar	Hisar	Sirsa (CICR)	Faridkot	Bathinda	Mean NZ
1.	101	F 2732	34.0	34.7	31.6	32.7	34.3	**33.5**
2.	102	PBH 197	34.9	35.7	33.3	34.9	36.1	**35.0**
3.	103	HS 310	36.3	37.2	30.7	34.6	33.9	**34.5**
4.	104	CSH 90	34.7	36.7	31.6	34.1	33.4	**34.1**
5.	105	**QC (CSH 3129)**	34.8	32.1	30.9	30.6	32.6	**32.2**
6.	106	RS 2958	35.5	36.1	31.5	35.5	34.4	**34.6**
7.	107	F 2743	34.8	36.4	33.0	31.3	32.9	**33.7**
8.	108	H 1569	36.8	35.2	31.3	32.3	33.1	**33.7**
9.	109	CSH 89	36.1	42.5	33.1	33.8	34.1	**35.9**
10.	110	**Local Check**	38.0	34.6	31.1	34.6	31.0	**33.9**
11.	111	PBH 79	35.1	34.6	34.6	34.8	32.6	**34.3**
12.	112	H 1480	35.2	35.1	31.3	32.9	34.0	**33.7**
13.	113	RS 2943	38.3	33.3	31.3	35.0	30.8	**33.7**
14.	114	**ZC (F 2228)**	35.4	35.8	31.0	33.3	32.6	**33.6**

Br. 02a - Initial Evaluation Trial of *G. hirsutum* (Irrigated)

Bolls/plant

S. No.	Code No.	Entries	Srigangana gar	Hisar	Sirsa (CICR)	Faridkot	Bathinda	Mean NZ
1.	101	F 2732	28.0	25.0	42.7	44.3	60.0	**40.0**
2.	102	PBH 197	23.0	23.0	28.8	34.6	55.0	**32.9**
3.	103	HS 310	17.0	20.1	20.8	40.8	62.0	**32.1**
4.	104	CSH 90	34.0	25.1	17.3	38.0	54.9	**33.9**
5.	105	**QC (CSH 3129)**	26.0	26.7	15.2	34.9	59.7	**32.5**
6.	106	RS 2958	25.0	29.0	28.9	37.2	69.1	**37.8**
7.	107	F 2743	28.0	31.6	26.0	51.1	56.3	**38.6**
8.	108	H 1569	30.0	29.3	30.2	49.3	53.8	**38.5**
9.	109	CSH 89	23.0	22.1	24.2	36.8	51.8	**31.6**
10.	110	**Local Check**	30.0	27.2	20.3	47.2	62.1	**37.4**
11.	111	PBH 79	20.0	26.9	24.4	50.0	56.2	**35.5**
12.	112	H 1480	23.0	24.9	29.2	46.3	68.2	**38.3**
13.	113	RS 2943	23.0	18.3	21.2	35.8	58.7	**31.4**
14.	114	**ZC (F 2228)**	26.0	27.2	30.2	43.6	70.6	**39.5**

Boll weight (g)

S. No.	Code No.	Entries	Srigangan agar	Hisar	Sirsa (CICR)	Faridkot	Bathinda	Mean NZ
1.	101	F 2732	2.50	3.4	4.1	3.5	4.0	**3.5**
2.	102	PBH 197	2.89	3.2	3.7	3.4	3.4	**3.3**
3.	103	HS 310	2.24	3.2	3.0	3.3	3.4	**3.0**
4.	104	CSH 90	2.02	3.3	3.3	3.4	3.0	**3.0**
5.	105	**QC (CSH 3129)**	2.04	3.3	2.7	3.2	3.7	**3.0**
6.	106	RS 2958	2.41	3.7	2.9	3.7	4.0	**3.3**
7.	107	F 2743	2.93	3.8	3.1	3.4	4.2	**3.5**
8.	108	H 1569	2.88	3.4	2.9	3.6	3.0	**3.2**
9.	109	CSH 89	2.90	3.3	3.2	3.4	3.9	**3.3**
10.	110	**Local Check**	2.48	3.8	3.1	3.2	4.0	**3.3**
11.	111	PBH 79	2.96	3.3	2.8	3.2	3.3	**3.1**
12.	112	H 1480	2.65	3.6	3.3	3.4	3.8	**3.4**
13.	113	RS 2943	2.85	3.3	3.3	3.4	3.4	**3.3**
14.	114	**ZC (F 2228)**	2.79	3.6	2.7	3.4	3.5	**3.2**

Br. 06a – Initial Evaluation Trial of Compact genotypes (Irrigated)

Total Seed Cotton Yield at 160 DAS (Total of 130 DAS + 160 DAS) (Kg/ha)

S. No.	Code No.	Entries	Faridkot	Bathinda	Hisar	Srigangana gar	Mean NZ	Rank
1.	2601	F 2785	3635	3081	2496	2926	**3035**	1
2.	2602	CSH 49	3374	2549	2853	2809	**2896**	5
3.	2603	CSH 50	3712	2694	2798	2460	**2916**	4
4.	2604	F 2772	3907	3053	2167	2630	**2939**	2
5.	2605	RS 2946	1882	2104	2304	2760	**2263**	7
6.	2606	**ZC (CSH 3075)**	3498	2370	2414	3022	**2826**	6
7.	2607	RS 2957	2593	2160	1536	2697	**2247**	8
8.	2608	H 1601	3484	2771	2826	2592	**2918**	3
9.	2609	**Local Check**	2609	2049	2332	1804	**2199**	9
		CD @ 5 %	608	328	406	513		
		CV %	10	7	10	9		
		Local Checks	**F 2383**	**F 2383**	**H 1098-I**	**RS 875**		

Seed Cotton Yield (130 DAS) (Kg/ha)

S. No.	Code No.	Entries	Faridkot	Bathinda	Hisar	Srigangana gar	Mean NZ
1.	2601	F 2785	960	1010	1701	2487	**1540**
2.	2602	CSH 49	576	1221	2085	2472	**1589**
3.	2603	CSH 50	1029	1232	2112	2042	**1604**
4.	2604	F 2772	960	1292	1783	2157	**1548**
5.	2605	RS 2946	713	1185	1564	2346	**1452**
6.	2606	ZC (CSH 3075)	878	1374	1619	2659	**1633**
7.	2607	RS 2957	686	1283	850	2292	**1278**
8.	2608	H 1601	686	933	2058	2177	**1464**
9.	2609	Local Check	1125	971	1591	1209	**1224**

Br. 06a – Initial Evaluation Trial of Compact genotypes (Irrigated)

Seed Cotton Yield (160 DAS) (Kg/ha)

S. No.	Code No.	Entries	Faridkot	Bathinda	Hisar	Sriganganagar	Mean NZ
1.	2601	F 2785	1975	2071	796	439	**1320**
2.	2602	CSH 49	1824	1328	768	337	**1064**
3.	2603	CSH 50	1989	1462	686	418	**1139**
4.	2604	F 2772	1852	1761	384	473	**1118**
5.	2605	RS 2946	768	919	741	414	**711**
6.	2606	ZC (CSH 3075)	1687	996	796	363	**961**
7.	2607	RS 2957	1454	878	686	405	**856**
8.	2608	H 1601	1783	1838	768	415	**1201**
9.	2609	Local Check	960	1078	741	595	**844**

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Faridkot	Bathinda	Hisar	Sriganganagar	Mean NZ
1.	2601	F 2785	194	201	824	1009	**557**
2.	2602	CSH 49	195	154	947	1018	**579**
3.	2603	CSH 50	223	162	948	852	**546**
4.	2604	F 2772	212	208	685	916	**505**
5.	2605	RS 2946	173	158	762	997	**522**
6.	2606	ZC (CSH 3075)	227	176	809	1042	**564**
7.	2607	RS 2957	155	191	571	1049	**492**
8.	2608	H 1601	210	205	921	879	**554**
9.	2609	Local Check	172	202	773	622	**442**

Br. 06a – Initial Evaluation Trial of Compact genotypes (Irrigated)

Ginning outturn (%)

S. No.	Code No.	Entries	Faridkot	Bathinda	Hisar	Sriganganagar	Mean NZ
1.	2601	F 2785	34.3	34.1	33.0	34.5	**34.0**
2.	2602	CSH 49	33.0	33.1	33.2	36.3	**33.9**
3.	2603	CSH 50	32.8	33.4	33.9	34.7	**33.7**
4.	2604	F 2772	33.0	31.7	31.6	34.8	**32.8**
5.	2605	RS 2946	32.5	32.3	33.1	36.1	**33.5**
6.	2606	ZC (CSH 3075)	34.6	34.1	33.5	34.5	**34.2**
7.	2607	RS 2957	34.5	30.8	37.2	38.9	**35.3**
8.	2608	H 1601	32.6	33.5	32.6	33.9	**33.2**
9.	2609	Local Check	32.6	30.7	33.1	34.5	**32.7**

No. of bolls/m^2

S. No.	Code No.	Entries	Faridkot	Bathinda	Hisar	Sriganganagar	Mean NZ
1.	2601	F 2785	194.1	201.3	83.2	118.4	**149.3**
2.	2602	CSH 49	195.1	154.0	81.1	104.9	**133.8**
3.	2603	CSH 50	223.2	161.7	77.7	99.9	**140.6**
4.	2604	F 2772	212.3	207.7	73.0	115.2	**152.0**
5.	2605	RS 2946	172.8	158.3	53.6	112.2	**124.2**
6.	2606	ZC (CSH 3075)	227.2	175.7	75.5	111.1	**147.4**
7.	2607	RS 2957	154.6	191.3	68.7	119.1	**133.4**
8.	2608	H 1601	209.9	205.0	90.3	103.5	**152.2**
9.	2609	Local Check	171.9	202.3	70.0	77.7	**130.5**

Br. 06a – Initial Evaluation Trial of Compact genotypes (Irrigated)

Plant height (cm)

S. No.	Code No.	Entries	Faridkot	Bathinda	Hisar	Sriganganagar	Mean NZ
1.	2601	F 2785	162.8	156.4	175.9	179.0	**168.5**
2.	2602	CSH 49	174.4	151.8	176.7	139.0	**160.5**
3.	2603	CSH 50	158.9	171.9	168.9	187.0	**171.7**
4.	2604	F 2772	165.6	165.9	173.3	154.0	**164.7**
5.	2605	RS 2946	160.6	156.9	155.6	156.0	**157.3**
6.	2606	ZC (CSH 3075)	174.4	155.8	154.4	139.0	**155.9**
7.	2607	RS 2957	141.7	167.3	165.0	134.0	**152.0**
8.	2608	H 1601	151.1	174.3	192.8	154.0	**168.1**
9.	2609	Local Check	142.8	135.2	168.9	152.0	**149.7**

No. of monopodia / plant

S. No.	Code No.	Entries	Faridkot	Bathinda	Hisar	Sriganganagar	Mean NZ
1.	2601	F 2785	0.0	0.9	1.6	2.0	**1.1**
2.	2602	CSH 49	0.1	0.3	1.2	2.0	**0.9**
3.	2603	CSH 50	0.0	0.1	1.3	1.0	**0.6**
4.	2604	F 2772	1.1	0.4	1.2	1.0	**0.9**
5.	2605	RS 2946	0.2	1.1	1.7	2.0	**1.3**
6.	2606	ZC (CSH 3075)	0.3	0.9	1.1	1.0	**0.8**
7.	2607	RS 2957	0.9	1.0	1.4	2.0	**1.3**
8.	2608	H 1601	0.3	0.8	1.2	6.0	**2.1**
9.	2609	Local Check	0.3	0.8	1.0	2.0	**1.0**

Br. 06a – Initial Evaluation Trial of Compact genotypes (Irrigated)

No. of sympodia / plant

S. No.	Code No.	Entries	Faridkot	Bathinda	Hisar	Sriganganagar	Mean NZ
1.	2601	F 2785	18.2	18.1	10.4	13.0	**14.9**
2.	2602	CSH 49	17.7	10.0	9.3	16.0	**13.3**
3.	2603	CSH 50	15.6	11.8	8.5	14.0	**12.5**
4.	2604	F 2772	22.1	17.6	10.5	17.0	**16.8**
5.	2605	RS 2946	23.6	20.0	10.2	17.0	**17.7**
6.	2606	ZC (CSH 3075)	20.3	16.9	10.4	11.0	**14.7**
7.	2607	RS 2957	17.6	21.6	11.8	12.0	**15.8**
8.	2608	H 1601	19.0	15.6	12.9	11.0	**14.6**
9.	2609	Local Check	19.3	14.9	8.1	15.0	**14.3**

Boll weight (g)

S. No.	Code No.	Entries	Faridkot	Bathinda	Hisar	Sriganganagar	Mean NZ
1.	2601	F 2785	3.4	4.1	3.2	2.8	**3.4**
2.	2602	CSH 49	3.1	3.8	3.2	2.8	**3.2**
3.	2603	CSH 50	3.4	3.4	3.5	2.7	**3.2**
4.	2604	F 2772	3.3	3.8	3.7	2.5	**3.3**
5.	2605	RS 2946	3.3	3.7	3.8	2.6	**3.4**
6.	2606	ZC (CSH 3075)	3.4	3.7	3.9	3.0	**3.5**
7.	2607	RS 2957	3.4	4.0	3.4	2.5	**3.3**
8.	2608	H 1601	3.3	4.2	3.1	3.0	**3.4**
9.	2609	Local Check	2.7	3.1	3.1	2.9	**3.0**

Br. 06a – Initial Evaluation Trial of Compact genotypes (Irrigated)

Lint Index (g)

S. No.	Code No.	Entries	Faridkot	Bathinda	Hisar	Sriganganagar	Mean NZ
1.	2601	F 2785	4.3	3.8	4.7		**4.3**
2.	2602	CSH 49	4.0	3.9	4.6		**4.2**
3.	2603	CSH 50	4.1	4.4	4.8		**4.4**
4.	2604	F 2772	4.5	4.0	4.6		**4.4**
5.	2605	RS 2946	4.2	4.1	4.8		**4.4**
6.	2606	ZC (CSH 3075)	4.4	4.0	4.9		**4.4**
7.	2607	RS 2957	4.4	3.7	5.4		**4.5**
8.	2608	H 1601	4.5	3.9	4.9		**4.4**
9.	2609	Local Check	3.8	3.2	4.4		**3.8**

Seed Index (g)

S. No.	Code No.	Entries	Faridkot	Bathinda	Hisar	Sriganganagar	Mean NZ
1.	2601	F 2785	8.3	7.4	9.5		**8.4**
2.	2602	CSH 49	8.2	7.9	9.3		**8.5**
3.	2603	CSH 50	8.5	8.8	9.4		**8.9**
4.	2604	F 2772	9.2	8.5	10.0		**9.2**
5.	2605	RS 2946	8.7	8.5	9.8		**9.0**
6.	2606	ZC (CSH 3075)	8.3	7.8	9.6		**8.6**
7.	2607	RS 2957	8.4	8.3	9.1		**8.6**
8.	2608	H 1601	9.4	7.8	10.1		**9.1**
9.	2609	Local Check	7.8	7.2	9.0		**8.0**

Br. 22a – Initial Evaluation Trial of *G. arboreum* (Irrigated)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Sriganganagar	Faridkot	Bathinda	Kanpur	Hisar	Sirsa (CICR)	Mean NZ	Rank
1.	2201	PBD 130	4334	2531	3235	1745	2428	1716	**2665**	5
2.	2202	CISA 6-3	2926	2720	2881	1107	2469	3143	**2541**	7
3.	2203	FDK 312	4110	3868	2905	1432	2963	2050	**2888**	2
4.	2204	RG 873	3350	309	2379	847	947	-	**1566**	12
5.	2205	**local Check**	2911	2424	2679	995	3786	3018	**2636**	6
6.	2206	RG 883	3755	2123	1531	983	2099	926	**1903**	11
7.	2207	FDK 324	4387	3572	2947	1983	3663	2222	**3129**	1
8.	2208	HD 555	2631	2942	2440	1000	3128	1296	**2240**	10
9.	2209	**ZC (FDK 124)**	3220	3272	2984	2214	2881	2241	**2802**	3
10.	2210	CISA 33-5	3806	2564	2959	1144	2675	2970	**2686**	4
11.	2211	PBD 81	2381	3523	3074	1868	2798	1411	**2509**	8
12.	2212	HD 556	3659	2881	2675	2012	1852	1513	**2432**	9
		CD @ 5 %	551	421	426	269	600	345		
		CV %	9	9	9		13	11		
		Local Checks	**RG 542**	**LD 949**	**LD 949**	**RG 8**	**HD 432**	**CISA 310**		

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Sriganganagar	Faridkot	Bathinda	Kanpur	Hisar	Sirsa (CICR)	Mean NZ
1.	2201	PBD 130	1553	964	1214	732	979	641	**1014**
2.	2202	CISA 6-3	1063	982	1074	486	952	1163	**953**
3.	2203	FDK 312	1472	1487	1088	610	1160	724	**1090**
4.	2204	RG 873	1274	113	802	346	323	-	**572**
5.	2205	LC	1043	926	951	408	1499	1066	**982**
6.	2206	RG 883	1351	768	526	406	779	332	**694**
7.	2207	FDK 324	1578	1300	1100	858	1397	807	**1173**
8.	2208	HD 555	990	1096	892	401	1162	469	**835**
9.	2209	ZC (FDK 124)	1166	1130	1036	913	986	807	**1006**
10.	2210	CISA 33-5	1397	913	1083	469	1034	1044	**990**
11.	2211	PBD 81	931	1354	1166	773	1065	522	**969**
12.	2212	HD 556	1227	1110	922	841	620	557	**880**

Br. 22a – Initial Evaluation Trial of *G. arboreum* (Irrigated)

Ginning outturn (%)

S. No.	Code No.	Entries	Sriganganagar	Faridkot	Bathinda	Kanpur	Hisar	Sirsa (CICR)	Mean NZ
1.	2201	PBD 130	35.8	38.0	37.6	41.8	40.3	37.3	**38.5**
2.	2202	CISA 6-3	36.3	36.4	37.3	41.8	38.6	37.0	**37.9**
3.	2203	FDK 312	35.8	38.4	37.5	42.4	39.1	35.3	**38.1**
4.	2204	RG 873	38.0	37.0	33.7	40.9	34.1	-	**36.7**
5.	2205	LC	35.8	38.3	35.5	41.2	39.6	35.3	**37.6**
6.	2206	RG 883	36.0	36.0	34.5	41.5	37.1	35.8	**36.8**
7.	2207	FDK 324	36.0	36.4	37.4	42.7	38.1	36.3	**37.8**
8.	2208	HD 555	37.6	37.2	36.6	40.2	37.2	36.2	**37.5**
9.	2209	ZC (FDK 124)	36.2	34.5	34.8	41.3	34.2	36.0	**36.2**
10.	2210	CISA 33-5	36.7	35.6	36.6	41.1	38.7	35.2	**37.3**
11.	2211	PBD 81	39.1	38.5	37.9	41.4	38.1	37.0	**38.7**
12.	2212	HD 556	33.5	38.5	34.5	41.8	33.5	36.8	**36.4**

Bolls/plant

S. No.	Code No.	Entries	Sriganganagar	Faridkot	Bathinda	Kanpur	Hisar	Sirsa (CICR)	Mean NZ
1.	2201	PBD 130	52.0	50.3	56.8	19.0	33.9	25.3	**39.6**
2.	2202	CISA 6-3	27.0	46.9	51.8	23.7	38.9	31.2	**36.6**
3.	2203	FDK 312	42.0	43.8	54.3	26.0	32.6	33.0	**38.6**
4.	2204	RG 873	49.0	34.6	45.7	23.7	15.7	-	**33.7**
5.	2205	LC	57.0	51.3	51.9	24.0	45.2	30.3	**43.3**
6.	2206	RG 883	52.0	49.3	56.7	26.7	42.2	37.4	**44.1**
7.	2207	FDK 324	40.0	46.4	54.7	25.0	38.7	30.4	**39.2**
8.	2208	HD 555	28.0	43.0	57.0	24.7	32.3	34.7	**36.6**
9.	2209	ZC (FDK 124)	51.0	53.0	59.7	21.7	26.8	35.9	**41.4**
10.	2210	CISA 33-5	33.0	49.2	54.0	22.7	34.9	30.1	**37.3**
11.	2211	PBD 81	24.0	53.3	54.1	21.0	35.0	32.9	**36.7**
12.	2212	HD 556	32.0	50.9	45.2	20.7	28.3	30.6	**34.6**

Br. 22a – Initial Evaluation Trial of *G. arboreum* (Irrigated)

Boll weight (g)

S. No.	Code No.	Entries	Sriganganagar	Faridkot	Bathinda	Kanpur	Hisar	Sirsa (CICR)	Mean NZ
1.	2201	PBD 130	1.9	2.5	2.7	2.6	2.4	2.3	**2.4**
2.	2202	CISA 6-3	2.7	2.5	3.0	2.5	2.5	2.2	**2.6**
3.	2203	FDK 312	2.0	2.4	2.9	2.5	2.4	2.1	**2.4**
4.	2204	RG 873	1.9	2.7	2.8	2.6	2.4	-	**2.5**
5.	2205	LC	1.5	2.3	2.8	2.7	2.5	2.3	**2.4**
6.	2206	RG 883	1.8	2.1	2.5	2.5	2.7	2.2	**2.3**
7.	2207	FDK 324	2.8	2.7	2.8	2.5	2.6	2.3	**2.6**
8.	2208	HD 555	2.4	2.5	2.7	2.6	2.6	2.3	**2.5**
9.	2209	ZC (FDK 124)	1.7	2.1	2.5	2.4	2.1	2.3	**2.2**
10.	2210	CISA 33-5	3.0	2.6	2.7	2.5	2.4	2.4	**2.6**
11.	2211	PBD 81	2.3	3.2	2.7	2.5	2.8	2.8	**2.7**
12.	2212	HD 556	2.4	2.4	3.3	2.6	2.3	2.5	**2.6**

Br 25a/b – Preliminary Hybrid Trial of Desi Hybrid

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Sriganganagar	Bathinda	Hisar	Sirsa (CICR)	Arya Nagar (Shakti Vardhak)	Mean NZ	Rank
1.	2501	**ZC (KR 64)**	4469	2177	3251	870	3284	**2810**	6
2.	2502	CISAA 19-4	4372	3346	3210	3110	4140	**3636**	2
3.	2503	KR 148	3578	3510	3375	2595	2123	**3036**	5
4.	2504	KR 150	4595	3634	3457	1558	3241	**3297**	3
5.	2505	CISAA 19-3	4149	2259	3416	3035	3486	**3269**	4
6.	2506	KR 149	4390	3206	4568	2020	4173	**3671**	1
7.	2507	**local Check**	3137	3539	2510	2755	1442	**2677**	7
8.	2508	AAH 43	3079	1840	2140	707	1642	**1882**	8
		CD @ 5 %	740	585	929	319	520		
		CV %	11	11	16	9	10		
		Local Checks	**RAJ DH. 9**	**FMDH 9**	**AAH 1**	**CICR-2**	**AAH 1**		

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Sriganganagar	Bathinda	Hisar	Sirsa (CICR)	Arya Nagar (Shakti Vardhak)	Mean NZ
1.	2501	ZC (KR 64-NZ)	1639	829	1282	289	1244	**1057**
2.	2502	CISAA 19-4	1709	1250	1160	1135	1558	**1362**
3.	2503	KR 148	1259	1279	1324	934	813	**1122**
4.	2504	KR 150	1572	1416	1374	574	1268	**1241**
5.	2505	CISAA 19-3	1353	800	1183	1093	1247	**1135**
6.	2506	KR 149	1535	1245	1726	687	1625	**1364**
7.	2507	LC	1085	1349	969	1019	483	**981**
8.	2508	AAH 43	1019	733	834	182	623	678

Br 25a/b – Preliminary Hybrid Trial of Desi Hybrid

Ginning outturn (%)

S. No.	Code No.	Entries	Sriganganagar	Bathinda	Hisar	Sirsa (CICR)	Arya Nagar (Shakti Vardhak)	Mean NZ
1.	2501	ZC (KR 64-NZ)	36.7	38.0	39.4	37.5	37.8	**37.9**
2.	2502	CISAA 19-4	39.1	37.4	36.1	36.5	37.7	**37.4**
3.	2503	KR 148	35.2	36.5	39.3	36.0	38.3	**37.1**
4.	2504	KR 150	34.2	39.0	39.7	36.8	39.1	**37.8**
5.	2505	CISAA 19-3	32.6	35.4	34.6	36.0	35.8	**34.9**
6.	2506	KR 149	35.0	38.9	37.8	34.0	39.0	**36.9**
7.	2507	LC	34.6	38.2	38.6	37.0	32.5	**36.2**
8.	2508	AAH 43	33.1	39.9	38.9	36.0	37.8	**37.1**

Bolls/plant

S. No.	Code No.	Entries	Sriganganagar	Bathinda	Hisar	Sirsa (CICR)	Arya Nagar (Shakti Vardhak)	Mean NZ
1.	2501	ZC (KR 64-NZ)	76.0	69.6	50.4	55.4	60.7	**62.4**
2.	2502	CISAA 19-4	72.0	67.4	48.7	58.4	55.4	**60.4**
3.	2503	KR 148	53.0	50.9	55.8	44.3	43.3	**49.5**
4.	2504	KR 150	68.0	56.3	47.9	57.6	55.7	**57.1**
5.	2505	CISAA 19-3	65.0	52.3	52.2	62.3	57.2	**57.8**
6.	2506	KR 149	70.0	52.7	59.1	67.2	65.7	**62.9**
7.	2507	LC	57.0	48.0	33.4	62.6	30.1	**46.2**
8.	2508	AAH 43	71.0	80.8	55.6	64.5	43.4	**63.1**

Boll weight (g)

S. No.	Code No.	Entries	Sriganganagar	Bathinda	Hisar	Sirsa (CICR)	Arya Nagar (Shakti Vardhak)	Mean NZ
1.	2501	ZC (KR 64-NZ)	2.4	3.3	2.5	2.5	2.8	**2.7**
2.	2502	CISAA 19-4	2.4	2.5	2.8	2.8	2.6	**2.6**
3.	2503	KR 148	2.7	3.2	2.9	2.6	2.6	**2.8**
4.	2504	KR 150	1.9	3.1	3.0	2.6	2.9	**2.7**
5.	2505	CISAA 19-3	2.1	2.4	2.4	2.4	2.4	**2.3**
6.	2506	KR 149	2.3	2.7	2.9	2.7	2.9	**2.7**
7.	2507	LC	2.9	2.4	3.1	2.6	3.0	**2.8**
8.	2508	AAH 43	2.3	2.4	2.3	2.6	2.5	**2.4**

NORTH ZONE TRIALS

Br 06a – CVT of Compact genotypes (North Zone) (Irrigated)

Total Seed Cotton Yield at 160 DAS (Total of 130 DAS + 160 DAS) (Kg/ha)

S. No.	Code No.	Entries	Sriganganagar	Faridkot	Bathinda	Hisar	Sirsa (CICR)	Mean NZ	Rank
1	2621	RS 2928	2761	2341	2428	1265	1066	**1972**	8
2	2622	PBH 174	2739	3400	2964	1626	2733	**2692**	5
3	2623	F 2757	3299	3374	2970	2130	2826	**2920**	1
4	2624	H 1530	2356	3673	2979	2027	2593	**2726**	2
5	2625	F 2560	2835	3364	3034	1235	2047	**2503**	6
6	2626	**ZC (CSH 3075)**	3223	3133	2984	1780	2348	**2694**	4
7	2627	CSH 100	2592	3148	3041	1986	2710	**2695**	3
8	2628	RS 2914	2104	2092	2475	1461	1255	**1877**	9
9	2629	RS 2913	2567	1519	1800	1471	835	**1638**	10
10	2630	**Local Check**	1878	2750	2354	2130	2649	**2352**	7
		CD @ 5 %	372	408	219	265	220		
		CV %	8	8	5	9	6		
		Local Checks	**RS 875**	**F 2383**	**F 2383**	**H 1098-i**	**H 1098-i**		

Seed Cotton Yield (130 DAS) (Kg/ha)

S. No.	Code No.	Entries	Sriganganagar	Faridkot	Bathinda	Hisar	Sirsa (CICR)	Mean NZ
1	2621	RS 2928	2319	916	1500	802	699	**1247**
2	2622	PBH 174	2109	453	1279	957	1142	**1188**
3	2623	F 2757	2573	802	1296	1605	1806	**1616**
4	2624	H 1530	1885	581	1245	1389	900	**1200**
5	2625	F 2560	2268	535	1007	679	817	**1061**
6	2626	**ZC (CSH 3075)**	2868	679	1338	1389	1210	**1497**
7	2627	CSH 100	2151	730	1505	1698	1454	**1508**
8	2628	RS 2914	1915	514	992	864	451	**947**
9	2629	RS 2913	2413	617	1160	864	494	**1110**
10	2630	**Local Check**	1728	1250	1438	1605	1689	**1542**

Br 06a – CVT of Compact genotypes (North Zone) (Irrigated)

Seed Cotton Yield (160 DAS) (Kg/ha)

S. No.	Code No.	Entries	Sriganganagar	Faridkot	Bathinda	Hisar	Sirsa (CICR)	Mean NZ
1	2621	RS 2928	442	1101	928	309	366	**629**
2	2622	PBH 174	630	2135	1685	597	1591	**1328**
3	2623	F 2757	726	1831	1674	597	1019	**1169**
4	2624	H 1530	471	2068	1735	813	1693	**1356**
5	2625	F 2560	567	2145	2027	566	1230	**1307**
6	2626	**ZC (CSH 3075)**	355	1811	1645	597	1138	**1109**
7	2627	CSH 100	441	1816	1536	556	1256	**1121**
8	2628	RS 2914	189	1147	1484	576	804	**840**
9	2629	RS 2913	154	638	640	607	342	**476**
10	2630	**Local Check**	150	1168	916	586	960	**756**

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Sriganganagar	Faridkot	Bathinda	Hisar	Sirsa (CICR)	Mean NZ
1	2621	RS 2928	957	805	863	444	366	**687**
2	2622	PBH 174	973	1187	1036	577	916	**938**
3	2623	F 2757	1217	1100	961	720	922	**984**
4	2624	H 1530	905	1414	1160	784	899	**1032**
5	2625	F 2560	1094	1117	1002	430	672	**863**
6	2626	**ZC (CSH 3075)**	1110	1028	995	621	791	**909**
7	2627	CSH 100	879	1080	1059	763	950	**946**
8	2628	RS 2914	720	699	827	519	412	**635**
9	2629	RS 2913	899	524	617	519	281	**568**
10	2630	**Local Check**	724	831	727	752	866	**780**

Br 06a – CVT of Compact genotypes (North Zone) (Irrigated)

Ginning outturn (%)

S. No.	Code No.	Entries	Sriganganagar	Faridkot	Bathinda	Hisar	Sirsa (CICR)	Mean NZ
1	2621	RS 2928	34.7	34.4	35.6	35.1	34.4	**34.8**
2	2622	PBH 174	35.5	34.9	34.9	35.5	33.5	**34.9**
3	2623	F 2757	36.9	32.6	32.4	33.8	32.6	**33.7**
4	2624	H 1530	38.4	38.5	38.9	38.7	34.7	**37.8**
5	2625	F 2560	38.6	33.2	33.0	34.8	32.8	**34.5**
6	2626	**ZC (CSH 3075)**	34.4	32.8	33.3	34.9	33.7	**33.8**
7	2627	CSH 100	33.9	34.3	34.8	38.4	35.0	**35.3**
8	2628	RS 2914	34.2	33.4	33.4	35.5	32.8	**33.9**
9	2629	RS 2913	35.0	34.5	34.3	35.3	33.6	**34.5**
10	2630	**Local Check**	38.6	30.2	30.9	35.3	32.7	**33.5**

No. of bolls/m^2

S. No.	Code No.	Entries	Sriganganagar	Faridkot	Bathinda	Hisar	Sirsa (CICR)	Mean NZ
1	2621	RS 2928	114.7	204.9	224.3	106.2	516.7	**233.4**
2	2622	PBH 174	116.8	235.6	173.3	79.9	468.5	**214.8**
3	2623	F 2757	134.0	253.8	170.0	76.8	483.3	**223.6**
4	2624	H 1530	94.5	244.0	186.0	85.2	416.4	**205.2**
5	2625	F 2560	87.6	240.0	256.3	82.4	436.9	**220.6**
6	2626	**ZC (CSH 3075)**	129.1	223.7	238.3	74.0	508.1	**234.7**
7	2627	CSH 100	121.1	213.3	218.0	83.7	448.4	**216.9**
8	2628	RS 2914	73.2	186.2	266.3	84.8	485.1	**219.1**
9	2629	RS 2913	120.8	232.6	166.3	90.0	462.6	**214.5**
10	2630	**Local Check**	99.7	208.9	175.7	81.0	454.2	**203.9**

Br 06a – CVT of Compact genotypes (North Zone) (Irrigated)

Plant height (cm)

S. No.	Code No.	Entries	Sriganganagar	Faridkot	Bathinda	Hisar	Sirsa (CICR)	Mean NZ
1	2621	RS 2928	171.0	174.4	175.3	158.3	138.5	**163.5**
2	2622	PBH 174	104.0	167.2	141.1	169.4	138.9	**144.1**
3	2623	F 2757	181.0	162.2	154.8	172.2	140.6	**162.2**
4	2624	H 1530	200.0	161.1	170.0	183.9	149.2	**172.8**
5	2625	F 2560	154.0	165.0	172.4	176.7	138.5	**161.3**
6	2626	**ZC (CSH 3075)**	155.0	156.7	166.1	175.0	143.2	**159.2**
7	2627	CSH 100	152.0	153.3	168.9	169.4	130.4	**154.8**
8	2628	RS 2914	162.0	177.8	164.2	161.7	146.1	**162.4**
9	2629	RS 2913	158.0	147.8	153.7	144.4	124.8	**145.7**
10	2630	**Local Check**	144.0	155.6	138.1	170.6	145.9	**150.8**

Days to 1st boll bursting

S. No.	Code No.	Entries	Faridkot	Bathinda	Hisar	Mean NZ
1	2621	RS 2928	120.0	109.3	89.7	**106.3**
2	2622	PBH 174	121.0	113.0	94.7	**109.6**
3	2623	F 2757	118.0	109.7	92.0	**106.6**
4	2624	H 1530	118.0	113.0	90.3	**107.1**
5	2625	F 2560	116.0	114.0	93.3	**107.8**
6	2626	**ZC (CSH 3075)**	118.0	112.0	90.3	**106.8**
7	2627	CSH 100	120.0	109.3	89.0	**106.1**
8	2628	RS 2914	121.0	112.0	94.7	**109.2**
9	2629	RS 2913	118.0	112.0	90.3	**106.8**
10	2630	**Local Check**	117.0	113.0	91.7	**107.2**

Br 06a – CVT of Compact genotypes (North Zone) (Irrigated)

No. of monopodia / plant

S. No.	Code No.	Entries	Sriganganagar	Faridkot	Bathinda	Hisar	Sirsa (CICR)	Mean NZ
1	2621	RS 2928	2.0	1.8	1.6	3.0	1.4	**2.0**
2	2622	PBH 174	2.0	0.6	1.8	2.2	1.2	**1.6**
3	2623	F 2757	2.0	1.0	2.1	1.6	0.6	**1.5**
4	2624	H 1530	1.0	0.7	0.9	1.4	0.9	**1.0**
5	2625	F 2560	4.0	1.2	1.5	2.0	2.4	**2.2**
6	2626	**ZC (CSH 3075)**	1.0	0.3	1.6	1.6	1.2	**1.1**
7	2627	CSH 100	3.0	0.0	1.6	1.3	1.2	**1.4**
8	2628	RS 2914	3.0	0.4	1.3	2.2	1.3	**1.6**
9	2629	RS 2913	2.0	1.7	0.6	1.7	0.8	**1.4**
10	2630	**Local Check**	3.0	0.3	3.0	1.7	0.7	**1.7**

No. of sympodia / plant

S. No.	Code No.	Entries	Sriganganagar	Faridkot	Bathinda	Hisar	Sirsa (CICR)	Mean NZ
1	2621	RS 2928	18.0	25.9	30.6	15.2	11.9	**20.3**
2	2622	PBH 174	9.0	21.6	17.7	13.2	10.6	**14.4**
3	2623	F 2757	14.0	23.0	15.2	14.0	11.9	**15.6**
4	2624	H 1530	15.0	22.0	16.6	11.9	11.2	**15.3**
5	2625	F 2560	11.0	22.2	21.7	12.9	10.9	**15.7**
6	2626	**ZC (CSH 3075)**	10.0	20.4	17.4	15.2	12.4	**15.1**
7	2627	CSH 100	14.0	19.4	19.9	16.3	11.8	**16.3**
8	2628	RS 2914	12.0	25.0	32.6	16.8	12.0	**19.7**
9	2629	RS 2913	8.0	23.9	29.3	13.7	11.3	**17.3**
10	2630	**Local Check**	14.0	20.4	22.6	15.2	11.8	**16.8**

Br 06a – CVT of Compact genotypes (North Zone) (Irrigated)

Boll weight (g)

S. No.	Code No.	Entries	Sriganganagar	Faridkot	Bathinda	Hisar	Sirsa (CICR)	Mean NZ
1	2621	RS 2928	2.7	3.1	3.9	3.4	2.9	**3.2**
2	2622	PBH 174	2.4	3.1	3.8	3.2	2.9	**3.1**
3	2623	F 2757	3.4	3.2	4.2	3.8	3.2	**3.5**
4	2624	H 1530	3.2	3.5	4.0	3.1	3.6	**3.5**
5	2625	F 2560	3.4	3.1	3.9	3.6	3.1	**3.4**
6	2626	**ZC (CSH 3075)**	3.3	3.4	3.7	3.5	3.1	**3.4**
7	2627	CSH 100	3.1	3.4	3.4	3.5	3.3	**3.3**
8	2628	RS 2914	3.0	3.5	3.6	3.7	3.2	**3.4**
9	2629	RS 2913	2.5	3.4	3.6	3.6	3.1	**3.2**
10	2630	**Local Check**	2.3	2.9	3.5	3.5	3.2	**3.1**

Lint Index (g)

S. No.	Code No.	Entries	Faridkot	Bathinda	Hisar	Mean NZ
1	2621	RS 2928	4.0	4.3	4.2	**4.2**
2	2622	PBH 174	4.3	4.2	4.4	**4.3**
3	2623	F 2757	4.2	4.3	4.5	**4.3**
4	2624	H 1530	5.1	5.1	5.5	**5.2**
5	2625	F 2560	4.1	4.1	4.3	**4.2**
6	2626	**ZC (CSH 3075)**	4.1	3.9	4.3	**4.1**
7	2627	CSH 100	4.4	4.3	4.6	**4.4**
8	2628	RS 2914	4.4	3.9	4.2	**4.2**
9	2629	RS 2913	4.5	4.6	4.1	**4.4**
10	2630	**Local Check**	3.5	3.2	3.5	**3.4**

Br 06a – CVT of Compact genotypes (North Zone) (Irrigated)

Seed Index (g)

S. No.	Code No.	Entries	Faridkot	Bathinda	Hisar	Mean NZ
1	2621	RS 2928	7.7	7.9	7.8	**7.8**
2	2622	PBH 174	8.1	7.9	8.0	**8.0**
3	2623	F 2757	8.7	8.9	8.8	**8.8**
4	2624	H 1530	8.1	8.0	8.7	**8.3**
5	2625	F 2560	8.2	8.4	8.1	**8.2**
6	2626	**ZC (CSH 3075)**	8.4	7.8	8.1	**8.1**
7	2627	CSH 100	8.5	8.0	7.4	**8.0**
8	2628	RS 2914	8.7	7.8	7.6	**8.0**
9	2629	RS 2913	8.5	8.9	7.5	**8.3**
10	2630	**Local Check**	8.0	7.1	6.5	**7.2**

Br 24a – Coordinated Variety Trial - *G. arboreum* - (North Zone)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Sriganganagar	Faridkot	Bathinda	Hisar	Mean NZ	Rank
1	2401	PBD 88	4089	3441	3097	3194	**3455**	1
2	2402	PBD 35	3543	3532	2772	2747	**3149**	4
3	2403	PBD 92	3635	3289	2770	2592	**3072**	5
4	2404	**FDK 124 (ZC)**	3988	3361	2751	2747	**3212**	3
5	2405	**Local Check**	3028	2515	2152	3040	**2684**	7
6	2406	PBD 36	3206	3596	2619	2407	**2957**	6
7	2407	FDK 281	3851	3002	2644	3364	**3215**	2
		CD @ 5 %	504	405	343	419		
		CV %	9	8	9	10		
		Local Checks	**RG 8**	**LD 949**	**LD 949**	**HD-432**		

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Sriganganagar	Faridkot	Bathinda	Hisar	Mean NZ
1	2401	PBD 88	1472	1294	1192	1155	**1278**
2	2402	PBD 35	1255	1263	981	942	**1110**
3	2403	PBD 92	1326	1212	1033	918	**1122**
4	2404	FDK 124 (ZC)	1447	1205	994	923	**1142**
5	2405	Local Check	1020	943	763	1204	**983**
6	2406	PBD 36	1143	1277	946	839	**1051**
7	2407	FDK 281	1383	1076	939	1197	**1149**

Br 24a – Coordinated Variety Trial - *G. arboreum* - (North Zone)

Ginning outturn (%)

S. No.	Code No.	Entries	Sriganganagar	Faridkot	Bathinda	Hisar	Mean NZ
1	2401	PBD 88	36.0	37.5	38.5	36.2	**37.1**
2	2402	PBD 35	35.4	35.8	35.4	34.3	**35.2**
3	2403	PBD 92	36.5	37.0	37.3	35.5	**36.6**
4	2404	FDK 124 (ZC)	36.3	35.8	36.2	33.6	**35.5**
5	2405	Local Check	33.7	37.5	35.5	39.6	**36.6**
6	2406	PBD 36	35.7	35.5	36.1	34.9	**35.6**
7	2407	FDK 281	35.9	35.8	35.5	35.6	**35.7**

Bolls/plant

S. No.	Code No.	Entries	Sriganganagar	Faridkot	Bathinda	Hisar	Mean NZ
1	2401	PBD 88	37.0	54.3	59.1	51.1	**50.4**
2	2402	PBD 35	39.0	52.8	54.0	47.4	**48.3**
3	2403	PBD 92	43.0	50.0	53.9	43.3	**47.6**
4	2404	FDK 124 (ZC)	50.0	49.8	57.1	49.2	**51.5**
5	2405	Local Check	36.0	47.7	44.4	50.8	**44.7**
6	2406	PBD 36	28.0	53.8	53.9	50.1	**46.5**
7	2407	FDK 281	37.0	49.2	49.3	54.7	**47.6**

Boll weight (g)

S. No.	Code No.	Entries	Sriganganagar	Faridkot	Bathinda	Hisar	Mean NZ
1	2401	PBD 88	2.5	2.9	3.0	2.9	**2.8**
2	2402	PBD 35	2.4	2.9	2.8	2.8	**2.7**
3	2403	PBD 92	1.8	3.0	3.0	2.5	**2.6**
4	2404	FDK 124 (ZC)	1.9	2.7	2.7	2.1	**2.4**
5	2405	Local Check	2.0	2.6	2.6	2.2	**2.4**
6	2406	PBD 36	2.4	2.9	2.7	2.3	**2.6**
7	2407	FDK 281	2.3	3.1	2.6	3.0	**2.8**

Br 25a/b – Coordinated Hybrid Trial of Desi Hybrid (North Zone)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Sriganganagar	Bathinda	Faridkot	Hisar	Arya Nagar (Shakti Vardhak)	Mean NZ	Rank
1	2511	KR 155	4022	3599	3673	3626	4221	**3828**	3
2	2512	KR 147	3310	3188	3582	3179	3760	**3404**	5
3	2513	KR 139	4624	3525	3917	3426	4005	**3899**	2
4	2514	**Zonal Check (KR 64)**	3835	3563	3228	3858	3410	**3579**	4
5	2515	**Local Check**	3156	3326	3787	1234	2859	**2872**	7
6	2516	KR 136	3393	3065	2986	3086	4211	**3348**	6
7	2517	KR 133	4897	3623	3596	4058	4449	**4125**	1
		CD @ 5 %	529	390	479	667	549		
		CV %	9	8	8	14	10		
		Local Checks	**RAJ DH. 9**	**FMDH 9**	**FMDH 9**	**AAH 1**	**CISAA 2**		

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Sriganganagar	Bathinda	Faridkot	Hisar	Arya Nagar (Shakti Vardhak)	Mean NZ
1	2511	KR 155	1413	1317	1360	1350	1637	**1415**
2	2512	KR 147	1262	1281	1409	1263	1428	**1329**
3	2513	KR 139	1727	1284	1489	1272	1539	**1462**
4	2514	Zonal Check (KR 64)	1435	1322	1268	1512	1285	**1364**
5	2515	Local Check	1088	1146	1391	415	1127	**1033**
6	2516	KR 136	1239	1108	1153	1188	1593	**1256**
7	2517	KR 133	1749	1386	1376	1507	1692	**1542**

Br 25a/b – Coordinated Hybrid Trial of Desi Hybrid (North Zone)

Ginning outturn (%)

S. No.	Code No.	Entries	Sriganganagar	Bathinda	Faridkot	Hisar	Arya Nagar (Shakti Vardhak)	Mean NZ
1	2511	KR 155	35.1	36.6	37.0	37.3	38.8	**37.0**
2	2512	KR 147	38.1	40.2	39.2	39.8	38.0	**39.1**
3	2513	KR 139	37.3	36.4	38.0	37.1	38.5	**37.5**
4	2514	Zonal Check (KR 64)	37.4	37.1	39.5	39.1	37.7	**38.2**
5	2515	Local Check	34.5	34.4	36.8	33.6	39.4	**35.7**
6	2516	KR 136	36.5	36.2	38.7	38.5	37.9	**37.6**
7	2517	KR 133	35.7	38.3	38.4	37.3	38.0	**37.5**

Bolls/plant

S. No.	Code No.	Entries	Sriganganagar	Bathinda	Faridkot	Hisar	Arya Nagar (Shakti Vardhak)	Mean NZ
1	2511	KR 155	74.0	70.8	52.3	52.3	64.5	**62.8**
2	2512	KR 147	58.0	53.6	42.3	46.8	55.3	**51.2**
3	2513	KR 139	65.0	67.8	49.3	48.4	59.0	**57.9**
4	2514	Zonal Check (KR 64)	66.0	54.5	40.0	49.1	62.6	**54.4**
5	2515	Local Check	57.0	71.5	52.7	38.5	50.1	**54.0**
6	2516	KR 136	51.0	54.8	48.5	41.7	71.6	**53.5**
7	2517	KR 133	84.0	67.6	47.7	55.8	70.0	**65.0**

Boll weight (g)

S. No.	Code No.	Entries	Sriganganagar	Bathinda	Faridkot	Hisar	Arya Nagar (Shakti Vardhak)	Mean NZ
1	2511	KR 155	2.2	3.1	2.8	2.6	2.9	**2.7**
2	2512	KR 147	2.3	3.2	2.7	2.8	2.8	**2.8**
3	2513	KR 139	2.8	2.8	2.8	2.6	3.0	**2.8**
4	2514	Zonal Check (KR 64)	2.3	3.4	2.7	2.9	2.9	**2.8**
5	2515	Local Check	2.4	2.6	2.7	3.3	2.4	**2.7**
6	2516	KR 136	2.6	2.7	3.0	3.0	3.0	**2.9**
7	2517	KR 133	2.1	2.9	2.9	2.5	3.0	**2.7**

National Trials – Central Zone

Br. 02a - Initial Evaluation Trial of *G. hirsutum* (Irrigated)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Khandwa	Banswara	Surat	Talod	Junagadh	Rahuri	Bhawanipatna	Mean CZ	Rank
1	301	GJHV 548	1634	2093	1341	1071	2418	409	1284	**1464**	3
2	302	RB 602	1465	1074	987	648	2392	601	1556	**1246**	17
3	303	L 1536	1021	1630	1365	1204	2238	573	1105	**1305**	13
4	304	TSH 354	1751	1296	732	546	2083	516	1062	**1141**	22
5	305	CPD 2003	1703	1148	1115	555	1877	753	1833	**1283**	14
6	306	**Zonal Check**	1107	1519	1571	1034	1929	696	1966	**1403**	7
7	307	TCH 1941	1317	2167	987	1173	1929	1055	1762	**1484**	2
8	308	CPD 2002	1624	926	715	704	1749	724	2191	**1233**	18
9	309	GISV 328	1728	2037	1405	1000	2340	947	1204	**1523**	1
10	310	SHSV 14	1333	1222	700	725	1955	878	1525	**1191**	20
11	311	RB 1903	1100	2111	975	911	1929	610	1725	**1337**	11
12	312	**Quality Check**	1770	1922	832	750	1723	1097	2120	**1459**	5
13	313	ADB 727	1732	1148	832	809	1775	684	1812	**1256**	15
14	314	TSH 387	1759	1263	1074	1426	1775	635	1765	**1385**	10
15	315	GISV 332	1311	1333	1261	982	2701	598	1173	**1337**	11
16	316	CPD 2001	1218	815	613	1065	2083	743	1688	**1175**	21
17	317	BS 10-20	1624	630	970	639	1621	618	1682	**1112**	23
18	318	GJHV 568	1743	1326	1668	1296	1723	875	1605	**1462**	4
19	319	RAH 1083	1737	1889	1203	1028	2032	642	1580	**1444**	6
20	320	RAH 1081	1370	704	1403	1133	2289	949	1938	**1398**	8
21	321	**Local Check**	1269	2000	903	1256	1286	790	1025	**1218**	19
22	322	GTHV 18/19	1254	741	1408	1077	2160	772	1321	**1248**	16
23	323	RAH 1082	1592	630	1780	947	2109	773	1886	**1388**	9
		CD @ 5 %	450	309	213	213	511	212	282		
		CV %	18	14	12	14	15	18	11		
		Zonal Check	Phule Yamuna								
		Quality Check	Suraj								
		Local Checks	**JK 4**	**Wagad Kalyan**	**GN.Cot. 32**	**GN.Cot. 32**	**GN.Cot. 32**	**Phule 688**	**Surabhi**		

Br. 02a - Initial Evaluation Trial of *G. hirsutum* (Irrigated)

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Khandwa	Banswara	Surat	Talod	Junagadh	Rahuri	Bhawanipatna	Mean CZ
1	301	GJHV 548	543	672	440	362	800	136	432	**484**
2	302	RB 602	432	350	338	232	839	194	540	**418**
3	303	L 1536	325	427	531	454	824	209	414	**455**
4	304	TSH 354	599	387	258	183	712	181	392	**387**
5	305	CPD 2003	571	319	353	179	581	273	614	**413**
6	306	**Zonal Check**	340	528	528	353	617	232	673	**467**
7	307	TCH 1941	377	628	305	387	641	352	562	**464**
8	308	CPD 2002	484	272	226	231	584	263	728	**398**
9	309	GISV 328	606	609	500	368	807	345	432	**524**
10	310	SHSV 14	508	421	210	218	614	367	500	**405**
11	311	RB 1903	316	685	316	277	626	206	577	**429**
12	312	**Quality Check**	632	580	271	246	584	419	772	**500**
13	313	ADB 727	591	403	259	245	516	221	599	**405**
14	314	TSH 387	649	446	394	498	605	221	590	**486**
15	315	GISV 332	488	417	400	357	901	205	398	**452**
16	316	CPD 2001	404	264	211	376	718	276	614	**409**
17	317	BS 10-20	491	209	303	203	487	209	633	**362**
18	318	GJHV 568	608	452	557	446	594	302	571	**504**
19	319	RAH 1083	584	650	410	374	724	244	497	**498**
20	320	RAH 1081	463	188	553	407	961	365	673	**516**
21	321	**Local Check**	411	630	324	492	455	245	327	**412**
22	322	GTHV 18/19	380	222	439	364	805	257	441	**415**
23	323	RAH 1082	538	186	570	341	715	256	651	**465**

Br. 02a - Initial Evaluation Trial of *G. hirsutum* (Irrigated)

Ginning outturn (%)

S. No.	Code No.	Entries	Khandwa	Banswara	Surat	Talod	Junagadh	Rahuri	Bhawanipatna	Mean CZ
1	301	GJHV 548	33.2	32.1	32.8	33.7	33.2	36.1	33.5	**33.5**
2	302	RB 602	29.5	32.6	34.2	35.8	35.2	34.9	34.8	**33.9**
3	303	L 1536	31.8	26.2	38.9	37.7	36.8	39.5	37.4	**35.5**
4	304	TSH 354	34.2	29.8	35.2	33.6	34.2	38.0	36.9	**34.6**
5	305	CPD 2003	33.5	27.8	31.6	32.2	31.0	39.2	33.5	**32.7**
6	306	**Zonal Check**	30.7	34.8	33.6	33.9	32.0	36.1	34.2	**33.6**
7	307	TCH 1941	28.6	29.0	31.0	33.1	33.2	36.1	31.9	**31.8**
8	308	CPD 2002	29.8	29.4	31.7	33.0	33.3	39.3	33.3	**32.8**
9	309	GISV 328	35.1	29.9	35.6	36.7	34.5	39.4	36.0	**35.3**
10	310	SHSV 14	38.1	34.4	30.0	30.1	31.3	45.2	32.8	**34.6**
11	311	RB 1903	28.7	32.4	32.4	30.4	32.5	36.6	33.3	**32.3**
12	312	**Quality Check**	35.7	30.1	32.6	32.7	33.8	41.3	36.3	**34.6**
13	313	ADB 727	34.1	35.1	31.2	30.3	29.0	35.0	33.0	**32.5**
14	314	TSH 387	36.9	35.3	36.7	34.9	34.0	37.6	33.4	**35.5**
15	315	GISV 332	37.2	31.3	31.7	36.4	33.3	37.0	33.9	**34.4**
16	316	CPD 2001	33.2	32.5	34.3	35.2	34.5	40.2	36.3	**35.2**
17	317	BS 10-20	30.2	33.3	31.1	32.0	30.0	36.6	37.6	**33.0**
18	318	GJHV 568	34.9	34.1	33.3	34.4	34.5	37.3	35.5	**34.9**
19	319	RAH 1083	33.6	34.4	34.0	36.3	35.7	41.1	31.6	**35.2**
20	320	RAH 1081	33.8	26.6	39.4	36.1	42.0	41.6	34.7	**36.3**
21	321	**Local Check**	32.4	31.5	35.9	39.2	35.3	33.6	32.1	**34.3**
22	322	GTHV 18/19	30.3	30.0	31.2	33.6	37.3	36.0	33.4	**33.1**
23	323	RAH 1082	33.8	29.5	32.0	35.7	33.8	35.8	34.5	**33.6**

Br. 02a - Initial Evaluation Trial of *G. hirsutum* (Irrigated)

Bolls/plant

S. No.	Code No.	Entries	Khandwa	Banswara	Surat	Talod	Junagadh	Rahuri	Bhawanipatna	Mean CZ
1	301	GJHV 548	19.5	29.1	27.0	24.8	37.4	22.3	24.9	**26.4**
2	302	RB 602	19.3	27.0	19.0	12.8	38.4	20.1	29.5	**23.7**
3	303	L 1536	13.5	26.6	29.7	28.6	39.3	26.7	24.9	**27.0**
4	304	TSH 354	23.3	25.0	18.7	8.7	30.0	21.8	20.1	**21.1**
5	305	CPD 2003	20.4	31.0	20.0	7.9	30.4	18.4	30.7	**22.7**
6	306	**Zonal Check**	14.7	28.1	29.0	25.7	31.4	16.8	39.7	**26.5**
7	307	TCH 1941	17.3	28.3	22.0	25.6	29.9	27.3	31.5	**26.0**
8	308	CPD 2002	20.2	31.3	17.7	13.0	26.6	24.7	41.7	**25.0**
9	309	GISV 328	18.8	32.6	24.0	18.6	36.5	25.4	24.4	**25.8**
10	310	SHSV 14	15.4	26.6	18.0	14.6	27.4	25.7	28.9	**22.4**
11	311	RB 1903	14.0	23.0	24.7	19.4	32.5	23.2	34.3	**24.4**
12	312	**Quality Check**	24.5	28.2	19.7	17.0	26.3	26.7	34.7	**25.3**
13	313	ADB 727	19.7	24.7	21.3	18.0	31.8	23.4	31.6	**24.4**
14	314	TSH 387	23.8	32.1	21.7	22.7	25.7	24.6	28.5	**25.6**
15	315	GISV 332	14.4	27.0	24.7	19.0	42.3	19.0	25.4	**24.5**
16	316	CPD 2001	16.2	22.7	16.7	22.3	31.0	22.6	31.7	**23.3**
17	317	BS 10-20	18.7	23.4	21.7	12.4	25.7	19.6	29.4	**21.6**
18	318	GJHV 568	22.2	38.4	29.7	26.7	29.5	26.1	28.4	**28.7**
19	319	RAH 1083	23.0	30.4	25.3	19.8	33.1	28.2	31.1	**27.3**
20	320	RAH 1081	16.9	22.6	31.7	23.7	36.9	28.4	39.2	**28.5**
21	321	**Local Check**	15.3	30.0	20.6	18.3	17.7	21.1	20.3	**20.5**
22	322	GTHV 18/19	16.1	26.9	24.8	21.9	31.7	29.3	27.7	**25.5**
23	323	RAH 1082	17.7	30.6	33.3	19.1	31.3	22.7	38.5	**27.6**

Br. 02a - Initial Evaluation Trial of *G. hirsutum* (Irrigated)

Boll weight (g)

S. No.	Code No.	Entries	Khandwa	Banswara	Surat	Talod	Junagadh	Rahuri	Bhawanipatna	Mean CZ
1	301	GJHV 548	2.8	2.5	3.2	2.7	3.7	4.3	4.5	**3.4**
2	302	RB 602	2.4	3.3	3.9	3.1	3.5	4.1	4.5	**3.5**
3	303	L 1536	2.7	2.4	2.9	2.6	3.2	4.3	3.6	**3.1**
4	304	TSH 354	3.0	3.6	3.9	3.9	3.8	4.1	5.4	**4.0**
5	305	CPD 2003	2.9	3.6	3.7	4.5	3.5	3.8	4.9	**3.8**
6	306	**Zonal Check**	2.6	2.3	3.4	2.5	3.5	3.9	4.1	**3.2**
7	307	TCH 1941	2.5	2.6	3.2	3.1	3.6	3.8	4.5	**3.3**
8	308	CPD 2002	2.5	2.6	3.6	3.3	3.7	4.0	4.2	**3.4**
9	309	GISV 328	3.1	3.6	3.8	3.3	3.6	4.0	4.4	**3.7**
10	310	SHSV 14	2.9	3.5	3.5	3.1	4.1	4.3	4.6	**3.7**
11	311	RB 1903	2.7	3.2	3.4	2.9	3.4	3.9	4.1	**3.4**
12	312	**Quality Check**	2.5	4.1	4.0	2.7	3.7	4.0	5.0	**3.7**
13	313	ADB 727	3.1	2.9	3.7	2.8	3.2	3.8	4.6	**3.4**
14	314	TSH 387	2.9	4.1	4.1	3.9	3.9	4.2	5.5	**4.1**
15	315	GISV 332	3.1	3.2	3.7	3.2	3.6	4.2	3.5	**3.5**
16	316	CPD 2001	2.5	2.8	3.1	3.0	3.8	4.0	4.3	**3.4**
17	317	BS 10-20	2.8	2.7	3.6	3.3	3.7	3.8	4.6	**3.5**
18	318	GJHV 568	3.1	2.8	3.7	3.0	3.4	4.2	4.7	**3.6**
19	319	RAH 1083	3.0	2.7	2.9	3.2	3.5	3.5	4.3	**3.3**
20	320	RAH 1081	2.7	2.6	3.3	2.9	3.5	3.8	4.1	**3.3**
21	321	**Local Check**	2.8	2.7	3.8	4.2	4.4	4.0	4.3	**3.7**
22	322	GTHV 18/19	2.6	2.8	3.9	3.1	3.8	3.9	4.5	**3.5**
23	323	RAH 1082	3.0	2.7	3.5	3.1	3.8	3.9	4.0	**3.4**

Br 02b - Initial Evaluation Trial of *G. hirsutum* (Rainfed)
Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Banswara	Bharuch	Akola	Nanded	Nagpur (CICR)	Mean CZ	Rank
1	351	CNH 18298	1252	605	590	741	841	**806**	23
2	352	CPD 2052	833	334	771	1099	798	**767**	26
3	353	BS 10-20	933	356	640	929	797	**731**	30
4	354	**Quality Check (Suraj)**	967	474	693	1113	539	**757**	28
5	355	NDLH 2061-4	1370	762	595	1061	1316	**1021**	7
6	356	CNH 119	1704	591	829	1163	1000	**1057**	4
7	357	TKH 1225	-	538	669	1030	897	**784**	24
8	358	TSH 337	1963	819	636	942	888	**1050**	5
9	359	CNDTS 287	1074	633	748	722	937	**823**	21
10	360	WGCV 192	1444	840	725	1052	647	**942**	11
11	361	TVH 003	1185	711	715	1049	827	**897**	15
12	362	**Zonal Check**	926	518	664	1083	697	**778**	25
13	363	NDLH 2071-2	1074	836	701	1055	857	**905**	14
14	364	RAH 1082	833	502	659	956	815	**753**	29
15	365	CNH 18173	1481	577	570	841	868	**867**	18
16	366	NH 723	1507	724	739	1016	887	**975**	10
17	367	RB 1908	1926	609	765	1094	805	**1040**	6
18	368	GBHV 202	1037	629	666	925	877	**827**	20
19	369	RAH 1081	1815	485	850	1081	1281	**1102**	2
20	370	ADB 728	722	324	667	954	693	**672**	32
21	371	TKH 1197	1259	666	609	974	873	**876**	17
22	372	CPD 2053	1237	447	703	997	722	**821**	22
23	373	AKH 2013-3	1889	901	655	827	1385	**1131**	1
24	374	CNDTS 2131	1000	349	775	788	578	**698**	31
25	375	**Local Check**	2000	789	658	1064	867	**1076**	3
26	376	CNH 1137	1485	726	733	1054	939	**987**	8
27	377	CPD 2051	1830	253	697	1069	847	**939**	12
28	378	GBHV 217	1048	627	706	1017	1180	**916**	13
29	379	TSH 358	1352	629	532	717	592	**764**	27
30	380	RB 1910	1852	473	633	1040	920	**984**	9
31	381	AKH 2016-1	733	564	834	1129	1173	**887**	16
32	382	RAH 1083	1130	829	620	715	961	**851**	19
		CD @ 5 %	268	187	49	190	272		
		CV %	15	18	12	12	19		
		Zonal Check	NH 615						
		Local Checks	**Wagad Kalyan**	**GN.Cot.26**	**AKH 8828**	**NH 545**	**AKH 8828**		

Br 02b - Initial Evaluation Trial of *G. hirsutum* (Rainfed)

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Banswara	Bharuch	Akola	Nanded	Nagpur (CICR)	Mean CZ
1	351	CNH 18298	437	204	213	264	314	**286**
2	352	CPD 2052	270	110	266	399	289	**267**
3	353	BS 10-20	327	100	226	294	261	**242**
4	354	**Quality Check (Suraj)**	327	150	242	400	190	**262**
5	355	NDLH 2061-4	464	249	210	360	481	**353**
6	356	CNH 119	621	213	297	411	380	**384**
7	357	TKH 1225	-	162	233	335	292	**256**
8	358	TSH 337	613	255	230	301	306	**341**
9	359	CNDTS 287	409	186	267	236	318	**283**
10	360	WGCV 192	488	244	253	362	220	**313**
11	361	TVH 003	426	222	255	375	273	**310**
12	362	**Zonal Check**	257	186	233	404	274	**271**
13	363	NDLH 2071-2	367	234	250	347	271	**294**
14	364	RAH 1082	289	155	233	367	300	**269**
15	365	CNH 18173	421	198	192	319	331	**292**
16	366	NH 723	555	210	251	347	335	**340**
17	367	RB 1908	592	195	278	390	293	**350**
18	368	GBHV 202	352	197	241	316	307	**283**
19	369	RAH 1081	585	190	301	385	538	**400**
20	370	ADB 728	230	111	226	349	257	**235**
21	371	TKH 1197	453	210	212	321	309	**301**
22	372	CPD 2053	401	145	250	350	247	**279**
23	373	AKH 2013-3	624	249	238	283	453	**369**
24	374	CNDTS 2131	353	110	283	281	215	**248**
25	375	**Local Check**	593	295	238	382	346	**371**
26	376	CNH 1137	500	232	255	359	341	**337**
27	377	CPD 2051	573	71	248	360	300	**310**
28	378	GBHV 217	324	209	247	365	431	**315**
29	379	TSH 358	440	216	196	249	224	**265**
30	380	RB 1910	563	174	229	377	346	**338**
31	381	AKH 2016-1	256	194	307	416	424	**319**
32	382	RAH 1083	303	284	222	262	365	**287**

Br 02b - Initial Evaluation Trial of *G. hirsutum* (Rainfed)

Ginning outturn (%)

S. No.	Code No.	Entries	Banswara	Bharuch	Akola	Nanded	Nagpur (CICR)	Mean CZ
1	351	CNH 18298	34.9	33.7	36.2	35.6	37.3	**35.5**
2	352	CPD 2052	32.4	32.8	34.5	36.5	36.2	**34.5**
3	353	BS 10-20	35.0	27.9	35.3	31.8	32.7	**32.5**
4	354	**Quality Check (Suraj)**	33.9	31.7	34.8	35.9	35.3	**34.3**
5	355	NDLH 2061-4	33.9	32.7	35.3	34.0	36.6	**34.5**
6	356	CNH 119	36.5	36.1	35.9	35.2	38.0	**36.3**
7	357	TKH 1225	-	30.1	34.8	32.5	32.6	**32.5**
8	358	TSH 337	31.3	31.2	36.0	31.9	34.4	**33.0**
9	359	CNDTS 287	38.1	29.4	35.6	32.5	33.9	**33.9**
10	360	WGCV 192	33.8	29.1	34.8	34.5	34.0	**33.2**
11	361	TVH 003	35.9	31.3	35.7	35.7	33.1	**34.3**
12	362	**Zonal Check**	27.7	35.9	35.1	37.3	39.3	**35.1**
13	363	NDLH 2071-2	34.2	27.9	35.7	32.6	31.7	**32.4**
14	364	RAH 1082	34.6	30.9	35.3	38.3	36.9	**35.2**
15	365	CNH 18173	28.4	34.2	33.7	37.9	38.2	**34.5**
16	366	NH 723	36.8	29.0	33.9	34.3	37.8	**34.4**
17	367	RB 1908	30.7	32.0	36.2	35.8	36.5	**34.2**
18	368	GBHV 202	33.9	31.3	36.2	34.3	35.0	**34.1**
19	369	RAH 1081	32.3	39.2	35.5	35.7	42.0	**36.9**
20	370	ADB 728	31.8	34.2	33.9	36.6	37.2	**34.7**
21	371	TKH 1197	36.0	31.6	34.8	33.0	35.4	**34.2**
22	372	CPD 2053	32.4	32.5	35.5	35.1	34.2	**33.9**
23	373	AKH 2013-3	33.0	27.6	36.2	34.2	32.7	**32.7**
24	374	CNDTS 2131	35.4	31.7	36.5	35.6	37.2	**35.3**
25	375	**Local Check**	29.6	37.3	36.3	36.0	39.9	**35.8**
26	376	CNH 1137	33.7	31.9	34.8	34.1	36.4	**34.2**
27	377	CPD 2051	31.3	28.1	35.6	33.7	35.5	**32.8**
28	378	GBHV 217	31.0	33.3	35.0	35.9	36.6	**34.4**
29	379	TSH 358	32.6	34.3	36.9	34.8	37.9	**35.3**
30	380	RB 1910	30.4	36.7	36.2	36.2	37.6	**35.4**
31	381	AKH 2016-1	34.9	34.3	36.7	36.9	36.2	**35.8**
32	382	RAH 1083	26.8	34.3	35.8	36.5	38.0	**34.3**

Br 02b - Initial Evaluation Trial of *G. hirsutum* (Rainfed)

Bolls/plant

S. No.	Code No.	Entries	Banswara	Bharuch	Akola	Nanded	Nagpur (CICR)	Mean CZ
1	351	CNH 18298	30.3	11.8	15.8	18.5	21.9	**19.7**
2	352	CPD 2052	28.0	7.7	17.9	20.7	17.5	**18.4**
3	353	BS 10-20	31.7	6.4	17.6	19.5	16.8	**18.4**
4	354	**Quality Check (Suraj)**	26.3	9.1	12.3	22.1	15.3	**17.0**
5	355	NDLH 2061-4	34.0	13.5	15.2	20.6	22.9	**21.2**
6	356	CNH 119	30.3	8.7	11.0	22.3	17.1	**17.9**
7	357	TKH 1225	-	9.2	17.3	21.3	20.8	**17.2**
8	358	TSH 337	47.0	14.2	16.1	20.5	22.0	**24.0**
9	359	CNDTS 287	31.7	11.6	15.7	22.9	17.2	**19.8**
10	360	WGCV 192	23.0	14.4	12.9	20.9	20.2	**18.3**
11	361	TVH 003	27.3	12.6	14.8	20.2	18.1	**18.6**
12	362	**Zonal Check**	15.3	10.7	15.7	19.5	17.3	**15.7**
13	363	NDLH 2071-2	29.7	13.4	17.4	20.5	19.3	**20.1**
14	364	RAH 1082	30.3	10.5	14.3	25.4	18.7	**19.8**
15	365	CNH 18173	21.3	11.3	12.4	21.8	20.4	**17.4**
16	366	NH 723	25.7	12.6	16.6	20.2	20.5	**19.1**
17	367	RB 1908	31.7	10.4	15.1	20.9	16.2	**18.9**
18	368	GBHV 202	32.3	11.7	10.9	19.9	20.3	**19.0**
19	369	RAH 1081	34.0	10.0	16.8	21.5	29.5	**22.4**
20	370	ADB 728	18.7	6.6	14.2	18.9	16.4	**15.0**
21	371	TKH 1197	26.7	11.8	12.3	20.3	20.1	**18.2**
22	372	CPD 2053	27.0	9.5	17.1	20.2	19.1	**18.6**
23	373	AKH 2013-3	31.3	14.4	18.4	18.3	25.4	**21.6**
24	374	CNDTS 2131	22.7	7.8	18.0	16.2	16.6	**16.3**
25	375	**Local Check**	20.0	15.1	15.9	21.8	24.9	**19.5**
26	376	CNH 1137	30.3	13.0	16.6	21.4	17.7	**19.8**
27	377	CPD 2051	23.3	4.5	11.9	20.9	13.7	**14.9**
28	378	GBHV 217	26.0	11.9	16.1	20.2	22.6	**19.4**
29	379	TSH 358	18.3	11.8	11.0	21.8	20.5	**16.7**
30	380	RB 1910	27.0	9.7	14.4	25.1	25.6	**20.4**
31	381	AKH 2016-1	26.7	9.9	17.4	25.3	23.4	**20.5**
32	382	RAH 1083	21.0	14.4	11.9	23.5	21.2	**18.4**

Br 02b - Initial Evaluation Trial of *G. hirsutum* (Rainfed)

Boll weight (g)

S. No.	Code No.	Entries	Banswara	Bharuch	Akola	Nanded	Nagpur (CICR)	Mean CZ
1	351	CNH 18298	3.2	2.8	2.1	2.9	3.2	**2.8**
2	352	CPD 2052	2.6	2.3	1.9	2.6	2.6	**2.4**
3	353	BS 10-20	2.7	3.0	2.0	3.2	2.9	**2.8**
4	354	**Quality Check (Suraj)**	3.9	2.8	2.4	3.5	2.9	**3.1**
5	355	NDLH 2061-4	3.6	3.1	1.9	3.8	3.0	**3.1**
6	356	CNH 119	3.2	3.7	3.3	3.7	4.5	**3.7**
7	357	TKH 1225	-	3.2	2.3	3.3	2.7	**2.9**
8	358	TSH 337	3.9	3.1	1.9	3.8	3.6	**3.3**
9	359	CNDTS 287	3.7	3.0	2.0	3.0	3.2	**3.0**
10	360	WGCV 192	2.8	3.1	1.9	3.0	2.7	**2.7**
11	361	TVH 003	3.0	3.1	2.1	3.4	3.1	**2.9**
12	362	**Zonal Check**	2.5	2.6	2.2	3.0	2.8	**2.6**
13	363	NDLH 2071-2	3.6	3.4	2.2	3.9	2.9	**3.2**
14	364	RAH 1082	2.8	2.6	2.2	3.1	2.7	**2.7**
15	365	CNH 18173	3.0	2.7	2.1	3.4	2.9	**2.8**
16	366	NH 723	3.1	3.1	2.5	3.7	2.9	**3.1**
17	367	RB 1908	2.9	3.2	2.2	3.3	3.1	**2.9**
18	368	GBHV 202	3.2	2.9	2.3	3.0	2.7	**2.8**
19	369	RAH 1081	3.2	2.6	2.3	3.2	3.1	**2.9**
20	370	ADB 728	3.0	2.6	2.5	3.6	2.9	**2.9**
21	371	TKH 1197	2.7	3.0	2.3	3.2	2.9	**2.8**
22	372	CPD 2053	2.7	2.5	2.4	3.2	2.3	**2.6**
23	373	AKH 2013-3	3.5	3.4	2.6	3.8	3.4	**3.3**
24	374	CNDTS 2131	3.2	2.4	2.1	2.7	2.7	**2.6**
25	375	**Local Check**	3.1	2.8	2.1	3.0	2.8	**2.8**
26	376	CNH 1137	2.9	3.0	2.3	3.2	2.6	**2.8**
27	377	CPD 2051	2.6	3.0	2.2	3.5	3.7	**3.0**
28	378	GBHV 217	2.7	2.8	2.5	3.6	3.1	**2.9**
29	379	TSH 358	3.3	2.9	2.0	3.1	2.8	**2.8**
30	380	RB 1910	2.6	2.6	1.6	2.8	2.4	**2.4**
31	381	AKH 2016-1	3.1	3.1	2.5	3.5	2.8	**3.0**
32	382	RAH 1083	2.6	3.1	1.8	2.7	3.4	**2.7**

Br 02a/b - Initial Evaluation Trial of Naturally Coloured *G. hirsutum*

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Khandwa	CICR, Nagpur	Surat	Mean CZ	Rank
1	391	CNH 19325	1528	1276	780	**1195**	1
2	392	DHCC 2002	1220	850	508	**859**	5
3	393	**Zonal Check**	1263	891	1093	**1082**	3
4	394	CNH 19480	1550	1054	868	**1157**	2
5	395	DHCC 2001	1507	621	375	**834**	6
6	396	**Local Check**	1030	1147	784	**987**	4
7	397	SHSCC 5	1455	414	366	**745**	7
		CD @ 5 %	362	305	170		
		CV %	16	19	14		
		Zonal Check	Phule Yamuna				
		Local Checks	**JK 4**	**AKH 8828**	**G.Cot. 16**		

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Khandwa	CICR, Nagpur	Surat	Mean CZ
1	391	CNH 19325	546	454	242	**414**
2	392	DHCC 2002	412	266	147	**275**
3	393	**Zonal Check**	461	300	353	**371**
4	394	CNH 19480	539	375	290	**401**
5	395	DHCC 2001	511	212	118	**280**
6	396	**Local Check**	306	431	247	**328**
7	397	SHSCC 5	477	128	91	**232**

Ginning outturn (%)

S. No.	Code No.	Entries	Khandwa	CICR, Nagpur	Surat	Mean CZ
1	391	CNH 19325	35.7	35.6	31.2	**34.2**
2	392	DHCC 2002	33.8	31.3	28.7	**31.3**
3	393	**Zonal Check**	36.5	33.7	32.1	**34.1**
4	394	CNH 19480	34.8	35.6	33.5	**34.6**
5	395	DHCC 2001	33.9	34.2	31.5	**33.2**
6	396	**Local Check**	29.7	37.6	31.5	**32.9**
7	397	SHSCC 5	32.8	31.0	24.7	**29.5**

Br 02a/b - Initial Evaluation Trial of Naturally Coloured *G. hirsutum*

Bolls/plant

S. No.	Code No.	Entries	Khandwa	CICR, Nagpur	Surat	Mean CZ
1	391	CNH 19325	16.9	30.8	18.0	**21.9**
2	392	DHCC 2002	13.3	20.3	15.0	**16.2**
3	393	**Zonal Check**	14.7	22.1	22.7	**19.8**
4	394	CNH 19480	15.5	22.9	23.0	**20.5**
5	395	DHCC 2001	14.6	20.7	18.3	**17.9**
6	396	**Local Check**	12.3	24.3	18.3	**18.3**
7	397	SHSCC 5	16.8	18.6	18.3	**17.9**

Boll weight (g)

S. No.	Code No.	Entries	Khandwa	CICR, Nagpur	Surat	Mean CZ
1	391	CNH 19325	3.1	2.8	3.0	**3.0**
2	392	DHCC 2002	3.5	2.9	2.9	**3.1**
3	393	**Zonal Check**	3.1	2.6	3.1	**2.9**
4	394	CNH 19480	3.6	2.7	2.9	**3.1**
5	395	DHCC 2001	3.8	3.1	2.7	**3.2**
6	396	**Local Check**	2.9	2.7	3.2	**2.9**
7	397	SHSCC 5	3.0	2.9	3.1	**3.0**

Br. 06a – Initial Evaluation Trial of Compact genotypes (Irrigated)

Total Seed Cotton Yield at 160 DAS (Total of 130 DAS + 160 DAS) (Kg/ha)

S. No.	Code No.	Entries	Talod	Junagadh	Banswara	Khandwa	Bhawanipatna	Rahuri	Mean CZ	Rank
1	401	RB 1918	2606	1749	2500	1633	2090	545	**1854**	2
2	402	CNH 20-31	2264	1543	1466	1279	2522	783	**1643**	8
3	403	RHC 1651	2187	1337	2395	1488	2537	708	**1775**	5
4	404	BS 11-20	1720	1783	2321	1185	2179	483	**1612**	10
5	405	Local Check	2157	1337	2429	1669	2395	626	**1769**	6
6	406	TCH 1895	2037	2058	2469	1371	2710	588	**1872**	1
7	407	RHC 1639	2199	1200	2377	1210	1250	385	**1437**	11
8	408	RB 1901	2318	1372	3210	1693	2006	415	**1836**	3
9	409	RAHC 1032	2231	1474	2716	1710	1546	357	**1672**	7
10	410	Common Check (Suraj)	2153	1337	2438	1202	2099	602	**1639**	9
11	411	RAHC 1031	2168	1749	2623	1464	2315	399	**1786**	4
		CD @ 5 %		334	141	421	424	166		
		CV %		13	10	18	12	18		
		Zonal Check	Suraj							
		Local Checks	**G. Cot. 20**	**G. Cot. 20**	**Wagad Kalyan**	**Suraj**	**Suraj**	**Phule 688**		

Br. 06a – Initial Evaluation Trial of Compact genotypes (Irrigated)

Seed Cotton Yield at 130 DAS (Kg/ha)

S. No.	Code No.	Entries	Talod	Junagadh	Banswara	Khandwa	Bhawanipatna	Rahuri	Mean CZ
1	401	RB 1918	2034	1440	463	490	1265	130	**970**
2	402	CNH 20-31	1589	1063	401	384	1698	315	**908**
3	403	RHC 1651	1676	926	370	446	1667	137	**870**
4	404	BS 11-20	1527	1475	556	356	1296	193	**901**
5	405	Local Check	1202	926	710	501	1481	130	**825**
6	406	TCH 1895	1852	1543	710	411	1867	202	**1098**
7	407	RHC 1639	1277	857	401	363	787	81	**628**
8	408	RB 1901	1322	960	525	508	1204	116	**773**
9	409	RAHC 1032	1338	1029	370	513	904	99	**709**
10	410	Common Check (Suraj)	1261	1132	247	361	1235	199	**739**
11	411	RAHC 1031	773	1337	370	439	1451	62	**739**

Seed Cotton Yield at 160 DAS (Kg/ha)

S. No.	Code No.	Entries	Talod	Junagadh	Banswara	Khandwa	Bhawanipatna	Rahuri	Mean CZ
1	401	RB 1918	572	309	2037	1143	824	414	**883**
2	402	CNH 20-31	675	480	1065	895	824	468	**735**
3	403	RHC 1651	510	412	2025	1042	870	570	**905**
4	404	BS 11-20	193	309	1457	830	883	290	**660**
5	405	Local Check	955	412	1410	1168	914	497	**893**
6	406	TCH 1895	185	514	1759	959	843	386	**774**
7	407	RHC 1639	922	343	1975	847	463	304	**809**
8	408	RB 1901	996	412	2685	1185	802	299	**1063**
9	409	RAHC 1032	893	446	2346	1197	642	258	**964**
10	410	Common Check (Suraj)	893	206	2191	841	864	402	**900**
11	411	RAHC 1031	1395	412	2253	1024	864	337	**1048**

Br. 06a – Initial Evaluation Trial of Compact genotypes (Irrigated)

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Talod	Junagadh	Banswara	Khandwa	Bhawanipatna	Rahuri	Mean CZ
1	401	RB 1918	830	610	811	578	734	208	**628**
2	402	CNH 20-31	897	602	492	425	921	337	**612**
3	403	RHC 1651	665	441	776	516	809	253	**577**
4	404	BS 11-20	507	610	779	383	719	180	**530**
5	405	Local Check	723	437	894	581	836	218	**615**
6	406	TCH 1895	726	737	830	469	1019	221	**667**
7	407	RHC 1639	766	402	779	430	435	143	**492**
8	408	RB 1901	829	466	1095	598	670	146	**634**
9	409	RAHC 1032	684	432	875	593	515	141	**540**
10	410	Common Check (Suraj)	688	447	828	406	728	235	**555**
11	411	RAHC 1031	755	551	851	492	769	152	**595**

Ginning outturn (%)

S. No.	Code No.	Entries	Talod	Junagadh	Banswara	Khandwa	Bhawanipatna	Rahuri	Mean CZ
1	401	RB 1918	31.9	34.8	32.3	35.4	35.1	38.1	**34.6**
2	402	CNH 20-31	39.6	39.0	33.5	33.2	36.5	43.1	**37.5**
3	403	RHC 1651	30.4	33.0	32.4	34.7	31.9	35.7	**33.0**
4	404	BS 11-20	29.6	34.2	33.4	32.3	33.0	37.2	**33.3**
5	405	Local Check	33.4	32.5	37.0	34.8	34.9	34.8	**34.6**
6	406	TCH 1895	35.6	35.8	33.6	34.2	37.6	37.5	**35.7**
7	407	RHC 1639	34.9	33.5	32.8	35.5	34.8	37.2	**34.8**
8	408	RB 1901	35.7	33.8	34.1	35.3	33.4	35.1	**34.6**
9	409	RAHC 1032	30.6	29.3	32.2	34.7	33.3	39.4	**33.3**
10	410	Common Check (Suraj)	31.9	33.5	34.0	33.8	34.7	39.0	**34.5**
11	411	RAHC 1031	34.8	31.5	32.4	33.6	33.2	38.0	**33.9**

Br. 06a – Initial Evaluation Trial of Compact genotypes (Irrigated)

No. of bolls/m^2

S. No.	Code No.	Entries	Junagadh	Banswara	Khandwa	Bhawanipatna	Rahuri	Mean CZ
1	401	RB 1918	44.3	138.3	171.2	181.7	129.8	**133.1**
2	402	CNH 20-31	50.1	142.2	129.6	210.3	127.3	**131.9**
3	403	RHC 1651	42.7	130.0	149.6	186.0	139.7	**129.6**
4	404	BS 11-20	56.5	140.7	119.2	175.3	140.7	**126.5**
5	405	Local Check	43.7	134.4	191.2	176.3	124.0	**133.9**
6	406	TCH 1895	64.5	161.7	138.4	158.3	134.6	**131.5**
7	407	RHC 1639	44.3	176.7	121.6	117.3	113.6	**114.7**
8	408	RB 1901	43.7	146.1	191.2	160.7	134.6	**135.3**
9	409	RAHC 1032	46.4	148.3	197.6	141.3	149.4	**136.6**
10	410	Common Check (Suraj)	42.1	122.2	120.8	137.7	152.3	**115.0**
11	411	RAHC 1031	60.8	130.6	157.6	168.0	141.8	**131.8**

Plant height (cm)

S. No.	Code No.	Entries	Junagadh	Banswara	Khandwa	Bhawanipatna	Rahuri	Mean CZ
1	401	RB 1918	158.0	106.1	146.8	123.7	131.7	**133.3**
2	402	CNH 20-31	127.0	115.0	159.7	123.3	115.6	**128.1**
3	403	RHC 1651	133.0	115.4	149.1	123.9	130.6	**130.4**
4	404	BS 11-20	126.0	98.3	140.1	127.5	108.9	**120.2**
5	405	Local Check	127.0	111.7	170.5	123.6	119.4	**130.4**
6	406	TCH 1895	130.0	115.6	151.9	114.2	108.9	**124.1**
7	407	RHC 1639	128.0	140.3	164.9	133.8	131.1	**139.6**
8	408	RB 1901	132.0	124.7	155.8	131.3	115.0	**131.8**
9	409	RAHC 1032	128.0	120.9	149.9	116.1	117.8	**126.5**
10	410	Common Check (Suraj)	145.0	111.6	179.1	123.0	109.6	**133.7**
11	411	RAHC 1031	122.0	102.8	148.4	115.1	95.6	**116.8**

Br. 06a – Initial Evaluation Trial of Compact genotypes (Irrigated)

No. of monopodia / plant

S. No.	Code No.	Entries	Junagadh	Banswara	Khandwa	Bhawanipatna	Rahuri	Mean CZ
1	401	RB 1918	0.2	2.1	0.0	1.5	0.6	**0.9**
2	402	CNH 20-31	0.2	1.9	0.0	1.0	0.7	**0.8**
3	403	RHC 1651	0.2	1.9	0.0	1.0	0.9	**0.8**
4	404	BS 11-20	0.4	2.4	0.0	0.9	0.8	**0.9**
5	405	Local Check	0.6	2.1	0.0	1.5	0.7	**1.0**
6	406	TCH 1895	0.5	2.2	0.0	1.5	0.8	**1.0**
7	407	RHC 1639	0.2	2.0	0.0	1.5	0.8	**0.9**
8	408	RB 1901	0.4	0.8	0.0	1.4	0.8	**0.7**
9	409	RAHC 1032	0.3	1.4	0.0	2.0	0.7	**0.9**
10	410	Common Check (Suraj)	0.0	1.2	0.0	1.3	1.1	**0.7**
11	411	RAHC 1031	0.4	1.7	0.0	1.1	0.9	**0.8**

No. of sympodia / plant

S. No.	Code No.	Entries	Junagadh	Banswara	Khandwa	Bhawanipatna	Rahuri	Mean CZ
1	401	RB 1918	9.9	32.2	32.9	13.3	12.4	**20.1**
2	402	CNH 20-31	11.4	32.9	25.5	12.9	11.4	**18.8**
3	403	RHC 1651	12.5	27.8	27.2	12.7	12.0	**18.4**
4	404	BS 11-20	12.9	27.9	28.5	16.9	12.8	**19.8**
5	405	Local Check	11.7	32.3	30.3	12.1	11.2	**19.5**
6	406	TCH 1895	10.5	33.7	32.3	12.7	12.1	**20.2**
7	407	RHC 1639	12.5	27.1	32.2	11.9	12.4	**19.2**
8	408	RB 1901	10.6	32.1	28.7	12.9	13.2	**19.5**
9	409	RAHC 1032	13.5	21.4	32.3	13.9	12.9	**18.8**
10	410	Common Check (Suraj)	14.4	22.2	31.8	14.2	11.6	**18.8**
11	411	RAHC 1031	12.5	21.3	36.2	14.9	12.6	**19.5**

Br. 06a – Initial Evaluation Trial of Compact genotypes (Irrigated)

Boll weight (g)

S. No.	Code No.	Entries	Talod	Junagadh	Banswara	Khandwa	Bhawanipatna	Rahuri	Mean CZ
1	401	RB 1918	3.1	3.5	2.8	3.2	3.9	3.4	**3.3**
2	402	CNH 20-31	2.9	2.7	2.3	2.8	3.8	3.6	**3.0**
3	403	RHC 1651	2.9	2.9	2.6	3.4	4.4	3.3	**3.3**
4	404	BS 11-20	3.0	2.9	3.0	2.7	4.1	3.6	**3.2**
5	405	Local Check	3.1	2.9	3.7	3.2	4.4	3.4	**3.5**
6	406	TCH 1895	3.1	2.7	3.3	2.6	5.6	3.5	**3.5**
7	407	RHC 1639	3.0	2.9	3.4	2.6	4.5	3.6	**3.3**
8	408	RB 1901	2.8	3.4	3.7	3.4	4.3	3.4	**3.5**
9	409	RAHC 1032	2.8	3.1	3.6	3.2	4.8	3.6	**3.5**
10	410	Common Check (Suraj)	2.9	3.5	3.7	2.7	5.2	3.6	**3.6**
11	411	RAHC 1031	2.9	2.7	3.5	3.3	4.5	3.5	**3.4**

Lint Index (g)

S. No.	Code No.	Entries	Talod	Junagadh	Banswara	Khandwa	Bhawanipatna	Rahuri	Mean CZ
1	401	RB 1918	3.8	4.0	3.7	3.9	4.0	4.9	**4.0**
2	402	CNH 20-31	3.7	5.2	3.5	3.2	4.2	5.7	**4.3**
3	403	RHC 1651	3.1	3.9	3.5	3.8	3.0	5.1	**3.7**
4	404	BS 11-20	4.3	5.4	4.0	3.1	4.7	5.7	**4.5**
5	405	Local Check	4.9	5.3	4.9	3.6	4.8	5.0	**4.7**
6	406	TCH 1895	4.6	5.4	3.5	3.2	5.4	5.8	**4.7**
7	407	RHC 1639	4.4	4.4	3.9	3.5	3.9	5.3	**4.2**
8	408	RB 1901	3.7	4.2	4.3	4.0	4.0	5.0	**4.2**
9	409	RAHC 1032	3.5	3.9	3.8	3.6	3.8	6.2	**4.1**
10	410	Common Check (Suraj)	4.2	4.7	4.1	3.3	5.1	6.6	**4.7**
11	411	RAHC 1031	3.9	3.7	4.0	3.4	3.6	5.1	**4.0**

Br. 06a – Initial Evaluation Trial of Compact genotypes (Irrigated)
Seed Index (g)

S. No.	Code No.	Entries	Talod	Junagadh	Banswara	Khandwa	Bhawanipatna	Rahuri	Mean CZ
1	401	RB 1918	8.0	7.5	7.7	7.1	7.4	8.0	**7.6**
2	402	CNH 20-31	5.7	8.2	7.0	6.4	7.2	7.5	**7.0**
3	403	RHC 1651	7.0	8.0	7.3	7.2	6.4	9.2	**7.5**
4	404	BS 11-20	10.0	10.3	8.0	6.4	9.4	9.7	**9.0**
5	405	Local Check	9.7	11.0	8.3	6.8	8.9	9.4	**9.0**
6	406	TCH 1895	8.3	9.7	7.0	6.2	9.0	9.7	**8.3**
7	407	RHC 1639	8.3	8.7	8.0	6.4	7.4	9.0	**8.0**
8	408	RB 1901	6.7	8.2	8.3	7.3	7.9	9.3	**8.0**
9	409	RAHC 1032	8.0	9.5	8.0	6.8	7.6	9.6	**8.3**
10	410	Common Check (Suraj)	9.0	9.3	8.0	6.5	9.5	10.3	**8.8**
11	411	RAHC 1031	7.3	8.2	8.3	6.8	7.2	8.4	**7.7**

Br. 06b – Initial Evaluation Trial of Compact genotypes (Rainfed)

Total Seed Cotton Yield at 160 DAS (Total of 130 DAS + 160 DAS) (Kg/ha)

S. No.	Code No.	Entries	Bharuch	Akola	Nagpur (CICR)	Nanded	Mean CZ	Rank
1	421	CNH 1139	978	586	1011	645	**805**	8
2	422	CNH 20-32	1019	796	982	739	**884**	2
3	423	CNDTS 5114	1060	564	1200	618	**861**	5
4	424	DSC 2051	714	840	1096	1186	**959**	1
5	425	**Local Check**	524	561	1041	722	**712**	11
6	426	CNH 20-33	728	704	967	783	**796**	9
7	427	CNH 1140	778	664	1453	559	**864**	4
8	428	CNH 121	505	461	1008	470	**611**	13
9	429	CNDTS 5170	507	457	708	431	**526**	15
10	430	CNH 20-31	750	834	987	958	**882**	3
11	431	CNH 120	652	512	658	334	**539**	14
12	432	RAHC 1032	597	603	1098	487	**696**	12
13	433	**Common Check (Suraj)**	893	710	780	922	**826**	7
14	434	RAHC 1031	641	582	1014	780	**754**	10
15	435	GTHV 19/18	819	640	1154	703	**829**	6
		CD @ 5 %	179	70	346	175		
		CV %	16	12	21	15		
		Local Checks	**G. Cot 16**	**AKH 8828**	**AKH 8828**	**NH 615**		

Br. 06b – Initial Evaluation Trial of Compact genotypes (Rainfed)

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Bharuch	Akola	Nagpur (CICR)	Nanded	Mean CZ
1	421	CNH 1139	344	205	373	453	**344**
2	422	CNH 20-32	386	271	409	538	**401**
3	423	CNDTS 5114	374	206	443	395	**355**
4	424	DSC 2051	257	297	420	784	**439**
5	425	**Local Check**	175	204	421	513	**328**
6	426	CNH 20-33	261	257	377	500	**349**
7	427	CNH 1140	288	236	536	388	**362**
8	428	CNH 121	177	167	367	310	**255**
9	429	CNDTS 5170	167	161	251	302	**220**
10	430	CNH 20-31	281	299	420	642	**410**
11	431	CNH 120	218	180	233	219	**213**
12	432	RAHC 1032	214	209	376	334	**283**
13	433	**Common Check (Suraj)**	306	263	278	668	**379**
14	434	RAHC 1031	222	201	367	564	**339**
15	435	GTHV 19/18	286	225	433	464	**352**

Ginning outturn (%)

S. No.	Code No.	Entries	Bharuch	Akola	Nagpur (CICR)	Nanded	Mean CZ
1	421	CNH 1139	35.2	34.9	36.9	34.8	**35.5**
2	422	CNH 20-32	37.9	34.1	41.6	36.8	**37.6**
3	423	CNDTS 5114	35.3	36.6	36.9	35.8	**36.2**
4	424	DSC 2051	36.0	35.3	38.3	37.2	**36.7**
5	425	**Local Check**	33.3	36.4	40.5	37.5	**36.9**
6	426	CNH 20-33	35.8	36.5	39.0	35.1	**36.6**
7	427	CNH 1140	37.0	35.5	36.9	31.4	**35.2**
8	428	CNH 121	35.1	36.2	36.4	35.9	**35.9**
9	429	CNDTS 5170	32.9	35.3	35.4	36.2	**35.0**
10	430	CNH 20-31	37.5	35.8	42.6	39.3	**38.8**
11	431	CNH 120	33.4	35.2	35.4	36.1	**35.0**
12	432	RAHC 1032	35.8	34.7	34.3	33.4	**34.6**
13	433	**Common Check (Suraj)**	34.3	37.1	35.6	35.8	**35.7**
14	434	RAHC 1031	34.7	34.6	36.2	34.7	**35.1**
15	435	GTHV 19/18	34.9	35.1	37.5	34.6	**35.5**

Br. 06b – Initial Evaluation Trial of Compact genotypes (Rainfed)

No. of bolls/m^2

S. No.	Code No.	Entries	Akola	Nagpur (CICR)	Nanded	Mean CZ
1	421	CNH 1139	24.3	59.0	74.3	**52.5**
2	422	CNH 20-32	27.3	53.3	80.7	**53.8**
3	423	CNDTS 5114	42.0	67.7	74.2	**61.3**
4	424	DSC 2051	38.7	56.7	77.9	**57.8**
5	425	**Local Check**	30.3	65.0	81.3	**58.9**
6	426	CNH 20-33	42.3	64.7	70.8	**59.3**
7	427	CNH 1140	44.7	84.0	75.3	**68.0**
8	428	CNH 121	34.3	50.3	86.1	**56.9**
9	429	CNDTS 5170	39.7	55.3	78.6	**57.9**
10	430	CNH 20-31	38.0	54.7	76.9	**56.5**
11	431	CNH 120	18.0	41.7	97.7	**52.5**
12	432	RAHC 1032	31.3	59.0	85.9	**58.7**
13	433	**Common Check (Suraj)**	27.0	48.3	75.2	**50.2**
14	434	RAHC 1031	24.7	74.0	84.0	**60.9**
15	435	GTHV 19/18	41.3	71.0	87.9	**66.7**

Plant height (cm)

S. No.	Code No.	Entries	Akola	Nanded	Mean CZ
1	421	CNH 1139	81.3	126.7	**104.0**
2	422	CNH 20-32	90.2	130.8	**110.5**
3	423	CNDTS 5114	94.3	163.1	**128.7**
4	424	DSC 2051	86.6	147.2	**116.9**
5	425	**Local Check**	108.1	141.3	**124.7**
6	426	CNH 20-33	100.8	137.2	**119.0**
7	427	CNH 1140	120.3	161.3	**140.8**
8	428	CNH 121	140.8	169.9	**155.4**
9	429	CNDTS 5170	107.7	154.3	**131.0**
10	430	CNH 20-31	97.4	119.7	**108.6**
11	431	CNH 120	105.3	163.8	**134.6**
12	432	RAHC 1032	96.6	155.4	**126.0**
13	433	**Common Check (Suraj)**	89.0	127.7	**108.4**
14	434	RAHC 1031	93.6	144.1	**118.9**
15	435	GTHV 19/18	99.7	156.7	**128.2**

Br. 06b – Initial Evaluation Trial of Compact genotypes (Rainfed)

No. of monopodia / plant

S. No.	Code No.	Entries	Akola	Nanded	Mean CZ
1	421	CNH 1139	2.4	0.9	**1.7**
2	422	CNH 20-32	1.4	0.1	**0.8**
3	423	CNDTS 5114	2.1	1.0	**1.6**
4	424	DSC 2051	2.0	0.9	**1.5**
5	425	**Local Check**	2.4	0.3	**1.4**
6	426	CNH 20-33	1.1	0.2	**0.7**
7	427	CNH 1140	2.1	0.6	**1.4**
8	428	CNH 121	1.6	0.3	**1.0**
9	429	CNDTS 5170	1.9	1.1	**1.5**
10	430	CNH 20-31	0.9	0.5	**0.7**
11	431	CNH 120	1.2	0.5	**0.9**
12	432	RAHC 1032	1.6	0.4	**1.0**
13	433	**Common Check (Suraj)**	1.2	0.8	**1.0**
14	434	RAHC 1031	1.6	0.8	**1.2**
15	435	GTHV 19/18	1.3	0.8	**1.1**

No. of sympodia / plant

S. No.	Code No.	Entries	Akola	Nanded	Mean CZ
1	421	CNH 1139	19.0	25.3	**22.2**
2	422	CNH 20-32	18.3	23.8	**21.1**
3	423	CNDTS 5114	21.3	34.5	**27.9**
4	424	DSC 2051	20.2	31.0	**25.6**
5	425	**Local Check**	20.1	26.2	**23.2**
6	426	CNH 20-33	21.2	23.5	**22.4**
7	427	CNH 1140	23.1	28.3	**25.7**
8	428	CNH 121	17.1	28.5	**22.8**
9	429	CNDTS 5170	18.4	22.4	**20.4**
10	430	CNH 20-31	19.4	26.1	**22.8**
11	431	CNH 120	19.9	27.2	**23.6**
12	432	RAHC 1032	19.9	31.4	**25.7**
13	433	**Common Check (Suraj)**	20.7	26.5	**23.6**
14	434	RAHC 1031	20.6	26.6	**23.6**
15	435	GTHV 19/18	20.2	30.5	**25.4**

Br. 06b – Initial Evaluation Trial of Compact genotypes (Rainfed)

Boll weight (g)

S. No.	Code No.	Entries	Bharuch	Akola	Nagpur (CICR)	Nanded	Mean CZ
1	421	CNH 1139	2.7	2.4	3.2	3.4	**2.9**
2	422	CNH 20-32	3.0	2.7	3.3	3.5	**3.1**
3	423	CNDTS 5114	2.9	2.0	3.1	3.6	**2.9**
4	424	DSC 2051	3.4	2.7	3.0	3.4	**3.1**
5	425	**Local Check**	2.5	2.2	3.1	3.0	**2.7**
6	426	CNH 20-33	2.5	2.0	3.8	2.9	**2.8**
7	427	CNH 1140	2.8	2.1	3.1	3.1	**2.8**
8	428	CNH 121	3.1	2.2	3.9	4.1	**3.3**
9	429	CNDTS 5170	2.7	1.8	3.1	2.9	**2.6**
10	430	CNH 20-31	2.5	1.9	3.2	2.7	**2.6**
11	431	CNH 120	2.5	2.1	3.3	3.3	**2.8**
12	432	RAHC 1032	2.5	2.1	3.9	3.3	**3.0**
13	433	**Common Check (Suraj)**	2.9	2.8	3.7	3.7	**3.3**
14	434	RAHC 1031	2.5	1.9	3.3	3.7	**2.9**
15	435	GTHV 19/18	2.6	1.9	3.1	3.1	**2.7**

Lint Index (g)

S. No.	Code No.	Entries	Bharuch	Akola	Nanded	Mean CZ
1	421	CNH 1139	4.6	4.2	4.7	**4.5**
2	422	CNH 20-32	4.9	3.2	4.5	**4.2**
3	423	CNDTS 5114	5.5	3.8	4.7	**4.7**
4	424	DSC 2051	4.8	3.6	5.0	**4.5**
5	425	**Local Check**	4.5	3.4	4.9	**4.3**
6	426	CNH 20-33	4.8	4.0	4.5	**4.4**
7	427	CNH 1140	4.7	3.6	3.5	**3.9**
8	428	CNH 121	5.4	3.9	5.3	**4.9**
9	429	CNDTS 5170	4.4	3.5	5.1	**4.3**
10	430	CNH 20-31	4.5	3.7	4.7	**4.3**
11	431	CNH 120	4.5	4.3	5.3	**4.7**
12	432	RAHC 1032	4.5	3.4	4.0	**4.0**
13	433	**Common Check (Suraj)**	6.0	5.3	5.6	**5.6**
14	434	RAHC 1031	4.0	3.8	4.8	**4.2**
15	435	GTHV 19/18	5.4	3.4	4.0	**4.3**

Br. 06b – Initial Evaluation Trial of Compact genotypes (Rainfed)

Seed Index (g)

S. No.	Code No.	Entries	Bharuch	Akola	Nanded	Mean CZ
1	421	CNH 1139	8.5	7.7	8.7	**8.3**
2	422	CNH 20-32	8	6.3	7.8	**7.4**
3	423	CNDTS 5114	10	6.5	8.4	**8.3**
4	424	DSC 2051	8.5	6.7	8.4	**7.9**
5	425	**Local Check**	9	6.0	8.2	**7.7**
6	426	CNH 20-33	8.5	7.0	8.2	**7.9**
7	427	CNH 1140	8	6.6	7.7	**7.4**
8	428	CNH 121	10	6.8	9.5	**8.8**
9	429	CNDTS 5170	9	6.3	8.9	**8.1**
10	430	CNH 20-31	7.5	6.6	7.2	**7.1**
11	431	CNH 120	9	8.0	9.2	**8.7**
12	432	RAHC 1032	8	6.4	8.1	**7.5**
13	433	**Common Check (Suraj)**	11.5	9.0	10.0	**10.2**
14	434	RAHC 1031	7.5	7.2	9.0	**7.9**
15	435	GTHV 19/18	10	6.3	7.6	**8.0**

Br. 22b – Initial Evaluation Trial of *G. arboreum*

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Khandwa	Amreli	Akola*	Parbhani	Jalgaon*	Nagpur (CICR)	Mean CZ	Rank
1	441	NDLA 3140	971	1171		953		871	**992**	10
2	442	CNA 18392	898	1214		1111		662	**971**	12
3	443	CNA 2034	1239	1218		1124		381	**991**	11
4	444	CNA 1071	1337	1175		1362		655	**1132**	3
5	445	JLA-1512	1133	1315		1108		597	**1038**	7
6	446	PA 885	1027	1235		971		427	**915**	17
7	447	DWDa 2051	1060	1362		874		525	**955**	14
8	448	CNA 18408	1085	1035		1198		478	**949**	15
9	449	CNA 1072	1006	1229		1323		729	**1072**	4
10	450	JLA-1430	1320	1145		1209		598	**1068**	5
11	451	NDLA 3151	991	1291		908		311	**875**	18
12	452	PA 881	954	1376		1069		374	**943**	16
13	453	GAM 266	1298	1587		1112		631	**1157**	2
14	454	MDL 2674	1316	1292		960		415	**996**	9
15	455	GAM 269	1008	1528		965		691	**1048**	6
16	456	**Zonal Check**	1274	1193		1010		407	**971**	12
17	457	**Local Check**	1193	1837		1232		398	**1165**	1
18	458	MDL ABB1	1030	1003		914		431	**845**	19
19	459	AKA 2015-8	1149	1262		1081		640	**1033**	8
		CD @ 5 %	224	244		215		218		
		CV %	12	11		12		25		
		Zonal Check	AKA 7							
		Local Checks	**JK 5**	**G. Cot. 19**	**AKA. 8**	**PA 740**	**JLA 505**	**AKA. 8**		

*Vitiated

Br. 22b – Initial Evaluation Trial of *G. arboreum*

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Khandwa	Amreli	Parbhani	Nagpur (CICR)	Mean CZ
1	441	NDLA 3140	277	424	365	305	**343**
2	442	CNA 18392	257	414	423	232	**332**
3	443	CNA 2034	368	452	412	138	**343**
4	444	CNA 1071	444	436	534	228	**411**
5	445	JLA-1512	345	499	421	208	**368**
6	446	PA 885	337	450	343	141	**318**
7	447	DWDa 2051	356	493	315	168	**333**
8	448	CNA 18408	378	374	443	154	**337**
9	449	CNA 1072	311	443	492	248	**374**
10	450	JLA-1430	465	432	456	217	**393**
11	451	NDLA 3151	361	479	347	106	**323**
12	452	PA 881	302	494	403	126	**331**
13	453	GAM 266	400	621	433	222	**419**
14	454	MDL 2674	446	554	384	159	**386**
15	455	GAM 269	359	602	369	245	**394**
16	456	**Zonal Check**	436	481	398	152	**367**
17	457	**Local Check**	402	635	458	140	**409**
18	458	MDL ABB1	338	430	384	182	**334**
19	459	AKA 2015-8	386	506	417	233	**386**

Ginning outturn (%)

S. No.	Code No.	Entries	Khandwa	Amreli	Parbhani	Nagpur (CICR)	Mean CZ
1	441	NDLA 3140	28.5	36.3	38.4	35.0	**34.5**
2	442	CNA 18392	28.6	34.0	38.0	35.0	**33.9**
3	443	CNA 2034	29.7	37.2	36.7	36.2	**34.9**
4	444	CNA 1071	33.2	37.1	39.2	34.8	**36.1**
5	445	JLA-1512	30.4	37.9	38.0	34.9	**35.3**
6	446	PA 885	32.8	36.4	35.4	33.1	**34.4**
7	447	DWDa 2051	33.6	36.1	36.0	32.0	**34.4**
8	448	CNA 18408	34.8	36.1	37.0	32.1	**35.0**
9	449	CNA 1072	30.9	36.0	37.2	34.0	**34.5**
10	450	JLA-1430	35.2	37.8	37.7	36.3	**36.7**
11	451	NDLA 3151	36.4	36.9	38.3	34.1	**36.4**
12	452	PA 881	31.7	35.9	37.7	33.8	**34.8**
13	453	GAM 266	30.8	39.1	38.8	35.2	**36.0**
14	454	MDL 2674	33.9	42.8	40.0	38.4	**38.8**
15	455	GAM 269	35.6	39.4	38.3	35.4	**37.2**
16	456	**Zonal Check**	34.2	40.2	39.5	37.3	**37.8**
17	457	**Local Check**	33.7	34.6	37.2	35.3	**35.2**
18	458	MDL ABB1	32.8	42.8	41.9	42.3	**40.0**
19	459	AKA 2015-8	33.6	40.1	38.6	36.3	**37.2**

Br. 22b – Initial Evaluation Trial of *G. arboreum*

Bolls/plant

S. No.	Code No.	Entries	Khandwa	Amreli	Parbhani	Nagpur (CICR)	Mean CZ
1	441	NDLA 3140	31.5	28.0	12.0	31.2	**25.7**
2	442	CNA 18392	28.6	25.0	12.9	26.8	**23.3**
3	443	CNA 2034	33.5	23.0	12.7	18.4	**21.9**
4	444	CNA 1071	34.9	21.0	14.0	25.5	**23.9**
5	445	JLA-1512	32.5	19.0	12.9	29.9	**23.6**
6	446	PA 885	33.1	21.0	12.0	30.2	**24.1**
7	447	DWDa 2051	32.1	21.0	11.6	27.4	**23.0**
8	448	CNA 18408	31.3	19.0	13.4	24.6	**22.1**
9	449	CNA 1072	33.0	24.0	14.6	28.9	**25.1**
10	450	JLA-1430	35.7	21.0	13.9	25.7	**24.1**
11	451	NDLA 3151	31.5	21.0	11.9	15.7	**20.0**
12	452	PA 881	30.7	25.0	12.4	28.7	**24.2**
13	453	GAM 266	36.1	24.0	13.3	26.5	**25.0**
14	454	MDL 2674	34.9	18.0	11.5	24.2	**22.2**
15	455	GAM 269	32.0	21.0	11.9	31.4	**24.1**
16	456	**Zonal Check**	32.5	21.0	11.9	23.2	**22.2**
17	457	**Local Check**	32.9	26.0	14.0	24.7	**24.4**
18	458	MDL ABB1	32.3	17.0	11.5	21.8	**20.7**
19	459	AKA 2015-8	32.7	22.0	12.7	24.3	**22.9**

Boll weight (g)

S. No.	Code No.	Entries	Khandwa	Amreli	Parbhani	Nagpur (CICR)	Mean CZ
1	441	NDLA 3140	2.5	2.0	2.6	1.6	**2.2**
2	442	CNA 18392	2.4	1.9	2.9	1.9	**2.3**
3	443	CNA 2034	2.9	1.9	2.8	2.0	**2.4**
4	444	CNA 1071	3.0	1.9	2.8	1.9	**2.4**
5	445	JLA-1512	2.7	2.1	2.6	1.8	**2.3**
6	446	PA 885	2.7	2.1	2.5	2.2	**2.4**
7	447	DWDa 2051	2.6	2.2	2.5	1.9	**2.3**
8	448	CNA 18408	2.7	2.0	2.6	2.2	**2.4**
9	449	CNA 1072	2.9	2.2	2.8	1.8	**2.4**
10	450	JLA-1430	3.1	2.0	2.7	2.3	**2.5**
11	451	NDLA 3151	2.5	1.8	2.5	2.1	**2.2**
12	452	PA 881	2.6	2.2	2.7	1.9	**2.4**
13	453	GAM 266	3.0	2.1	2.7	2.1	**2.5**
14	454	MDL 2674	2.9	2.5	2.5	2.2	**2.5**
15	455	GAM 269	2.7	2.2	2.5	1.9	**2.3**
16	456	**Zonal Check**	3.0	2.0	2.6	2.1	**2.4**
17	457	**Local Check**	2.8	2.0	2.8	2.0	**2.4**
18	458	MDL ABB1	2.6	2.7	2.7	2.6	**2.6**
19	459	AKA 2015-8	2.5	2.0	2.7	2.1	**2.3**

Br. 22b – Initial Evaluation Trial of long linted *G. arboreum*

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Amreli	Bharuch	Akola*	Parbhani	Nagpur (CICR)	Mean CZ	Rank
1	461	PAIG 410	1445	310		908	606	**817**	3
2	462	CNA 1074	1291	379		928	534	**783**	4
3	463	PA 887	1211	379		855	530	**744**	8
4	464	**Quality Check**	1249	531		874	475	**782**	5
5	465	CNA 1075	1559	287		988	841	**919**	1
6	466	PA 888	1411	417		861	352	**760**	7
7	467	DWD (LL) 2051	1298	455		738	291	**696**	10
8	468	PAIG 411	1342	338		1027	385	**773**	6
9	469	PA 898	1250	408		874	373	**726**	9
10	470	PA 904	1365	531		885	500	**820**	2
		CD @ 5 %	195	126		145	201		
		CV %	8	17		9	24		
		Quality Check	PA 255						

*Vitiated

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Amreli	Bharuch	Parbhani	Nagpur (CICR)	Mean CZ
1	461	PAIG 410	533	100	329	206	**292**
2	462	CNA 1074	480	122	362	178	**286**
3	463	PA 887	447	118	297	174	**259**
4	464	**Quality Check**	461	178	302	160	**275**
5	465	CNA 1075	559	89	340	267	**314**
6	466	PA 888	518	126	301	106	**263**
7	467	DWD (LL) 2051	459	151	260	94	**241**
8	468	PAIG 411	484	106	373	126	**272**
9	469	PA 898	449	129	303	121	**251**
10	470	PA 904	482	168	290	165	**276**

Ginning outturn (%)

S. No.	Code No.	Entries	Amreli	Bharuch	Parbhani	Nagpur (CICR)	Mean CZ
1	461	PAIG 410	36.8	32.2	36.2	34.0	**34.8**
2	462	CNA 1074	37.2	32.1	39.1	33.3	**35.4**
3	463	PA 887	37.0	31.1	34.7	32.8	**33.9**
4	464	**Quality Check**	36.9	33.4	34.6	33.7	**34.7**
5	465	CNA 1075	35.9	31.0	34.5	31.7	**33.3**
6	466	PA 888	36.7	30.1	35.0	30.2	**33.0**
7	467	DWD (LL) 2051	35.5	33.1	35.3	32.4	**34.1**
8	468	PAIG 411	35.9	31.4	36.3	32.7	**34.1**
9	469	PA 898	35.9	31.6	34.6	32.4	**33.6**
10	470	PA 904	35.3	31.6	32.9	33.0	**33.2**

Br. 22b – Initial Evaluation Trial of long linted *G. arboreum*

Bolls/plant

S. No.	Code No.	Entries	Amreli	Bharuch	Parbhani	Nagpur (CICR)	Mean CZ
1	461	PAIG 410	23.7	8.7	11.1	24.5	**17.0**
2	462	CNA 1074	20.4	10.7	12.0	26.5	**17.4**
3	463	PA 887	20.1	10.9	11.0	23.9	**16.5**
4	464	**Quality Check**	21.7	12.5	11.4	24.3	**17.5**
5	465	CNA 1075	19.5	7.1	12.3	19.4	**14.6**
6	466	PA 888	23.9	11.6	10.7	22.1	**17.1**
7	467	DWD (LL) 2051	21.7	11.2	9.7	15.7	**14.6**
8	468	PAIG 411	20.1	7.6	13.0	18.6	**14.8**
9	469	PA 898	26.3	10.0	12.0	22.1	**17.6**
10	470	PA 904	26.5	13.9	12.4	20.7	**18.4**

Boll weight (g)

S. No.	Code No.	Entries	Amreli	Bharuch	Parbhani	Nagpur (CICR)	Mean CZ
1	461	PAIG 410	2.3	1.9	2.6	2.3	**2.3**
2	462	CNA 1074	2.2	1.9	2.7	1.7	**2.1**
3	463	PA 887	2.2	1.9	2.7	2.3	**2.3**
4	464	**Quality Check**	2.2	2.3	2.6	2.0	**2.3**
5	465	CNA 1075	2.5	2.2	2.8	2.7	**2.6**
6	466	PA 888	2.1	1.9	2.7	2.1	**2.2**
7	467	DWD (LL) 2051	1.8	2.2	2.6	1.8	**2.1**
8	468	PAIG 411	2.3	2.4	2.7	1.9	**2.3**
9	469	PA 898	2.3	2.2	2.7	1.9	**2.3**
10	470	PA 904	2.0	2.1	2.6	1.9	**2.2**

Br 25b – Preliminary Hybrid Trial of Desi Hybrid

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Amreli	Akola	Parbhani	Mean CZ	Rank
1	471	KR 150	1776	967	673	**1139**	2
2	472	**Zonal Check**	1425	616	640	**894**	4
3	473	KR 149	1806	668	535	**1003**	3
4	474	**Local Check**	1371	590	659	**873**	5
5	475	KR 148	1835	944	685	**1155**	1
		CD @ 5 %	198	39	85		
		CV %	8	11	9		
		Zonal Check	NACH 12				
		Local Checks	G.Cot.MDH-11	PDKVDH 1	PDKVDH 1		

Br 25b – Preliminary Hybrid Trial of Desi Hybrid

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Amreli	Akola	Parbhani	Mean CZ
1	471	KR 150	775	342	283	**467**
2	472	**Zonal Check**	629	222	270	**374**
3	473	KR 149	783	229	230	**414**
4	474	**Local Check**	543	212	250	**335**
5	475	KR 148	838	323	296	**486**

Ginning outturn (%)

S. No.	Code No.	Entries	Amreli	Akola	Parbhani	Mean CZ
1	471	KR 150	43.6	35.4	43.8	**40.9**
2	472	**Zonal Check**	44.1	36.1	44.2	**41.5**
3	473	KR 149	43.3	34.3	42.6	**40.1**
4	474	**Local Check**	39.6	35.9	39.8	**38.4**
5	475	KR 148	45.7	34.3	45.1	**41.7**

Bolls/plant

S. No.	Code No.	Entries	Amreli	Akola	Parbhani	Mean CZ
1	471	KR 150	23.4	11.9	9.7	**15.0**
2	472	**Zonal Check**	20.8	9.7	9.5	**13.3**
3	473	KR 149	27.0	9.5	8.8	**15.1**
4	474	**Local Check**	27.2	12.4	10.3	**16.6**
5	475	KR 148	23.2	10.5	10.4	**14.7**

Boll weight (g)

S. No.	Code No.	Entries	Amreli	Akola	Parbhani	Mean CZ
1	471	KR 150	2.1	2.0	2.8	**2.3**
2	472	**Zonal Check**	2.3	2.0	2.8	**2.4**
3	473	KR 149	2.1	1.9	2.7	**2.2**
4	474	**Local Check**	1.8	2.3	2.8	**2.3**
5	475	KR 148	2.3	2.0	2.8	**2.4**

Br 32b – Initial Evaluation Trial of *G. herbaceum*

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Surat	Bharuch (CSSRI)	Viramgam	Mean CZ	Rank
1	481	GShv 833/16	952	1218	1712	**1294**	3
2	482	**Zonal Check**	804	968	1950	**1241**	5
3	483	GShv 789/16	1144	769	1695	**1203**	6
4	484	GBhv 316	696	626	2086	**1136**	7
5	485	**Local Check**	852	608	1244	**901**	8
6	486	GShv 219/16	713	1019	2085	**1272**	4
7	487	GBhv 324	1099	1100	1799	**1333**	1
8	488	GVhv 996	1002	914	1994	**1303**	2
		CD @ 5 %	159	241	398		
		CV %	10.0	15	12		
		Zonal Check	G Cot 23				
		Local Checks	**GN.Cot.25**	**GN.Cot.25**	**GADC 2**		

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Surat	Bharuch (CSSRI)	Viramgam	Mean CZ
1	481	GShv 833/16	339	416	640	**465**
2	482	**Zonal Check**	263	320	678	**420**
3	483	GShv 789/16	378	252	578	**403**
4	484	GBhv 316	222	230	783	**412**
5	485	**Local Check**	295	214	451	**320**
6	486	GShv 219/16	222	331	676	**410**
7	487	GBhv 324	364	386	593	**448**
8	488	GVhv 996	377	329	739	**482**

Ginning outturn (%)

S. No.	Code No.	Entries	Surat	Bharuch (CSSRI)	Viramgam	Mean CZ
1	481	GShv 833/16	35.7	34.1	37.2	**35.7**
2	482	**Zonal Check**	32.8	32.9	34.8	**33.5**
3	483	GShv 789/16	33.1	32.2	33.8	**33.0**
4	484	GBhv 316	31.8	36.7	37.5	**35.3**
5	485	**Local Check**	34.6	35.2	36.5	**35.4**
6	486	GShv 219/16	31.1	32.4	32.3	**31.9**
7	487	GBhv 324	33.1	35.0	32.9	**33.7**
8	488	GVhv 996	37.7	36.1	36.6	**36.8**

Br 32b – Initial Evaluation Trial of *G. herbaceum*

Bolls/plant

S. No.	Code No.	Entries	Surat	Bharuch (CSSRI)	Viramgam	Mean CZ
1	481	GShv 833/16	24.9	78.3	37.7	**47.0**
2	482	**Zonal Check**	19.3	57.0	36.9	**37.7**
3	483	GShv 789/16	24.6	39.3	33.7	**32.5**
4	484	GBhv 316	19.8	32.0	39.7	**30.5**
5	485	**Local Check**	20.8	26.0	32.1	**26.3**
6	486	GShv 219/16	23.2	54.7	37.1	**38.3**
7	487	GBhv 324	26.4	63.0	34.5	**41.3**
8	488	GVhv 996	24.0	53.0	38.9	**38.6**

Boll weight (g)

S. No.	Code No.	Entries	Surat	Bharuch (CSSRI)	Viramgam	Mean CZ
1	481	GShv 833/16	2.06	2.2	2.0	**2.1**
2	482	**Zonal Check**	2.24	2.2	2.2	**2.2**
3	483	GShv 789/16	2.54	2.2	2.0	**2.2**
4	484	GBhv 316	1.93	2.0	2.2	**2.0**
5	485	**Local Check**	2.24	2.0	1.8	**2.0**
6	486	GShv 219/16	1.68	2.2	2.0	**2.0**
7	487	GBhv 324	2.27	2.0	2.0	**2.1**
8	488	GVhv 996	2.28	2.1	2.3	**2.2**

CENTRAL ZONE TRIALS

Br 03a – Preliminary Varietal Trial - *G. hirsutum* (Central Zone)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Surat	Talod	Junagadh	Rahuri	Khandwa	Bhawanipatna	Mean CZ	Rank
1	2001	GISV319	1434	1667	1955	1049	1276	1259	**1440**	6
2	2002	**ZC (Phule Yamuna)**	1745	1667	2237	1037	1036	1494	**1536**	2
3	2003	GJHV 566	1988	1784	2443	1398	1351	1935	**1817**	1
4	2004	**Local Check**	1039	1577	1697	814	1101	1160	**1231**	10
5	2005	CPD 1902	1309	1040	2109	1162	1476	1210	**1384**	8
6	2006	RHC 1409	1969	1815	1877	1073	929	1324	**1498**	3
7	2007	**QC (Suraj)**	1207	1025	2418	1236	1002	2003	**1482**	4
8	2008	CCH 19-2	1294	1121	1877	1319	1098	1290	**1333**	9
9	2009	GISV 323	1956	1589	1569	1268	1215	1162	**1460**	5
10	2010	RAH 1076	1082	1429	1955	1501	1043	1324	**1389**	7
		CD @ 5 %	274	345	468	272	335	287		
		CV %	11	14	14	14	18	12		
		Local Checks	**GN. Cot 32**	**GN. Cot 32**	**GN. Cot 32**	**Phule 688**	**JK 4**	**Surabhi**		

Br 03a – Preliminary Varietal Trial - *G. hirsutum* (Central Zone)

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Surat	Talod	Junagadh	Rahuri	Khandwa	Bhawanipatna	Mean CZ
1	2001	GISV319	491	612	699	391	429	421	**507**
2	2002	**ZC (Phule Yamuna)**	563	569	777	351	309	483	**509**
3	2003	GJHV 566	692	650	916	528	478	685	**658**
4	2004	**Local Check**	374	620	657	295	363	330	**440**
5	2005	CPD 1902	436	384	786	531	534	397	**511**
6	2006	RHC 1409	704	697	753	410	292	474	**555**
7	2007	**Quality Check (Suraj)**	397	353	897	489	328	711	**529**
8	2008	CCH 19-2	401	354	626	423	335	420	**427**
9	2009	GISV 323	677	583	594	426	428	386	**516**
10	2010	RAH 1076	377	504	712	540	325	443	**484**

Ginning outturn (%)

S. No.	Code No.	Entries	Surat	Talod	Junagadh	Rahuri	Khandwa	Bhawanipatna	Mean CZ
1	2001	GISV319	34.3	36.7	35.7	37.2	33.6	33.3	**35.1**
2	2002	**ZC (Phule Yamuna)**	32.3	34.0	34.7	33.9	29.8	32.3	**32.8**
3	2003	GJHV 566	34.8	36.4	37.5	37.8	35.4	35.3	**36.2**
4	2004	**Local Check**	35.9	39.3	38.8	36.3	33.0	28.5	**35.3**
5	2005	CPD 1902	33.3	36.9	37.3	45.7	36.2	32.5	**37.0**
6	2006	RHC 1409	35.7	38.4	40.2	38.3	31.4	35.7	**36.6**
7	2007	**Quality Check (Suraj)**	32.9	34.4	37.2	38.5	32.7	35.5	**35.2**
8	2008	CCH 19-2	31.0	31.6	33.3	32.1	30.5	32.7	**31.9**
9	2009	GISV 323	34.7	36.7	37.8	36.4	35.2	33.2	**35.7**
10	2010	RAH 1076	34.7	35.2	36.3	36.0	31.2	33.6	**34.5**

Br 03a – Preliminary Varietal Trial - *G. hirsutum* (Central Zone)

Bolls/plant

S. No.	Code No.	Entries	Surat	Talod	Junagadh	Rahuri	Khandwa	Bhawanipatna	Mean CZ
1	2001	GISV319	24.3	30.2	32.5	24.9	23.3	33.7	**28.2**
2	2002	**ZC (Phule Yamuna)**	32.7	37.0	42.3	26.1	19.1	39.7	**32.8**
3	2003	GJHV 566	28.7	30.4	37.7	27.6	24.3	42.1	**31.8**
4	2004	**Local Check**	16.7	19.7	23.2	21.9	21.7	26.7	**21.7**
5	2005	CPD 1902	21.3	20.0	31.7	19.7	28.5	30.8	**25.3**
6	2006	RHC 1409	27.0	30.8	31.5	24.9	18.9	32.5	**27.6**
7	2007	**Quality Check (Suraj)**	17.7	19.6	38.7	21.6	18.9	40.8	**26.2**
8	2008	CCH 19-2	21.0	19.9	29.8	23.9	19.9	29.1	**23.9**
9	2009	GISV 323	30.3	27.1	29.1	15.8	25.9	20.8	**24.8**
10	2010	RAH 1076	22.3	33.1	37.5	20.5	22.3	34.4	**28.4**

Boll weight (g)

S. No.	Code No.	Entries	Surat	Talod	Junagadh	Rahuri	Khandwa	Bhawanipatna	Mean CZ
1	2001	GISV319	3.8	3.4	3.4	4.4	3.1	4.2	**3.7**
2	2002	**ZC (Phule Yamuna)**	3.0	2.8	3.0	4.4	2.6	4.1	**3.3**
3	2003	GJHV 566	3.9	3.7	3.7	4.5	3.2	4.5	**3.9**
4	2004	**Local Check**	4.5	4.9	4.3	4.7	2.7	3.9	**4.2**
5	2005	CPD 1902	3.8	3.2	3.8	4.5	2.9	4.4	**3.8**
6	2006	RHC 1409	4.2	3.6	3.4	4.6	2.4	4.8	**3.8**
7	2007	**Quality Check (Suraj)**	4.2	3.3	3.5	4.6	2.6	5.0	**3.9**
8	2008	CCH 19-2	3.8	3.5	3.6	4.5	2.8	4.9	**3.9**
9	2009	GISV 323	3.7	3.6	3.1	4.5	2.7	5.6	**3.9**
10	2010	RAH 1076	3.9	2.7	3.0	4.7	2.6	4.6	**3.6**

Br 04a – Coordinated Varietal Trial - G. hirsutum (Central Zone)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Surat	Junagarh	Rahuri	Bhawanipatna	Mean CZ	Rank
1	2031	TSH 367	975	1706	789	2280	**1438**	4
2	2032	**ZC (Phule Yamuna)**	1675	2289	1210	1806	**1745**	1
3	2033	SHS 113	1312	1612	591	1670	**1296**	5
4	2034	**Local Check**	1141	1500	203	1262	**1027**	7
5	2035	GJHV-554	1380	1980	347	1151	**1215**	6
6	2036	QC (Suraj)	1042	1483	1269	2245	**1510**	2
7	2037	GJHV-522	1544	2255	876	1285	**1490**	3
		CD @ 5 %	316	327	235	303		
		CV %	14	10	17	10		
		Local Checks	**GN. Cot 32**	**GN. Cot 32**	**Phule 688**	**Surabhi**		

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Surat	Junagarh	Rahuri	Bhawanipatna	Mean CZ
1	2031	TSH 367	352	672	307	871	**551**
2	2032	**ZC (Phule Yamuna)**	563	848	442	627	**620**
3	2033	SHS 113	399	568	218	623	**452**
4	2034	**Local Check**	414	606	66	444	**383**
5	2035	GJHV-554	422	680	137	383	**406**
6	2036	QC (Suraj)	357	534	492	829	**553**
7	2037	GJHV-522	621	887	359	415	**571**

Br 04a – Coordinated Varietal Trial - G. hirsutum (Central Zone)

Ginning outturn (%)

S. No.	Code No.	Entries	Surat	Junagarh	Rahuri	Bhawanipatna	Mean CZ
1	2031	TSH 367	35.9	39.3	38.9	38.2	**38.1**
2	2032	**ZC (Phule Yamuna)**	33.6	37.0	36.6	34.6	**35.5**
3	2033	SHS 113	30.4	35.2	36.9	37.4	**35.0**
4	2034	**Local Check**	36.4	40.3	33.0	35.2	**36.2**
5	2035	GJHV-554	30.8	34.3	37.3	33.2	**33.9**
6	2036	QC (Suraj)	34.2	36.0	38.8	36.9	**36.5**
7	2037	GJHV-522	40.2	39.3	41.0	32.2	**38.2**

Bolls/plant

S. No.	Code No.	Entries	Surat	Junagarh	Rahuri	Bhawanipatna	Mean CZ
1	2031	TSH 367	19.7	29.9	26.5	40.7	**29.2**
2	2032	**ZC (Phule Yamuna)**	27.7	39.1	27.5	39.0	**33.3**
3	2033	SHS 113	20.7	25.9	24.3	31.0	**25.5**
4	2034	**Local Check**	16.7	19.4	20.1	25.2	**20.4**
5	2035	GJHV-554	24.3	32.8	23.1	25.9	**26.5**
6	2036	QC (Suraj)	19.3	22.3	19.4	33.8	**23.7**
7	2037	GJHV-522	26.0	32.1	25.5	28.7	**28.1**

Boll weight (g)

S. No.	Code No.	Entries	Surat	Junagarh	Rahuri	Bhawanipatna	Mean CZ
1	2031	TSH 367	3.5	3.3	4.1	4.3	**3.8**
2	2032	**ZC (Phule Yamuna)**	3.5	3.3	4.3	4.0	**3.8**
3	2033	SHS 113	4.0	3.7	4.2	4.8	**4.2**
4	2034	**Local Check**	4.3	4.6	4.5	5.2	**4.7**
5	2035	GJHV-554	3.5	3.4	4.5	4.0	**3.9**
6	2036	QC (Suraj)	4.1	3.9	4.6	5.0	**4.4**
7	2037	GJHV-522	3.7	4.0	4.8	4.7	**4.3**

Br 03a – Preliminary Varietal Trial –Coloured *G. hirsutum* (Central Zone)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Surat	Khandwa	Nagpur	Mean CZ	Rank
1	2011	DHCC 1901	795	1358	1200	**1118**	4
2	2012	LHCC 4	305	819	521	**548**	9
3	2013	**ZC (Phule Yamuna)**	1605	1376	957	**1313**	1
4	2014	CNH 18528	775	1255	1274	**1101**	5
5	2015	DHCC 1801	610	1432	1029	**1024**	7
6	2016	CNH 18529	753	1670	1169	**1197**	3
7	2017	CNH 17395	1006	1438	1298	**1247**	2
8	2018	**Local Check**	829	1128	1216	**1058**	6
9	2019	DHCC 1902	695	1257	1025	**992**	8
		CD @ 5 %	156	302	147		
		CV %	11	14	8		
		Local Checks	**GN. Cot 22**	**JK 4**	**AKH 8828**		

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Surat	Khandwa	Nagpur	Mean CZ
1	2011	DHCC 1901	250	473	401	**375**
2	2012	LHCC 4	62	264	139	**155**
3	2013	**ZC (Phule Yamuna)**	530	467	325	**441**
4	2014	CNH 18528	269	435	479	**394**
5	2015	DHCC 1801	163	507	327	**332**
6	2016	CNH 18529	257	608	436	**434**
7	2017	CNH 17395	335	487	467	**430**
8	2018	**Local Check**	266	379	460	**368**
9	2019	DHCC 1902	223	412	354	**330**

Ginning outturn (%)

S. No.	Code No.	Entries	Surat	Khandwa	Nagpur	Mean CZ
1	2011	DHCC 1901	31.4	34.8	33.4	**33.2**
2	2012	LHCC 4	20.3	32.2	26.7	**26.4**
3	2013	**ZC (Phule Yamuna)**	33.0	33.9	34.0	**33.6**
4	2014	CNH 18528	34.7	34.7	37.6	**35.7**
5	2015	DHCC 1801	26.7	35.4	31.8	**31.3**
6	2016	CNH 18529	34.2	36.4	37.3	**36.0**
7	2017	CNH 17395	33.1	33.9	36.0	**34.3**
8	2018	**Local Check**	32.0	33.6	37.8	**34.5**
9	2019	DHCC 1902	32.0	32.8	34.5	**33.1**

Br 03a – Preliminary Varietal Trial –Coloured *G. hirsutum* (Central Zone)

Bolls/plant

S. No.	Code No.	Entries	Surat	Khandwa	Nagpur	Mean CZ
1	2011	DHCC 1901	15.3	16.1	26.2	**19.2**
2	2012	LHCC 4	16.0	13.1	17.9	**15.7**
3	2013	**ZC (Phule Yamuna)**	31.3	15.9	23.5	**23.6**
4	2014	CNH 18528	17.7	15.4	28.2	**20.4**
5	2015	DHCC 1801	15.7	16.2	30.1	**20.7**
6	2016	CNH 18529	17.7	18.1	24.7	**20.2**
7	2017	CNH 17395	20.0	17.7	30.0	**22.6**
8	2018	**Local Check**	19.3	15.5	27.3	**20.7**
9	2019	DHCC 1902	18.7	17.2	26.7	**20.9**

Boll weight (g)

S. No.	Code No.	Entries	Surat	Khandwa	Nagpur	Mean CZ
1	2011	DHCC 1901	2.9	3.3	3.1	**3.1**
2	2012	LHCC 4	2.6	2.8	2.4	**2.6**
3	2013	**ZC (Phule Yamuna)**	2.8	3.4	2.7	**3.0**
4	2014	CNH 18528	3.1	3.3	3.0	**3.1**
5	2015	DHCC 1801	3.2	3.5	3.0	**3.2**
6	2016	CNH 18529	2.7	3.3	2.6	**2.9**
7	2017	CNH 17395	2.8	3.0	2.9	**2.9**
8	2018	**Local Check**	3.3	2.9	2.5	**2.9**
9	2019	DHCC 1902	2.8	2.8	3.1	**2.9**

Br 05a – Coordinated Hybrid Trial - Intra *hirsutum* (Central Zone)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Banswara	Surat	Talod	Junagadh	Rahuri	Mean CZ	Rank
1	2041	GTHH 17/01	1319	1939	762	2122	355	**1299**	6
2	2042	**ZC (Phule Asmita)**	1644	2989	1525	2160	817	**1827**	4
3	2043	GJHH 19	2512	3255	2164	2585	730	**2249**	1
4	2044	GTHH 1203	1458	1732	1088	2006	399	**1337**	5
5	2045	**Local Check**	1979	2984	2118	2759	424	**2053**	3
6	2046	GSHH 15035	2269	3532	2306	2276	631	**2203**	2
		CD @ 5 %	307	434	307	431	157		
		CV %	18	11	12	12	16		
		Local Checks	**G. Cot. Hy. 14**	**G. Cot. Hy. 14**	**G. Cot. Hy. 14**	**G. Cot. Hy. 14**	**Phule Suman**		

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Banswara	Surat	Talod	Junagadh	Rahuri	Mean CZ
1	2041	GTHH 17/01	417	653	271	711	125	**435**
2	2042	**ZC (Phule Asmita)**	550	986	532	774	279	**624**
3	2043	GJHH 19	877	1087	788	897	300	**790**
4	2044	GTHH 1203	479	632	407	709	154	**476**
5	2045	**Local Check**	634	1071	753	964	155	**715**
6	2046	GSHH 15035	789	1219	864	824	217	**783**

Br 05a – Coordinated Hybrid Trial - Intra *hirsutum* (Central Zone)

Ginning outturn (%)

S. No.	Code No.	Entries	Banswara	Surat	Talod	Junagadh	Rahuri	Mean CZ
1	2041	GTHH 17/01	31.6	33.7	35.1	33.5	34.8	**33.7**
2	2042	**ZC (Phule Asmita)**	33.5	33.0	34.9	35.8	34.2	**34.3**
3	2043	GJHH 19	34.9	33.4	36.4	34.6	41.0	**36.1**
4	2044	GTHH 1203	33.0	36.5	37.4	35.4	37.6	**36.0**
5	2045	**Local Check**	32.0	35.9	35.6	35.0	35.6	**34.8**
6	2046	GSHH 15035	34.8	34.5	37.5	36.3	34.4	**35.5**

Bolls/plant

S. No.	Code No.	Entries	Banswara	Surat	Talod	Junagadh	Rahuri	Mean CZ
1	2041	GTHH 17/01	40.5	28.6	13	31.7	21.6	**27.1**
2	2042	**ZC (Phule Asmita)**	42.3	36.0	20	32.1	25.9	**31.3**
3	2043	GJHH 19	46.8	43.7	35	34.6	27.1	**37.4**
4	2044	GTHH 1203	47.4	24.2	16	31.0	28.3	**29.4**
5	2045	**Local Check**	41.1	40.1	36	47.3	24.7	**37.8**
6	2046	GSHH 15035	40.2	37.0	27	27.8	20.9	**30.6**

Boll weight (g)

S. No.	Code No.	Entries	Banswara	Surat	Talod	Junagadh	Rahuri	Mean CZ
1	2041	GTHH 17/01	3.6	3.7	3.7	3.8	4.6	**3.9**
2	2042	**ZC (Phule Asmita)**	4.0	4.5	4.9	3.8	4.6	**4.4**
3	2043	GJHH 19	4.4	4.0	3.8	4.3	4.6	**4.2**
4	2044	GTHH 1203	3.6	3.9	4.4	3.7	4.6	**4.0**
5	2045	**Local Check**	3.4	4.0	3.7	3.3	4.7	**3.8**
6	2046	GSHH 15035	4.6	5.2	5.4	4.6	4.8	**4.9**

Br 06a – CVT of Compact genotypes (Central Zone) (Irrigated)

Total Seed Cotton Yield at 160 DAS (Total of 130 DAS + 160 DAS) (Kg/ha)

S. No.	Code No.	Entries	Banswara	Talod	Junagadh	Rahuri	Khandwa	Bhawanipatna	Mean CZ	Rank
1	2051	RHC-HD 1312	2049	2177	1818	327	1659	2146	**1696**	4
2	2052	**ZC (Suraj)**	1863	1838	1543	661	1635	2160	**1617**	5
3	2053	CCH 19-2	2029	1644	1269	232	1292	1553	**1337**	10
4	2054	RHC-HD 1438	1845	2316	2452	493	1044	2606	**1793**	2
5	2055	**Local Check**	1875	1931	1475	343	1666	2400	**1615**	6
6	2056	RHC-HD 1405	2049	2188	2435	436	1748	1983	**1807**	1
7	2057	SHC 374	1771	1686	1355	332	1213	1944	**1384**	9
8	2058	GTHV 18/17	1898	2492	1749	398	1786	1995	**1720**	3
9	2059	CCH 19-4	1713	1694	1475	421	1643	1646	**1432**	8
10	2060	RAHC 1902	2014	1915	1680	544	1639	1644	**1573**	7
		CD @ 5 %	197		413	137	448	344		
		CV %	6		14	18	18	10		
		Local Checks	**Wagad kalyan**	**G.Cot.20**	**G.Cot.20**	**Phule 688**	**NH 615**	**Suraj**		

Seed Cotton Yield (130 DAS) (Kg/ha)

S. No.	Code No.	Entries	Banswara	Talod	Junagadh	Rahuri	Khandwa	Bhawanipatna	Mean CZ
1	2051	RHC-HD 1312	336	1888	1612	179	549	1194	**960**
2	2052	**ZC (Suraj)**	243	1625	1235	521	529	1269	**904**
3	2053	CCH 19-2	374	1449	1029	184	422	650	**685**
4	2054	RHC-HD 1438	248	2001	2126	361	300	1924	**1160**
5	2055	**Local Check**	289	1709	1183	204	553	1556	**916**
6	2056	RHC-HD 1405	359	1881	2126	249	540	1097	**1042**
7	2057	SHC 374	197	1483	1149	233	384	1053	**750**
8	2058	GTHV 18/17	301	2091	1406	183	600	1266	**975**
9	2059	CCH 19-4	243	1485	1303	343	521	928	**804**
10	2060	RAHC 1902	463	1698	1354	343	541	741	**857**

Br 06a – CVT of Compact genotypes (Central Zone) (Irrigated)
Seed Cotton Yield (160 DAS) (Kg/ha)

S. No.	Code No.	Entries	Banswara	Talod	Junagadh	Rahuri	Khandwa	Bhawanipatna	Mean CZ
1	2051	RHC-HD 1312	1713	289	206	145	1110	951	**736**
2	2052	**ZC (Suraj)**	1620	213	300	140	1106	891	**712**
3	2053	CCH 19-2	1655	195	257	46	870	903	**654**
4	2054	RHC-HD 1438	1597	315	326	132	744	683	**633**
5	2055	**Local Check**	1586	222	300	138	1114	845	**701**
6	2056	RHC-HD 1405	1690	307	309	187	1208	885	**764**
7	2057	SHC 374	1574	203	206	103	829	891	**634**
8	2058	GTHV 18/17	1597	401	351	215	1185	729	**746**
9	2059	CCH 19-4	1470	210	189	64	1122	718	**629**
10	2060	RAHC 1902	1551	218	343	168	1098	903	**714**

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Banswara	Talod	Junagadh	Rahuri	Khandwa	Bhawanipatna	Mean CZ
1	2051	RHC-HD 1312	630	758	640	115	549	702	**566**
2	2052	**ZC (Suraj)**	592	641	543	227	502	743	**541**
3	2053	CCH 19-2	624	510	420	77	386	531	**425**
4	2054	RHC-HD 1438	593	888	916	190	299	899	**631**
5	2055	**Local Check**	698	635	500	107	575	890	**568**
6	2056	RHC-HD 1405	683	699	829	149	587	716	**610**
7	2057	SHC 374	576	586	475	120	366	669	**465**
8	2058	GTHV 18/17	628	844	617	147	627	716	**596**
9	2059	CCH 19-4	538	556	507	153	555	612	**487**
10	2060	RAHC 1902	662	643	556	176	539	607	**531**

Br 06a – CVT of Compact genotypes (Central Zone) (Irrigated)

Ginning outturn (%)

S. No.	Code No.	Entries	Banswara	Talod	Junagadh	Rahuri	Khandwa	Bhawanipatna	Mean CZ
1	2051	RHC-HD 1312	30.7	34.9	35.2	35.2	33.1	32.7	**33.6**
2	2052	**ZC (Suraj)**	31.8	34.9	35.2	34.3	30.7	34.4	**33.5**
3	2053	CCH 19-2	30.7	31.0	33.2	33.1	29.9	34.2	**32.0**
4	2054	RHC-HD 1438	32.1	38.4	37.3	38.5	28.6	34.5	**34.9**
5	2055	**Local Check**	37.2	32.9	33.7	31.2	34.5	37.1	**34.4**
6	2056	RHC-HD 1405	33.4	31.9	34.0	34.1	33.6	36.1	**33.9**
7	2057	SHC 374	32.5	34.7	35.2	36.1	30.2	34.4	**33.9**
8	2058	GTHV 18/17	33.1	33.9	35.3	36.9	35.1	35.9	**35.0**
9	2059	CCH 19-4	31.5	32.9	34.5	36.3	33.8	37.2	**34.4**
10	2060	RAHC 1902	32.9	33.6	33.2	32.4	32.9	36.9	**33.7**

No. of bolls/m^2

S. No.	Code No.	Entries	Banswara	Junagadh	Rahuri	Khandwa	Bhawanipatna	Mean CZ
1	2051	RHC-HD 1312	113.0	51.2	183.7	162.4	194.0	**140.9**
2	2052	**ZC (Suraj)**	167.2	56.0	159.2	169.6	154.0	**141.2**
3	2053	CCH 19-2	150.5	44.3	160.7	135.2	120.3	**122.2**
4	2054	RHC-HD 1438	156.7	77.3	180.0	101.6	240.3	**151.2**
5	2055	**Local Check**	129.8	48.5	177.8	192.0	193.0	**148.2**
6	2056	RHC-HD 1405	110.5	67.2	164.4	204.0	200.3	**149.3**
7	2057	SHC 374	162.7	40.5	164.4	142.4	159.3	**133.9**
8	2058	GTHV 18/17	163.5	45.3	197.8	195.2	189.3	**158.2**
9	2059	CCH 19-4	174.0	50.7	150.4	193.6	146.7	**143.1**
10	2060	RAHC 1902	137.0	54.9	187.4	167.2	153.3	**140.0**

Br 06a – CVT of Compact genotypes (Central Zone) (Irrigated)

Plant height (cm)

S. No.	Code No.	Entries	Banswara	Junagadh	Rahuri	Khandwa	Bhawanipatna	Mean CZ
1	2051	RHC-HD 1312	102.2	145.0	150.3	148.0	126.5	**134.4**
2	2052	**ZC (Suraj)**	111.4	145.0	142.0	155.1	119.7	**134.6**
3	2053	CCH 19-2	112.2	135.0	142.3	138.2	123.8	**130.3**
4	2054	RHC-HD 1438	105.7	144.0	129.0	133.8	115.8	**125.7**
5	2055	**Local Check**	113.9	137.0	134.0	130.1	133.0	**129.6**
6	2056	RHC-HD 1405	117.0	134.0	131.0	154.1	119.4	**131.1**
7	2057	SHC 374	127.8	159.0	131.0	141.1	127.2	**137.2**
8	2058	GTHV 18/17	118.7	123.0	129.3	151.1	118.0	**128.0**
9	2059	CCH 19-4	122.4	139.0	124.0	140.7	131.9	**131.6**
10	2060	RAHC 1902	111.4	155.0	140.0	139.5	121.0	**133.4**

No. of monopodia / plant

S. No.	Code No.	Entries	Banswara	Junagadh	Rahuri	Khandwa	Bhawanipatna	Mean CZ
1	2051	RHC-HD 1312	1.1	0.2	1.0	0.0	0.5	**0.6**
2	2052	**ZC (Suraj)**	1.4	0.0	0.9	0.0	0.7	**0.6**
3	2053	CCH 19-2	1.7	0.2	0.9	0.0	1.9	**0.9**
4	2054	RHC-HD 1438	1.7	0.2	0.9	0.0	0.5	**0.7**
5	2055	**Local Check**	1.2	0.2	0.8	0.0	0.9	**0.6**
6	2056	RHC-HD 1405	1.6	0.4	0.7	0.0	0.4	**0.6**
7	2057	SHC 374	0.9	0.2	0.9	0.0	0.7	**0.5**
8	2058	GTHV 18/17	1.2	0.0	0.8	0.0	0.9	**0.6**
9	2059	CCH 19-4	1.4	0.2	0.8	0.0	0.5	**0.6**
10	2060	RAHC 1902	1.0	0.3	0.8	0.0	0.3	**0.5**

Br 06a – CVT of Compact genotypes (Central Zone) (Irrigated)

No. of sympodia / plant

S. No.	Code No.	Entries	Banswara	Junagadh	Rahuri	Khandwa	Bhawanipatna	Mean CZ
1	2051	RHC-HD 1312	15.6	15.1	13.7	30.9	14.6	**18.0**
2	2052	**ZC (Suraj)**	23.2	12.4	12.3	27.6	15.1	**18.1**
3	2053	CCH 19-2	20.8	12.5	13.0	28.2	12.5	**17.4**
4	2054	RHC-HD 1438	20.1	12.3	12.3	29.9	15.9	**18.1**
5	2055	**Local Check**	22.4	11.5	14.3	27.0	15.6	**18.2**
6	2056	RHC-HD 1405	24.6	10.7	11.8	29.2	13.7	**18.0**
7	2057	SHC 374	31.8	13.4	12.9	30.3	12.9	**20.3**
8	2058	GTHV 18/17	21.4	13.4	13.8	27.9	13.4	**18.0**
9	2059	CCH 19-4	31.4	12.4	12.3	30.2	12.8	**19.8**
10	2060	RAHC 1902	25.1	13.2	13.3	31.0	13.9	**19.3**

Boll weight (g)

S. No.	Code No.	Entries	Banswara	Talod	Junagadh	Rahuri	Khandwa	Bhawanipatna	Mean CZ
1	2051	RHC-HD 1312	2.3	3.5	3.3	3.0	3.3	4.4	**3.3**
2	2052	**ZC (Suraj)**	4.7	3.4	2.8	3.3	3.1	5.9	**3.9**
3	2053	CCH 19-2	2.9	3.5	3.3	3.6	3.0	5.0	**3.6**
4	2054	RHC-HD 1438	2.7	2.4	2.7	3.5	2.6	4.0	**3.0**
5	2055	**Local Check**	3.3	3.3	3.3	3.7	3.5	4.9	**3.7**
6	2056	RHC-HD 1405	3.3	2.6	3.1	3.4	3.3	3.6	**3.2**
7	2057	SHC 374	3.2	3.1	3.6	3.2	2.8	4.4	**3.4**
8	2058	GTHV 18/17	3.1	3.5	3.8	3.7	3.8	4.1	**3.7**
9	2059	CCH 19-4	2.6	3.3	3.2	3.3	3.6	4.2	**3.4**
10	2060	RAHC 1902	3.1	3.5	3.1	3.5	3.2	3.9	**3.4**

Br 06a – CVT of Compact genotypes (Central Zone) (Irrigated)

Lint Index (g)

S. No.	Code No.	Entries	Banswara	Talod	Junagadh	Rahuri	Khandwa	Bhawanipatna	Mean CZ
1	2051	RHC-HD 1312	3.4	3.9	4.8	4.7	3.4	3.7	**4.0**
2	2052	**ZC (Suraj)**	3.7	4.3	5.1	5.1	3.1	5.3	**4.4**
3	2053	CCH 19-2	3.7	4.2	5.1	5.3	2.9	5.0	**4.4**
4	2054	RHC-HD 1438	3.2	4.4	4.3	4.2	2.6	3.5	**3.7**
5	2055	**Local Check**	4.7	4.1	4.6	4.1	3.8	5.9	**4.5**
6	2056	RHC-HD 1405	3.5	3.6	4.8	4.0	3.5	4.6	**4.0**
7	2057	SHC 374	3.9	4.1	4.7	5.2	3.1	5.5	**4.4**
8	2058	GTHV 18/17	3.8	4.4	4.7	4.7	3.7	4.2	**4.3**
9	2059	CCH 19-4	3.7	4.9	4.7	5.9	3.4	5.2	**4.6**
10	2060	RAHC 1902	3.8	4.0	5.9	4.4	3.5	4.9	**4.4**

Seed Index (g)

S. No.	Code No.	Entries	Banswara	Talod	Junagadh	Rahuri	Khandwa	Bhawanipatna	Mean CZ
1	2051	RHC-HD 1312	7.7	7.3	8.8	8.7	6.8	7.7	**7.8**
2	2052	**ZC (Suraj)**	8.0	8.0	9.5	9.8	7.1	10.0	**8.7**
3	2053	CCH 19-2	8.3	9.3	10.3	10.8	6.7	9.7	**9.2**
4	2054	RHC-HD 1438	6.7	7.0	7.2	6.7	6.6	6.7	**6.8**
5	2055	**Local Check**	8.0	8.3	9.0	9.1	7.2	9.9	**8.6**
6	2056	RHC-HD 1405	7.0	7.7	9.3	7.8	7.0	8.1	**7.8**
7	2057	SHC 374	8.0	7.7	8.7	9.2	7.1	10.4	**8.5**
8	2058	GTHV 18/17	7.7	8.7	8.5	8.1	6.8	7.5	**7.9**
9	2059	CCH 19-4	8.0	10.0	9.0	10.4	6.6	8.8	**8.8**
10	2060	RAHC 1902	7.7	8.0	12.0	9.2	7.2	8.4	**8.7**

Br 13a – Preliminary Varietal Trial - *G. barbadense* (Central Zone)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Anand	Rahuri	Mean CZ	Rank
1	2061	DB-1601	829	323	**576**	3
2	2062	DB 1901	1060	288	**674**	1
3	2063	CCB 64	829	119	**474**	7
4	2064	CCB 6	471	127	**299**	9
5	2065	**ZC (Phule Rukmai)**	773	224	**499**	6
6	2066	DB-1701	761	307	**534**	4
7	2067	CCB 141	876	184	**530**	5
8	2068	CCB 15	853	32	**443**	8
9	2069	CCB 64B	1028	157	**593**	2
		CD @ 5 %	156	59		
		CV %	11	17		

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Anand	Rahuri	Mean CZ
1	2061	DB-1601	253	112	**183**
2	2062	DB 1901	311	101	**206**
3	2063	CCB 64	242	40	**141**
4	2064	CCB 6	135	42	**89**
5	2065	**ZC (Phule Rukmai)**	232	79	**156**
6	2066	DB-1701	230	111	**171**
7	2067	CCB 141	267	62	**165**
8	2068	CCB 15	291	11	**151**
9	2069	CCB 64B	318	55	**187**

Ginning outturn (%)

S. No.	Code No.	Entries	Anand	Rahuri	Mean CZ
1	2061	DB-1601	30.5	34.6	**32.6**
2	2062	DB 1901	29.4	34.9	**32.2**
3	2063	CCB 64	29.2	33.3	**31.3**
4	2064	CCB 6	28.6	33.3	**31.0**
5	2065	**ZC (Phule Rukmai)**	30.0	35.3	**32.7**
6	2066	DB-1701	30.2	36.1	**33.2**
7	2067	CCB 141	30.4	33.5	**32.0**
8	2068	CCB 15	34.1	34.4	**34.3**
9	2069	CCB 64B	30.9	35.3	**33.1**

Br 13a – Preliminary Varietal Trial - *G. barbadense* (Central Zone)

Bolls/plant

S. No.	Code No.	Entries	Anand	Rahuri	Mean CZ
1	2061	DB-1601	37.5	26.2	**31.9**
2	2062	DB 1901	34.7	22.1	**28.4**
3	2063	CCB 64	31.3	22.1	**26.7**
4	2064	CCB 6	29.3	18.8	**24.1**
5	2065	**ZC (Phule Rukmai)**	21.9	22.6	**22.3**
6	2066	DB-1701	27.2	23.9	**25.6**
7	2067	CCB 141	35.3	20.1	**27.7**
8	2068	CCB 15	39.3	10.7	**25.0**
9	2069	CCB 64B	35.7	16.9	**26.3**

Boll weight (g)

S. No.	Code No.	Entries	Anand	Rahuri	Mean CZ
1	2061	DB-1601	2.4	2.1	**2.3**
2	2062	DB 1901	2.8	2.3	**2.6**
3	2063	CCB 64	2.7	2.0	**2.4**
4	2064	CCB 6	2.5	2.5	**2.5**
5	2065	**ZC (Phule Rukmai)**	2.4	2.1	**2.3**
6	2066	DB-1701	2.9	2.6	**2.8**
7	2067	CCB 141	2.6	2.7	**2.7**
8	2068	CCB 15	2.4	2.4	**2.4**
9	2069	CCB 64B	2.9	2.4	**2.7**

Br 14a – Coordinated Varietal Trial - G. barbadense (Central Zone)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Anand	Rahuri	Mean CZ	Rank
1	2071	CCB 143B	848	322	**585**	3
2	2072	**ZC (Phule Rukmai)**	905	307	**606**	2
3	2073	DB 1801	738	370	**554**	4
4	2074	CCB 51-2	935	288	**612**	1
		CD @ 5 %	142	72		
		CV %	12	16		

Br 14a – Coordinated Varietal Trial - G. barbadense (Central Zone)

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Anand	Rahuri	Mean CZ
1	2071	CCB 143B	261	101	**181**
2	2072	**ZC (Phule Rukmai)**	269	106	**188**
3	2073	DB 1801	232	119	**176**
4	2074	CCB 51-2	316	95	**206**

Ginning outturn (%)

S. No.	Code No.	Entries	Anand	Rahuri	Mean CZ
1	2071	CCB 143B	31.0	33.5	**32.3**
2	2072	**ZC (Phule Rukmai)**	29.6	34.6	**32.1**
3	2073	DB 1801	31.3	32.3	**31.8**
4	2074	CCB 51-2	33.8	33.2	**33.5**

Bolls/plant

S. No.	Code No.	Entries	Anand	Rahuri	Mean CZ
1	2071	CCB 143B	38.6	21.5	**30.1**
2	2072	**ZC (Phule Rukmai)**	41.6	22.0	**31.8**
3	2073	DB 1801	36.2	21.7	**29.0**
4	2074	CCB 51-2	39.6	24.6	**32.1**

Boll weight (g)

S. No.	Code No.	Entries	Anand	Rahuri	Mean CZ
1	2071	CCB 143B	2.5	2.6	**2.6**
2	2072	**ZC (Phule Rukmai)**	2.5	3.1	**2.8**
3	2073	DB 1801	2.6	2.9	**2.8**
4	2074	CCB 51-2	2.7	2.1	**2.4**

Br 15a - CHT - Interspecific Hybrid (*hirsutum* x *barbadense*) (Central Zone)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Banswara	Anand	Rahuri	Mean CZ	Rank
1	2081	RHB 1401	1366	2112	390	**1289**	8
2	2082	DHB 1902	1736	1948	412	**1365**	6
3	2083	DHB 2002	2245	2142	462	**1616**	2
4	2084	DHB 2001	2222	2158	443	**1608**	3
5	2085	**Phule Dhara (ZC)**	1157	2396	423	**1325**	7
6	2086	RHB 1623	1389	2770	446	**1535**	4
7	2087	LAHB 2	1315	1538	253	**1035**	9
8	2088	DHB 2003	1875	2511	536	**1641**	1
9	2089	RHB 1624	1435	2238	455	**1376**	5
		CD @ 5 %	280	500	117		
		CV %	19	13	16		

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Banswara	Anand	Rahuri	Mean CZ
1	2081	RHB 1401	402	601	116	**373**
2	2082	DHB 1902	529	548	109	**395**
3	2083	DHB 2002	678	590	135	**468**
4	2084	DHB 2001	694	573	142	**470**
5	2085	**Phule Dhara (ZC)**	353	733	135	**407**
6	2086	RHB 1623	421	836	131	**463**
7	2087	LAHB 2	450	422	70	**314**
8	2088	DHB 2003	605	710	170	**495**
9	2089	RHB 1624	441	590	135	**389**

Ginning outturn (%)

S. No.	Code No.	Entries	Banswara	Anand	Rahuri	Mean CZ
1	2081	RHB 1401	29.4	28.4	27.3	**28.4**
2	2082	DHB 1902	30.4	28.1	27.2	**28.6**
3	2083	DHB 2002	30.1	27.6	30.1	**29.3**
4	2084	DHB 2001	31.2	26.5	32.3	**30.0**
5	2085	**Phule Dhara (ZC)**	30.6	30.7	31.6	**31.0**
6	2086	RHB 1623	30.4	30.2	29.4	**30.0**
7	2087	LAHB 2	34.2	27.5	27.7	**29.8**
8	2088	DHB 2003	32.3	28.3	31.6	**30.7**
9	2089	RHB 1624	30.7	26.4	29.7	**28.9**

Br 15a - CHT - Interspecific Hybrid (*hirsutum* x *barbadense*) (Central Zone)

Bolls/plant

S. No.	Code No.	Entries	Banswara	Anand	Rahuri	Mean CZ
1	2081	RHB 1401	40.3	51.5	27.7	**39.8**
2	2082	DHB 1902	45.2	49.1	30.5	**41.6**
3	2083	DHB 2002	46.9	52.7	31.8	**43.8**
4	2084	DHB 2001	46.4	49.9	33.7	**43.3**
5	2085	**Phule Dhara (ZC)**	40.1	52.2	29.6	**40.6**
6	2086	RHB 1623	47.4	64.9	29.9	**47.4**
7	2087	LAHB 2	37.1	47.1	30.3	**38.2**
8	2088	DHB 2003	46.9	54.0	30.9	**43.9**
9	2089	RHB 1624	41.0	53.9	31.0	**42.0**

Boll weight (g)

S. No.	Code No.	Entries	Banswara	Anand	Rahuri	Mean CZ
1	2081	RHB 1401	2.4	3.4	3.3	**3.0**
2	2082	DHB 1902	2.3	3.5	3.0	**2.9**
3	2083	DHB 2002	2.6	3.5	3.3	**3.1**
4	2084	DHB 2001	2.6	3.7	3.5	**3.3**
5	2085	**Phule Dhara (ZC)**	2.3	3.7	3.1	**3.0**
6	2086	RHB 1623	2.4	2.9	2.9	**2.7**
7	2087	LAHB 2	2.3	3.8	3.3	**3.1**
8	2088	DHB 2003	2.4	3.5	3.1	**3.0**
9	2089	RHB 1624	2.4	3.5	2.9	**2.9**

Br 03b – Preliminary Variety Trial - *G. hirsutum* (Central Zone) (Rainfed)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Banswara	Bharuch	Akola	Nagpur	Nanded	Mean CZ	Rank
1	2091	**QC (Suraj)**	1278	604	520	678	954	**807**	3
2	2092	CNH 1134	704	528	370	1088	847	**707**	7
3	2093	**Local Check**	833	803	419	898	850	**761**	5
4	2094	NDLH – 2057-1	1074	648	435	828	823	**762**	4
5	2095	TVH 007	1002	756	838	970	1018	**917**	1
6	2096	**ZC (NH 615)**	833	756	540	682	872	**737**	6
7	2097	AKH 2013-2	1019	557	475	1200	856	**821**	2
		CD @ 5 %	159	197	70	NS	237		
		CV %	17	16	13		15		
		Local Checks	**Wagad Kalyan**	**G Cot 26**	**AKH 8828**	**AKH 8828**	**NH 545**		

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Banswara	Bharuch	Akola	Nagpur	Nanded	Mean CZ
1	2091	**QC (Suraj)**	466	208	185	234	346	**288**
2	2092	CNH 1134	243	178	125	377	290	**243**
3	2093	**Local Check**	274	263	152	344	295	**266**
4	2094	NDLH – 2057-1	359	200	157	287	285	**258**
5	2095	TVH 007	353	290	304	380	384	**342**
6	2096	**ZC (NH 615)**	280	268	187	265	332	**266**
7	2097	AKH 2013-2	320	180	171	417	271	**272**

Br 03b – Preliminary Variety Trial - *G. hirsutum* (Central Zone) (Rainfed)

Ginning outturn (%)

S. No.	Code No.	Entries	Banswara	Bharuch	Akola	Nagpur	Nanded	Mean CZ
1	2091	**QC (Suraj)**	36.5	34.5	35.5	34.5	36.6	**35.5**
2	2092	CNH 1134	34.7	33.8	33.9	34.7	34.4	**34.3**
3	2093	**Local Check**	33.0	32.7	36.3	38.3	34.6	**35.0**
4	2094	NDLH – 2057-1	33.4	30.8	36.1	34.7	34.5	**33.9**
5	2095	TVH 007	35.2	38.4	36.3	39.2	37.7	**37.4**
6	2096	**ZC (NH 615)**	33.6	35.5	34.6	38.9	38.0	**36.1**
7	2097	AKH 2013-2	31.4	32.4	35.9	34.7	31.7	**33.2**

Bolls/plant

S. No.	Code No.	Entries	Banswara	Bharuch	Akola	Nagpur	Nanded	Mean CZ
1	2091	**QC (Suraj)**	25.3	9.5	12.7	12.6	22.1	**16.4**
2	2092	CNH 1134	30.6	8.1	16.0	18.9	17.0	**18.1**
3	2093	**Local Check**	27.6	14.6	15.7	18.5	21.3	**19.5**
4	2094	NDLH – 2057-1	27.9	10.7	11.7	17.5	19.9	**17.5**
5	2095	TVH 007	32.7	11.4	21.0	20.0	23.4	**21.7**
6	2096	**ZC (NH 615)**	29.9	13.0	18.3	14.9	18.0	**18.8**
7	2097	AKH 2013-2	32.3	9.2	16.0	22.6	19.3	**19.9**

Boll weight (g)

S. No.	Code No.	Entries	Banswara	Bharuch	Akola	Nagpur	Nanded	Mean CZ
1	2091	**QC (Suraj)**	3.3	3.4	2.4	3.3	3.5	**3.2**
2	2092	CNH 1134	3.1	3.5	2.3	3.9	2.9	**3.1**
3	2093	**Local Check**	3.5	3.0	2.8	2.8	2.9	**3.0**
4	2094	NDLH – 2057-1	3.2	3.3	2.7	3.4	3.1	**3.1**
5	2095	TVH 007	3.0	3.6	2.4	3.4	3.1	**3.1**
6	2096	**ZC (NH 615)**	2.3	3.1	2.3	2.7	2.7	**2.6**
7	2097	AKH 2013-2	3.6	3.3	2.2	3.7	3.2	**3.2**

Br 04b – Coordinated Varietal Trial - *G. hirsutum* (Central Zone)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Banswara	Bharuch	Akola	Nanded	Mean CZ	Rank
1	2101	NDLH – 2035-5	1729	624	584	685	**906**	1
2	2102	**Local Check**	1259	701	332	759	**763**	5
3	2103	**ZC (NH 615)**	1326	478	485	1005	**824**	2
4	2104	BS 3-17	1240	434	486	996	**789**	4
5	2105	**Quality Check (Suraj)**	1285	432	424	1030	**793**	3
		CD @ 5 %	277	419	26	119		
		CV %	13	16	7	9		
		Local Checks	**Wagad Kalyan**	**G Cot 26**	**AKH 8828**	**NH 545**		

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Banswara	Bharuch	Akola	Nanded	Mean CZ
1	2101	NDLH – 2035-5	565	201	206	234	**302**
2	2102	**Local Check**	423	232	119	272	**262**
3	2103	**ZC (NH 615)**	458	160	178	371	**292**
4	2104	BS 3-17	404	140	171	341	**264**
5	2105	**Quality Check (Suraj)**	421	139	148	359	**267**

Br 04b – Coordinated Varietal Trial - *G. hirsutum* (Central Zone)

Ginning outturn (%)

S. No.	Code No.	Entries	Banswara	Bharuch	Akola	Nanded	Mean CZ
1	2101	NDLH – 2035-5	32.7	32.2	35.1	34.2	**33.6**
2	2102	**Local Check**	33.6	33.2	35.9	35.8	**34.6**
3	2103	**ZC (NH 615)**	34.5	33.5	36.7	36.9	**35.4**
4	2104	BS 3-17	32.5	32.1	35.5	33.9	**33.5**
5	2105	**Quality Check (Suraj)**	32.7	32.2	34.8	34.8	**33.6**

Bolls/plant

S. No.	Code No.	Entries	Banswara	Bharuch	Akola	Nanded	Mean CZ
1	2101	NDLH – 2035-5	33.8	10.3	17.8	18.8	**20.2**
2	2102	**Local Check**	31.6	12.7	15.0	19.9	**19.8**
3	2103	**ZC (NH 615)**	35.3	8.9	24.8	22.8	**23.0**
4	2104	BS 3-17	34.9	7.7	17.3	19.5	**19.9**
5	2105	**Quality Check (Suraj)**	31.6	6.9	15.0	23.7	**19.3**

Boll weight (g)

S. No.	Code No.	Entries	Banswara	Bharuch	Akola	Nanded	Mean CZ
1	2101	NDLH – 2035-5	3.5	3.3	2.3	3.2	**3.1**
2	2102	**Local Check**	2.5	3.0	2.2	3.1	**2.7**
3	2103	**ZC (NH 615)**	2.4	2.9	2.2	3.1	**2.7**
4	2104	BS 3-17	3.1	3.1	2.4	3.4	**3.0**
5	2105	**Quality Check (Suraj)**	3.7	3.4	2.9	3.9	**3.5**

Br 06b – CVT of Compact genotypes - (Central Zone) (Rainfed)

Total Seed Cotton Yield at 160 DAS (Total of 130 DAS + 160 DAS) (Kg/ha)

S. No.	Code No.	Entries	Surat	Akola	Nanded	Mean CZ	Rank
1	2111	GISV 312	1482	417	678	**859**	2
2	2112	**Local Check**	1162	340	726	**743**	6
3	2113	CNH 09-77	1093	433	700	**742**	7
4	2114	DSC 1851	1233	471	854	**853**	3
5	2115	**ZC (Suraj)**	1099	412	910	**807**	4
6	2116	AKH 1302	1156	416	618	**730**	8
7	2117	RHC-HD 1405	1053	332	790	**725**	10
8	2118	CNH 1133	1132	300	752	**728**	9
9	2119	TVH 002	1032	483	1135	**883**	1
10	2120	RHC-HD 1312	962	466	933	**787**	5
11	2121	RAHC 1901	908	334	891	**711**	11
12	2122	RAHC 1029	946	311	750	**669**	12
		CD @ 5 %	195	65	103		
		CV %	10	17	7		
		Local Checks	**G.Cot. 16**	**AKH 8828**	**NH 615**		

Seed Cotton Yield (130 DAS) (Kg/ha)

S. No.	Code No.	Entries	Surat	Nanded	Mean CZ
1	2111	GISV 312	1150	218	**684**
2	2112	**Local Check**	930	261	**596**
3	2113	CNH 09-77	907	261	**584**
4	2114	DSC 1851	958	277	**618**
5	2115	**ZC (Suraj)**	860	346	**603**
6	2116	AKH 1302	891	158	**525**
7	2117	RHC-HD 1405	782	291	**537**
8	2118	CNH 1133	923	258	**591**
9	2119	TVH 002	950	353	**652**
10	2120	RHC-HD 1312	672	232	**452**
11	2121	RAHC 1901	776	244	**510**
12	2122	RAHC 1029	589	188	**389**

Br 06b – CVT of Compact genotypes - (Central Zone) (Rainfed)

Seed Cotton Yield (160 DAS) (Kg/ha)

S. No.	Code No.	Entries	Surat	Nanded	Mean CZ
1	2111	GISV 312	332	460	**396**
2	2112	**Local Check**	231	464	**348**
3	2113	CNH 09-77	186	439	**313**
4	2114	DSC 1851	275	577	**426**
5	2115	**ZC (Suraj)**	239	595	**417**
6	2116	AKH 1302	265	460	**363**
7	2117	RHC-HD 1405	271	499	**385**
8	2118	CNH 1133	210	494	**352**
9	2119	TVH 002	82	782	**432**
10	2120	RHC-HD 1312	291	702	**497**
11	2121	RAHC 1901	133	647	**390**
12	2122	RAHC 1029	357	562	**460**

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Surat	Akola	Nanded	Mean CZ
1	2111	GISV 312	565	145	252	**321**
2	2112	**Local Check**	376	123	275	**258**
3	2113	CNH 09-77	355	155	257	**256**
4	2114	DSC 1851	381	161	301	**281**
5	2115	**ZC (Suraj)**	352	145	344	**280**
6	2116	AKH 1302	400	144	227	**257**
7	2117	RHC-HD 1405	346	119	272	**246**
8	2118	CNH 1133	408	107	281	**265**
9	2119	TVH 002	311	170	365	**282**
10	2120	RHC-HD 1312	325	164	343	**278**
11	2121	RAHC 1901	280	118	327	**242**
12	2122	RAHC 1029	275	111	272	**219**

Br 06b – CVT of Compact genotypes - (Central Zone) (Rainfed)

Ginning outturn (%)

S. No.	Code No.	Entries	Surat	Akola	Nanded	Mean CZ
1	2111	GISV 312	38.1	34.8	37.2	**36.7**
2	2112	**Local Check**	32.4	36.3	37.9	**35.5**
3	2113	CNH 09-77	32.5	35.9	36.7	**35.0**
4	2114	DSC 1851	30.9	34.1	35.2	**33.4**
5	2115	**ZC (Suraj)**	32.0	35.1	37.8	**35.0**
6	2116	AKH 1302	34.6	34.6	36.7	**35.3**
7	2117	RHC-HD 1405	32.9	35.9	34.4	**34.4**
8	2118	CNH 1133	36.0	35.8	37.4	**36.4**
9	2119	TVH 002	30.1	35.1	32.2	**32.5**
10	2120	RHC-HD 1312	33.8	35.3	36.8	**35.3**
11	2121	RAHC 1901	30.8	35.3	36.7	**34.3**
12	2122	RAHC 1029	29.1	35.6	36.2	**33.6**

No. of bolls/m^2

S. No.	Code No.	Entries	Surat	Akola	Nanded	Mean CZ
1	2111	GISV 312	42.0	23.7	85.2	**50.3**
2	2112	**Local Check**	38.2	27.0	94.0	**53.1**
3	2113	CNH 09-77	33.6	42.0	89.9	**55.2**
4	2114	DSC 1851	42.2	38.7	103.1	**61.3**
5	2115	**ZC (Suraj)**	30.9	30.3	96.7	**52.6**
6	2116	AKH 1302	36.3	44.3	96.1	**58.9**
7	2117	RHC-HD 1405	36.1	45.0	87.3	**56.1**
8	2118	CNH 1133	40.7	34.3	91.8	**55.6**
9	2119	TVH 002	30.6	39.7	94.8	**55.0**
10	2120	RHC-HD 1312	29.9	38.0	88.1	**52.0**
11	2121	RAHC 1901	27.1	37.7	59.0	**41.3**
12	2122	RAHC 1029	30.7	32.7	76.2	**46.5**

Br 06b – CVT of Compact genotypes - (Central Zone) (Rainfed)

Plant height (cm)

S. No.	Code No.	Entries	Surat	Akola	Nanded	Mean CZ
1	2111	GISV 312	105.7	102.2	127.7	**111.9**
2	2112	**Local Check**	88.7	118.9	133.3	**113.6**
3	2113	CNH 09-77	89.0	112.8	143.7	**115.2**
4	2114	DSC 1851	88.3	112.2	137.7	**112.7**
5	2115	**ZC (Suraj)**	92.7	110.6	145.8	**116.4**
6	2116	AKH 1302	68.3	102.2	149.7	**106.7**
7	2117	RHC-HD 1405	82.7	98.3	146.1	**109.0**
8	2118	CNH 1133	86.3	121.7	158.8	**122.3**
9	2119	TVH 002	72.7	103.3	126.1	**100.7**
10	2120	RHC-HD 1312	96.0	101.7	152.4	**116.7**
11	2121	RAHC 1901	100.7	106.1	134.3	**113.7**
12	2122	RAHC 1029	113.7	96.1	134.0	**114.6**

No. of monopodia / plant

S. No.	Code No.	Entries	Surat	Akola	Nanded	Mean CZ
1	2111	GISV 312	0.0	1.3	0.9	**0.7**
2	2112	**Local Check**	0.0	1.3	0.9	**0.7**
3	2113	CNH 09-77	0.3	1.0	0.3	**0.5**
4	2114	DSC 1851	0.0	1.7	1.1	**0.9**
5	2115	**ZC (Suraj)**	0.3	1.0	0.7	**0.7**
6	2116	AKH 1302	0.3	1.7	1.5	**1.2**
7	2117	RHC-HD 1405	0.7	1.3	0.9	**1.0**
8	2118	CNH 1133	0.3	1.2	0.9	**0.8**
9	2119	TVH 002	0.7	1.0	0.3	**0.7**
10	2120	RHC-HD 1312	0.7	1.7	0.9	**1.1**
11	2121	RAHC 1901	1.7	1.1	1.2	**1.3**
12	2122	RAHC 1029	0.7	1.9	0.7	**1.1**

Br 06b – CVT of Compact genotypes - (Central Zone) (Rainfed)

No. of sympodia / plant

S. No.	Code No.	Entries	Surat	Akola	Nanded	Mean CZ
1	2111	GISV 312	11.3	19.9	21.1	**17.4**
2	2112	**Local Check**	7.3	20.7	27.1	**18.4**
3	2113	CNH 09-77	7.3	21.7	24.2	**17.7**
4	2114	DSC 1851	8.0	21.0	26.1	**18.4**
5	2115	**ZC (Suraj)**	10.0	21.7	26.2	**19.3**
6	2116	AKH 1302	6.7	20.7	30.9	**19.4**
7	2117	RHC-HD 1405	9.7	18.6	27.9	**18.7**
8	2118	CNH 1133	11.0	21.9	28.1	**20.3**
9	2119	TVH 002	9.3	20.7	23.4	**17.8**
10	2120	RHC-HD 1312	6.3	21.7	23.9	**17.3**
11	2121	RAHC 1901	10.0	20.6	24.5	**18.4**
12	2122	RAHC 1029	9.3	19.7	27.3	**18.8**

Boll weight (g)

S. No.	Code No.	Entries	Surat	Akola	Nanded	Mean CZ
1	2111	GISV 312	3.5	3.2	3.5	**3.4**
2	2112	**Local Check**	3.0	2.1	3.1	**2.7**
3	2113	CNH 09-77	3.3	2.6	3.3	**3.1**
4	2114	DSC 1851	2.9	2.4	2.9	**2.7**
5	2115	**ZC (Suraj)**	3.6	3.0	4.0	**3.5**
6	2116	AKH 1302	3.2	2.6	2.9	**2.9**
7	2117	RHC-HD 1405	2.9	2.0	2.8	**2.6**
8	2118	CNH 1133	2.8	2.4	3.0	**2.7**
9	2119	TVH 002	3.4	2.9	3.7	**3.3**
10	2120	RHC-HD 1312	3.2	3.1	3.4	**3.2**
11	2121	RAHC 1901	3.4	2.7	3.1	**3.1**
12	2122	RAHC 1029	3.1	2.5	2.9	**2.8**

Br 06b – CVT of Compact genotypes - (Central Zone) (Rainfed)

Lint Index (g)

S. No.	Code No.	Entries	Surat	Akola	Nanded	Mean CZ
1	2111	GISV 312	4.9	4.1	4.3	**4.4**
2	2112	**Local Check**	4.1	3.0	4.3	**3.8**
3	2113	CNH 09-77	4.1	3.9	5.0	**4.3**
4	2114	DSC 1851	3.8	4.1	4.3	**4.1**
5	2115	**ZC (Suraj)**	4.7	5.0	5.6	**5.1**
6	2116	AKH 1302	4.8	3.8	4.1	**4.2**
7	2117	RHC-HD 1405	4.4	3.8	3.8	**4.0**
8	2118	CNH 1133	4.2	3.7	4.4	**4.1**
9	2119	TVH 002	3.4	4.1	4.1	**3.9**
10	2120	RHC-HD 1312	4.1	4.8	4.8	**4.6**
11	2121	RAHC 1901	4.5	4.0	4.8	**4.4**
12	2122	RAHC 1029	3.3	3.6	4.1	**3.7**

Seed Index (g)

S. No.	Code No.	Entries	Surat	Akola	Nanded	Mean CZ
1	2111	GISV 312	8.0	7.2	7.2	**7.5**
2	2112	**Local Check**	8.5	5.2	7.1	**6.9**
3	2113	CNH 09-77	8.5	6.7	8.7	**8.0**
4	2114	DSC 1851	8.5	7.2	7.9	**7.9**
5	2115	**ZC (Suraj)**	10.0	8.8	9.3	**9.4**
6	2116	AKH 1302	9.0	6.8	7.0	**7.6**
7	2117	RHC-HD 1405	9.0	6.7	7.3	**7.7**
8	2118	CNH 1133	7.5	6.2	7.3	**7.0**
9	2119	TVH 002	8.0	7.3	8.7	**8.0**
10	2120	RHC-HD 1312	8.0	8.3	8.2	**8.2**
11	2121	RAHC 1901	10.0	7.0	8.3	**8.4**
12	2122	RAHC 1029	8.0	6.2	7.2	**7.1**

Br 24b – Coordinated Variety Trial - *G. arboreum* - (Central Zone)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Amreli	Khandwa	Nagpur	Akola	Jalgaon*	Parbhani	Mean CZ	Rank
1	2131	CNA 2036	1209	1452	494	275		955	**877**	3
2	2132	NDLA 3104-4	1245	1168	458	258		845	**795**	7
3	2133	MDL 2667	1096	1337	460	199		951	**809**	6
4	2134	AKA 2013-8	1234	1383	618	278		948	**892**	1
5	2135	**ZC (AKA 7)**	1289	1066	370	225		1001	**790**	8
6	2136	JLA-1207	1150	1352	574	202		1010	**858**	4
7	2137	CNA 2035	1102	1053	551	176		950	**766**	11
8	2138	**Local Check**	1263	973	524	154		987	**780**	10
9	2139	DWDa 1802	1392	1251	438	256		1053	**878**	2
10	2140	NDLA 3116-3	1128	1032	553	207		988	**782**	9
11	2141	MDL 2663	1273	1140	723	178		915	**846**	5
		CD @ 5 %	158	314	174	37		105		
		CV %	8	16	20	17		6		
		Local Checks	**G Cot 19**	**JK 5**	**AKA 8**	**AKA 8**	**JLA 794**	**PA 402**		

*Vitiated

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Amreli	Khandwa	Nagpur	Akola	Parbhani	Mean CZ
1	2131	CNA 2036	447	482	175	100	350	**311**
2	2132	NDLA 3104-4	460	401	164	92	317	**287**
3	2133	MDL 2667	406	469	163	70	342	**290**
4	2134	AKA 2013-8	475	465	230	99	357	**325**
5	2135	**ZC (AKA 7)**	517	301	147	80	412	**291**
6	2136	JLA-1207	423	414	191	68	374	**294**
7	2137	CNA 2035	390	356	194	60	334	**267**
8	2138	**Local Check**	439	281	185	54	361	**264**
9	2139	DWDa 1802	500	432	152	92	397	**315**
10	2140	NDLA 3116-3	451	308	212	73	389	**287**
11	2141	MDL 2663	493	379	258	65	337	**306**

Br 24b – Coordinated Variety Trial - *G. arboreum* - (Central Zone)

Ginning outturn (%)

S. No.	Code No.	Entries	Amreli	Khandwa	Nagpur	Akola	Parbhani	Mean CZ
1	2131	CNA 2036	37.0	33.2	35.5	36.3	36.7	**35.7**
2	2132	NDLA 3104-4	36.9	34.3	35.8	35.5	37.5	**36.0**
3	2133	MDL 2667	37.1	35.1	35.4	35.3	36.0	**35.8**
4	2134	AKA 2013-8	38.4	33.6	37.2	35.8	37.6	**36.5**
5	2135	**ZC (AKA 7)**	40.1	28.2	39.6	35.3	41.1	**36.9**
6	2136	JLA-1207	36.8	30.6	33.3	33.7	37.0	**34.3**
7	2137	CNA 2035	35.4	33.8	35.2	34.1	35.2	**34.7**
8	2138	**Local Check**	34.7	28.9	35.3	35.2	36.5	**34.1**
9	2139	DWDa 1802	35.9	34.5	34.8	36.1	37.7	**35.8**
10	2140	NDLA 3116-3	40.0	29.8	38.4	35.6	39.3	**36.6**
11	2141	MDL 2663	38.7	33.2	35.7	36.4	36.9	**36.2**

Bolls/plant

S. No.	Code No.	Entries	Amreli	Khandwa	Nagpur	Akola	Parbhani	Mean CZ
1	2131	CNA 2036	24.6	32.5	39.9	9.0	11.8	**23.6**
2	2132	NDLA 3104-4	19.5	28.9	36.2	10.7	9.7	**21.0**
3	2133	MDL 2667	17.7	32.4	41.4	6.3	11.8	**21.9**
4	2134	AKA 2013-8	25.4	29.5	56.5	8.7	11.7	**26.4**
5	2135	**ZC (AKA 7)**	25.3	29.1	33.0	9.3	12.4	**21.8**
6	2136	JLA-1207	21.2	32.1	44.2	8.0	12.1	**23.5**
7	2137	CNA 2035	25.6	34.5	51.6	4.7	11.7	**25.6**
8	2138	**Local Check**	24.4	31.9	41.2	9.3	12.1	**23.8**
9	2139	DWDa 1802	24.4	36.3	35.0	5.7	12.6	**22.8**
10	2140	NDLA 3116-3	22.1	30.5	38.3	8.3	11.8	**22.2**
11	2141	MDL 2663	19.9	35.3	46.2	5.3	11.7	**23.7**

Br 24b – Coordinated Variety Trial - *G. arboreum* - (Central Zone)

Boll weight (g)

S. No.	Code No.	Entries	Amreli	Khandwa	Nagpur	Akola	Parbhani	Mean CZ
1	2131	CNA 2036	2.0	3.1	2.1	2.1	2.8	**2.4**
2	2132	NDLA 3104-4	2.0	3.3	2.0	2.1	2.7	**2.4**
3	2133	MDL 2667	2.7	2.7	2.6	2.3	2.7	**2.6**
4	2134	AKA 2013-8	2.1	3.0	2.4	2.3	2.6	**2.5**
5	2135	**ZC (AKA 7)**	2.3	2.3	2.0	1.9	2.7	**2.2**
6	2136	JLA-1207	2.0	2.4	2.2	1.9	2.8	**2.3**
7	2137	CNA 2035	2.1	2.3	2.2	2.0	2.7	**2.3**
8	2138	**Local Check**	1.8	2.2	2.4	1.9	2.7	**2.2**
9	2139	DWDa 1802	2.0	2.6	2.7	1.6	2.8	**2.3**
10	2140	NDLA 3116-3	2.2	2.1	2.6	2.2	2.7	**2.4**
11	2141	MDL 2663	2.3	2.3	2.3	2.4	2.8	**2.4**

Br 24b (LL) – CVT- Long Linted *G. arboreum* - (CZ) (Rainfed)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Amreli	Viramgam	Khandwa	Nagpur	Akola	Jalgaon*	Parbhani	Mean CZ	Rank
1	2151	CNA 1065	1353	1808	1305	518	434		1026	**1074**	4
2	2152	PA 873	1444	1625	1136	517	388		932	**1007**	6
3	2153	PAIG 379	1530	1639	1063	561	347		883	**1004**	8
4	2154	PA 869	1351	1538	1492	497	350		852	**1013**	5
5	2155	QC (PA 255)	1526	1639	1229	474	352		823	**1007**	6
6	2156	CINA 1068	1413	1717	1374	532	440		988	**1077**	3
7	2157	CINA 1069	1458	1710	1416	628	530		1077	**1137**	1
8	2158	CINA 1067	1494	1787	1427	648	358		940	**1109**	2
		CD @ 5 %	NS	NS	240		24		128		
		CV %	9	14.9	11		11		8		

*Vitiated

Br 24b (LL) – CVT- Long Linted *G. arboreum* - (CZ) (Rainfed)

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Amreli	Viramgam	Khandwa	Nagpur	Akola	Parbhani	Mean CZ
1	2151	CNA 1065	479	552	399	169	156	378	**356**
2	2152	PA 873	523	506	326	163	137	342	**333**
3	2153	PAIG 379	589	465	286	183	117	325	**328**
4	2154	PA 869	503	443	495	168	127	317	**342**
5	2155	QC (PA 255)	555	476	425	160	123	301	**340**
6	2156	CINA 1068	505	516	478	171	157	353	**363**
7	2157	CINA 1069	539	524	498	216	195	406	**396**
8	2158	CINA 1067	526	519	482	214	129	346	**369**

Ginning outturn (%)

S. No.	Code No.	Entries	Amreli	Viramgam	Khandwa	Nagpur	Akola	Parbhani	Mean CZ
1	2151	CNA 1065	35.4	30.4	30.6	32.6	35.9	36.8	**33.6**
2	2152	PA 873	36.2	30.6	28.7	31.6	35.4	36.7	**33.2**
3	2153	PAIG 379	38.6	28.4	26.9	32.7	33.9	36.8	**32.9**
4	2154	PA 869	37.3	28.7	33.2	33.8	36.4	37.2	**34.4**
5	2155	QC (PA 255)	36.4	29.0	34.6	33.8	35.0	36.6	**34.2**
6	2156	CINA 1068	35.9	30.2	34.8	32.2	35.7	35.7	**34.1**
7	2157	CINA 1069	36.9	30.6	35.2	34.4	36.7	37.7	**35.3**
8	2158	CINA 1067	35.2	29.1	33.8	33.0	36.1	36.9	**34.0**

Br 24b (LL) – CVT- Long Linted *G. arboreum* - (CZ) (Rainfed)

Bolls/plant

S. No.	Code No.	Entries	Amreli	Viramgam	Khandwa	Nagpur	Akola	Parbhani	Mean CZ
1	2151	CNA 1065	26.3	35.1	38.5	22.9	5.0	11.9	**23.3**
2	2152	PA 873	27.9	29.7	35.6	35.9	7.0	10.5	**24.4**
3	2153	PAIG 379	27.9	25.6	36.9	26.8	5.7	10.0	**22.2**
4	2154	PA 869	23.4	30.3	40.7	31.0	4.3	9.9	**23.3**
5	2155	QC (PA 255)	26.7	34.1	40.6	28.0	4.7	9.4	**23.9**
6	2156	CINA 1068	28.1	36.7	33.5	26.4	9.0	12.3	**24.3**
7	2157	CINA 1069	23.9	26.1	37.1	29.1	6.3	12.9	**22.6**
8	2158	CINA 1067	26.4	26.7	42.0	31.9	7.3	11.4	**24.3**

Boll weight (g)

S. No.	Code No.	Entries	Amreli	Viramgam	Khandwa	Nagpur	Akola	Parbhani	Mean CZ
1	2151	CNA 1065	2.1	1.9	2.8	2.0	1.9	2.8	**2.3**
2	2152	PA 873	2.3	2.5	2.7	2.3	2.3	2.8	**2.5**
3	2153	PAIG 379	2.0	2.3	2.4	2.2	1.3	2.7	**2.2**
4	2154	PA 869	2.3	2.4	2.7	2.1	2.0	2.8	**2.4**
5	2155	QC (PA 255)	2.4	1.9	2.2	1.9	1.6	2.7	**2.1**
6	2156	CINA 1068	2.0	2.1	2.4	2.1	1.8	2.7	**2.2**
7	2157	CINA 1069	2.1	2.1	2.8	2.1	2.0	2.9	**2.3**
8	2158	CINA 1067	2.0	2.0	2.4	2.1	1.9	2.7	**2.2**

Br 24b – Coordinated Variety Trial of Coloured G. arboreum (Central Zone)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Surat	Nagpur	Nanded	Parbhani	Khandwa	Mean CZ	Rank
1	2161	CNA 18562	461	672	816	910	1440	**860**	5
2	2162	DDCC 1902	589	704	780	848	1126	**809**	10
3	2163	DDCC 1801	458	702	690	963	1257	**814**	8
4	2164	CNA 1092	692	805	765	1114	783	**832**	6
5	2165	ZC (AKA 7)	679	439	676	844	1155	**759**	12
6	2166	CNA 1091	586	292	757	1046	1465	**829**	7
7	2167	CNA 17522	507	635	742	972	1507	**873**	4
8	2168	CNA 19475	502	632	703	986	1559	**876**	3
9	2169	Local Check	679	438	686	718	1421	**788**	11
10	2170	CNA 18563	458	500	757	969	1374	**812**	9
11	2171	DDCC 1802	414	544	683	689	724	**611**	13
12	2172	DDCC 2001	599	701	722	928	1516	**893**	1
13	2173	DDCC 1901	712	784	720	814	1409	**888**	2
		CD @ 5 %	82	292	138	163	257		
		CV %	9	29	11	11	18		
		Local Checks	**G Cot 19**	**AKA 8**	**PA 255**	**PA 740**	**JK 5**		

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Surat	Nagpur	Nanded	Parbhani	Khandwa	Mean CZ
1	2161	CNA 18562	161	229	280	331	501	**300**
2	2162	DDCC 1902	194	230	251	301	340	**263**
3	2163	DDCC 1801	152	214	207	298	411	**256**
4	2164	CNA 1092	236	262	257	394	225	**275**
5	2165	ZC (AKA 7)	228	167	235	332	344	**261**
6	2166	CNA 1091	197	97	255	346	486	**276**
7	2167	CNA 17522	174	220	254	351	530	**306**
8	2168	CNA 19475	175	209	245	355	555	**308**
9	2169	Local Check	229	158	241	248	477	**271**
10	2170	CNA 18563	158	173	259	348	456	**279**
11	2171	DDCC 1802	141	161	191	212	248	**191**
12	2172	DDCC 2001	202	204	223	306	526	**292**
13	2173	DDCC 1901	241	248	229	250	449	**283**

Br 24b – Coordinated Variety Trial of Coloured G. arboreum (Central Zone)

Ginning outturn (%)

S. No.	Code No.	Entries	Surat	Nagpur	Nanded	Parbhani	Khandwa	Mean CZ
1	2161	CNA 18562	34.9	34.1	34.2	36.4	34.8	**34.9**
2	2162	DDCC 1902	33.0	32.7	32.0	35.5	30.2	**32.7**
3	2163	DDCC 1801	33.2	30.5	29.9	30.9	32.7	**31.4**
4	2164	CNA 1092	34.2	32.6	33.5	35.3	28.7	**32.9**
5	2165	ZC (AKA 7)	33.6	38.0	34.8	39.3	29.8	**35.1**
6	2166	CNA 1091	33.7	33.2	33.6	33.0	33.2	**33.3**
7	2167	CNA 17522	34.3	34.6	34.1	36.1	35.2	**34.9**
8	2168	CNA 19475	34.9	33.1	34.8	36.0	35.6	**34.9**
9	2169	Local Check	33.7	36.1	35.2	34.5	33.6	**34.6**
10	2170	CNA 18563	34.5	34.5	34.1	35.9	33.2	**34.4**
11	2171	DDCC 1802	33.9	29.5	27.9	30.7	34.2	**31.2**
12	2172	DDCC 2001	33.6	29.1	30.8	33.0	34.7	**32.2**
13	2173	DDCC 1901	33.9	31.7	30.7	30.8	31.9	**31.8**

Bolls/plant

S. No.	Code No.	Entries	Surat	Nagpur	Nanded	Parbhani	Khandwa	Mean CZ
1	2161	CNA 18562	21.0	27.0	25.1	11.6	21.0	**21.1**
2	2162	DDCC 1902	19.0	38.8	28.9	11.0	18.4	**23.2**
3	2163	DDCC 1801	20.0	36.7	31.9	12.2	18.3	**23.8**
4	2164	CNA 1092	29.0	24.8	32.9	13.8	14.9	**23.1**
5	2165	ZC (AKA 7)	25.0	18.7	31.5	10.2	18.1	**20.7**
6	2166	CNA 1091	21.0	19.7	31.7	13.2	22.4	**21.6**
7	2167	CNA 17522	20.0	23.9	26.9	12.5	21.7	**21.0**
8	2168	CNA 19475	24.0	23.8	22.1	12.8	22.5	**21.0**
9	2169	Local Check	22.0	21.4	34.1	8.9	21.4	**21.6**
10	2170	CNA 18563	16.0	19.3	32.5	11.8	22.4	**20.4**
11	2171	DDCC 1802	17.0	39.8	33.4	9.3	19.3	**23.8**
12	2172	DDCC 2001	22.0	36.9	27.5	12.2	23.3	**24.4**
13	2173	DDCC 1901	26.0	34.1	28.3	9.9	21.8	**24.0**

Br 24b – Coordinated Variety Trial of Coloured G. arboreum (Central Zone)

Boll weight (g)

S. No.	Code No.	Entries	Surat	Nagpur	Nanded	Parbhani	Khandwa	Mean CZ
1	2161	CNA 18562	1.7	2.2	2.4	2.6	2.6	**2.3**
2	2162	DDCC 1902	2.2	2.2	1.8	2.7	2.6	**2.3**
3	2163	DDCC 1801	1.6	2.2	1.6	2.7	2.8	**2.2**
4	2164	CNA 1092	1.6	2.4	2.3	2.8	2.5	**2.3**
5	2165	ZC (AKA 7)	1.9	2.2	2.3	2.6	2.7	**2.3**
6	2166	CNA 1091	2.0	2.0	2.1	2.8	2.4	**2.3**
7	2167	CNA 17522	1.8	2.3	2.3	2.7	2.6	**2.3**
8	2168	CNA 19475	1.5	2.0	1.9	2.7	2.7	**2.2**
9	2169	Local Check	2.1	2.3	1.8	2.7	2.5	**2.3**
10	2170	CNA 18563	2.1	2.5	2.4	2.8	2.3	**2.4**
11	2171	DDCC 1802	1.8	2.0	2.6	2.6	2.5	**2.3**
12	2172	DDCC 2001	2.1	2.2	2.2	2.7	2.5	**2.3**
13	2173	DDCC 1901	1.8	2.3	2.2	2.7	2.4	**2.3**

National Trials – South Zone

Br. 02a - Initial Evaluation Trial of *G. hirsutum* (Irrigated)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Raichur	B'Gudi	Arabhavi*	Lam	Adilabad	Coimbatore	Srivilliputhur	Mean SZ	Rank
1	301	GJHV 548	2419	2996		1380	827	1884	1937	**1907**	21
2	302	RB 602	3539	3131		1721	893	1852	2032	**2195**	12
3	303	L 1536	2250	3763		2792	981	1759	1822	**2228**	8
4	304	TSH 354	2335	2625		1642	889	1856	1665	**1835**	22
5	305	CPD 2003	2471	3828		1410	909	1721	1486	**1971**	17
6	306	**Zonal Check**	2130	2214		1829	-	1840	1619	**1926**	20
7	307	TCH 1941	3351	4774		2989	1443	1897	1463	**2653**	1
8	308	CPD 2002	2858	3334		1833	925	1751	1632	**2056**	13
9	309	GISV 328	2741	4195		2105	1059	1718	2190	**2335**	5
10	310	SHSV 14	3004	3526		2893	896	1785	1284	**2231**	7
11	311	RB 1903	2073	2906		2040	1090	1819	1741	**1945**	18
12	312	**Quality Check**	2498	3983		2118	1039	1794	1855	**2215**	9
13	313	ADB 727	2937	3378		2486	1058	1840	1554	**2209**	10
14	314	TSH 387	2454	3851		2199	1387	2010	2106	**2335**	5
15	315	GISV 332	1012	2471		2515	523	1663	1588	**1629**	23
16	316	CPD 2001	2511	3531		2086	773	1758	1671	**2055**	14
17	317	BS 10-20	2176	3080		2004	670	1724	2005	**1943**	19
18	318	GJHV 568	2533	3431		2682	1178	1798	1603	**2204**	11
19	319	RAH 1083	3564	5267		1303	1046	1914	1594	**2448**	3
20	320	RAH 1081	3696	4129		1743	1104	1849	2181	**2450**	2
21	321	**Local Check**	2474	2997		1528	1232	1958	1795	**1997**	16
22	322	GTHV 18/19	2764	3919		1448	764	1669	1764	**2055**	14
23	323	RAH 1082	3177	4047		2021	1031	1897	1895	**2345**	4
		CD @ 5 %	259	373		641	213	228	274		
		CV %	10	11		19	13	9	11		
		Zonal Check	Suraj								
		Quality Check	Suraj								
		Local Checks	**BGDS 1063**	**BGDS 1063**	**ARBH 813**	**NDLH 1938**	**NDLH 1938**	**Co 14**	**SVPR 5**		

***Poor yield - rejected**

Br. 02a - Initial Evaluation Trial of *G. hirsutum* (Irrigated)

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Raichur	B'Gudi	Lam	Adilabad	Coimbatore	Srivilliputhur	Mean SZ
1	301	GJHV 548	722	981	457	306	685	671	**637**
2	302	RB 602	1088	1162	636	334	666	708	**766**
3	303	L 1536	767	1473	1060	359	664	675	**833**
4	304	TSH 354	693	886	604	348	652	609	**632**
5	305	CPD 2003	700	1315	512	355	552	476	**652**
6	306	**Zonal Check**	583	747	646	-	609	619	**641**
7	307	TCH 1941	1040	1788	1069	568	694	526	**948**
8	308	CPD 2002	838	1165	570	343	577	599	**682**
9	309	GISV 328	807	1477	797	416	611	846	**826**
10	310	SHSV 14	845	1213	1087	352	569	409	**746**
11	311	RB 1903	601	1008	730	394	651	567	**659**
12	312	**Quality Check**	750	1391	824	408	632	673	**780**
13	313	ADB 727	816	1095	748	405	592	565	**704**
14	314	TSH 387	689	1356	699	499	721	784	**791**
15	315	GISV 332	258	839	880	201	588	562	**555**
16	316	CPD 2001	734	1284	684	305	639	628	**712**
17	317	BS 10-20	550	1004	598	231	629	690	**617**
18	318	GJHV 568	723	1165	977	461	629	586	**757**
19	319	RAH 1083	1062	2017	419	397	733	655	**881**
20	320	RAH 1081	1240	1608	530	434	729	873	**902**
21	321	**Local Check**	676	1017	501	455	612	616	**646**
22	322	GTHV 18/19	814	1375	472	300	577	644	**697**
23	323	RAH 1082	945	1451	695	371	699	694	**809**

Br. 02a - Initial Evaluation Trial of *G. hirsutum* (Irrigated)

Ginning outturn (%)

S. No.	Code No.	Entries	Raichur	B'Gudi	Lam	Adilabad	Coimbatore	Srivilliputhur	Mean SZ
1	301	GJHV 548	33.3	32.8	33.1	37.0	36.4	34.6	**34.5**
2	302	RB 602	34.1	37.2	36.5	37.4	36.1	34.9	**36.0**
3	303	L 1536	38.0	39.1	38.1	36.6	37.7	37.0	**37.8**
4	304	TSH 354	33.0	33.8	36.5	39.2	35.1	36.6	**35.7**
5	305	CPD 2003	31.5	34.4	37.8	39.1	32.2	32.1	**34.5**
6	306	**Zonal Check**	30.4	33.6	35.5	-	33.2	38.2	**34.2**
7	307	TCH 1941	34.5	37.5	36.3	39.4	36.5	35.8	**36.7**
8	308	CPD 2002	32.5	35.1	31.4	37.1	33.0	36.8	**34.3**
9	309	GISV 328	32.8	35.3	37.9	39.3	35.5	38.6	**36.6**
10	310	SHSV 14	31.3	34.4	37.8	39.3	31.8	32.0	**34.4**
11	311	RB 1903	32.2	34.7	36.2	36.1	35.4	32.6	**34.5**
12	312	**Quality Check**	33.4	35.0	39.0	39.2	35.2	36.3	**36.4**
13	313	ADB 727	30.8	32.5	30.0	38.3	32.1	36.4	**33.4**
14	314	TSH 387	31.2	35.2	31.9	36.0	35.9	37.3	**34.6**
15	315	GISV 332	28.3	33.9	34.2	38.4	35.4	35.4	**34.3**
16	316	CPD 2001	32.5	36.4	33.1	39.5	36.3	37.5	**35.9**
17	317	BS 10-20	28.0	32.6	30.1	34.4	36.6	34.5	**32.7**
18	318	GJHV 568	31.7	33.9	36.7	39.2	35.0	36.7	**35.5**
19	319	RAH 1083	33.1	38.3	32.0	38.0	38.3	41.0	**36.8**
20	320	RAH 1081	37.3	38.9	30.9	39.3	39.3	40.1	**37.6**
21	321	**Local Check**	30.4	34.0	33.6	36.9	31.2	34.4	**33.4**
22	322	GTHV 18/19	32.8	35.1	33.1	39.2	34.6	36.5	**35.2**
23	323	RAH 1082	33.0	35.8	34.8	36.0	36.8	36.6	**35.5**

Br. 02a - Initial Evaluation Trial of *G. hirsutum* (Irrigated)

Bolls/plant

S. No.	Code No.	Entries	Raichur	B'Gudi	Lam	Adilabad	Coimbatore	Srivilliputhur	Mean SZ
1	301	GJHV 548	17.0	16.0	39.1	28.0	20.3	26.1	**24.4**
2	302	RB 602	22.0	16.7	44.4	29.7	18.8	27.7	**26.6**
3	303	L 1536	16.3	20.3	56.1	32.3	18.6	26.7	**28.4**
4	304	TSH 354	16.7	14.3	40.1	20.4	19.8	25.4	**22.8**
5	305	CPD 2003	17.3	20.5	43.6	25.2	19.5	26.2	**25.4**
6	306	**Zonal Check**	15.3	13.0	56.5	-	20.3	27.7	**26.6**
7	307	TCH 1941	24.0	25.5	55.8	39.2	21.5	25.8	**32.0**
8	308	CPD 2002	20.0	17.7	46.4	26.7	17.8	21.9	**25.1**
9	309	GISV 328	19.0	24.7	44.6	29.2	18.8	27.7	**27.3**
10	310	SHSV 14	22.3	19.0	52.3	22.5	21.5	23.1	**26.8**
11	311	RB 1903	15.0	15.7	42.7	30.9	22.2	27.1	**25.6**
12	312	**Quality Check**	18.7	21.7	45.7	28.1	18.3	25.1	**26.3**
13	313	ADB 727	22.0	17.5	46.9	29.5	21.5	24.5	**27.0**
14	314	TSH 387	17.7	21.0	45.2	39.4	22.0	29.1	**29.1**
15	315	GISV 332	11.7	14.3	51.5	21.9	17.3	26.5	**23.9**
16	316	CPD 2001	18.7	19.3	50.2	23.5	20.3	27.0	**26.5**
17	317	BS 10-20	16.0	16.7	42.0	19.6	16.2	27.2	**23.0**
18	318	GJHV 568	19.3	18.7	50.5	35.2	20.0	26.5	**28.4**
19	319	RAH 1083	24.0	27.3	39.6	22.5	20.4	27.1	**26.8**
20	320	RAH 1081	24.3	23.7	41.1	34.5	21.5	30.6	**29.3**
21	321	**Local Check**	18.3	15.7	42.4	37.1	21.2	25.7	**26.7**
22	322	GTHV 18/19	20.0	21.7	45.1	24.6	18.2	25.5	**25.9**
23	323	RAH 1082	22.7	23.7	42.8	28.2	21.7	26.5	**27.6**

Br. 02a - Initial Evaluation Trial of *G. hirsutum* (Irrigated)

Boll weight (g)

S. No.	Code No.	Entries	Raichur	B'Gudi	Lam	Coimbatore	Srivilliputhur	Mean SZ
1	301	GJHV 548	4.3	3.6	3.6	4.3	4.6	**4.1**
2	302	RB 602	4.5	4.0	3.8	4.2	5.6	**4.4**
3	303	L 1536	3.7	3.3	4.3	3.6	4.0	**3.8**
4	304	TSH 354	5.1	5.0	3.6	5.5	5.9	**5.0**
5	305	CPD 2003	4.8	3.6	3.5	4.5	5.1	**4.3**
6	306	**Zonal Check**	4.7	4.4	4.3	4.3	5.4	**4.6**
7	307	TCH 1941	4.6	4.0	4.5	5.5	5.3	**4.8**
8	308	CPD 2002	4.6	3.9	3.7	4.6	4.6	**4.3**
9	309	GISV 328	4.6	4.7	3.9	4.4	5.1	**4.5**
10	310	SHSV 14	4.8	4.5	4.4	4.6	4.9	**4.6**
11	311	RB 1903	4.5	4.4	3.6	3.9	5.3	**4.3**
12	312	**Quality Check**	5.3	4.7	3.9	5.3	5.6	**5.0**
13	313	ADB 727	4.5	4.5	4.4	4.8	4.8	**4.6**
14	314	TSH 387	5.4	5.5	3.9	5.0	5.8	**5.1**
15	315	GISV 332	4.6	4.2	4.4	4.4	5.3	**4.6**
16	316	CPD 2001	4.7	4.6	4.1	4.6	5.4	**4.7**
17	317	BS 10-20	4.4	4.1	3.5	4.9	5.3	**4.4**
18	318	GJHV 568	4.6	4.0	4.2	4.3	5.0	**4.4**
19	319	RAH 1083	4.0	3.8	3.6	4.1	4.8	**4.1**
20	320	RAH 1081	4.1	3.6	3.9	4.1	4.9	**4.1**
21	321	**Local Check**	4.7	4.6	4.3	5.8	4.6	**4.8**
22	322	GTHV 18/19	4.9	4.1	3.5	4.3	5.1	**4.4**
23	323	RAH 1082	4.6	3.6	3.5	4.2	4.6	**4.1**

Br 02b - Initial Evaluation Trial of *G. hirsutum* (Rainfed)
Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Dharwad	Nandyal	Adilabad	Perambalur	Mean SZ	Rank
1	351	CNH 18298	428	1067	678	291	**616**	30
2	352	CPD 2052	672	748	793	870	**771**	25
3	353	BS 10-20	796	665	648	1049	**790**	22
4	354	**Quality Check (Suraj)**	985	1342	882	623	**958**	11
5	355	NDLH 2061-4	379	834	1324	1560	**1024**	6
6	356	CNH 119	895	872	1047	1636	**1113**	2
7	357	TKH 1225	667	782	777	1081	**827**	19
8	358	TSH 337	281	810	1113	1235	**860**	16
9	359	CNDTS 287	652	870	798	1232	**888**	14
10	360	WGCV 192	285	683	1548	1429	**986**	7
11	361	TVH 003	488	977	707	1735	**977**	9
12	362	**Zonal Check**	396	768	1141	360	**666**	29
13	363	NDLH 2071-2	556	1075	1246	1291	**1042**	5
14	364	RAH 1082	529	760	1013	827	**782**	23
15	365	CNH 18173	266	783	689	478	**554**	31
16	366	NH 723	642	970	1034	1172	**955**	12
17	367	RB 1908	754	700	1093	1290	**959**	10
18	368	GBHV 202	405	650	861	1258	**794**	21
19	369	RAH 1081	951	860	996	1894	**1175**	1
20	370	ADB 728	562	1065	916	796	**835**	18
21	371	TKH 1197	830	969	890	354	**761**	26
22	372	CPD 2053	666	827	915	935	**836**	17
23	373	AKH 2013-3	654	1475	1063	984	**1044**	4
24	374	CNDTS 2131	791	935	696	691	**778**	24
25	375	**Local Check**	767	1072	1052	677	**892**	13
26	376	CNH 1137	543	1409	654	652	**815**	20
27	377	CPD 2051	735	800	823	1586	**986**	7
28	378	GBHV 217	690	882	1119	1612	**1076**	3
29	379	TSH 358	161	768	479	346	**439**	32
30	380	RB 1910	758	949	548	733	**747**	27
31	381	AKH 2016-1	994	1225	756	543	**880**	15
32	382	RAH 1083	504	772	730	825	**708**	28
		CD @ 5 %	198	157	212	244		
		CV %	20	11	14	18		
		Zonal Check	NDLH 1938					
		Local Checks	**Sahana**	**Sivanandhi**	**Sivanandhi**	**KC 3**		

Br 02b - Initial Evaluation Trial of *G. hirsutum* (Rainfed)

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Dharwad	Nandyal	Adilabad	Perambalur	Mean SZ
1	351	CNH 18298	172	378	267	92	**227**
2	352	CPD 2052	260	251	314	324	**287**
3	353	BS 10-20	265	206	246	333	**263**
4	354	**Quality Check (Suraj)**	361	440	307	195	**326**
5	355	NDLH 2061-4	139	269	508	506	**356**
6	356	CNH 119	358	316	324	533	**383**
7	357	TKH 1225	228	245	308	319	**275**
8	358	TSH 337	107	262	386	390	**286**
9	359	CNDTS 287	230	263	285	405	**296**
10	360	WGCV 192	104	219	565	459	**337**
11	361	TVH 003	172	296	276	389	**283**
12	362	**Zonal Check**	145	239	413	111	**227**
13	363	NDLH 2071-2	199	321	472	361	**338**
14	364	RAH 1082	211	248	384	259	**276**
15	365	CNH 18173	104	270	205	192	**193**
16	366	NH 723	250	326	375	353	**326**
17	367	RB 1908	285	225	428	399	**334**
18	368	GBHV 202	156	215	306	419	**274**
19	369	RAH 1081	398	296	325	647	**417**
20	370	ADB 728	222	354	349	228	**288**
21	371	TKH 1197	304	298	339	121	**266**
22	372	CPD 2053	248	246	331	295	**280**
23	373	AKH 2013-3	241	446	398	311	**349**
24	374	CNDTS 2131	309	300	257	224	**273**
25	375	**Local Check**	307	318	357	215	**299**
26	376	CNH 1137	211	476	224	211	**281**
27	377	CPD 2051	271	250	312	500	**333**
28	378	GBHV 217	261	280	378	483	**351**
29	379	TSH 358	62	264	173	144	**161**
30	380	RB 1910	304	333	208	243	**272**
31	381	AKH 2016-1	390	397	286	191	**316**
32	382	RAH 1083	203	262	280	290	**259**

Br 02b - Initial Evaluation Trial of *G. hirsutum* (Rainfed)

Ginning outturn (%)

S. No.	Code No.	Entries	Dharwad	Nandyal	Adilabad	Perambalur	Mean SZ
1	351	CNH 18298	40.3	35.4	39.4	31.7	**36.7**
2	352	CPD 2052	38.7	33.5	39.6	36.8	**37.2**
3	353	BS 10-20	33.3	30.9	38.0	31.3	**33.4**
4	354	**Quality Check (Suraj)**	36.7	32.8	34.8	31.3	**33.9**
5	355	NDLH 2061-4	36.7	32.3	38.4	32.3	**34.9**
6	356	CNH 119	40.0	36.2	31.0	32.7	**35.0**
7	357	TKH 1225	34.2	31.3	39.6	29.4	**33.6**
8	358	TSH 337	38.3	32.3	34.7	31.2	**34.1**
9	359	CNDTS 287	35.3	30.2	35.7	32.8	**33.5**
10	360	WGCV 192	36.6	32.1	36.5	32.1	**34.3**
11	361	TVH 003	35.3	30.3	39.1	22.4	**31.8**
12	362	**Zonal Check**	36.7	31.1	36.2	31.0	**33.8**
13	363	NDLH 2071-2	35.9	29.9	37.9	27.7	**32.9**
14	364	RAH 1082	39.9	32.6	37.9	31.3	**35.4**
15	365	CNH 18173	39.2	34.5	29.8	40.5	**36.0**
16	366	NH 723	38.9	33.6	36.2	30.1	**34.7**
17	367	RB 1908	37.8	32.2	39.1	30.9	**35.0**
18	368	GBHV 202	38.5	33.0	35.5	32.5	**34.9**
19	369	RAH 1081	41.9	34.4	32.6	34.1	**35.8**
20	370	ADB 728	39.5	33.2	38.1	28.7	**34.9**
21	371	TKH 1197	36.7	30.8	38.1	34.5	**35.0**
22	372	CPD 2053	37.2	29.7	36.2	31.5	**33.7**
23	373	AKH 2013-3	36.9	30.2	37.4	31.5	**34.0**
24	374	CNDTS 2131	39.0	32.1	36.9	32.4	**35.1**
25	375	**Local Check**	40.0	29.7	34.0	31.7	**33.9**
26	376	CNH 1137	38.8	33.8	34.3	32.4	**34.8**
27	377	CPD 2051	36.9	31.2	37.9	31.5	**34.4**
28	378	GBHV 217	37.8	31.7	33.8	30.0	**33.3**
29	379	TSH 358	38.4	34.3	36.2	41.6	**37.6**
30	380	RB 1910	40.1	35.1	37.9	33.1	**36.6**
31	381	AKH 2016-1	39.2	32.4	37.9	35.3	**36.2**
32	382	RAH 1083	40.3	33.9	38.3	35.1	**36.9**

Br 02b - Initial Evaluation Trial of *G. hirsutum* (Rainfed)

Bolls/plant

S. No.	Code No.	Entries	Dharwad	Nandyal	Adilabad	Perambalur	Mean SZ
1	351	CNH 18298	7.2	10.7	20.3	21.9	**15.0**
2	352	CPD 2052	7.7	8.6	19.7	31.2	**16.8**
3	353	BS 10-20	7.2	9.1	14.1	20.6	**12.8**
4	354	**Quality Check (Suraj)**	6.5	13.0	16.0	22.2	**14.4**
5	355	NDLH 2061-4	6.5	8.1	30.2	29.6	**18.6**
6	356	CNH 119	6.7	8.1	18.8	20.1	**13.4**
7	357	TKH 1225	7.7	10.0	16.9	21.6	**14.1**
8	358	TSH 337	5.3	10.3	24.6	34.6	**18.7**
9	359	CNDTS 287	7.3	8.9	22.9	24.4	**15.9**
10	360	WGCV 192	4.9	8.8	35.6	30.3	**19.9**
11	361	TVH 003	6.3	11.2	19.9	23.8	**15.3**
12	362	**Zonal Check**	5.9	8.4	24.2	18.1	**14.2**
13	363	NDLH 2071-2	5.5	12.1	28.8	22.3	**17.2**
14	364	RAH 1082	6.3	8.4	24.5	15.4	**13.7**
15	365	CNH 18173	5.0	10.3	19.0	12.9	**11.8**
16	366	NH 723	6.0	9.2	24.4	18.2	**14.5**
17	367	RB 1908	7.3	6.4	25.3	29.1	**17.0**
18	368	GBHV 202	5.1	7.7	29.9	16.2	**14.7**
19	369	RAH 1081	7.9	10.0	31.9	30.3	**20.0**
20	370	ADB 728	6.7	9.8	22.0	21.0	**14.9**
21	371	TKH 1197	7.7	10.1	23.3	22.9	**16.0**
22	372	CPD 2053	7.3	8.9	24.7	24.7	**16.4**
23	373	AKH 2013-3	6.8	16.0	21.9	19.9	**16.2**
24	374	CNDTS 2131	6.1	10.0	21.1	21.4	**14.7**
25	375	**Local Check**	6.4	12.1	24.7	20.9	**16.0**
26	376	CNH 1137	6.6	14.5	18.7	19.8	**14.9**
27	377	CPD 2051	6.3	9.6	22.9	19.7	**14.6**
28	378	GBHV 217	6.5	10.0	33.3	30.6	**20.1**
29	379	TSH 358	4.1	10.0	14.8	17.1	**11.5**
30	380	RB 1910	7.4	7.5	17.5	17.3	**12.4**
31	381	AKH 2016-1	7.8	12.0	21.2	28.9	**17.5**
32	382	RAH 1083	5.9	9.3	18.7	28.1	**15.5**

Br 02b - Initial Evaluation Trial of *G. hirsutum* (Rainfed)

Boll weight (g)

S. No.	Code No.	Entries	Dharwad	Nandyal	Perambalur	Mean SZ
1	351	CNH 18298	3.3	3.1	5.0	**3.8**
2	352	CPD 2052	3.8	2.8	4.5	**3.7**
3	353	BS 10-20	4.0	3.3	4.6	**4.0**
4	354	**Quality Check (Suraj)**	4.4	3.3	4.7	**4.1**
5	355	NDLH 2061-4	3.9	3.2	5.0	**4.0**
6	356	CNH 119	4.1	4.0	5.1	**4.4**
7	357	TKH 1225	3.4	3.3	5.1	**3.9**
8	358	TSH 337	3.9	3.9	5.3	**4.4**
9	359	CNDTS 287	3.4	2.8	4.2	**3.5**
10	360	WGCV 192	3.5	3.8	4.2	**3.8**
11	361	TVH 003	3.9	3.9	5.0	**4.3**
12	362	**Zonal Check**	3.4	3.9	4.1	**3.8**
13	363	NDLH 2071-2	3.5	3.7	4.9	**4.0**
14	364	RAH 1082	3.6	3.2	4.7	**3.8**
15	365	CNH 18173	3.2	2.9	3.9	**3.3**
16	366	NH 723	3.6	2.8	4.9	**3.8**
17	367	RB 1908	3.6	3.5	5.0	**4.0**
18	368	GBHV 202	3.7	2.9	3.5	**3.4**
19	369	RAH 1081	3.7	3.1	5.0	**3.9**
20	370	ADB 728	3.7	3.1	5.0	**3.9**
21	371	TKH 1197	4.1	3.9	5.1	**4.4**
22	372	CPD 2053	3.8	3.1	3.8	**3.6**
23	373	AKH 2013-3	4.1	3.9	3.4	**3.8**
24	374	CNDTS 2131	3.6	2.5	4.2	**3.4**
25	375	**Local Check**	3.7	3.5	4.3	**3.8**
26	376	CNH 1137	3.5	2.9	4.5	**3.6**
27	377	CPD 2051	4.1	3.2	5.5	**4.3**
28	378	GBHV 217	3.5	3.2	5.1	**3.9**
29	379	TSH 358	3.3	3.5	4.0	**3.6**
30	380	RB 1910	3.8	3.0	5.1	**4.0**
31	381	AKH 2016-1	3.9	3.5	5.1	**4.2**
32	382	RAH 1083	3.2	2.9	5.2	**3.8**

Br 02a/b - Initial Evaluation Trial of Naturally Coloured *G. hirsutum*

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Dharwad	Lam	CICR, Coimbatore	Mean SZ	Rank
1	391	CNH 19325	441	2176	1326	**1314**	5
2	392	DHCC 2002	687	2294	1521	**1501**	4
3	393	**Zonal Check**	352	2327	1856	**1512**	3
4	394	CNH 19480	555	1627	1125	**1102**	7
5	395	DHCC 2001	917	2395	1660	**1657**	2
6	396	**Local Check**	234	2495	2262	**1664**	1
7	397	SHSCC 5	299	2088	1232	**1206**	6
		CD @ 5 %	97	342	373		
		CV %	12	9	8		
		Zonal Check	Suraj				
		Local Checks	**ARBH 813**	**NDLH 1938**	**CCH 2623**		

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Dharwad	Lam	CICR, Coimbatore	Mean SZ
1	391	CNH 19325	165	680	438	**428**
2	392	DHCC 2002	222	762	502	**495**
3	393	**Zonal Check**	131	875	612	**539**
4	394	CNH 19480	199	516	371	**362**
5	395	DHCC 2001	330	766	548	**548**
6	396	**Local Check**	86	955	746	**596**
7	397	SHSCC 5	95	638	407	**380**

Ginning outturn (%)

S. No.	Code No.	Entries	Dharwad	Lam	CICR, Coimbatore	Mean SZ
1	391	CNH 19325	37.3	31.2	33.3	**33.9**
2	392	DHCC 2002	32.3	33.2	32.9	**32.8**
3	393	**Zonal Check**	37.1	37.6	36.5	**37.1**
4	394	CNH 19480	35.8	31.7	34.2	**33.9**
5	395	DHCC 2001	36.0	32.0	34.6	**34.2**
6	396	**Local Check**	36.7	38.3	38.2	**37.7**
7	397	SHSCC 5	31.8	30.5	32.3	**31.5**

Br 02a/b - Initial Evaluation Trial of Naturally Coloured *G. hirsutum*

Bolls/plant

S. No.	Code No.	Entries	Dharwad	Lam	CICR, Coimbatore	Mean SZ
1	391	CNH 19325	7.4	48.6	24.2	**26.7**
2	392	DHCC 2002	6.7	54.2	26.7	**29.2**
3	393	**Zonal Check**	6.6	53.5	32.8	**31.0**
4	394	CNH 19480	8.1	50.0	25.3	**27.8**
5	395	DHCC 2001	8.3	58.4	29.2	**32.0**
6	396	**Local Check**	7.4	55.5	35.4	**32.8**
7	397	SHSCC 5	6.3	59.1	30.1	**31.8**

Boll weight (g)

S. No.	Code No.	Entries	Dharwad	Lam	CICR, Coimbatore	Mean SZ
1	391	CNH 19325	3.2	4.7	4.1	**4.0**
2	392	DHCC 2002	3.2	4.7	4.0	**4.0**
3	393	**Zonal Check**	3.7	4.7	4.4	**4.3**
4	394	CNH 19480	3.1	4.4	3.6	**3.7**
5	395	DHCC 2001	3.7	4.7	4.0	**4.1**
6	396	**Local Check**	3.2	4.9	4.2	**4.1**
7	397	SHSCC 5	3.1	4.4	3.9	**3.8**

Br. 06a – Initial Evaluation Trial of Compact genotypes (Irrigated)

Total Seed Cotton Yield at 160 DAS (Total of 130 DAS + 160 DAS) (Kg/ha)

S. No.	Code No.	Entries	Raichur	Lam	Coimbatore	Mean SZ	Rank
1	401	RB 1918	3123	2045	1674	**2281**	9
2	402	CNH 20-31	2892	2724	1806	**2474**	3
3	403	RHC 1651	3538	2603	1637	**2593**	1
4	404	BS 11-20	2842	2275	1780	**2299**	8
5	405	Local Check	3067	1857	1588	**2171**	11
6	406	TCH 1895	3152	2433	1936	**2507**	2
7	407	RHC 1639	2369	2743	1562	**2225**	10
8	408	RB 1901	2728	2705	1603	**2345**	6
9	409	RAHC 1032	2557	2629	1732	**2306**	7
10	410	Common Check (Suraj)	3307	2216	1637	**2387**	4
11	411	RAHC 1031	2696	2554	1859	**2370**	5
		CD @ 5 %	232	NS	213		
		CV %	8	18	9		
		Zonal Check	Suraj				
		Local Checks	**Sujay**	**Sivanandi**	**Suraj**		

Seed Cotton Yield (130 DAS) (Kg/ha)

S. No.	Code No.	Entries	Raichur	Coimbatore	Mean SZ
1	401	RB 1918	2753	1191	**1972**
2	402	CNH 20-31	2725	875	**1800**
3	403	RHC 1651	3205	1123	**2164**
4	404	BS 11-20	2620	823	**1722**
5	405	Local Check	2632	1097	**1865**
6	406	TCH 1895	2850	1063	**1957**
7	407	RHC 1639	2120	931	**1526**
8	408	RB 1901	2480	633	**1557**
9	409	RAHC 1032	2131	719	**1425**
10	410	Common Check (Suraj)	2942	924	**1933**
11	411	RAHC 1031	2497	1021	**1759**

Br. 06a – Initial Evaluation Trial of Compact genotypes (Irrigated)

Seed Cotton Yield (160 DAS) (Kg/ha)

S. No.	Code No.	Entries	Raichur	Coimbatore	Mean SZ
1	401	RB 1918	400	483	**442**
2	402	CNH 20-31	181	930	**556**
3	403	RHC 1651	360	514	**437**
4	404	BS 11-20	239	957	**598**
5	405	Local Check	469	490	**480**
6	406	TCH 1895	327	873	**600**
7	407	RHC 1639	269	631	**450**
8	408	RB 1901	267	970	**619**
9	409	RAHC 1032	460	1013	**737**
10	410	Common Check (Suraj)	395	713	**554**
11	411	RAHC 1031	215	838	**527**

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Raichur	Lam	Coimbatore	Mean SZ
1	401	RB 1918	1234	704	609	**849**
2	402	CNH 20-31	1145	887	699	**910**
3	403	RHC 1651	1344	992	559	**965**
4	404	BS 11-20	1097	740	643	**827**
5	405	Local Check	1190	658	577	**808**
6	406	TCH 1895	1236	765	700	**900**
7	407	RHC 1639	931	825	533	**763**
8	408	RB 1901	1012	931	596	**846**
9	409	RAHC 1032	969	1026	578	**858**
10	410	Common Check (Suraj)	1326	708	614	**883**
11	411	RAHC 1031	1065	882	710	**886**

Br. 06a – Initial Evaluation Trial of Compact genotypes (Irrigated)

Ginning outturn (%)

S. No.	Code No.	Entries	Raichur	Lam	Coimbatore	Mean SZ
1	401	RB 1918	39.5	34.4	36.3	**36.7**
2	402	CNH 20-31	39.6	32.6	38.7	**37.0**
3	403	RHC 1651	38.0	38.1	34.2	**36.8**
4	404	BS 11-20	38.6	32.5	36.1	**35.7**
5	405	Local Check	38.8	35.4	36.4	**36.9**
6	406	TCH 1895	39.2	31.4	36.2	**35.6**
7	407	RHC 1639	39.3	30.1	34.1	**34.5**
8	408	RB 1901	37.1	34.4	37.1	**36.2**
9	409	RAHC 1032	37.9	39.0	33.4	**36.8**
10	410	Common Check (Suraj)	40.1	31.9	37.6	**36.5**
11	411	RAHC 1031	39.5	34.5	38.3	**37.4**

No. of bolls/m^2

S. No.	Code No.	Entries	Raichur	Coimbatore	Mean SZ
1	401	RB 1918	82.3	130.3	**106.3**
2	402	CNH 20-31	69.7	152.3	**111.0**
3	403	RHC 1651	93.3	123.7	**108.5**
4	404	BS 11-20	72.3	147.7	**110.0**
5	405	Local Check	76.0	121.7	**98.8**
6	406	TCH 1895	84.3	156.7	**120.5**
7	407	RHC 1639	51.3	129.7	**90.5**
8	408	RB 1901	64.7	124.0	**94.4**
9	409	RAHC 1032	57.0	134.3	**95.7**
10	410	Common Check (Suraj)	88.0	124.7	**106.3**
11	411	RAHC 1031	63.7	153.8	**108.8**

Br. 06a – Initial Evaluation Trial of Compact genotypes (Irrigated)

Plant height (cm)

S. No.	Code No.	Entries	Raichur	Coimbatore	Mean SZ
1	401	RB 1918	114.0	94.0	**104.0**
2	402	CNH 20-31	104.5	84.7	**94.6**
3	403	RHC 1651	127.1	99.3	**113.2**
4	404	BS 11-20	114.2	78.7	**96.5**
5	405	Local Check	138.5	85.3	**111.9**
6	406	TCH 1895	125.5	100.7	**113.1**
7	407	RHC 1639	144.6	99.3	**122.0**
8	408	RB 1901	148.7	91.7	**120.2**
9	409	RAHC 1032	132.3	89.7	**111.0**
10	410	Common Check (Suraj)	121.9	79.7	**100.8**
11	411	RAHC 1031	123.3	89.0	**106.2**

No. of monopodia / plant

S. No.	Code No.	Entries	Raichur	Coimbatore	Mean SZ
1	401	RB 1918	0.5	0.7	**0.6**
2	402	CNH 20-31	0.3	0.7	**0.5**
3	403	RHC 1651	0.6	0.1	**0.4**
4	404	BS 11-20	0.4	0.7	**0.6**
5	405	Local Check	0.6	0.7	**0.7**
6	406	TCH 1895	0.6	0.4	**0.5**
7	407	RHC 1639	0.3	1.1	**0.7**
8	408	RB 1901	0.4	0.0	**0.2**
9	409	RAHC 1032	0.6	0.5	**0.6**
10	410	Common Check (Suraj)	0.4	0.5	**0.5**
11	411	RAHC 1031	0.5	0.5	**0.5**

Br. 06a – Initial Evaluation Trial of Compact genotypes (Irrigated)

No. of sympodia / plant

S. No.	Code No.	Entries	Raichur	Coimbatore	Mean SZ
1	401	RB 1918	18.9	14.9	**16.9**
2	402	CNH 20-31	16.3	13.3	**14.8**
3	403	RHC 1651	21.6	16.3	**19.0**
4	404	BS 11-20	17.9	15.7	**16.8**
5	405	Local Check	17.5	15.9	**16.7**
6	406	TCH 1895	18.3	14.5	**16.4**
7	407	RHC 1639	15.6	15.5	**15.6**
8	408	RB 1901	14.8	14.9	**14.9**
9	409	RAHC 1032	16.9	15.4	**16.2**
10	410	Common Check (Suraj)	21.3	15.9	**18.6**
11	411	RAHC 1031	14.9	14.7	**14.8**

Boll weight (g)

S. No.	Code No.	Entries	Raichur	Lam	Coimbatore	Mean SZ
1	401	RB 1918	3.9	4.4	4.9	**4.4**
2	402	CNH 20-31	3.6	4.8	3.6	**4.0**
3	403	RHC 1651	3.7	4.7	4.1	**4.2**
4	404	BS 11-20	4.6	4.2	4.6	**4.5**
5	405	Local Check	4.0	4.2	5.2	**4.5**
6	406	TCH 1895	4.5	4.3	5.0	**4.6**
7	407	RHC 1639	4.1	4.7	4.6	**4.5**
8	408	RB 1901	4.5	4.7	4.3	**4.5**
9	409	RAHC 1032	3.7	4.6	4.5	**4.3**
10	410	Common Check (Suraj)	4.3	4.6	5.2	**4.7**
11	411	RAHC 1031	3.7	4.2	4.6	**4.2**

Br. 06a – Initial Evaluation Trial of Compact genotypes (Irrigated)

Lint Index (g)

S. No.	Code No.	Entries	Raichur	Coimbatore	Mean SZ
1	401	RB 1918	5.4	5.3	**5.4**
2	402	CNH 20-31	5.6	6.0	**5.8**
3	403	RHC 1651	5.8	5.4	**5.6**
4	404	BS 11-20	7.3	6.2	**6.8**
5	405	Local Check	7.0	6.6	**6.8**
6	406	TCH 1895	6.7	6.6	**6.7**
7	407	RHC 1639	6.7	6.2	**6.5**
8	408	RB 1901	6.5	5.6	**6.1**
9	409	RAHC 1032	6.0	5.1	**5.6**
10	410	Common Check (Suraj)	7.1	6.5	**6.8**
11	411	RAHC 1031	6.4	6.3	**6.4**

Seed Index (g)

S. No.	Code No.	Entries	Raichur	Coimbatore	Mean SZ
1	401	RB 1918	8.3	10.2	**9.3**
2	402	CNH 20-31	8.6	8.1	**8.4**
3	403	RHC 1651	9.5	10.4	**10.0**
4	404	BS 11-20	11.6	11.0	**11.3**
5	405	Local Check	11.1	11.5	**11.3**
6	406	TCH 1895	10.4	11.6	**11.0**
7	407	RHC 1639	10.4	12.0	**11.2**
8	408	RB 1901	11.1	9.5	**10.3**
9	409	RAHC 1032	9.9	10.1	**10.0**
10	410	Common Check (Suraj)	10.6	10.7	**10.7**
11	411	RAHC 1031	9.7	10.2	**10.0**

Br. 06b – Initial Evaluation Trial of Compact genotypes (Rainfed)

Total Seed Cotton Yield at 160 DAS (Total of 130 DAS + 160 DAS) (Kg/ha)

S. No.	Code No.	Entries	Dharwad	Nandyal	Adilabad	Perambalur	Mean SZ	Rank
1	421	CNH 1139	213	933	919	724	**697**	6
2	422	CNH 20-32	184	789	978	861	**703**	5
3	423	CNDTS 5114	171	733	972	730	**652**	12
4	424	DSC 2051	409	644	905	797	**689**	7
5	425	**Local Check**	148	889	712	633	**596**	13
6	426	CNH 20-33	298	900	877	913	**747**	4
7	427	CNH 1140	130	944	759	857	**673**	9
8	428	CNH 121	60	1089	763	811	**681**	8
9	429	CNDTS 5170	104	744	809	633	**573**	14
10	430	CNH 20-31	227	867	917	681	**673**	9
11	431	CNH 120	112	611	719	613	**514**	15
12	432	RAHC 1032	143	944	897	683	**667**	11
13	433	**Common Check (Suraj)**	404	1255	888	759	**827**	1
14	434	RAHC 1031	207	944	1194	839	**796**	3
15	435	GTHV 19/18	291	867	1061	979	**800**	2
		CD @ 5 %	29		164	95		
		CV %	18		11	9		
		Local Checks	**ARBH 813**	**Sivanandi**	**Suraj**	**Suraj**		

Br. 06b – Initial Evaluation Trial of Compact genotypes (Rainfed)

Seed Cotton Yield (130 DAS) (Kg/ha)

S. No.	Code No.	Entries	Dharwad	Nandyal	Perambalur	Mean SZ
1	421	CNH 1139	90	708	639	**479**
2	422	CNH 20-32	103	599	782	**495**
3	423	CNDTS 5114	104	557	666	**442**
4	424	DSC 2051	176	489	715	**460**
5	425	**Local Check**	89	675	563	**442**
6	426	CNH 20-33	146	683	840	**556**
7	427	CNH 1140	95	708	776	**526**
8	428	CNH 121	41	826	723	**530**
9	429	CNDTS 5170	68	565	550	**394**
10	430	CNH 20-31	135	658	596	**463**
11	431	CNH 120	81	464	540	**362**
12	432	RAHC 1032	84	716	600	**467**
13	433	**Common Check (Suraj)**	165	955	665	**595**
14	434	RAHC 1031	64	718	760	**514**
15	435	GTHV 19/18	128	659	891	**559**

Seed Cotton Yield (160 DAS) (Kg/ha)

S. No.	Code No.	Entries	Dharwad	Nandyal	Perambalur	Mean SZ
1	421	CNH 1139	123	224	86	**144**
2	422	CNH 20-32	81	190	79	**117**
3	423	CNDTS 5114	67	176	64	**102**
4	424	DSC 2051	233	155	82	**157**
5	425	**Local Check**	59	214	69	**114**
6	426	CNH 20-33	152	217	73	**147**
7	427	CNH 1140	35	236	81	**117**
8	428	CNH 121	19	263	88	**123**
9	429	CNDTS 5170	37	179	83	**100**
10	430	CNH 20-31	92	210	85	**129**
11	431	CNH 120	30	147	73	**83**
12	432	RAHC 1032	58	228	83	**123**
13	433	**Common Check (Suraj)**	239	300	94	**211**
14	434	RAHC 1031	144	226	79	**150**
15	435	GTHV 19/18	163	209	88	**153**

Br. 06b – Initial Evaluation Trial of Compact genotypes (Rainfed)

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Dharwad	Nandyal	Adilabad	Perambalur	Mean SZ
1	421	CNH 1139	79	346	336	248	**252**
2	422	CNH 20-32	72	294	369	282	**255**
3	423	CNDTS 5114	63	243	366	231	**226**
4	424	DSC 2051	158	225	346	252	**245**
5	425	**Local Check**	57	295	277	196	**206**
6	426	CNH 20-33	115	295	334	296	**260**
7	427	CNH 1140	43	304	284	284	**229**
8	428	CNH 121	22	370	290	272	**239**
9	429	CNDTS 5170	42	245	309	205	**200**
10	430	CNH 20-31	95	323	344	232	**249**
11	431	CNH 120	37	216	274	222	**187**
12	432	RAHC 1032	51	308	340	240	**235**
13	433	**Common Check (Suraj)**	144	429	337	270	**295**
14	434	RAHC 1031	79	340	430	279	**282**
15	435	GTHV 19/18	111	300	410	317	**284**

Ginning outturn (%)

S. No.	Code No.	Entries	Dharwad	Nandyal	Adilabad	Perambalur	Mean SZ
1	421	CNH 1139	37.3	37.1	36.5	34.2	**36.3**
2	422	CNH 20-32	39.3	37.3	37.7	32.8	**36.8**
3	423	CNDTS 5114	36.6	33.2	37.6	31.6	**34.8**
4	424	DSC 2051	38.7	35.0	38.2	31.6	**35.9**
5	425	**Local Check**	38.5	33.2	38.8	30.9	**35.4**
6	426	CNH 20-33	38.5	32.8	38.1	32.4	**35.5**
7	427	CNH 1140	32.8	32.2	37.4	33.1	**33.9**
8	428	CNH 121	37.0	34.0	38.1	33.5	**35.7**
9	429	CNDTS 5170	40.5	32.9	38.2	32.4	**36.0**
10	430	CNH 20-31	41.9	37.3	37.5	34.1	**37.7**
11	431	CNH 120	32.9	35.3	38.1	36.2	**35.6**
12	432	RAHC 1032	35.5	32.6	37.9	35.2	**35.3**
13	433	**Common Check (Suraj)**	35.6	34.2	38.0	35.6	**35.9**
14	434	RAHC 1031	38.1	36.0	36.0	33.2	**35.8**
15	435	GTHV 19/18	38.0	34.6	38.6	32.4	**35.9**

Br. 06b – Initial Evaluation Trial of Compact genotypes (Rainfed)

No. of bolls/m^2

S. No.	Code No.	Entries	Dharwad	Nandyal	Adilabad	Perambalur	Mean SZ
1	421	CNH 1139	26.7	52.0	61.0	41.0	**45.2**
2	422	CNH 20-32	22.0	47.3	58.7	62.0	**47.5**
3	423	CNDTS 5114	24.0	58.3	56.0	51.0	**47.3**
4	424	DSC 2051	31.7	48.7	53.3	43.7	**44.4**
5	425	**Local Check**	21.0	65.7	54.7	40.7	**45.5**
6	426	CNH 20-33	27.0	59.3	49.3	51.0	**46.7**
7	427	CNH 1140	21.0	62.3	51.3	52.0	**46.7**
8	428	CNH 121	12.3	48.3	54.3	62.3	**44.3**
9	429	CNDTS 5170	20.3	49.0	57.3	54.0	**45.2**
10	430	CNH 20-31	21.0	70.0	49.3	61.0	**50.3**
11	431	CNH 120	17.0	62.3	43.7	50.3	**43.3**
12	432	RAHC 1032	25.7	74.7	57.3	61.3	**54.8**
13	433	**Common Check (Suraj)**	21.3	82.7	63.3	48.3	**53.9**
14	434	RAHC 1031	21.7	70.0	62.7	59.7	**53.5**
15	435	GTHV 19/18	25.7	55.3	67.0	55.0	**50.8**

Plant height (cm)

S. No.	Code No.	Entries	Dharwad	Nandyal	Adilabad	Perambalur	Mean CZ
1	421	CNH 1139	91.3	65.6	77.2	116.6	**87.7**
2	422	CNH 20-32	94.7	51.8	81.0	117.2	**86.2**
3	423	CNDTS 5114	101.9	64.0	105.9	143.4	**103.8**
4	424	DSC 2051	91.8	53.0	93.1	131.2	**92.3**
5	425	**Local Check**	101.1	80.0	112.1	165.9	**114.8**
6	426	CNH 20-33	97.0	64.6	87.1	125.6	**93.6**
7	427	CNH 1140	116.5	81.6	87.7	158.8	**111.1**
8	428	CNH 121	112.0	78.8	93.1	143.8	**106.9**
9	429	CNDTS 5170	103.0	83.4	101.5	163.4	**112.8**
10	430	CNH 20-31	92.2	60.0	88.5	124.4	**91.3**
11	431	CNH 120	104.1	85.0	94.3	142.0	**106.4**
12	432	RAHC 1032	93.3	93.0	97.1	138.1	**105.4**
13	433	**Common Check (Suraj)**	96.6	79.0	103.2	151.6	**107.6**
14	434	RAHC 1031	85.3	107.2	90.3	127.8	**102.7**
15	435	GTHV 19/18	100.6	87.6	98.5	150.7	**109.4**

Br. 06b – Initial Evaluation Trial of Compact genotypes (Rainfed)

No. of monopodia / plant

S. No.	Code No.	Entries	Dharwad	Nandyal	Adilabad	Perambalur	Mean CZ
1	421	CNH 1139	1.21	1.0	0.0	1.2	**0.9**
2	422	CNH 20-32	0.45	0.2	0.0	0.0	**0.2**
3	423	CNDTS 5114	1.03	1.0	0.1	0.0	**0.5**
4	424	DSC 2051	1.18	1.0	0.0	1.0	**0.8**
5	425	**Local Check**	0.96	0.0	0.0	0.7	**0.4**
6	426	CNH 20-33	0.69	0.0	0.0	0.8	**0.4**
7	427	CNH 1140	0.73	0.0	0.0	0.3	**0.3**
8	428	CNH 121	0.87	1.0	0.0	0.3	**0.5**
9	429	CNDTS 5170	1.21	0.0	0.0	1.1	**0.6**
10	430	CNH 20-31	0.79	0.2	0.0	0.0	**0.2**
11	431	CNH 120	0.72	1.0	0.1	1.0	**0.7**
12	432	RAHC 1032	1.02	2.0	0.0	1.3	**1.1**
13	433	**Common Check (Suraj)**	0.60	0.2	0.0	0.3	**0.3**
14	434	RAHC 1031	0.93	0.0	0.0	1.9	**0.7**
15	435	GTHV 19/18	1.45	2.0	0.0	1.6	**1.3**

No. of sympodia / plant

S. No.	Code No.	Entries	Dharwad	Nandyal	Adilabad	Perambalur	Mean CZ
1	421	CNH 1139	14.9	9.4	9.7	13.1	**11.8**
2	422	CNH 20-32	14.7	9.8	9.7	17.0	**12.8**
3	423	CNDTS 5114	16.8	10.6	13.9	17.8	**14.8**
4	424	DSC 2051	15.2	6.2	11.3	19.1	**13.0**
5	425	**Local Check**	17.3	14.8	12.5	18.1	**15.7**
6	426	CNH 20-33	16.7	5.0	9.6	14.6	**11.5**
7	427	CNH 1140	20.8	15.2	11.0	17.0	**16.0**
8	428	CNH 121	17.8	12.6	8.9	19.6	**14.7**
9	429	CNDTS 5170	16.9	13.0	12.3	19.9	**15.5**
10	430	CNH 20-31	15.6	8.6	9.8	14.2	**12.1**
11	431	CNH 120	17.4	14.0	10.1	16.1	**14.4**
12	432	RAHC 1032	16.1	17.0	11.5	18.6	**15.8**
13	433	**Common Check (Suraj)**	16.1	13.0	10.7	14.8	**13.7**
14	434	RAHC 1031	14.0	5.2	14.6	20.0	**13.5**
15	435	GTHV 19/18	17.1	12.4	13.5	17.3	**15.1**

Br. 06b – Initial Evaluation Trial of Compact genotypes (Rainfed)
Boll weight (g)

S. No.	Code No.	Entries	Dharwad	Nandyal	Perambalur	Mean CZ
1	421	CNH 1139	3.5	3.9	4.6	**4.0**
2	422	CNH 20-32	3.5	3.1	4.3	**3.6**
3	423	CNDTS 5114	4.3	3.9	4.8	**4.3**
4	424	DSC 2051	3.5	2.7	4.7	**3.6**
5	425	**Local Check**	3.5	3.8	4.3	**3.9**
6	426	CNH 20-33	3.4	2.8	4.5	**3.6**
7	427	CNH 1140	3.5	3.1	4.7	**3.8**
8	428	CNH 121	2.3	4.7	5.4	**4.1**
9	429	CNDTS 5170	3.4	2.7	4.3	**3.5**
10	430	CNH 20-31	3.3	2.6	4.2	**3.4**
11	431	CNH 120	3.3	3.1	3.5	**3.3**
12	432	RAHC 1032	3.0	2.8	4.1	**3.3**
13	433	**Common Check (Suraj)**	4.3	3.6	4.0	**4.0**
14	434	RAHC 1031	3.1	3.2	4.2	**3.5**
15	435	GTHV 19/18	3.1	3.5	4.3	**3.6**

Lint Index (g)

S. No.	Code No.	Entries	Dharwad	Nandyal	Adilabad	Perambalur	Mean CZ
1	421	CNH 1139	5.4	4.9	4.1	4.8	**4.8**
2	422	CNH 20-32	5.5	5.2	3.4	4.8	**4.7**
3	423	CNDTS 5114	4.9	4.8	4.5	4.6	**4.7**
4	424	DSC 2051	4.7	3.8	4.2	4.6	**4.3**
5	425	**Local Check**	5.0	4.7	4.5	5.0	**4.8**
6	426	CNH 20-33	5.0	4.6	3.9	4.8	**4.6**
7	427	CNH 1140	3.4	4.5	3.7	4.7	**4.1**
8	428	CNH 121	4.7	4.9	5.0	4.6	**4.8**
9	429	CNDTS 5170	5.1	4.4	4.4	4.7	**4.6**
10	430	CNH 20-31	5.1	4.3	4.0	4.8	**4.5**
11	431	CNH 120	4.7	4.7	5.2	4.8	**4.9**
12	432	RAHC 1032	4.1	3.7	3.8	4.8	**4.1**
13	433	**Common Check (Suraj)**	5.5	4.9	5.0	4.8	**5.1**
14	434	RAHC 1031	4.3	4.2	5.0	4.8	**4.6**
15	435	GTHV 19/18	4.0	3.6	4.3	4.7	**4.1**

Br. 06b – Initial Evaluation Trial of Compact genotypes (Rainfed)
Seed Index (g)

S. No.	Code No.	Entries	Dharwad	Nandyal	Adilabad	Perambalur	Mean CZ
1	421	CNH 1139	9.0	9.5	7.2	9.6	**8.8**
2	422	CNH 20-32	8.5	8.6	5.6	8.5	**7.8**
3	423	CNDTS 5114	8.5	9.3	7.4	7.1	**8.1**
4	424	DSC 2051	7.5	7	6.8	7.6	**7.2**
5	425	**Local Check**	8.0	9.7	7.1	8.9	**8.4**
6	426	CNH 20-33	8.0	8.9	6.3	9.1	**8.1**
7	427	CNH 1140	7.0	8.5	6.2	7.6	**7.3**
8	428	CNH 121	8.0	11.2	8.2	8.0	**8.8**
9	429	CNDTS 5170	7.5	8.4	7.0	8.1	**7.8**
10	430	CNH 20-31	7.0	6.9	6.6	8.7	**7.3**
11	431	CNH 120	9.5	9.3	8.5	8.6	**9.0**
12	432	RAHC 1032	7.5	9	6.3	7.5	**7.6**
13	433	**Common Check (Suraj)**	10.0	9.7	8.2	10.6	**9.6**
14	434	RAHC 1031	7.0	10.4	8.8	8.8	**8.8**
15	435	GTHV 19/18	6.5	7.1	6.8	8.4	**7.2**

Br. 22b – Initial Evaluation Trial of *G. arboreum*

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Dharwad	Raichur*	Nandyal	Mudhole	Kovilapatti*	Mean SZ	Rank
1	441	NDLA 3140	44		237	568		**283**	19
2	442	CNA 18392	113		497	659		**423**	13
3	443	CNA 2034	176		500	866		**514**	4
4	444	CNA 1071	255		457	973		**562**	1
5	445	JLA-1512	282		312	546		**380**	15
6	446	PA 885	139		348	518		**335**	17
7	447	DWDa 2051	227		432	864		**508**	5
8	448	CNA 18408	96		408	858		**454**	10
9	449	CNA 1072	351		278	916		**515**	3
10	450	JLA-1430	163		223	950		**445**	12
11	451	NDLA 3151	158		368	822		**449**	11
12	452	PA 881	183		280	694		**386**	14
13	453	GAM 266	110		148	812		**357**	16
14	454	MDL 2674	201		228	1124		**518**	2
15	455	GAM 269	93		308	574		**325**	18
16	456	**Zonal Check**	286		260	883		**476**	7
17	457	**Local Check**	178		457	793		**476**	7
18	458	MDL ABB1	160		260	1026		**482**	6
19	459	AKA 2015-8	176		280	943		**466**	9
		CD @ 5 %	54		87	139			
		CV %	18		16	10			
		Zonal Check	DLSa 17						
		Local Checks	**AK 235**	**AK 235**	**Yaganti**	**Veena**	**K 12**		

Br. 22b – Initial Evaluation Trial of *G. arboreum*

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Dharwad	Nandyal	Mudhole	Mean SZ
1	441	NDLA 3140	16	76	198	**97**
2	442	CNA 18392	40	176	238	**151**
3	443	CNA 2034	61	160	320	**180**
4	444	CNA 1071	88	160	356	**201**
5	445	JLA-1512	101	106	202	**136**
6	446	PA 885	47	116	185	**116**
7	447	DWDa 2051	75	138	303	**172**
8	448	CNA 18408	31	131	324	**162**
9	449	CNA 1072	121	89	330	**180**
10	450	JLA-1430	54	76	345	**158**
11	451	NDLA 3151	55	122	292	**156**
12	452	PA 881	63	101	247	**137**
13	453	GAM 266	39	54	325	**139**
14	454	MDL 2674	83	76	453	**204**
15	455	GAM 269	34	108	225	**122**
16	456	**Zonal Check**	99	88	320	**169**
17	457	**Local Check**	61	164	284	**170**
18	458	MDL ABB1	68	88	436	**197**
19	459	AKA 2015-8	66	95	374	**178**

Br. 22b – Initial Evaluation Trial of *G. arboreum*

Ginning outturn (%)

S. No.	Code No.	Entries	Dharwad	Nandyal	Mudhole	Mean SZ
1	441	NDLA 3140	35.5	32.0	34.8	**34.1**
2	442	CNA 18392	35.5	35.4	36.1	**35.7**
3	443	CNA 2034	34.7	32.0	36.9	**34.5**
4	444	CNA 1071	34.7	35.0	36.7	**35.5**
5	445	JLA-1512	35.8	34.0	37.1	**35.6**
6	446	PA 885	33.6	33.2	35.7	**34.2**
7	447	DWDa 2051	33.1	32.0	34.9	**33.3**
8	448	CNA 18408	31.9	32.1	37.7	**33.9**
9	449	CNA 1072	34.5	32.0	36.1	**34.2**
10	450	JLA-1430	33.3	33.8	36.3	**34.5**
11	451	NDLA 3151	34.7	33.1	35.5	**34.4**
12	452	PA 881	34.7	36.0	35.5	**35.4**
13	453	GAM 266	35.7	36.5	39.9	**37.4**
14	454	MDL 2674	41.1	33.4	40.4	**38.3**
15	455	GAM 269	36.4	35.0	39.2	**36.9**
16	456	**Zonal Check**	34.7	34.0	36.2	**35.0**
17	457	**Local Check**	34.2	36.0	35.8	**35.3**
18	458	MDL ABB1	42.4	34.0	42.5	**39.6**
19	459	AKA 2015-8	37.2	34.0	39.7	**37.0**

Br. 22b – Initial Evaluation Trial of *G. arboreum*

Bolls/plant

S. No.	Code No.	Entries	Dharwad	Nandyal	Mudhole	Mean SZ
1	441	NDLA 3140	2.1	5.9	16.6	**8.2**
2	442	CNA 18392	2.9	8.4	15.9	**9.1**
3	443	CNA 2034	3.2	12.0	18.5	**11.2**
4	444	CNA 1071	2.9	7.9	17.2	**9.3**
5	445	JLA-1512	3.3	8.3	14.1	**8.6**
6	446	PA 885	2.7	5.7	15.7	**8.0**
7	447	DWDa 2051	2.7	7.9	17.3	**9.3**
8	448	CNA 18408	2.8	6.7	17.3	**8.9**
9	449	CNA 1072	4.5	6.5	18.1	**9.7**
10	450	JLA-1430	2.2	5.4	18.0	**8.5**
11	451	NDLA 3151	2.4	8.7	16.1	**9.1**
12	452	PA 881	2.2	5.7	14.4	**7.4**
13	453	GAM 266	2.3	4.7	17.8	**8.3**
14	454	MDL 2674	3.3	5.1	16.4	**8.3**
15	455	GAM 269	2.7	7.0	17.9	**9.2**
16	456	**Zonal Check**	3.3	7.2	15.2	**8.6**
17	457	**Local Check**	2.7	9.5	15.1	**9.1**
18	458	MDL ABB1	2.5	6.1	16.4	**8.3**
19	459	AKA 2015-8	3.5	7.0	15.4	**8.6**

Br. 22b – Initial Evaluation Trial of *G. arboreum*

Boll weight (g)

S. No.	Code No.	Entries	Dharwad	Nandyal	Mudhole	Mean SZ
1	441	NDLA 3140	1.8	1.8	1.9	**1.8**
2	442	CNA 18392	2.0	1.8	2.2	**2.0**
3	443	CNA 2034	2.0	2.2	1.8	**2.0**
4	444	CNA 1071	2.0	2.0	2.4	**2.1**
5	445	JLA-1512	2.4	2.2	1.8	**2.1**
6	446	PA 885	2.2	2.4	1.9	**2.2**
7	447	DWDa 2051	2.5	1.8	2.1	**2.1**
8	448	CNA 18408	2.0	3.0	2.3	**2.4**
9	449	CNA 1072	2.3	2.6	2.4	**2.4**
10	450	JLA-1430	2.1	2.0	2.4	**2.2**
11	451	NDLA 3151	1.9	1.8	2.0	**1.9**
12	452	PA 881	2.3	2.6	2.4	**2.4**
13	453	GAM 266	2.1	2.6	2.2	**2.3**
14	454	MDL 2674	2.5	2.4	4.0	**3.0**
15	455	GAM 269	2.3	2.6	1.9	**2.3**
16	456	**Zonal Check**	2.1	2.8	2.1	**2.3**
17	457	**Local Check**	2.0	2.4	2.4	**2.3**
18	458	MDL ABB1	2.9	3.0	3.9	**3.3**
19	459	AKA 2015-8	2.3	2.4	2.9	**2.5**

Br. 22b – Initial Evaluation Trial of long linted *G. arboreum*

Data recorded at RARS, Nandyal

S. No.	Code No.	Seed Cotton Yield (kg/ha)	Lint Yield (kg/ha)	Ginning Outturn (%)	Boll No	Boll Weight (g)
1	461	243	80	32.7	6.7	1.8
2	462	482	165	34.2	10.0	1.0
3	463	558	180	32.2	13.6	1.7
4	464	438	151	34.5	9.0	1.1
5	465	523	160	30.6	10.0	3.4
6	466	510	167	32.8	12.0	1.8
7	467	422	134	31.8	7.8	1.2
8	468	642	218	34.0	17.0	1.8
9	469	460	152	33.0	8.8	2.1
10	470	365	112	30.8	7.0	2.3
	CD@5%	105				
	CV %	13				

Trial at Kovilpatti is vitiated

SOUTH ZONE TRIALS

Br 03a – Preliminary Varietal Trial - *G. hirsutum* (South Zone)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Arabhavi*	Raichur	Lam	Srivilliputhur	Mean SZ	Rank
1	2501	TSH 383		2174	2407	2279	**2287**	2
2	2502	**ZC (Suraj)**		2546	2327	1535	**2136**	6
3	2503	CCH 19-2		2564	1627	1781	**1991**	7
4	2504	RHC 1409		2833	2231	2122	**2395**	1
5	2505	**Local Check**		2627	1754	2033	**2138**	5
6	2506	CPD 1902		2725	2026	1830	**2194**	3
7	2507	RAH 1046		2825	2173	1571	**2190**	4
		CD @ 5 %		240	331	312		
		CV %		9	9	11		
		Local Checks	**ARBH 813**	**BGDS 1063**	**NDLH 1938**	**SVPR 6**		

***Poor Yield – Rejected**

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Raichur	Lam	Srivilliputhur	Mean SZ
1	2501	TSH 383	844	957	848	**883**
2	2502	**ZC (Suraj)**	999	856	546	**800**
3	2503	CCH 19-2	879	556	587	**674**
4	2504	RHC 1409	1104	831	805	**913**
5	2505	**Local Check**	963	559	764	**762**
6	2506	CPD 1902	1107	780	699	**862**
7	2507	RAH 1046	1113	813	609	**845**

Br 03a – Preliminary Varietal Trial - *G. hirsutum* (South Zone)
Ginning outturn (%)

S. No.	Code No.	Entries	Raichur	Lam	Srivilliputhur	Mean SZ
1	2501	TSH 383	39.0	39.8	37.4	**38.7**
2	2502	**ZC (Suraj)**	39.4	36.8	35.6	**37.3**
3	2503	CCH 19-2	34.3	34.2	33.0	**33.8**
4	2504	RHC 1409	38.8	37.2	37.9	**38.0**
5	2505	**Local Check**	36.7	31.9	37.3	**35.3**
6	2506	CPD 1902	40.7	38.5	38.2	**39.1**
7	2507	RAH 1046	39.4	37.4	38.8	**38.5**

Bolls/plant

S. No.	Code No.	Entries	Raichur	Lam	Srivilliputhur	Mean SZ
1	2501	TSH 383	14.3	59.6	28.6	**34.2**
2	2502	**ZC (Suraj)**	17.7	56.5	26.3	**33.5**
3	2503	CCH 19-2	16.0	44.7	28.4	**29.7**
4	2504	RHC 1409	16.7	58.4	30.5	**35.2**
5	2505	**Local Check**	18.7	45.5	29.5	**31.2**
6	2506	CPD 1902	19.3	52.9	27.9	**33.4**
7	2507	RAH 1046	18.7	53.4	26.5	**32.9**

Boll weight (g)

S. No.	Code No.	Entries	Raichur	Lam	Srivilliputhur	Mean SZ
1	2501	TSH 383	4.6	4.7	5.5	**4.9**
2	2502	**ZC (Suraj)**	4.8	4.7	5.0	**4.8**
3	2503	CCH 19-2	4.8	3.5	5.4	**4.6**
4	2504	RHC 1409	4.6	4.5	5.0	**4.7**
5	2505	**Local Check**	4.5	4.0	4.6	**4.4**
6	2506	CPD 1902	4.8	4.5	5.0	**4.8**
7	2507	RAH 1046	4.8	4.5	5.1	**4.8**

Br 03 – Preliminary Varietal Trial - Coloured *G. hirsutum* (South Zone)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Raichur (I)	Lam (I)	Coimbatore (I)	Dharwad (R)	Nandyal (R)	Mean SZ	Rank
1	2511	DHCC 1801	1799	1751	1353	794	1017	**1343**	11
2	2512	CCHC 19-2	1791	1962	2165	335	834	**1417**	10
3	2513	DHCC 1901	1960	2369	1533	832	900	**1519**	3
4	2514	**Suraj (Zonal Check)**	2174	2095	2232	306	1134	**1588**	1
5	2515	CNH 18528	2234	2181	1465	506	984	**1474**	7
6	2516	CNH 17395	2347	1701	1452	508	1200	**1442**	8
7	2517	CCHC 19-1	2068	2046	2195	412	767	**1498**	5
8	2518	DHCC 1902	2229	2065	1447	677	783	**1440**	9
9	2519	**Local Check**	2113	2053	2326	239	817	**1510**	4
10	2520	DHCC 1802	2269	1856	1513	913	934	**1497**	6
11	2521	CNH 18529	2700	1544	1528	761	1084	**1523**	2
12	2522	LHCC 3	1454	2198	1169	344	650	**1163**	12
		CD @ 5 %	350	327	316	144	219		
		CV %	17	10	9	15	14		
		Local Checks	**Sujay**	**Sivanandi**	**CCH 2623**	**ARBH-813**	**Sivanandi**		

Br 03 – Preliminary Varietal Trial - Coloured *G. hirsutum* (South Zone)

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Raichur (I)	Lam (I)	Coimbatore (I)	Dharwad (R)	Nandyal (R)	Mean SZ
1	2511	DHCC 1801	514	579	446	280	311	**426**
2	2512	CCHC 19-2	520	615	714	110	248	**441**
3	2513	DHCC 1901	607	792	506	321	297	**505**
4	2514	**Suraj (Zonal Check)**	673	741	737	117	382	**530**
5	2515	CNH 18528	703	781	483	197	321	**497**
6	2516	CNH 17395	736	490	479	183	377	**453**
7	2517	CCHC 19-1	609	642	724	135	173	**457**
8	2518	DHCC 1902	685	742	478	252	232	**478**
9	2519	**Local Check**	651	754	768	93	261	**505**
10	2520	DHCC 1802	673	668	499	345	310	**499**
11	2521	CNH 18529	891	488	504	288	368	**508**
12	2522	LHCC 3	335	695	386	93	209	**344**

Ginning outturn (%)

S. No.	Code No.	Entries	Raichur (I)	Lam (I)	Coimbatore (I)	Dharwad (R)	Nandyal (R)	Mean SZ
1	2511	DHCC 1801	28.4	33.3	32.6	35.2	30.6	**32.0**
2	2512	CCHC 19-2	28.9	32.8	35.2	32.9	29.8	**31.9**
3	2513	DHCC 1901	31.0	33.9	34.3	38.6	33.0	**34.2**
4	2514	**Suraj (Zonal Check)**	31.0	33.2	34.8	38.1	33.7	**34.2**
5	2515	CNH 18528	31.7	34.9	32.9	38.9	32.6	**34.2**
6	2516	CNH 17395	31.4	30.9	32.4	36.1	31.4	**32.4**
7	2517	CCHC 19-1	29.4	31.8	33.6	32.9	22.6	**30.1**
8	2518	DHCC 1902	30.7	36.3	34.2	37.3	29.6	**33.6**
9	2519	**Local Check**	30.8	37.8	36.7	38.8	32.0	**35.2**
10	2520	DHCC 1802	29.6	37.4	34.3	37.8	33.2	**34.5**
11	2521	CNH 18529	33.0	33.2	34.8	37.9	34.0	**34.6**
12	2522	LHCC 3	23.0	33.2	27.9	27.1	32.1	**28.7**

Br 03 – Preliminary Varietal Trial - Coloured *G. hirsutum* (South Zone)

Bolls/plant

S. No.	Code No.	Entries	Raichur (I)	Lam (I)	Coimbatore (I)	Dharwad (R)	Nandyal (R)	Mean SZ
1	2511	DHCC 1801	12.5	44.6	42.2	6.7	9.9	**23.2**
2	2512	CCHC 19-2	16.7	48.3	53.2	8.3	8.3	**27.0**
3	2513	DHCC 1901	15.6	56.3	45.2	9.7	9.4	**27.2**
4	2514	**Suraj (Zonal Check)**	14.5	60.3	50.8	7.1	12.0	**28.9**
5	2515	CNH 18528	19.1	54.0	45.3	8.9	11.0	**27.7**
6	2516	CNH 17395	16.7	43.5	41.2	8.0	14.0	**24.7**
7	2517	CCHC 19-1	17.4	46.0	51.2	7.2	8.5	**26.1**
8	2518	DHCC 1902	20.9	55.7	50.1	9.0	7.4	**28.6**
9	2519	**Local Check**	19.4	48.0	53.7	7.1	8.0	**27.2**
10	2520	DHCC 1802	15.9	39.5	35.3	8.7	7.1	**21.3**
11	2521	CNH 18529	20.2	40.3	40.5	9.2	11.0	**24.2**
12	2522	LHCC 3	14.8	44.8	40.3	7.7	9.1	**23.3**

Boll weight (g)

S. No.	Code No.	Entries	Raichur (I)	Lam (I)	Coimbatore (I)	Dharwad (R)	Nandyal (R)	Mean SZ
1	2511	DHCC 1801	4.8	4.1	3.8	3.6	3.0	**3.9**
2	2512	CCHC 19-2	5.2	3.9	4.6	3.5	4.3	**4.3**
3	2513	DHCC 1901	4.7	4.7	4.0	3.6	3.5	**4.1**
4	2514	**Suraj (Zonal Check)**	5.6	4.5	4.9	3.6	3.7	**4.5**
5	2515	CNH 18528	4.9	4.3	4.1	3.3	2.9	**3.9**
6	2516	CNH 17395	4.7	3.9	3.8	3.1	3.1	**3.7**
7	2517	CCHC 19-1	4.5	4.5	4.6	3.0	3.2	**4.0**
8	2518	DHCC 1902	4.7	4.8	4.1	3.2	2.9	**3.9**
9	2519	**Local Check**	5.3	4.2	4.5	3.2	4.1	**4.3**
10	2520	DHCC 1802	4.9	4.5	3.8	3.2	3.1	**3.9**
11	2521	CNH 18529	4.7	3.9	3.9	3.1	3.3	**3.8**
12	2522	LHCC 3	4.9	4.1	4.2	3.7	3.5	**4.1**

Br 04a – Coordinated Varietal Trial - *G. hirsutum* (South Zone)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Arabhavi*	Raichur	Lam	Srivilliputhur	Mean SZ	Rank
1	2531	CPD 1701		2307	1804	2010	2040	3
2	2532	**ZC (Suraj)**		1964	2160	1908	2011	4
3	2533	CPD 1702		2625	2343	1508	2159	1
4	2534	RAH 1075		2554	1909	1969	2144	2
5	2535	**Local Checks**		1875	1722	1943	1847	6
6	2536	TSH 325		1843	1842	2107	1931	5
		CD @ 5 %		474	376	300		
		CV %		14	13	13		
		Local Checks	**ARBH 813**	**BGDS 1063**	**NDLH 1938**	**SVPR 6**		

***Poor Yield – Rejected**

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Raichur	Lam	Srivilliputhur	Mean SZ
1	2531	CPD 1701	897	599	762	753
2	2532	**ZC (Suraj)**	764	768	716	749
3	2533	CPD 1702	1030	899	566	832
4	2534	RAH 1075	945	642	751	779
5	2535	**Local Checks**	710	605	671	662
6	2536	TSH 325	704	666	757	709

Ginning outturn (%)

S. No.	Code No.	Entries	Raichur	Lam	Srivilliputhur	Mean SZ
1	2531	CPD 1701	38.9	33.2	38.0	37
2	2532	**ZC (Suraj)**	38.9	35.6	37.4	37
3	2533	CPD 1702	39.2	38.4	37.6	38
4	2534	RAH 1075	36.9	33.6	38.2	36
5	2535	**Local Checks**	38.0	35.2	34.7	36
6	2536	TSH 325	38.1	36.2	35.9	37

Br 04a – Coordinated Varietal Trial - *G. hirsutum* (South Zone)

Bolls/plant

S. No.	Code No.	Entries	Raichur	Lam	Srivilliputhur	Mean SZ
1	2531	CPD 1701	18.6	49.3	28.4	32
2	2532	**ZC (Suraj)**	17.6	58.5	27.4	35
3	2533	CPD 1702	24.0	67.1	25.6	39
4	2534	RAH 1075	22.5	57.6	27.9	36
5	2535	**Local Checks**	14.9	47.3	30.1	31
6	2536	TSH 325	13.5	53.8	30.0	32

Boll weight (g)

S. No.	Code No.	Entries	Raichur	Lam	Srivilliputhur	Mean SZ
1	2531	CPD 1701	4.8	4.5	5.5	5
2	2532	**ZC (Suraj)**	4.7	4.5	5.8	5
3	2533	CPD 1702	4.5	4.8	5.1	5
4	2534	RAH 1075	3.8	4.1	5.2	4
5	2535	**Local Checks**	4.4	4.3	4.7	4
6	2536	TSH 325	4.6	4.7	5.9	5

Br 05a – Coordinated Hybrid Trial - Intra *hirsutum* hybrids (South Zone)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Raichur	B' Gudi	Dharwad (KSSC)*	Lam	Srivilliputhur	Mean SZ	Rank
1	2541	BGDHH 2013	2894	3853		2418	2399	2891	1
2	2542	DHH 2001	2582	3511		2287	1851	2558	5
3	2543	LC	3190	3995		1775	2187	2787	2
4	2544	RAHH 2012	2937	3872		2173	2129	2778	3
5	2545	RAHH 2011	2859	3557		1972	2264	2663	4
		CD @ 5 %	500	638		215	275		
		CV %	11	11		7	10		
		Local Checks	**SHH 818**	**SHH 818**	**DHH 11**	**LAHH 5**	**SHH 818**		

***Vitiated**

Br 05a – Coordinated Hybrid Trial - Intra *hirsutum* hybrids (South Zone)

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Raichur	B' Gudi	Lam	Srivilliputhur	Mean SZ
1	2541	BGDHH 2013	959	1393	918	901	1043
2	2542	DHH 2001	909	1345	827	670	938
3	2543	LC	1026	1458	606	833	981
4	2544	RAHH 2012	986	1399	730	803	980
5	2545	RAHH 2011	962	1301	738	861	966

Ginning outturn (%)

S. No.	Code No.	Entries	Raichur	B' Gudi	Lam	Srivilliputhur	Mean SZ
1	2541	BGDHH 2013	33.2	36.2	37.9	37.5	36.2
2	2542	DHH 2001	35.3	38.3	36.4	36.2	36.6
3	2543	LC	32.3	36.5	34.2	38.1	35.3
4	2544	RAHH 2012	33.7	36.2	33.5	37.7	35.3
5	2545	RAHH 2011	33.6	36.5	37.1	38.1	36.3

Bolls/plant

S. No.	Code No.	Entries	Raichur	B' Gudi	Lam	Srivilliputhur	Mean SZ
1	2541	BGDHH 2013	37.4	28.3	59.0	30.9	38.9
2	2542	DHH 2001	44.6	25.4	55.9	27.0	38.2
3	2543	LC	38.3	30.5	47.7	28.3	36.2
4	2544	RAHH 2012	42.3	28.6	55.0	29.6	38.9
5	2545	RAHH 2011	39.6	26.3	49.5	29.6	36.3

Boll weight (g)

S. No.	Code No.	Entries	Raichur	B' Gudi	Lam	Srivilliputhur	Mean SZ
1	2541	BGDHH 2013	5.2	4.9	4.6	5.6	5.1
2	2542	DHH 2001	5.1	4.6	4.6	5.4	4.9
3	2543	LC	5.0	4.7	4.3	5.5	4.9
4	2544	RAHH 2012	5.2	4.6	4.4	5.3	4.9
5	2545	RAHH 2011	5.4	4.9	4.5	5.5	5.1

Br 06a – CVT of Compact genotypes (South Zone) (Irrigated)

Total Seed Cotton Yield at 160 DAS (Total of 130 DAS + 160 DAS) (Kg/ha)

S. No.	Code No.	Entries	Raichur	Arabhavi*	Lam	Mudhole	Srivilliputtur	Mean SZ	Rank
1	2551	CCH 19-2	2155		2051	812	2042	**1765**	8
2	2552	**Zonal Check (Suraj)**	3218		1580	1408	1871	**2019**	4
3	2553	RHC-HD 1312	2226		2368	1257	2197	**2012**	5
4	2554	CCH 19-4	2859		2241	1122	1822	**2011**	6
5	2555	**Local Check**	3152		2164	887	1842	**2011**	6
6	2556	RHC-HD 1438	3559		1902	1301	2516	**2320**	2
7	2557	RAHC 1028	3237		1889	1267	2006	**2100**	3
8	2558	LHDP 5	3747		2361	1738	2405	**2563**	1
9		BG II Hybrid	-		2881	-	2018	**1710**	9
		CD @ 5 %	230		514	136	310		
		CV %	8		14	6	10		
		Local Checks	**Sujay**	**ARBH 813**	**L 604**	**L 604**	**Suraj**		

***Poor Yield – Rejected**

Seed Cotton Yield (130 DAS) (Kg/ha)

S. No.	Code No.	Entries	Raichur	Lam	Mudhole	Srivilliputtur	Mean SZ
1	2551	CCH 19-2	1157	1517	469	1366	**1127**
2	2552	**Zonal Check (Suraj)**	2326	1104	1011	1412	**1463**
3	2553	RHC-HD 1312	1364	2011	894	1801	**1518**
4	2554	CCH 19-4	1854	1872	800	1383	**1477**
5	2555	**Local Check**	2333	1738	548	1380	**1500**
6	2556	RHC-HD 1438	2421	1591	970	2120	**1776**
7	2557	RAHC 1028	2049	1496	930	1537	**1503**
8	2558	LHDP 5	2609	1769	1122	1808	**1827**
9		BG II Hybrid		2187		1275	**1731**

Br 06a – CVT of Compact genotypes (South Zone) (Irrigated)

Seed Cotton Yield (160 DAS) (Kg/ha)

S. No.	Code No.	Entries	Raichur	Lam	Mudhole	Srivilliputtur	Mean SZ
1	2551	CCH 19-2	997	534	344	676	**638**
2	2552	**Zonal Check (Suraj)**	892	475	398	459	**556**
3	2553	RHC-HD 1312	862	357	363	396	**495**
4	2554	CCH 19-4	1005	369	321	439	**534**
5	2555	**Local Check**	819	426	339	462	**512**
6	2556	RHC-HD 1438	1138	311	330	396	**544**
7	2557	RAHC 1028	1188	393	337	469	**597**
8	2558	LHDP 5	1138	591	616	597	**736**
9		BG II Hybrid		694		743	**719**

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Raichur	Lam	Mudhole	Srivilliputtur	Mean SZ
1	2551	CCH 19-2	631	764	287	659	**585**
2	2552	**Zonal Check (Suraj)**	1168	527	555	660	**727**
3	2553	RHC-HD 1312	770	859	468	815	**728**
4	2554	CCH 19-4	995	819	431	646	**723**
5	2555	**Local Check**	1128	686	323	628	**691**
6	2556	RHC-HD 1438	1328	660	497	984	**867**
7	2557	RAHC 1028	1097	634	479	710	**730**
8	2558	LHDP 5	1338	892	673	907	**952**
9		BG II Hybrid	-	1143	-	801	**972**

Ginning outturn (%)

S. No.	Code No.	Entries	Raichur	Lam	Mudhole	Srivilliputtur	Mean SZ
1	2551	CCH 19-2	29.3	37.2	35.4	32.3	**33.6**
2	2552	**Zonal Check (Suraj)**	36.3	33.3	39.4	35.3	**36.1**
3	2553	RHC-HD 1312	34.6	36.3	37.2	37.2	**36.3**
4	2554	CCH 19-4	34.8	36.6	38.4	35.4	**36.3**
5	2555	**Local Check**	35.8	31.7	36.4	34.1	**34.5**
6	2556	RHC-HD 1438	37.3	34.7	38.2	39.1	**37.3**
7	2557	RAHC 1028	33.9	33.6	37.8	35.3	**35.2**
8	2558	LHDP 5	35.7	37.8	38.7	37.8	**37.5**
9		BG II Hybrid		39.7		39.7	**39.7**

Br 06a – CVT of Compact genotypes (South Zone) (Irrigated)

No. of bolls/m^2

S. No.	Code No.	Entries	Raichur	Mudhole	Srivilliputtur	Mean SZ
1	2551	CCH 19-2	97.3	53.7	111.3	**87.4**
2	2552	**Zonal Check (Suraj)**	114.0	83.3	106.3	**101.2**
3	2553	RHC-HD 1312	101.3	74.3	116.4	**97.3**
4	2554	CCH 19-4	106.3	64.0	106.0	**92.1**
5	2555	**Local Check**	111.7	56.3	111.1	**93.0**
6	2556	RHC-HD 1438	125.0	79.3	146.3	**116.9**
7	2557	RAHC 1028	116.0	75.3	119.9	**103.7**
8	2558	LHDP 5	134.3	98.7	142.0	**125.0**
9		BG II Hybrid			109.1	**109.1**

Plant height (cm)

S. No.	Code No.	Entries	Raichur	Mudhole	Srivilliputtur	Mean SZ
1	2551	CCH 19-2	144.5	152.9	99.1	**132.2**
2	2552	**Zonal Check (Suraj)**	141.1	150.9	100.7	**130.9**
3	2553	RHC-HD 1312	167.4	162.7	98.9	**143.0**
4	2554	CCH 19-4	164.5	144.9	94.5	**134.6**
5	2555	**Local Check**	151.3	138.1	97.1	**128.8**
6	2556	RHC-HD 1438	136.9	125.9	92.0	**118.3**
7	2557	RAHC 1028	147.8	144.4	91.7	**128.0**
8	2558	LHDP 5	107.8	129.7	93.8	**110.4**
9		BG II Hybrid			77.9	**77.9**

No. of monopodia / plant

S. No.	Code No.	Entries	Raichur	Mudhole	Srivilliputtur	Mean SZ
1	2551	CCH 19-2	0.8	0.6	0.3	**0.6**
2	2552	**Zonal Check (Suraj)**	0.8	0.7	0.3	**0.6**
3	2553	RHC-HD 1312	0.5	0.6	0.0	**0.4**
4	2554	CCH 19-4	0.8	0.7	0.1	**0.5**
5	2555	**Local Check**	0.9	1.4	0.1	**0.8**
6	2556	RHC-HD 1438	0.7	0.6	0.2	**0.5**
7	2557	RAHC 1028	0.8	0.6	0.3	**0.6**
8	2558	LHDP 5	0.9	0.9	0.7	**0.8**
9		BG II Hybrid			0.3	**0.3**

Br 06a – CVT of Compact genotypes (South Zone) (Irrigated)

No. of sympodia / plant

S. No.	Code No.	Entries	Raichur	Lam	Mudhole	Srivilliputtur	Mean SZ
1	2551	CCH 19-2	13.2		11.0	15.5	**13.2**
2	2552	**Zonal Check (Suraj)**	18.8		14.7	16.1	**16.5**
3	2553	RHC-HD 1312	13.8		13.6	16.3	**14.6**
4	2554	CCH 19-4	17.1		12.2	14.7	**14.7**
5	2555	**Local Check**	18.3		11.1	16.2	**15.2**
6	2556	RHC-HD 1438	21.7		14.1	16.1	**17.3**
7	2557	RAHC 1028	19.3		12.3	14.8	**15.5**
8	2558	LHDP 5	23.8		18.0	16.1	**19.3**
9		BG II Hybrid				14.9	**14.9**

Boll weight (g)

S. No.	Code No.	Entries	Raichur	Lam	Mudhole	Srivilliputtur	Mean SZ
1	2551	CCH 19-2	5.2	4.4	2.9	5.2	**4.4**
2	2552	**Zonal Check (Suraj)**	4.8	4.6	3.3	5.6	**4.6**
3	2553	RHC-HD 1312	5.1	4.5	3.1	4.7	**4.4**
4	2554	CCH 19-4	5.3	4.2	3.1	5.1	**4.4**
5	2555	**Local Check**	4.8	4.8	3.2	5.1	**4.5**
6	2556	RHC-HD 1438	4.0	4.1	2.6	4.1	**3.7**
7	2557	RAHC 1028	4.8	4.5	3.0	5.3	**4.4**
8	2558	LHDP 5	4.6	4.7	3.6	4.4	**4.3**
9		BG II Hybrid		5.4		5.7	**5.6**

Lint Index (g)

S. No.	Code No.	Entries	Raichur	Mudhole	Srivilliputtur	Mean SZ
1	2551	CCH 19-2	4.8	4.3	6.0	**5.0**
2	2552	**Zonal Check (Suraj)**	6.1	4.3	6.4	**5.6**
3	2553	RHC-HD 1312	6.0	4.4	6.1	**5.5**
4	2554	CCH 19-4	5.9	4.1	6.7	**5.6**
5	2555	**Local Check**	6.0	4.1	5.9	**5.3**
6	2556	RHC-HD 1438	5.2	3.9	5.9	**5.0**
7	2557	RAHC 1028	6.0	4.0	6.4	**5.5**
8	2558	LHDP 5	5.3	5.4	6.0	**5.6**
9		BG II Hybrid			7.6	**7.6**

Br 06a – CVT of Compact genotypes (South Zone) (Irrigated)

Seed Index (g)

S. No.	Code No.	Entries	Raichur	Mudhole	Srivilliputtur	Mean SZ
1	2551	CCH 19-2	11.6	7.8	12.6	**10.7**
2	2552	**Zonal Check (Suraj)**	10.8	6.7	11.8	**9.8**
3	2553	RHC-HD 1312	11.2	7.4	10.3	**9.6**
4	2554	CCH 19-4	11.1	6.6	12.2	**10.0**
5	2555	**Local Check**	10.8	7.2	11.3	**9.8**
6	2556	RHC-HD 1438	8.7	6.3	9.2	**8.1**
7	2557	RAHC 1028	11.6	6.6	11.8	**10.0**
8	2558	LHDP 5	9.6	8.5	9.9	**9.3**
9		BG II Hybrid			11.5	**11.5**

Br 13a – Preliminary Varietal Trial - *G. barbadense* (South Zone)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Dharwad	Chamrajnagar*	Coimbatore	Mean SZ	Rank
1	2536	CCB 6	550		1290	**920**	3
2	2564	CCB 15	403		1214	**809**	10
3	2561	DB 1901	413		1409	**911**	4
4	2570	CCB 141	430		1237	**834**	9
5	2567	CCB 142	333		1204	**769**	12
6	2563	CCB 64B	285		1276	**781**	11
7	2568	SBSD 5-6	436		1282	**859**	7
8	2571	CCB 51	441		1321	**881**	5
9	2562	CCB 29	399		1344	**872**	6
10	2572	CCB 64	378		1313	**846**	8
11	2565	CCB 26	476		1457	**967**	1
12	2566	**ZC (Suvin)**	512		1344	**928**	2
13	2581	CCB 51-2	526		1475	**1001**	1
14	2582	ZC (Suvin)	572		1365	**969**	2
15	2583	DB 1801	244		1557	**901**	3
		CD @ 5 %	120		170		
		CV %	17		9		

***Vitiated**

Br 13a – Preliminary Varietal Trial - *G. barbadense* (South Zone)

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Dharwad	Coimbatore	Mean SZ
1	2536	CCB 6	194	434	**314**
2	2564	CCB 15	142	397	**270**
3	2561	DB 1901	146	460	**303**
4	2570	CCB 141	139	410	**275**
5	2567	CCB 142	113	377	**245**
6	2563	CCB 64B	98	412	**255**
7	2568	SBSD 5-6	145	433	**289**
8	2571	CCB 51	153	413	**283**
9	2562	CCB 29	135	439	**287**
10	2572	CCB 64	123	441	**282**
11	2565	CCB 26	159	474	**317**
12	2566	**ZC (Suvin)**	170	450	**310**
13	2581	CCB 51-2	178	491	**335**
14	2582	ZC (Suvin)	191	439	**315**
15	2583	DB 1801	82	509	**296**

Ginning outturn (%)

S. No.	Code No.	Entries	Dharwad	Coimbatore	Mean SZ
1	2536	CCB 6	35.3	33.8	**34.6**
2	2564	CCB 15	35.2	32.9	**34.1**
3	2561	DB 1901	35.4	32.5	**34.0**
4	2570	CCB 141	32.4	33.0	**32.7**
5	2567	CCB 142	33.8	31.4	**32.6**
6	2563	CCB 64B	34.3	32.5	**33.4**
7	2568	SBSD 5-6	33.3	33.8	**33.6**
8	2571	CCB 51	34.7	31.3	**33.0**
9	2562	CCB 29	33.9	32.8	**33.4**
10	2572	CCB 64	32.5	33.6	**33.1**
11	2565	CCB 26	33.3	32.4	**32.9**
12	2566	**ZC (Suvin)**	33.2	33.5	**33.4**
13	2581	CCB 51-2	33.8	33.3	**33.6**
14	2582	ZC (Suvin)	33.3	32.1	**32.7**
15	2583	DB 1801	33.8	32.7	**33.3**

Br 13a – Preliminary Varietal Trial - *G. barbadense* (South Zone)

Bolls/plant

S. No.	Code No.	Entries	Dharwad	Coimbatore	Mean SZ
1	2536	CCB 6	6.5	23.1	**14.8**
2	2564	CCB 15	6.3	20.6	**13.5**
3	2561	DB 1901	7.3	22.2	**14.8**
4	2570	CCB 141	7.8	24.3	**16.1**
5	2567	CCB 142	7.3	22.1	**14.7**
6	2563	CCB 64B	8.6	24.2	**16.4**
7	2568	SBSD 5-6	6.3	23.3	**14.8**
8	2571	CCB 51	6.9	22.9	**14.9**
9	2562	CCB 29	7.4	23.3	**15.4**
10	2572	CCB 64	7.5	22.1	**14.8**
11	2565	CCB 26	7.7	21.9	**14.8**
12	2566	**ZC (Suvin)**	7.9	23.6	**15.8**
13	2581	CCB 51-2	8.6	17.5	**13.1**
14	2582	ZC (Suvin)	6.7	17.6	**12.2**
15	2583	DB 1801	8.3	18.5	**13.4**

Boll weight (g)

S. No.	Code No.	Entries	Dharwad	Coimbatore	Mean SZ
1	2536	CCB 6	2.6	3.2	**2.9**
2	2564	CCB 15	3.2	2.9	**3.1**
3	2561	DB 1901	3.0	3.3	**3.2**
4	2570	CCB 141	2.5	3.3	**2.9**
5	2567	CCB 142	2.7	3.2	**3.0**
6	2563	CCB 64B	2.9	3.2	**3.1**
7	2568	SBSD 5-6	2.8	3.2	**3.0**
8	2571	CCB 51	2.9	3.3	**3.1**
9	2562	CCB 29	2.8	2.9	**2.9**
10	2572	CCB 64	2.6	3.1	**2.9**
11	2565	CCB 26	2.6	2.9	**2.8**
12	2566	**ZC (Suvin)**	2.8	3.6	**3.2**
13	2581	CCB 51-2	2.7	3.7	**3.2**
14	2582	ZC (Suvin)	2.7	3.7	**3.2**
15	2583	DB 1801	2.9	3.8	**3.4**

Br 15a - CHT - Interspecific Hybrid (*hirsutum* x *barbadense*) (South Zone)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Dharwad	Dharwad (KSSC)*	Chamrajnagar	Lam	Coimbatore	Mean SZ	Rank
1	2591	RHB 1623	467		1844	1617	1926	**1464**	9
2	2592	**Local Check**	650		2247	1737	1985	**1655**	1
3	2593	DHB 2002	536		2143	1378	1952	**1502**	6
4	2594	**Phule Dhara (CC)**	463		1957	1812	1985	**1554**	3
5	2595	DHB 1901	867		1647	1635	2129	**1570**	2
6	2596	LAHB 2	408		1815	1240	1753	**1304**	11
7	2597	DHB 1902	750		1737	1733	1993	**1553**	4
8	2598	RHB 1624	442		2057	1498	1931	**1482**	7
9	2599	DHB 2003	760		1848	1524	1608	**1435**	10
10	2600	RHB 1401	355		2232	1482	1819	**1472**	8
11	2601	DHB 2001	642		2027	1613	1793	**1519**	5
		CD @ 5 %	119		198	229	267		
		CV %	12		6	9	10		
		Local Checks	**DHB 915**	**DHB 915**	**DHB 915**	**DCH 32**	**DCH 32**		

***Vitiated**

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Dharwad	Chamrajnagar	Lam	Coimbatore	Mean SZ
1	2591	RHB 1623	157	503	490	656	**452**
2	2592	**Local Check**	215	718	583	643	**540**
3	2593	DHB 2002	186	708	430	627	**488**
4	2594	**Phule Dhara (CC)**	156	526	607	677	**492**
5	2595	DHB 1901	313	442	561	752	**517**
6	2596	LAHB 2	127	589	373	600	**422**
7	2597	DHB 1902	262	506	500	640	**477**
8	2598	RHB 1624	141	664	464	680	**487**
9	2599	DHB 2003	267	626	508	505	**477**
10	2600	RHB 1401	117	764	471	648	**500**
11	2601	DHB 2001	215	612	466	576	**467**

Br 15a - CHT - Interspecific Hybrid (*hirsutum* x *barbadense*) (South Zone)

Ginning outturn (%)

S. No.	Code No.	Entries	Dharwad	Chamrajnagar	Lam	Coimbatore	Mean SZ
1	2591	RHB 1623	33.6	27.2	30.3	34.0	**31.3**
2	2592	**Local Check**	33.1	31.9	33.6	32.4	**32.8**
3	2593	DHB 2002	34.7	33.0	31.2	32.2	**32.8**
4	2594	**Phule Dhara (CC)**	33.8	26.9	33.5	34.1	**32.1**
5	2595	DHB 1901	36.1	26.9	34.3	35.3	**33.2**
6	2596	LAHB 2	31.0	32.5	30.1	34.2	**32.0**
7	2597	DHB 1902	34.9	29.2	28.9	32.1	**31.3**
8	2598	RHB 1624	32.0	32.2	31.0	35.1	**32.6**
9	2599	DHB 2003	35.1	33.9	33.3	31.4	**33.4**
10	2600	RHB 1401	32.9	34.2	31.8	35.6	**33.6**
11	2601	DHB 2001	33.6	30.2	28.9	32.1	**31.2**

Bolls/plant

S. No.	Code No.	Entries	Dharwad	Chamrajnagar	Lam	Coimbatore	Mean SZ
1	2591	RHB 1623	11.9	35.0	66.9	24.7	**34.6**
2	2592	**Local Check**	11.6	59.6	84.0	26.8	**45.5**
3	2593	DHB 2002	13.1	44.2	67.1	26.7	**37.8**
4	2594	**Phule Dhara (CC)**	9.3	41.3	88.0	28.7	**41.8**
5	2595	DHB 1901	13.0	33.3	74.8	31.1	**38.1**
6	2596	LAHB 2	10.3	39.0	65.7	25.4	**35.1**
7	2597	DHB 1902	11.4	34.8	59.6	27.2	**33.3**
8	2598	RHB 1624	10.1	47.1	66.8	25.3	**37.3**
9	2599	DHB 2003	12.3	38.4	64.2	24.0	**34.7**
10	2600	RHB 1401	10.6	58.0	71.9	26.3	**41.7**
11	2601	DHB 2001	12.2	47.1	70.4	24.6	**38.6**

Boll weight (g)

S. No.	Code No.	Entries	Dharwad	Chamrajnagar	Lam	Coimbatore	Mean SZ
1	2591	RHB 1623	3.9	4.6	3.5	4.1	**4.0**
2	2592	**Local Check**	3.5	5.0	4.0	3.9	**4.1**
3	2593	DHB 2002	3.5	4.7	3.5	4.1	**4.0**
4	2594	**Phule Dhara (CC)**	3.6	4.8	4.1	4.0	**4.1**
5	2595	DHB 1901	3.7	4.2	3.2	4.3	**3.9**
6	2596	LAHB 2	3.6	4.4	3.2	3.5	**3.7**
7	2597	DHB 1902	3.6	4.3	3.8	4.3	**4.0**
8	2598	RHB 1624	4.1	4.9	3.7	4.1	**4.2**
9	2599	DHB 2003	3.2	4.1	3.6	3.9	**3.7**
10	2600	RHB 1401	3.9	5.0	3.6	4.1	**4.2**
11	2601	DHB 2001	3.6	4.8	3.6	3.9	**4.0**

Br 03b – Preliminary Variety Trial - *G. hirsutum* (South Zone) (Rainfed)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Dharwad	Nandyal	Perambalur	Mean SZ	Rank
1	2611	CNH 09-119	579	965	662	**735**	9
2	2612	NDLH 2051-3	745	684	1091	**840**	4
3	2613	CNH 1134	630	664	938	**744**	8
4	2614	**ZC (Sahana)**	939	765	688	**797**	6
5	2615	CCH 19-2	546	1080	1305	**977**	2
6	2616	**QC (Suraj)**	857	777	663	**766**	7
7	2617	TSH 375	554	708	619	**627**	11
8	2618	TVH 007	1132	642	766	**847**	3
9	2619	**Local Check**	802	990	653	**815**	5
10	2620	NDLH 2056-4	548	1067	1388	**1001**	1
11	2621	BGDS 1033	465	823	916	**735**	9
		CD @ 5 %	222	200	182		
		CV %	18	14	15		
		Local Checks	**ARBH 813**	**Sivanandi**	**KC 3**		

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Dharwad	Nandyal	Perambalur	Mean SZ
1	2611	CNH 09-119	218	294	248	**253**
2	2612	NDLH 2051-3	293	220	411	**308**
3	2613	CNH 1134	237	220	319	**259**
4	2614	**ZC (Sahana)**	376	258	243	**292**
5	2615	CCH 19-2	172	324	423	**306**
6	2616	**QC (Suraj)**	322	268	263	**284**
7	2617	TSH 375	219	243	221	**228**
8	2618	TVH 007	494	239	241	**325**
9	2619	**Local Check**	318	314	228	**287**
10	2620	NDLH 2056-4	194	322	439	**318**
11	2621	BGDS 1033	190	277	360	**276**

Br 03b – Preliminary Variety Trial - *G. hirsutum* (South Zone) (Rainfed)

Ginning outturn (%)

S. No.	Code No.	Entries	Dharwad	Nandyal	Perambalur	Mean SZ
1	2611	CNH 09-119	37.6	30.5	37.5	**35.2**
2	2612	NDLH 2051-3	39.3	32.1	37.8	**36.4**
3	2613	CNH 1134	37.6	33.1	34.1	**34.9**
4	2614	**ZC (Sahana)**	40.0	33.8	35.4	**36.4**
5	2615	CCH 19-2	31.5	30.0	32.2	**31.2**
6	2616	**QC (Suraj)**	37.6	34.5	39.5	**37.2**
7	2617	TSH 375	39.6	34.3	35.0	**36.3**
8	2618	TVH 007	43.6	37.3	31.4	**37.4**
9	2619	**Local Check**	39.6	31.7	35.1	**35.5**
10	2620	NDLH 2056-4	35.3	30.2	31.4	**32.3**
11	2621	BGDS 1033	40.9	33.6	39.7	**38.1**

Bolls/plant

S. No.	Code No.	Entries	Dharwad	Nandyal	Perambalur	Mean SZ
1	2611	CNH 09-119	6.7	10.7	18.4	**11.9**
2	2612	NDLH 2051-3	8.6	10.0	23.4	**14.0**
3	2613	CNH 1134	7.7	10.1	19.3	**12.4**
4	2614	**ZC (Sahana)**	8.2	9.5	15.8	**11.2**
5	2615	CCH 19-2	7.9	14.0	13.2	**11.7**
6	2616	**QC (Suraj)**	9.2	7.0	16.2	**10.8**
7	2617	TSH 375	6.5	10.8	16.3	**11.2**
8	2618	TVH 007	9.1	9.0	19.0	**12.4**
9	2619	**Local Check**	6.9	11.8	21.6	**13.4**
10	2620	NDLH 2056-4	9.3	12.0	16.1	**12.5**
11	2621	BGDS 1033	7.8	12.7	20.3	**13.6**

Boll weight (g)

S. No.	Code No.	Entries	Dharwad	Nandyal	Perambalur	Mean SZ
1	2611	CNH 09-119	4.1	3.9	4.6	**4.2**
2	2612	NDLH 2051-3	4.1	3.9	4.9	**4.3**
3	2613	CNH 1134	4.3	3.7	4.9	**4.3**
4	2614	**ZC (Sahana)**	3.6	3.1	4.7	**3.8**
5	2615	CCH 19-2	4.2	3.9	5.9	**4.7**
6	2616	**QC (Suraj)**	4.4	3.6	4.9	**4.3**
7	2617	TSH 375	4.3	3.6	5.7	**4.5**
8	2618	TVH 007	4.5	4.3	5.4	**4.7**
9	2619	**Local Check**	4.0	3.6	4.3	**4.0**
10	2620	NDLH 2056-4	3.8	4.2	5.1	**4.4**
11	2621	BGDS 1033	3.2	3.3	4.5	**3.7**

Br 04b – Coordinated Varietal Trial - *G. hirsutum* (South Zone)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Dharwad	Nandyal	Perambalur	Mean SZ	Rank
1	2631	NDLH – 2035-5	368	1084	1133	**862**	3
2	2632	**ZC (Sahana)**	508	739	1283	**843**	6
3	2633	GBHV-193	845	1059	1324	**1076**	1
4	2634	**QC (Suraj)**	780	1017	741	**846**	5
5	2635	RAH 1075	661	1024	1021	**902**	2
6	2636	**local Check**	801	1030	745	**859**	4
		CD @ 5 %	193	154	184		
		CV %	19	10	14		
		Local Checks	**ARBH 813**	**Sivanandi**	**KC 3**		

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Dharwad	Nandyal	Perambalur	Mean SZ
1	2631	NDLH – 2035-5	137	357	380	**291**
2	2632	**ZC (Sahana)**	200	255	446	**300**
3	2633	GBHV-193	295	344	427	**355**
4	2634	**QC (Suraj)**	293	335	232	**287**
5	2635	RAH 1075	257	361	318	**312**
6	2636	**local Check**	296	324	262	**294**

Ginning outturn (%)

S. No.	Code No.	Entries	Dharwad	Nandyal	Perambalur	Mean SZ
1	2631	NDLH – 2035-5	37.3	32.9	33.6	**34.6**
2	2632	**ZC (Sahana)**	39.3	34.5	34.8	**36.2**
3	2633	GBHV-193	34.9	32.5	32.3	**33.2**
4	2634	**QC (Suraj)**	37.6	32.9	31.2	**33.9**
5	2635	RAH 1075	38.9	35.3	31.1	**35.1**
6	2636	**local Check**	36.9	31.5	35.7	**34.7**

Br 04b – Coordinated Varietal Trial - *G. hirsutum* (South Zone)

Bolls/plant

S. No.	Code No.	Entries	Dharwad	Nandyal	Perambalur	Mean SZ
1	2631	NDLH – 2035-5	7.6	17.5	20.2	**15.1**
2	2632	**ZC (Sahana)**	7.7	9.8	17.6	**11.7**
3	2633	GBHV-193	7.5	15.0	19.6	**14.0**
4	2634	**QC (Suraj)**	7.8	9.8	22.0	**13.2**
5	2635	RAH 1075	7.3	13.9	16.2	**12.5**
6	2636	**local Check**	9.6	12.0	15.9	**12.5**

Boll weight (g)

S. No.	Code No.	Entries	Dharwad	Nandyal	Perambalur	Mean SZ
1	2631	NDLH – 2035-5	4.7	3.5	4.6	**4.3**
2	2632	**ZC (Sahana)**	3.8	3.0	4.9	**3.9**
3	2633	GBHV-193	4.3	3.5	4.9	**4.2**
4	2634	**QC (Suraj)**	4.7	3.6	4.7	**4.3**
5	2635	RAH 1075	3.7	3.1	5.9	**4.2**
6	2636	**local Check**	4.3	3.7	4.9	**4.3**

Br 05b – Coordinated Hybrid Trial (South Zone)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Dharwad	Nandyal	Perambalur	Mean SZ	Rank
1	2641	RAHH 2012	556	1017	1829	**1134**	3
2	2642	**Local Check**	976	1234	1109	**1106**	4
3	2643	BGDHH 2013	681	2000	1052	**1244**	1
4	2644	DHH 2051	686	1434	1449	**1190**	2
5	2645	RAHH 2011	518	1184	1254	**985**	5
		CD @ 5 %	209	298	251		
		CV %	20	14	15		
		Local Checks	**DHH 11**	**LAHH 5**	**RAHH 455**		

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Dharwad	Nandyal	Perambalur	Mean SZ
1	2641	RAHH 2012	220	339	559	**373**
2	2642	**Local Check**	413	426	374	**404**
3	2643	BGDHH 2013	261	652	340	**418**
4	2644	DHH 2051	288	476	478	**414**
5	2645	RAHH 2011	207	418	391	**339**

Br 05b – Coordinated Hybrid Trial (South Zone)

Ginning outturn (%)

S. No.	Code No.	Entries	Dharwad	Nandyal	Perambalur	Mean SZ
1	2641	RAHH 2012	39.6	33.3	30.2	**34.4**
2	2642	**Local Check**	42.3	34.5	35.0	**37.3**
3	2643	BGDHH 2013	38.3	32.6	31.8	**34.2**
4	2644	DHH 2051	42.0	33.2	32.3	**35.8**
5	2645	RAHH 2011	40.0	35.3	31.8	**35.7**

Bolls/plant

S. No.	Code No.	Entries	Dharwad	Nandyal	Perambalur	Mean SZ
1	2641	RAHH 2012	8.3	9.0	19.1	**12.1**
2	2642	**Local Check**	9.9	11.5	25.7	**15.7**
3	2643	BGDHH 2013	8.5	19.0	23.8	**17.1**
4	2644	DHH 2051	12.2	14.0	26.3	**17.5**
5	2645	RAHH 2011	8.5	10.0	17.8	**12.1**

Boll weight (g)

S. No.	Code No.	Entries	Dharwad	Nandyal	Perambalur	Mean SZ
1	2641	RAHH 2012	4.4	3.7	5.3	**4.5**
2	2642	**Local Check**	4.5	3.5	5.3	**4.4**
3	2643	BGDHH 2013	4.1	3.5	5.0	**4.2**
4	2644	DHH 2051	4.5	3.3	5.2	**4.3**
5	2645	RAHH 2011	4.0	3.6	5.3	**4.3**

Br 06b – CVT of Compact genotypes - (South Zone) (Rainfed)

Total Seed Cotton Yield at 160 DAS (Total of 130 DAS + 160 DAS) (Kg/ha)

S. No.	Code No.	Entries	Dharwad	Nandyal	Mudhole	Perambalur	Mean SZ	Rank
1	2651	CCH 19-4	265	1012	1100	746	**781**	9
2	2652	TVH 002	534	795	1591	744	**916**	3
3	2653	**ZC (Suraj)**	565	1190	1164	668	**897**	4
4	2654	DSC 1951	702	956	1821	796	**1069**	1
5	2655	CNH 09-77	299	1162	1420	660	**885**	5
6	2656	RAHC 1029	96	767	1145	940	**737**	11
7	2657	**Local Check**	325	1079	993	861	**815**	8
8	2658	RAHC 1901	228	923	996	919	**767**	10
9	2659	AKH 1302	491	929	1251	744	**854**	7
10	2660	DSC 1851	426	917	1545	868	**939**	2
11	2661	CNH 2046	344	645	1856	687	**883**	6
		CD @ 5 %	57		120	108		
		CV %	15		5	9		
		Local Checks	**ARBH 813**	**Siva Nandi**	**L 604**	**Suraj**		

Seed Cotton Yield (130 DAS) (Kg/ha)

S. No.	Code No.	Entries	Dharwad	Nandyal	Mudhole	Perambalur	Mean SZ
1	2651	CCH 19-4	103	765	676	660	**551**
2	2652	TVH 002	214	600	962	663	**610**
3	2653	**ZC (Suraj)**	234	898	422	584	**535**
4	2654	DSC 1951	271	722	720	720	**608**
5	2655	CNH 09-77	125	880	513	561	**520**
6	2656	RAHC 1029	42	583	424	847	**474**
7	2657	**Local Check**	123	815	283	758	**495**
8	2658	RAHC 1901	89	700	584	830	**551**
9	2659	AKH 1302	187	702	658	665	**553**
10	2660	DSC 1851	175	692	848	780	**624**
11	2661	CNH 2046	130	486	945	591	**538**

Br 06b – CVT of Compact genotypes - (South Zone) (Rainfed)

Seed Cotton Yield (160 DAS) (Kg/ha)

S. No.	Code No.	Entries	Dharwad	Nandyal	Mudhole	Perambalur	Mean SZ
1	2651	CCH 19-4	162	247	425	87	**230**
2	2652	TVH 002	320	195	629	82	**307**
3	2653	**ZC (Suraj)**	331	291	742	84	**362**
4	2654	DSC 1951	431	234	1101	76	**461**
5	2655	CNH 09-77	174	282	907	99	**366**
6	2656	RAHC 1029	54	184	720	93	**263**
7	2657	**Local Check**	202	263	710	103	**320**
8	2658	RAHC 1901	139	223	412	89	**216**
9	2659	AKH 1302	304	227	593	79	**301**
10	2660	DSC 1851	251	226	697	88	**316**
11	2661	CNH 2046	214	159	911	96	**345**

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Dharwad	Nandyal	Mudhole	Perambalur	Mean SZ
1	2651	CCH 19-4	94	366	381	269	**278**
2	2652	TVH 002	168	237	512	234	**288**
3	2653	**ZC (Suraj)**	202	440	446	209	**324**
4	2654	DSC 1951	251	321	710	249	**383**
5	2655	CNH 09-77	104	374	555	213	**312**
6	2656	RAHC 1029	32	239	417	317	**251**
7	2657	**Local Check**	128	372	348	263	**278**
8	2658	RAHC 1901	80	318	342	280	**255**
9	2659	AKH 1302	185	299	455	235	**294**
10	2660	DSC 1851	152	305	561	284	**325**
11	2661	CNH 2046	142	224	690	229	**321**

Ginning outturn (%)

S. No.	Code No.	Entries	Dharwad	Nandyal	Mudhole	Perambalur	Mean SZ
1	2651	CCH 19-4	35.6	36.2	34.6	36.1	**35.6**
2	2652	TVH 002	31.5	29.8	32.2	31.4	**31.2**
3	2653	**ZC (Suraj)**	35.7	37.0	38.3	31.3	**35.6**
4	2654	DSC 1951	35.8	33.6	39.0	31.3	**34.9**
5	2655	CNH 09-77	34.9	32.2	39.1	32.3	**34.6**
6	2656	RAHC 1029	33.8	31.1	36.4	33.7	**33.8**
7	2657	**Local Check**	39.5	34.5	35.0	30.6	**34.9**
8	2658	RAHC 1901	35.2	34.4	34.3	30.5	**33.6**
9	2659	AKH 1302	37.7	32.2	36.4	31.6	**34.5**
10	2660	DSC 1851	35.6	33.3	36.3	32.7	**34.5**
11	2661	CNH 2046	41.2	34.8	37.2	33.3	**36.6**

Br 06b – CVT of Compact genotypes - (South Zone) (Rainfed)

No. of bolls/m^2

S. No.	Code No.	Entries	Dharwad	Nandyal	Mudhole	Perambalur	Mean SZ
1	2651	CCH 19-4	27.7	49.7	50.7	42.7	**42.7**
2	2652	TVH 002	37.3	63.3	66.3	61.7	**57.2**
3	2653	**ZC (Suraj)**	37.7	72.7	54.0	50.3	**53.7**
4	2654	DSC 1951	36.7	69.3	93.3	51.0	**62.6**
5	2655	CNH 09-77	29.3	73.7	65.7	40.7	**52.4**
6	2656	RAHC 1029	29.7	58.7	51.3	62.3	**50.5**
7	2657	**Local Check**	32.0	85.0	48.3	50.0	**53.8**
8	2658	RAHC 1901	29.3	77.0	49.3	57.7	**53.3**
9	2659	AKH 1302	42.7	76.0	59.0	57.0	**58.7**
10	2660	DSC 1851	34.7	64.7	66.0	89.7	**63.8**
11	2661	CNH 2046	55.0	67.7	80.3	51.3	**63.6**

Plant height (cm)

S. No.	Code No.	Entries	Dharwad	Nandyal	Mudhole	Perambalur	Mean SZ
1	2651	CCH 19-4	102.5	90.4	147.4	169.6	**127.5**
2	2652	TVH 002	92.1	69.8	130.9	154.8	**111.9**
3	2653	**ZC (Suraj)**	85.3	125.0	129.2	172.3	**128.0**
4	2654	DSC 1951	89.7	98.0	134.7	164.1	**121.6**
5	2655	CNH 09-77	93.4	82.6	120.2	163.8	**115.0**
6	2656	RAHC 1029	97.4	87.6	129.5	141.1	**113.9**
7	2657	**Local Check**	92.8	65.6	134.3	158.1	**112.7**
8	2658	RAHC 1901	81.3	74.6	121.7	157.6	**108.8**
9	2659	AKH 1302	84.7	103.6	137.9	153.0	**119.8**
10	2660	DSC 1851	76.5	101.0	126.4	156.8	**115.2**
11	2661	CNH 2046	77.1	69.0	134.9	154.8	**109.0**

No. of monopodia / plant

S. No.	Code No.	Entries	Dharwad	Nandyal	Mudhole	Perambalur	Mean SZ
1	2651	CCH 19-4	1.1	0.6	0.7	1.3	**0.9**
2	2652	TVH 002	0.7	0.0	0.5	0.3	**0.4**
3	2653	**ZC (Suraj)**	0.8	0.0	0.5	1.0	**0.6**
4	2654	DSC 1951	0.6	0.0	0.3	0.8	**0.4**
5	2655	CNH 09-77	0.6	0.0	0.3	0.0	**0.2**
6	2656	RAHC 1029	1.3	0.2	0.5	1.1	**0.8**
7	2657	**Local Check**	1.4	0.4	0.4	0.4	**0.7**
8	2658	RAHC 1901	1.8	0.6	0.4	1.6	**1.1**
9	2659	AKH 1302	0.9	0.2	0.6	1.2	**0.7**
10	2660	DSC 1851	1.0	0.4	0.4	0.7	**0.6**
11	2661	CNH 2046	1.5	0.6	0.8	1.0	**1.0**

Br 06b – CVT of Compact genotypes - (South Zone) (Rainfed)

No. of sympodia / plant

S. No.	Code No.	Entries	Dharwad	Nandyal	Mudhole	Perambalur	Mean SZ
1	2651	CCH 19-4	16.6	13.8	11.6	18.1	**15.0**
2	2652	TVH 002	14.7	13.8	16.1	19.7	**16.1**
3	2653	**ZC (Suraj)**	14.0	19.2	13.0	16.2	**15.6**
4	2654	DSC 1951	14.2	18.4	19.5	18.4	**17.6**
5	2655	CNH 09-77	15.2	13.6	14.8	17.8	**15.4**
6	2656	RAHC 1029	16.6	14.2	12.4	20.9	**16.0**
7	2657	**Local Check**	15.3	15.6	11.0	20.4	**15.6**
8	2658	RAHC 1901	13.1	13.0	10.7	20.2	**14.3**
9	2659	AKH 1302	14.1	19.2	12.7	21.3	**16.8**
10	2660	DSC 1851	12.7	14.4	16.1	20.1	**15.8**
11	2661	CNH 2046	13.8	11.8	17.3	20.3	**15.8**

Boll weight (g)

S. No.	Code No.	Entries	Dharwad	Nandyal	Mudhole	Perambalur	Mean SZ
1	2651	CCH 19-4	3.4	4.4	2.7	4.2	**3.7**
2	2652	TVH 002	3.9	3.9	3.2	5.3	**4.1**
3	2653	**ZC (Suraj)**	3.8	3.4	2.9	4.8	**3.7**
4	2654	DSC 1951	3.4	3.7	3.3	4.1	**3.6**
5	2655	CNH 09-77	3.4	4.3	3.1	4.3	**3.8**
6	2656	RAHC 1029	2.8	3.9	3.0	4.8	**3.6**
7	2657	**Local Check**	3.1	4.3	2.9	4.9	**3.8**
8	2658	RAHC 1901	3.2	4.4	2.8	5.2	**3.9**
9	2659	AKH 1302	3.4	3.5	3.1	4.8	**3.7**
10	2660	DSC 1851	3.9	4.1	3.3	4.0	**3.8**
11	2661	CNH 2046	2.9	3.3	3.9	4.9	**3.8**

Lint Index (g)

S. No.	Code No.	Entries	Dharwad	Nandyal	Mudhole	Perambalur	Mean SZ
1	2651	CCH 19-4	5.0	4.5	5.2	4.8	**4.9**
2	2652	TVH 002	3.9	2.9	4.0	4.8	**3.9**
3	2653	**ZC (Suraj)**	5.0	3.7	5.4	4.7	**4.7**
4	2654	DSC 1951	4.2	4.3	4.3	4.7	**4.4**
5	2655	CNH 09-77	4.6	3.7	5.0	5.0	**4.6**
6	2656	RAHC 1029	3.6	4.4	4.1	4.8	**4.2**
7	2657	**Local Check**	4.9	4.8	4.2	4.8	**4.7**
8	2658	RAHC 1901	4.4	5.0	4.7	4.6	**4.7**
9	2659	AKH 1302	4.5	4.6	4.1	4.8	**4.5**
10	2660	DSC 1851	4.4	4.7	4.4	4.8	**4.6**
11	2661	CNH 2046	4.6	4.2	4.9	4.9	**4.7**

Br 06b – CVT of Compact genotypes - (South Zone) (Rainfed)

Seed Index (g)

S. No.	Code No.	Entries	Dharwad	Nandyal	Mudhole	Perambalur	Mean SZ
1	2651	CCH 19-4	9.0	8.3	9.9	8.3	**8.9**
2	2652	TVH 002	8.5	6.9	8.5	8.5	**8.1**
3	2653	**ZC (Suraj)**	9.0	10.3	8.7	8.2	**9.1**
4	2654	DSC 1951	7.5	8.7	6.7	8.4	**7.8**
5	2655	CNH 09-77	8.5	8.5	7.8	8.6	**8.4**
6	2656	RAHC 1029	7.0	9.6	7.1	8.6	**8.1**
7	2657	**Local Check**	7.5	8.9	7.8	8.6	**8.2**
8	2658	RAHC 1901	8.0	9.2	9.1	8.2	**8.6**
9	2659	AKH 1302	7.5	8.9	7.1	8.2	**7.9**
10	2660	DSC 1851	8.0	10.4	7.6	8.7	**8.7**
11	2661	CNH 2046	6.5	7.8	8.3	8.6	**7.8**

Br 24b – Coordinated Variety Trial - *G. arboreum* - (South Zone)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Dharwad	Nandyal	Kovilpatti*	Mean SZ	Rank
1	2671	CNA 2035	93	483		**288**	7
2	2672	NDLA 3116-3	71	583		**327**	5
3	2673	**ZC (DLSa 17)**	138	383		**261**	9
4	2674	JLA 1102	88	567		**328**	4
5	2675	DWDa 1802	146	517		**332**	2
6	2676	CNA 1031	92	567		**330**	3
7	2677	**Local Check**	110	400		**255**	10
8	2678	CNA 1054	94	483		**289**	6
9	2679	NDLA 3104-4	102	1017		**560**	1
10	2680	JLA-1227	105	433		**269**	8
		CD @ 5 %	33	111			
		CV %	18	12			
		Local Checks	**AKA 235**	**Yaganti**	**K 12**		

***Vitiated**

Br 24b – Coordinated Variety Trial - *G. arboreum* - (South Zone)

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Dharwad	Nandyal	Mean SZ
1	2671	CNA 2035	32	160	**96**
2	2672	NDLA 3116-3	26	215	**121**
3	2673	**ZC (DLSa 17)**	48	134	**91**
4	2674	JLA 1102	31	187	**109**
5	2675	DWDa 1802	50	184	**117**
6	2676	CNA 1031	33	197	**115**
7	2677	**Local Check**	39	139	**89**
8	2678	CNA 1054	32	163	**98**
9	2679	NDLA 3104-4	38	354	**196**
10	2680	JLA-1227	36	150	**93**

Ginning outturn (%)

S. No.	Code No.	Entries	Dharwad	Nandyal	Mean SZ
1	2671	CNA 2035	34.2	33.2	**33.7**
2	2672	NDLA 3116-3	36.5	36.9	**36.7**
3	2673	**ZC (DLSa 17)**	34.7	34.9	**34.8**
4	2674	JLA 1102	34.7	33.0	**33.9**
5	2675	DWDa 1802	34.6	35.7	**35.2**
6	2676	CNA 1031	35.4	34.8	**35.1**
7	2677	**Local Check**	35.5	34.7	**35.1**
8	2678	CNA 1054	33.7	33.7	**33.7**
9	2679	NDLA 3104-4	37.4	34.8	**36.1**
10	2680	JLA-1227	34.6	34.5	**34.6**

Bolls/plant

S. No.	Code No.	Entries	Dharwad	Nandyal	Mean SZ
1	2671	CNA 2035	2.8	7.9	**5.4**
2	2672	NDLA 3116-3	2.7	12.0	**7.4**
3	2673	**ZC (DLSa 17)**	2.7	6.9	**4.8**
4	2674	JLA 1102	2.5	10.0	**6.3**
5	2675	DWDa 1802	3.3	9.9	**6.6**
6	2676	CNA 1031	3.0	9.0	**6.0**
7	2677	**Local Check**	2.7	6.5	**4.6**
8	2678	CNA 1054	2.7	7.9	**5.3**
9	2679	NDLA 3104-4	2.0	14.0	**8.0**
10	2680	JLA-1227	2.9	8.3	**5.6**

Br 24b – Coordinated Variety Trial - *G. arboreum* - (South Zone)

Boll weight (g)

S. No.	Code No.	Entries	Dharwad	Nandyal	Mean SZ
1	2671	CNA 2035	2.1	1.9	**2.0**
2	2672	NDLA 3116-3	2.2	1.7	**2.0**
3	2673	**ZC (DLSa 17)**	2.1	1.4	**1.8**
4	2674	JLA 1102	1.9	1.5	**1.7**
5	2675	DWDa 1802	2.1	1.8	**2.0**
6	2676	CNA 1031	2.0	2.2	**2.1**
7	2677	**Local Check**	2.1	1.7	**1.9**
8	2678	CNA 1054	2.1	1.9	**2.0**
9	2679	NDLA 3104-4	1.9	2.3	**2.1**
10	2680	JLA-1227	1.7	1.8	**1.8**

Br 24b (LL) – CVT- Long Linted *G. arboreum*-(Rainfed)

Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Dharwad	Nandyal	Mudhole	Kovilpatti*	Mean SZ	Rank
1	2681	CINA 1068	182	420	1308		**637**	2
2	2682	PA 807	106	327	850		**428**	10
3	2683	PA 806	213	222	1116		**517**	8
4	2684	**ZC (DLSa 17)**	212	187	1516		**638**	1
5	2685	CINA 1069	229	350	1177		**585**	4
6	2686	PAIG 396	132	233	1137		**501**	9
7	2687	PAIG 384	177	303	1133		**538**	6
8	2688	PA 833	187	187	1228		**534**	7
9	2689	PA 880	115	140	994		**416**	11
10	2690	CINA 1067	137	233	1349		**573**	5
11	2691	CNA 1065	172	280	1384		**612**	3
		CD @ 5 %	57	57.6	258			
		CV %	20	13	13			

***Vitiated**

Br 24b (LL) – CVT- Long Linted *G. arboreum*-(Rainfed)

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Dharwad	Nandyal	Mudhole	Mean SZ
1	2681	CINA 1068	64	150	461	**225**
2	2682	PA 807	38	120	306	**155**
3	2683	PA 806	68	71	420	**186**
4	2684	**ZC (DLSa 17)**	73	61	533	**222**
5	2685	CINA 1069	82	118	436	**212**
6	2686	PAIG 396	46	74	408	**176**
7	2687	PAIG 384	59	97	430	**195**
8	2688	PA 833	62	59	443	**188**
9	2689	PA 880	39	46	346	**144**
10	2690	CINA 1067	47	76	447	**190**
11	2691	CNA 1065	58	88	466	**204**

Ginning outturn (%)

S. No.	Code No.	Entries	Dharwad	Nandyal	Mudhole	Mean SZ
1	2681	CINA 1068	34.9	35.8	35.2	**35.3**
2	2682	PA 807	35.8	36.7	36.2	**36.2**
3	2683	PA 806	31.9	31.9	37.6	**33.8**
4	2684	**ZC (DLSa 17)**	34.5	32.9	35.2	**34.2**
5	2685	CINA 1069	35.8	33.8	37.0	**35.5**
6	2686	PAIG 396	35.2	31.9	35.8	**34.3**
7	2687	PAIG 384	33.6	32.1	37.9	**34.5**
8	2688	PA 833	33.3	31.6	36.1	**33.7**
9	2689	PA 880	34.0	32.8	34.8	**33.9**
10	2690	CINA 1067	34.0	32.4	33.0	**33.1**
11	2691	CNA 1065	33.8	31.3	33.7	**32.9**

Bolls/plant

S. No.	Code No.	Entries	Dharwad	Nandyal	Mudhole	Mean SZ
1	2681	CINA 1068	4.5	13.0	14.3	**10.6**
2	2682	PA 807	2.9	10.0	13.8	**8.9**
3	2683	PA 806	3.4	7.1	15.7	**8.7**
4	2684	**ZC (DLSa 17)**	3.0	6.9	18.4	**9.4**
5	2685	CINA 1069	3.1	10.0	12.7	**8.6**
6	2686	PAIG 396	3.4	8.5	11.9	**7.9**
7	2687	PAIG 384	3.5	7.3	10.7	**7.2**
8	2688	PA 833	3.2	9.0	13.3	**8.5**
9	2689	PA 880	2.7	7.4	11.5	**7.2**
10	2690	CINA 1067	2.5	6.1	16.1	**8.2**
11	2691	CNA 1065	2.7	7.4	14.7	**8.3**

Br 24b (LL) – CVT- Long Linted *G. arboreum*-(Rainfed)
Boll weight (g)

S. No.	Code No.	Entries	Dharwad	Nandyal	Mudhole	Mean SZ
1	2681	CINA 1068	1.9	1.4	2.4	**1.9**
2	2682	PA 807	2.1	1.8	2.0	**2.0**
3	2683	PA 806	2.3	2.4	2.3	**2.3**
4	2684	**ZC (DLSa 17)**	2.2	1.6	2.3	**2.0**
5	2685	CINA 1069	1.9	2.0	2.3	**2.1**
6	2686	PAIG 396	2.2	1.8	2.6	**2.2**
7	2687	PAIG 384	2.4	2.0	2.4	**2.3**
8	2688	PA 833	2.2	1.8	2.5	**2.2**
9	2689	PA 880	2.3	1.4	2.6	**2.1**
10	2690	CINA 1067	2.0	1.8	2.4	**2.1**
11	2691	CNA 1065	2.1	2.4	2.5	**2.3**

Br 24 (CC) Coordinated Varietal Trial of Naturally Coloured *G. arboreum*
Seed Cotton Yield (Kg/ha)

S. No.	Code No.	Entries	Raichur (I)	Coimbatore (I)*	Kovilpatti (R)*	Dharwad (R)	Nandyal (R)	Mean SZ	Rank (RF)
1	2701	DDCC 1901	1798			139	920	**952**	5
2	2702	CNA 1091	2662			180	577	**1140**	1
3	2703	**DDCC 1 (CC)**	1818			180	1124	**1041**	2
4	2704	DDCC 1902	1822			183	1024	**1010**	3
5	2705	CNA 18562	1228			213	347	**596**	13
6	2706	CNA 17522	1227			205	608	**680**	9
7	2707	**Local Check**	1429			112	797	**779**	7
8	2708	DDCC 1801	1580			181	1107	**956**	4
9	2709	CNA 19475	1054			169	657	**627**	11
10	2710	CNA 18563	1588			163	508	**753**	8
11	2711	DDCC 2001	1874			53	760	**896**	6
12	2712	CNA 1092	1402			152	317	**624**	12
13	2713	DDCC 1802	1377			62	530	**656**	10
		CD @ 5 %	212			49	149		
		CV %	14			19	12		
		Local Checks	**DLSa 17**	**K 12**	**K 12**	**AK-235**	**Yaganti**		

***Vitiated**

Br 24 (CC) Coordinated Varietal Trial of Naturally Coloured *G. arboreum*

Lint Yield (kg/ha)

S. No.	Code No.	Entries	Raichur (I)	Dharwad (R)	Nandyal (R)	Mean SZ
1	2701	DDCC 1901	463	43	251	**252**
2	2702	CNA 1091	847	59	185	**364**
3	2703	**DDCC 1 (CC)**	538	60	342	**313**
4	2704	DDCC 1902	510	58	313	**294**
5	2705	CNA 18562	386	73	111	**190**
6	2706	CNA 17522	391	71	205	**222**
7	2707	**Local Check**	481	40	261	**261**
8	2708	DDCC 1801	452	58	333	**281**
9	2709	CNA 19475	348	57	225	**210**
10	2710	CNA 18563	517	57	170	**248**
11	2711	DDCC 2001	540	15	219	**258**
12	2712	CNA 1092	415	45	101	**187**
13	2713	DDCC 1802	374	17	136	**176**

Ginning outturn (%)

S. No.	Code No.	Entries	Raichur (I)	Dharwad (R)	Nandyal (R)	Mean SZ
1	2701	DDCC 1901	25.8	30.7	27.3	**27.9**
2	2702	CNA 1091	31.8	32.9	32.0	**32.2**
3	2703	**DDCC 1 (CC)**	29.6	33.3	30.4	**31.1**
4	2704	DDCC 1902	28.0	31.8	30.6	**30.1**
5	2705	CNA 18562	31.4	34.1	32.0	**32.5**
6	2706	CNA 17522	31.9	34.8	33.7	**33.5**
7	2707	**Local Check**	33.6	36.1	32.7	**34.1**
8	2708	DDCC 1801	28.9	32.0	30.1	**30.3**
9	2709	CNA 19475	32.9	34.0	34.2	**33.7**
10	2710	CNA 18563	32.4	35.0	33.5	**33.6**
11	2711	DDCC 2001	28.8	29.2	28.8	**28.9**
12	2712	CNA 1092	29.4	29.9	32.0	**30.4**
13	2713	DDCC 1802	27.0	28.0	25.7	**26.9**

Br 24 (CC) Coordinated Varietal Trial of Naturally Coloured *G. arboreum*

Bolls/plant

S. No.	Code No.	Entries	Raichur (I)	Dharwad (R)	Nandyal (R)	Mean SZ
1	2701	DDCC 1901	20.2	4.3	18.5	**14.3**
2	2702	CNA 1091	20.3	3.5	13.0	**12.3**
3	2703	**DDCC 1 (CC)**	18.8	5.0	20.5	**14.8**
4	2704	DDCC 1902	19.0	4.6	20.0	**14.5**
5	2705	CNA 18562	14.8	4.7	13.0	**10.8**
6	2706	CNA 17522	15.5	4.3	14.7	**11.5**
7	2707	**Local Check**	15.9	3.5	16.0	**11.8**
8	2708	DDCC 1801	14.9	4.3	21.9	**13.7**
9	2709	CNA 19475	16.0	4.3	15.1	**11.8**
10	2710	CNA 18563	17.6	3.4	12.0	**11.0**
11	2711	DDCC 2001	18.2	3.3	21.0	**14.2**
12	2712	CNA 1092	13.8	3.5	13.1	**10.1**
13	2713	DDCC 1802	17.7	3.7	10.0	**10.5**

Boll weight (g)

S. No.	Code No.	Entries	Raichur (I)	Dharwad (R)	Nandyal (R)	Mean SZ
1	2701	DDCC 1901	2.7	2.4	2.2	**2.4**
2	2702	CNA 1091	2.9	2.4	2.6	**2.6**
3	2703	**DDCC 1 (CC)**	2.7	2.4	2.4	**2.5**
4	2704	DDCC 1902	2.2	2.5	2.8	**2.5**
5	2705	CNA 18562	2.3	2.6	2.2	**2.4**
6	2706	CNA 17522	2.1	2.5	2.6	**2.4**
7	2707	**Local Check**	2.7	2.5	2.8	**2.7**
8	2708	DDCC 1801	2.2	2.5	2.2	**2.3**
9	2709	CNA 19475	2.3	2.4	2.8	**2.5**
10	2710	CNA 18563	1.9	2.5	2.0	**2.1**
11	2711	DDCC 2001	2.7	2.2	2.3	**2.4**
12	2712	CNA 1092	2.5	2.4	2.4	**2.4**
13	2713	DDCC 1802	1.3	2.4	2.4	**2.0**

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CROP PRODUCTION

AGRONOMY, PHYSIOLOGY AND BIOCHEMISTRY

The following Experiments were undertaken during *Kharif*-2020-21 at various centers of AICRP on Cotton.

AGRONOMY

Agronomy IA	Agronomic requirements of promising pre-release/recently released *hirsutum/ arboreum/ barbadense* genotypes including compact / hybrids of both interspecific and desi hybrids of *cotton*
Agronomy 1B	Evaluation of compact culture under HDPS with different nutrient levels.
Agronomy II	Augmenting ELS cotton production
Agronomy IV	Technology for Organic Cotton Production.
Agronomy V	Conservation agriculture.
Agronomy VII	Input use pattern & cost of cultivation
Agronomy VIII	Strategies to mitigate/minimize soil crust formation in cotton in North zone
Agronomy IX	Standardisation of geometry for Bt varieties
Agronomy X	Multi-tier intercropping

PHYSIOLOGY and BIOCHEMISTRY

PHY 1	PGR for optimum morpho frame and enhanced yield
PHY2	Preparing for climate change - Growth and development of *arboreum c*otton in response to growth regulators
PHY 3	Moisture Stress management through use of different Osmo-protectants
BIO CHEM1	Screening of Cotton genotypes for abiotic stress tolerance and estimation of seed oil, gossypol and protein
BIO CHEM1A	Screening of Cotton genotypes for drought and salinity tolerance
BIO CHEM1B	Estimation of seed oil, gossypol and protein
BIO.CHEM.2	Bio Chem.2. Biochemical basis of tolerance/susceptible of pest and disease
BIO.CHEM.2A	Bio Chem.2 A. Evaluation of Bt hybrids for biochemical basis of susceptible/tolerance of sucking pests
BIO.CHEM.2B	Bio Chem.2B. Evaluation of Biochemical basis of resistance against CLCuD
BIO.CHEM.2C	Bio Chem.2C. Evaluation of Biochemical basis of Tobacco streak virus

The trials conducted zone-wise were as follows:

North zone	Faridkot, Bathinda, Sirsa, Hisar and Sriganganagar
Central Zone	Surat, Akola, Rahuri, Nanded, Khandwa, Junagadh and Bhawanipatna
South Zone	Lam (Guntur), Nandyal, Dharwad**,** Chamrajanagar, Coimbatore, Srivilliputtur and Raichur

The project-wise findings and salient highlights of the research pertaining to North, Central and South zones are summarized below.

Agronomy IA: Agronomic requirements of promising pre-release/recently released *hirsutum/ arboreum /barbadense* genotypes/hybrids of cotton

Productivity of cotton can considerably be improved by providing an optimum spacing and nutrient requirement. Fulfillment of nutritional requirements of the crop is essential for achieving the higher yields and fiber quality. Among the various agriculture input, nutrients have been found to better responsive to the cotton production. So, adequate nutrients is essential to achieve the potential yield of cotton. It is obvious that the production and productivity of cotton can be improved by introduction of higher yielding genotypes coupled with suitable agronomic practices like maintenance of optimum/ideal plant density

Agronomy IA: Agronomic requirements of promising pre-release *hirsutum* genotypes of cotton in North Zone (irrigated)

Faridkot

The results of spacing and nutrient requirement of pre released *hirsutum* genotypes studies revealed that the highest seed cotton yield of 3596 kg/ha was recorded by F2662 followed by F2228 (2986 kg) while lowest was recorded for PBH-116 (2720kg/ha). A planting geometry of 67.5 x 60 cm resulted in highest seed cotton yield (3216 kg/ha) followed by 3121 kg/ha under 67.5 x 75 cm and lowest under narrow geometry of 67.5 x 45 cm (2964kg/ha). Both 125 % RDF (3228 kg) and 100 % RDF (3148 kg) resulted in significantly higher seed cotton yield than 75 % RDF (2926 kg/ha), while statistically 100 % and 125 % RDF remained at par(Table 1). The interaction effect indicated that F2662 recorded highest yield (4047 kg/ha) at a spacing level of 67.5 x 60 cm with 125 % of RDF while PBH116recorded highest yield (2938 kg/ha) at a spacing level of 67.5 x 60 cm with 100 % of RDF. The check genotype F2228 recorded highest seed cotton yield under a planting geometry of 67.5 x 60 cm and 125% RDF.

Table 1. Seed cotton yield (kg/ha) of genotypes as influenced by spacing levels and nutrient levels at Faridkot

Treatments	G1 F2662			G2 PBH116			G3 F2228			Grand Mean
	S1 67.5 X45 cm	**S2 67.5 X 60 cm**	**S3 67.5 X 75 cm**	**S1 67.5 X45 cm**	**S2 67.5 X 60 cm**	**S3 67.5 X 75 cm**	**S1 67.5 X45 cm**	**S2 67.5 X 60 cm**	**S3 67.5 X 75 cm**	
F_1.75%RDF	3,392	3,399	3,516	2,424	2,624	2,623	2,722	2,793	2,848	2,927
F_2.100% RDF	3,462	3,771	3,594	2,619	**2,938**	2,792	2,907	3,203	3,049	3,148
F_3.125% RDF	3,514	**4,047**	3,675	2,652	2,913	2,902	2,993	**3,263**	3,098	3,228
Interaction (two way)	**S1 67.5 X45 cm**	**S2 67.5 X 60 cm**	**S3 67.5 X 75 cm**	**G1 F2662**	**G2 PBH116**	**G3 F2228**	Interaction	**G1 F2662**	**G2 PBH116**	**G3 F2228**
F_1.75% RDF	2845	2938	2995	3435	2556	2787	**S167.5 X45 cm**	3455	2564	2873
F_2.100%RDF	2995	3303	3145	3609	2782	3052	**S167.5 X45 cm**	3739	2824	3086
F_3.125%RDF	3052	3407	3224	3745	2822	3117	**S167.5 X45 cm**	3595	2772	2998
Mean	2964	3216	3121	3596	2720	2986	**S167.5 X45 cm**	3596	2720	2986
ANOVA	Genotype	Spacing	Fertilizers	GXS	GXF	SXF	GXSXF			
SE d	132	77	70	133	121	121	210			
CD (5%)	367	168	142	NS	NS	NS	NS			

Soil parameters: RDF-Recommended Nutrients, pH=8.7, EC=0.36 m mhos/cm, OC (%)=0.24, Available P_2O_5=3.5 kg/ha& Available K_2O= 630kg/ha , Recommended spacing: 67.5 X 60 cm, Recommended nutrients: 75 kg N and 30 kg P_2O_5 / ha, Cotton species/type: *Gossypium hirsutum,* Environment: irrigated; Total rainfall during cropping period: 560 mm

Bathinda

The results found that amongst the genotypes, significantly higher seed cotton yield recorded with PBH 116 (2748 kg/ha) and F 2662 (2697 kg/ha) as compared to F 2228 check (2342 kg/ha). Higher spacing level (67.5 x 75 cm) resulted in significantly least seed cotton yield (2210 kg/ha) and increased significantly with decrease in plant spacing i.e., 67.5 x 60 cm (2660 kg/ha) and 67.5 x 45 cm (2917 kg/ha). However, among the nutrient levels , recommended dose of nutrients was found best for getting economic productivity (Table 2). The interaction results revealed that 67.5 X 45 cm had significantly higher Seed cotton yield of3206 and 3020 kg/ha respectively with F 2662 and PBH 116.

Table 2. Seed cotton yield (kg/ha) of genotypes as influenced by spacing levels and nutrient levels at Bathinda

Treatments	G1. F 2662			G2. PBH 116			G3. F 22228 (check)			Grand Mean
	67.5x45	67.5x60	67.5x75	67.5x45	67.5x60	67.5x75	67.5x45	67.5x60	67.5x75	
F_1.75%RDN	2756	2467	2387	3282	2585	2036	2250	1852	1828	2382
F_2.100%RDN	3153	2691	2171	2885	3260	2326	2705	2372	2397	2662
F_3.125%RDN	3708	2762	2175	2893	3100	2368	2619	2849	2202	2742
Interaction (two way)	**67.5x45**	**67.5x60**	**67.5x75**	**F 2662**	**PBH 116**	**F 22228**	Interaction	**F 2662**	**PBH 116**	**F 22228**
F_1.75%RDN	2763	2301	2084	2536	2634	1977	**67.5x45**	3206	3020	2525
F_2.100%RDN	2914	2774	2298	2672	2824	2492	**67.5x60**	2640	2982	2358
F_3.125%RDN	3074	2904	2249	2882	2787	2557	**67.5x75**	2245	2243	2142
Mean	2917	2660	2210	2697	2748	2342		2697	2748	2342
ANOVA	**Genotype**	**Spacing**	**Fertilizers**	**GXS**	**GXF**	**SXF**	**GXSXF**			
SE d	87.5	81.3	94.5	140.9	163.7	163.7	283.6			
CD (5%)	243	177	192	307	NS	NS	NS			

Soil parameters: pH= 8.65, EC=0.17 m mhos/cm, OC (%) = 0.46, Available P_2O_5= 8.25 kg/ha& Available K_2O= 298.3 kg/ha, Recommended nutrients: 75 kg N and 30 kg P_2O_5/ha, Environment: irrigated; Total rainfall during cropping period: 448 mm

Agronomy IA: Agronomic requirements of promising pre-release *hirsutum*genotypes of cotton in Central Zone (rainfed)

Nanded

The results of spacing and nitrogen requirement revealed that pre released genotype, NDLH 20511 (1552 kg/ha) was significantly superior for seed cotton yield than CNH 11-11 (1388 kg/ha). The closer spacing of 60 x 22.5 cm was found to have significantly higher seed cotton yield (1526 kg/ha) and was at par with 60 x 30 cm (1517 kg/ha). The 125% RDN recorded significantly highest seed cotton yield (1563 kg/ha) and was at par with 100% RDN (1484 kg/ha) (Table 3).Hence spacing of 60 X 30 cm and 100 % RDN optimum for NDLH 20511 and CNH11-11

Table 3. Seed cotton yield (kg/ha) of genotypes as influenced by spacing levels and nutrient levels at Nanded

Treatments	G1.NDLH 20511			G2.CNH 11-11			Grand Mean
	S1.60 x 22.5	**S2.60 x 30**	**S3. 60 x 45**	**S1.60 x 22.5**	**S2.60 x 30**	**S3. 60 x 45**	
F_1.75%N	1588	1373	1280	1345	1366	1221	F1 - 1362
F_2.100%N	1661	1603	1482	1404	1471	1283	F2 - 1484
F_3.125%N	1700	1666	1612	1460	1620	1319	F3 - 1563
Interaction (two way)	**S1.60 x 22.5**	**S2.60 x 30**	**S3. 60 x 45**	**G1.**NDLH 20511	**G2.**CNH 11-11		
F_1.75%N	1466	1369	1250	1413	1310		
F_2.100%N	1532	1537	1382	1582	1386		
F_3.125%N	1580	1643	1465	1659	1466		
Mean	S1 - 1526	S2 - 1517	S3 - 1366	G1 - 1552	G2 - 1388		
ANOVA	Genotype	Spacing	Fertilizers	GXS	GXF	SXF	GXSXF
SE d	27.56	33.75	32.76	47.74	46.33	56.74	80.24
CD (5%)	86.71	106.20	95.47	N.S.	N.S.	N.S.	N.S.

Soil properties : pH - 8.03; Ec - 0.27 dSm^{-1}, OC - 0.48(%), available N - 235.16 kg/ha; P_2O_5- 12.05 kg/ha& K_2O - 535.87 kg/ha, Recommended spacing - 60 x 30 cm, recommended nutrients - 60:30:30 NPK kg/ha, Cotton species - *G. hirsutum*, Environment - Rainfed and rainfall - 976.9 mm

Nagpur

The trial on agronomic requirement studies of NDLH 20511 indicated that the effect of within row spacing was significant on seed cotton yield, boll number / m^2 and boll weight . Seed cotton yield with 60 X 45 cm spacing was significantly higher than with 60 X 30cm or 60 X 20 cm spacing. The response to N application was significant upto 100% RDN (60 kg N/ha) and further increase with 125% RDN was not significant (Table 4). From this trial it is inferred that the wet year, the optimum row spacing for *G. hirsutum* culture NDLH 20511 was 60 X 45 cm and the optimum N dose was 60 KgN/ha (RDN) under rainfed conditions on VerticInceptisols of AESR 10.2 characterized by dry sub-humid climate.

Table 4. Seed cotton yield (kg/ha) as influenced by spacing and nitrogen levels (NDLH 20511) at Nagpur

Treatments	S1. 60 x 20 cm	S2. 60 x 30 cm	S3. 60 x 45 cm	Mean
F1.0 %RDN	1080	1005	1354	1146
F2.75 % RDN	1431	1491	1657	1526
F3.100% RDN	1481	1611	1800	1631
F4.125 % RDN	1531	1679	1870	1693
Mean	1381	1446	1670	
ANOVA	Spacing	Nitrogen	SXN	
CD(5%)	165.4	105.1	NS	

Soil:pH:8.0, OC(%): 0.44, Available P: 18.2 kg/ha K: 376.5 kg/ha, Medium deep VerticInceptisol, Total rainfall received :1319 mm, Environment: Rainfed

Nagpur

The results an evaluation of the response of *G. hirsutum* culture **CNH 11-11** to within row plant spacing and nitrogen doses. Results of this trial indicated that the effect of row spacing was significant on seed cotton yield but not on boll weight. Seed cotton yield with 60 X 20cm spacing was significantly higher than with 60 X 30 or 60 X 45 cm spacing (Table 5). The N effect was significant for seed cotton yield, bolls/ m^2 and boll weight. Seed cotton increased with increase in N application upto 100% RDN and not further. From this trial it is evident that in a wet year, the optimum row spacing for *G. hirsutum* culture CNH 11-11 was 60 X 20cm and the optimum N dose was 60 kgN/ha (RDN) under rainfed conditions on VerticInceptisols of AESR 10.2, characterized by dry sub-humid climate.

Table 5. Seed cotton yield (kg/ha) as influenced by spacing and nitrogen levels (CNH 11-11) at Nagpur

Treatments	S1. 60 x 20 cm	S2. 60 x 30	S3. 60 x 45	Mean
F1.0 %RDN	1278	1140	1221	1213
F2.75 % RDN	1651	1436	1547	1545
F3.100% RDN	1794	1660	1587	1680
F4.125 % RDN	1823	1777	1567	1722
Mean	1637	1503	1480	1540
ANOVA	Spacing	Nitrogen	SXN	
CD(5%)	122.0	126.4	NS	

Soil:pH:8.0, OC(%): 0.44, Available P_2O_5: 18.2 kg/ha K_2O: 376.5 kg/ha, medium deep VerticInceptisol, Total rainfall received :1319 mm, Environment: Rainfed

Agronomy IA: Agronomic requirements of promising pre-release *hirsutum* genotypes of cotton in Central Zone (irrigated)

Rahuri:

The results of agronomic requirements of pre-release *hirsutum* genotypes of cotton conducted under irrigated condition at Rahuri found that the variety TCH- 1828 recorded significantly higher seed cotton yield (1744 kg /ha) than SIMA-05 (1565 kg /ha) and RHC 0688 (1433 kg/ha). The 90 x 30 cm spacing recorded significantly higher seed cotton yield (1757 kg/ha) than rest of spacings i.e., 90cm x 60cm (1635 kg/ha) and 90cm x 90cm (1572 kg/ha). Application of 125 % RDF (100:50:50 NPK kg/ha^{-1}) recorded significantly higher seed cotton yield (1783 kg/ha) than 75 % RDF (1416 kg/ha) but at par with 100 % RDF (1765Kg/ha). The interaction effect between TCH – 1828 planted along with distance 90 x 30 cm and fertilized with 125 % RDF recorded significantly higher seed cotton yield (2152 kg/ha) but it was at per with application of 100% RDF (Table 6). Adoption of 90 x 60 cm spacing with application of 100 % RDF was found significantly higher seed cotton yield (1919 kg/ha) with SIMA -05. The trial conclude that 90 x 30 cm with 100 % RDF for genotype, TCH – 1828 and 90 x 60 cm with 100% RDF was found optimum for SIMA-05.

Table 6. Seed cotton seed yield of genotypes as influenced by spacing levels and nutrient levels at Rahuri

Treatments	G1.TCH-1828			G2.-SIMA-05			G3.RHC 0688 (check)			Grand Mean
	S1.90 X 30 cm	S2.90 X 60 cm	S3.90 X 90 cm	S1.90X 30 cm	S2.90 X 60 cm	S3.90 X 90 cm	S1.90X 30 cm	S2.90 X 60 cm	S3.90 X 90 cm	
F1. 75%RDF	1701	1334	1452	1318	1381	1311	1111	1324	1113	1416
F2.100% RDGF	2130	1694	1709	1633	1919	1505	1535	1417	1614	1765
F3.125%RDF	2152	1764	1762	1606	1721	1694	1641	1517	1612	1783
Interaction (two way)	S1.90X30 cm	S2.90 X 60 cm	S3.90 X 90 cm	G1.TCH-1828	G2.-SIMA-05	G3.RHC 0688	Interaction	G1.TCH-1828	G2.-SIMA-05	G3.RHC 0688
F1. 75%RDF	1510	1358	1382	1496	1337	1188	S1.90X30 cm	1994	1519	1429
F2. 100% RDGF	1882	1806	1607	1844	1686	1522	S2.90X60 cm	1597	1674	1419
F3.125% RDF	1879	1743	1728	1893	1674	1590	S3.90X90 cm	1641	1503	1452
Mean	1757	1635	1572	1744	1565	1433	Mean	1744	1565	1433
ANOVA	Genotype	Spacing	Fertilizers	GXS	GXF	SXF	GXSXF			
SEm±	12.76	25.13	17.36	43.21	30.06	30.24	52.19			
CD (5%)	48.01	76.21	50.19	132.01	NS	NS	150.24			

Soil type: Medium black, pH:8.54 Available N : 175.01, P_2O_5: 10.95, K_2O : 428, O.C.(g kg^{-1}) : 0.30 Recommended :80:40:40 NPK kg/ha, Irrigated

Junagadh

The results of experiment of agronomic requirements of pre-release *hirsutum* genotypes of cotton conducted under irrigated condition at Junagadh found that none of the treatments imposed found significant includes genotypes (TCH -1828) and SIMA-05) , spacing (S_1.120 X 45 cm, S_2.120 X 30 cm) and fertilizer level(75, 100 and 125 % RDF). The pre-release genotype TCH- 1828 recorded numerically maximum seed cotton yield (2301kg/ha) than SIMA-05 (2261 kg $ha^{-1)}$ (Table 7). The trial conclude that 120 x 45 cm with 75 %RDF was found optimum for both the genotypes at Junagadh condition.

Table7. Seed cotton yield (kg/ha) of genotypes as influenced by spacing levels and nutrient levels at Junagadh

Treatments	S_1.120 X 45 cm		S_2.120 X 30 cm		Grand Mean	
	G_1.TCH-1828	G_2.SIMA-5	G_1.TCH-1828	G_2.SIMA-5		
F_1.75%RDF	2010	2275	2257	1987	2132	
F_2.100%RDF	2447	2432	2467	2408	2438	
F_3.125%RDF	2367	2067	2262	2398	2273	
Interaction (two way)	S_1.120 X 45 cm	S_2.120 X 30 cm	G_1.TCH-1828	G_2.SIMA-5		
F_1.75% RDF	2143	2122	2133	2131		
F_2.100% RDF	2439	2438	2457	2420		
F_3.125% RDF	2217	2330	2314	2233		
Mean	2266	2296	2301	2261		
ANOVA	Spacing	Genotype	Fertilizer	S X G	S X F	G X F	SxGxF
SE d	70.625	70.625	86.497	99.878	122.325	122.325	172.994
CD (5%)	NS	NS	NS	NS	NS	NS	NS

Soil properties: EC: 0.52ds/m, pH:7.82, OC 0.96% Available Nitrogen398kg/ha, Available $P_2O_5$82.07kg/ha, Available K_2O 407.00kg/ha, Total Rainfall:1808.10mm, Rainy Days:63,Environment :Irrigated

Agronomy IA: Agronomic requirements of promising pre-release a*rboreum* genotypes of cotton in Central Zone (rainfed)

Akola

The results an agronomic requirement of arboreum pre released genotypes under rainfed condition at Akola found that seed cotton yield was significantly highest in genotype CNA-1031 (1503 kg ha^{-1}) which was found superior over genotype CNA-1054 (1428 kg ha^{-1}) and AKA-8 (1276 kg/ha). Amongst spacing levels, the seed cotton yield was significantly highest (1519 kg ha^{-1}) with spacing of 60x10 cm with plant density of 1.66 lakh ha^{-1} which was found superior over wider spacing of 60 x 15 (1418 kg ha^{-1}) cm and 60x30 (1270 kg ha^{-1})cm with plant density of 1.11 lakh/ha and 0.55 lakh ha^{-1} respectively. Different nitrogen levels found that the highest seed cotton yield of 1453 kg $ha^{-1}$was recorded in 125 % RDN which was found at par with 100 % RDN (1399 kg ha^{-1}). The interaction effect of plant spacing of 60x10 cm (plant density of 1.66 lakhha^{-1}) with nitrogen dose of 125% was significantly superior with CAN 1054. Genotype CNA-1031 found higher with 100% N with 60 x 10 cm.

Table 8. Seed cotton yield (kg/ha) as influenced by genotypes, spacing levels and nutrient levels

Treatments	V1: CNA-1054			V2: CNA-1031			V3: AKA-8			Grand Mean
	S1.60X10 cm	S2.60x15cm	S3.60x30 cm	S1.60X10 cm	S2.60x15cm	S3.60x30 cm	S1.60X10 cm	S2.60x15cm	S3.60x30 cm	
F1.75% RDN	1416	1333	1151	1563	1544	1324	1422	1293	1148	**1355**
F2.100% RDN	1579	1466	1239	1690	1675	1401	1271	1200	1070	**1399**
F3.125% RDN	1676	1544	1451	1611	1417	1301	1438	1294	1346	**1453**
Interaction (two way)	**S1.60X10 cm**	**S2.60x15cm**	**S3.60x30 cm**	**V1: CNA-1054**	**V2: CNA-1031**	**V3: AKA-8**	**Interaction**	**V1: CNA-1054**	**V2: CNA-1031**	**V3: AKA-8**
F1.75% RDN	1467	1390	1208	1300	1477	1288	S1.60X10 cm	1557	1621	1377
F2.100% RDN	1513	1447	1237	1428	1589	1180	S2.60x15 cm	1448	1545	1262
F3.125% RDN	1575	1418	1366	1557	1443	1360	S3.60x30 cm	1280	1342	1188
Mean	**1519**	**1418**	**1270**	**1428**	**1503**	**1276**		**1428**	**1503**	**1276**
ANOVA	Genotype	Spacing	Fertilizers	VXS	VXF	SXF	VXSXF			
S.E m+	23.36	23.36	22.46	40.47	38.90	37.52	67.38			
CD (5%)	70.05	70.05	64.47	NS	111.67	110.56	NS			

Soil parameters: Medium deep black cotton soil, pH value: 7.86, EC (dSm^{-1}): 0.12, O.C.(%) : 0.39%, Available N : 226 kg/ha, P_2O_5 : 17.80 kg/ha, K_2O : 367 kg/ha, Recommended Fertilizer dose : 40:20:20 Kg NPK/ha , Environment : Rainfed, Cotton Species : arboreum Cotton, Total Rainfall during Cropping period : 771.6 mm

Nagpur

The results of field experiment conducted on a medium deep VerticInceptisol under rainfed conditions to evaluate the response of *G. arboreum* culture **CNA 1031** to within row plant spacing and nitrogen doses indicated that the three within row spacing did not significantly influence the seed cotton yield and boll weight but the boll number/sq m was significantly higher at 10 cm spacing compared to the other two spacing. Application of 100% RDN gave significantly higher yield as compared to control (O% RDN) and 75% RDN but the difference in yield at 100% and 125% RDN was not significant for seed cotton yield (Table 9). The interaction effects were non- significant for seed cotton yield, boll weight and boll number per square meter. From the trial it is inferred that in a wet year, 100 % RDF (50:25:25) with 60x30 cm spacing was ideal for *G arboreum* **CNA 1031** under rainfed conditions on VerticInceptisols of AESR 10.2 characterized by dry sub-humid climate.

Table 9. Seed cotton yield (kg/ha) as influenced by spacing and nitrogen levels pre released arboreum genotype (CAN 1031)

Treatments	S1.60 x 10 cm	S2.60 x 20 cm	S3.60 x 30 cm	Mean
F1.0 % RDN	1142	1102	918	1054
F2.75 % RDN	1549	1528	1365	1481
F3.100% RDN	1807	1703	1537	1682
F4.125 % RDN	1733	1560	1523	1605
Mean	1558	1473	1336	
ANOVA	Spacing	Nitrogen	SX N	
CD (5%)	NS	193.4	NS	

Soil: Soil pH: 7.9, Ec(dSm^{-1}) -0.44 available P_2O_5- 18.2 kg/ha , available K_2O-376.5 kg/ha medium deep verticinceptisol, Total rainfall received :1319 mm, Environment: Rainfed

Nagpur

A field experiment was conducted on a medium deep verticinceptisol under rainfed conditions to evaluate the response of *G. arboreum* culture **CNA 1054 . The r**esults indicated a significant effect of within row spacing on seed cotton yield and boll number / m^2 but not on boll weight. Planting at 60 X 10 cm spacing gave significantly higher yield than planting at 60 X 20 cm or 60 X 30 cm rowing spacing. The effect of nitrogen application was significant on seed cotton yield, boll weight and boll number / m^2. Application of 100% RDN (50 kg N/ha) gave significantly higher yield than 0 or 75% N but further increase to 125% N did not increase **:** From this trial it is inferred that in a wet year, 100% RDN with a spacing of 60X10 cm was ideal for *G. arboreum* culture CNA 1054 under rainfed conditions on verticinceptisols of AESR 10.2, characterized by dry-sub-humid climate.

Table10. Seed cotton yield (kg/ha) as influenced by spacing and nitrogen levels pre released arboreum genotype (CAN 1054)

Treatments	S1.60 x 10 cm	S2.60 x 20 cm	S3.60 x 30 cm	Mean
F1.0 % RDN	1130	1107	1109	**1115**
F2.75 % RDN	1675	1564	1498	**1579**
F3.100% RDN	1882	1744	1543	**1723**
F4.125 % RDN	2014	1706	1699	**1806**
Mean	**1675**	**1530**	**1462**	
ANOVA	Spacing	Nitrogen	SX N	
CD (5%)	137.1	144.44	NS	

Soil: Soil pH: 7.9, Ec(dSm^{-1}) -0.44 available P_2O_5- 18.2 kg/ha , available K_2O-376.5 kg/ha, medium deep verticinceptisol, Total rainfall received :1319 mm, Environment: Rainfed

Agronomy IA: Agronomic requirements of promising pre-release released *Desi*hybridsof cotton in Central Zone (rainfed)

Akola

The results an agronomic requirement study on pre released desi hybrid found that seed cotton yield was significantly highest with NACH-556 (1987 kg ha^{-1}) followed by PDKV DH-1 (1454 kg/ha).Amongst spacing levels, the significantly highest seed cotton yield (1867 kg ha^{-1}) with plant density (0.56 lakh ha^{-1}) i.e. with 60 x 30 cm spacing which was found significantly superior over wider spacing of 60X45 cm with plant density of 0.37 lakh/ha(1574 kg ha^{-1}) (Table 11).The results an nitrogen level found that the highest seed cotton yield (1881 kg ha^{-1}) was recorded in 125 % nitrogen level and which was found significantly superior over 100 % N(1705 kg ha^{-1}) and 75 % N(1575 kg ha^{-1}). The interaction results found that seed cotton yield of NACH-556 (1867 kg ha^{-1}) was significantly highest at 60 x 30 cm with a plant population of 0.56 lakh ha^{-1} with application of 125 % nitrogen.

Table11 . Seed cotton yield (kg/ha) of genotypes as influenced by spacing levels andnutrient levels

Treatments	V1- NACH 556			V2- PDKV DH-1 (check)			Grand Mean F		
	S1.60X30	S2.60 X 45		S1.60X30	S2.60 X 45				
F1.75% N	1911	1688		1497	1206		1575		
F2.100% N	2223	1742		1518	1338		1705		
F3.125% N	2415	1946		1640	1525		1881		
Interaction(two way)	S1.60X30	S2.60x45		V1- NACH 556	V2- PDKV DH-1		Interaction	V1- NACH 556	V2- PDKV DH-1
F1.75% N	1704	1447		1799	1352		S1.60X30	2183	1552
F2.100% N	1871	1540		1983	1428		S2.60x45	1792	1357
F3.125% N	2027	1736		2180	1583			1987	1454
Mean	1867	1574		1987	1454				
ANOVA	Genotype	Spacing	Fertilizers	VXS	VXF	VXSXF			
S.E m±	27.27	27.27	30.42	38.57	43.03	60.85			
CD (5%)	94.38	94.38	91.22	133.47	141.99	NS			

Soil parameters : Medium deep black cotton soilpH value: 7.80, EC (dSm^{-1}): 0.12, O.C.(g kg $^{-1}$) : 3.90, Available N : 224 kg/ha, P_2O_5 : 17.80 kg/ha, K_2O : 372 kg/ha, Recommended spacing: 60X30 cm, Recommended Fertilizer dose : 40:20:20 , Kg NPK/ha, Environment : Rainfed, Cotton Species : arboreum hybrid Cotton, Total Rainfall during Cropping period : 771.6 mm

Agronomy IA: Agronomic requirements of promising pre-release *hirsutum* genotypesof cotton in South Zone (rainfed)

Dharwad (Coloured cotton)

The data on seed cotton yield as influenced by planting geometry and nitrogen levels .Different methods of planting geometry recorded on par seed cotton yield per hectare. Application of 125% RDN levels (F_3) recorded significantly higher seed cotton yield (836 kg/ha) as compared to other levels (Table 12). However, it was on par with 100% N (F_2) (785 kg/ha).Interaction effects were not found significant. The study conclude that 75x30cm (S_2) spacing with 100%N levels recommended for DB 16301

Table12. Seed Cotton Yield (kg/ha) as influenced by spacing and nutrient levels

Spacing(S)	S_1:60X30 cm	S_2:75 X 30 cm	S_3:90 X 30 cm	Mean
F_1:75%RDN	729	822	716	**756**
F_2:100%RDN	736	842	777	**785**
F_3:125%RDN	754	923	832	**836**
Mean	740	862	775	
ANOVA	spacing	fertilizer	SXF	
S. Em±	25.0	18.1	31.3	
CD (5%)	NS	51.8	NS	

Soil pH: 7.0 – 7.2 , Available N- 220 kg/ha P_2O_5- 28 kg/ha , K_2O- 495kg/ha, OC: 0.55% Recommended spacing: 60x30 cm ,Recommended Nutrients: 40:25:25 kg NPK/ha, Environment: rainfed, Total rainfall received during cropping season: 993.8 mm

Dharwad

The results revealed that seed cotton yield was not affected due to different planting geometry. Among that 90 x 20 cm (S_4) recorded numerically highest seed cotton yield (991 kg/ha) as compared to other levels. It was obvious from the yield parameters that higher boll numbers per plant and yield per plant with wider spacing (90 x 30 cm) was observed and it was compensated with higher boll numbers and yield per square meter area by more number of plants per unit area. Increasing nitrogen levels from 75 to 100% RDN observed significant increase in yield However, further increase to 125 %RDN though seed cotton yield increased numerically (Table 13). Similar trend was also observed in all the yield components. Interactions of planting geometry and nitrogen levels were not significant on yield levels. The results inferred that NDLH-20511 (*G. hirsutum)* variety cotton can be cultivated at Dharwad conditions with spacing of 90 x 20 cm with recommended nitrogen levels of 40 kg /ha.

Table13. Seed cotton yield (kg/ha) as influenced by planting geometry and Nitrogen levels

Treatments	S_1: 60 X 30 cm	S_2:75X 20 cm	S_3:90X 30 cm	S_4: 90x20 cm	Mean	Anova	S.Em	CD at 5%
F_1:75%RDN	889	962	888	948	922	Spacing	20.0	NS
F_2:100%RDN	920	976	970	1014	970	Fertilizers	8.6	25.9
F_3:125%RDN	998	982	974	1011	991	S X F at same	34.6	NS
Mean (spacing)	936	973	944	991		SxF at same or diff	8.9	NS

Soil pH: 7.0 – 7.2 , Available N- 220 kg/ha P_2O_5- 28 kg/ha , K_2O- 495kg/ha, OC: 0.55% Recommended spacing: 60x30 cm ,RDF: 40:25:25 kg NPK/ha, Environment: rainfed, Total rainfall received during cropping season: 993.8 mm

Nandyal

The results revealed that significantly higher seed cotton yield (1345 kg ha^{-1}) was recorded with spacing of 90 cm x 60 cm and the least seed cotton yield (1054 kg ha^{-1}) was recorded with spacing of 60 cm x 30 cm. There was significant effect of different nitrogen levels on seed cotton yield. Significantly higher seed cotton yield (1297 kg ha^{-1}) was observed in 125% RDN and was on par with 100 % RDN (1229 kg ha^{-1}). The interaction results found that spacing with 90x 60 cm with application of 125 % of nitrogen registered significantly higher seed cotton yield (1512 kg/ha) which was on par with 90 x 60 cm with 100 % RDN (Table 14).The study conclude that 90 x 60 cm with 100 % RDN is recommended for NDLH-2051-1.

Table 14: Seed cotton Yield (Kg/ha) of genotypes as influenced by spacing levels, and nitrogen levels

Treatments	NDLH-2051-1		Srirama		Grand mean		
	S1.90X60	S2.60 X 30	S1.90X60	S2.60 X 30			
N1.75%RDN	1210	984	957	1136	1072		
N2.100%RDN	1748	1264	1128	778	1229		
N3.125%RDN	1666	1081	1357	1082	1296		
Interaction (two way)	**S1.90X60**	**S2.60 X 30**	**NDLH-2051-1**	**Srirama**	**Interaction**	**NDLH-2051-1**	**Srirama**
N1.75%RDN	1083	1060	1097	1046	**S1.90 X 60**	1542	1147
N2.100%RDN	1438	1021	1506	953	**S2.60 X 30**	1109	998
N3.125%RDN	1512	1081	1374	1219			
Mean	**1344**	**1054**	**1325**	**1073**		**1325**	**1073**
ANOVA	**Spacing (s)**	**Nitrogen (N)**	**Varieties(V)**	**SXN**	**SXV**	**NXV**	**SXNXV**
SE m±	20.9	34.6	1.8	48	26	31	45
SE d	29.6	48.9	25.7	69	36	44	63
CD (5%)	129.5	112.7	56.0	159	79	97	NS

Soil parameters : pH : 8.3, Ec: 0.25 ds/m, N : 131 kg/ha, P_2O_5 : 33, K_2O : 351, O.C .(g kg^{-1}) : 0.38 Environment:rainfed, Recommended spacing : 90 cm x 60 cm,total amount of 1435 mm rainfall was received in 55 rainy days

Nandyal (coloured cotton)

The agronomic requirement studies of pre released colour cotton genotype found that significantly higher seed cotton yield (1205 kg ha^{-1}) was recorded with spacing of 60 cm x 30 cm and the least seed cotton yield (1000 kg ha^{-1}) was recorded with spacing of 90 cm x 45 cm. There was significant effect of different nitrogen levels on seed cotton yield. Significantly higher seed cotton yield (1156 kg ha^{-1}) was observed in 125% RDN and was on par with 100 % RDN (1093 kg ha^{-1}) and the significantly least seed cotton yield (974 kg ha^{-1}) was found in 75% RDN (Table 15). The experiment conclude that adoption of 60 x 30 cm with 100 % RDN is found optimum

Table 15. Seed cotton yield (kg/ha) as influenced by spacing levels and nitrogen levels (DB 16301 colour cotton)

Treatments	S1.90 X 60 cm	S2.90X 45 cm	S3.60X 30 cm	Mean	ANOVA	SE d	SE m±	CD (5%)
N_1: 75 % RDN	943	870	1111	974	Spacing	58	41	124
N_2: 100 % RDN	1023	1071	1186	1093	N levels	58	41	124
N_3: 125 % RDN	1090	1062	1318	1156	S X N	100.5	71.0	NS
Mean	1019	1000	1205					

Soil pH : 8.5, Ec: 0.25 g/cc, N : 139 kg/ha, P_2O_5 : 32, K_2O : 358, O.C.(g kg^{-1}) : 0.38, Recommended fertilizer level:40-20- 20 NPK kg/ha, Recommended spacing :90 cm x 60 cmtotal amount of 1435 mm rainfall was received in 55 rainy days

Agronomy IA: Agronomic requirements of promising pre-release *hirsutum* genotypesof cotton in South Zone (irrigated)

Raichur

The experimental results revealed that significantly higher seed cotton yield was recorded with SIMA-5 (2909 kg/ha) compared to RHC-1217 which recorded 2838 kg/ha. The increase in higher seed cotton yield was mainly due to increased sympodia/plant, higher boll no./sq. m. Among fertilizer doses, significantly higher seed cotton yield was obtained with 125% recommended dose of fertilizers (3012 kg/ha) compared to 100% recommended NPK/ha (2886kg/ha). Among different spacings, closure spacing of 75 cm X 30 cm recorded numerically higher seed cotton yield (3017 kg/ha) compared to other spacings (90 cm X 30 cm and 90cm X 45 cm) (Table 16). Interaction found non-significant. The results conclude that 75 x 30 cm spacing with 125 % RDF is recommended for pre released genotypes of RHC-1217 and SIMA -05.

Table 16 . Seed cotton yield (kg/ha) of genotypes as influenced by, spacing levels and nutrient levels

Treatments	G1.RHC-1217			G2.SIMA-5			Grand Mean
	S1: 75 cm X 30 cm	S2: 90 cm X 30 cm	S3: 90 cm X 45 cm	S1: 75 cm X 30 cm	S2: 90 cm X 30 cm	S3: 90 cm X 45 cm	
F1.100%RDF	2920	2845	2753	3028	2938	2833	**2886**
F2.125% RDF	3029	2983	2956	3092	3042	2971	**3012**
Interaction (two way)	**S1: 75 cm X 30 cm**	**S2: 90 cm X 30 cm**	**S3: 90 cm X 45 cm**	**G1.RHC-1217**	**G2. SIMA-5**		
F1.100%RDF	2975	2914	2855	2839	2933	**2886**	
F2.125% RDF	3060	2990	2902	2990	3035	**3012**	
Mean (Spacings)	**3017**	**2952**	**2878**	**2838**	**2909**		
ANOVA	**Genotype**	**Fertilizers**	**Spacing**	**GXF**	**GXS**	**FXS**	
SE d	9.67	39.36	145.85	55.66	206.26	206.26	
CD (5%)	42.26	108.65	NS	NS	NS	NS	

Srivilliputhur

The results indicated that spacing and nutrient levels exerted significant influence on yield of seed cotton. Amongst spacing, recommended spacing of 75 x 30 cm produced significantly higher yield of 1879 kg/a than wider spacing of 75 x 45 cm (1621 kg/ha). Regarding nitrogen levels, application of 125 % N (100 Kg/ha) produced (1799 kg/ha) which was comparable with 100% N significantly higher than that of 75 % N (1688 kg/ha). The interaction effect was found not significant. The study interpreted that spacing of 75 x 30 cm with application of 100 % RDN is recommended for the tested pre released genotypes (SIMA -05 and RHC 1217) (Table 17).

Table 17. Seed cotton yield (kg/ha) of genotypes as influenced by spacing levelsand nitrogen levels

Treatments	SIMA-05		RHC 1217		Grand Mean
	S1.75 x30 cm	S2.75 X 45 cm	S1.75 x 30 cm	S2.75 X 45 cm	
F1.75 % RDN	1736	1529	1850	1638	1688
F2.100% RDN	1851	1655	1947	1744	1799
F3.125% RDN	1897	1681	1992	1785	1838
Mean	1828	1621	1930	1722	
Two way Interaction table					
Treatments	S1.75 x 30	S2.75 X 45	Sima 5	RHC 1217	
F1.75 % RDN	1793	1584	1633	1744	
F2.100% RDN	1899	1700	1753	1846	
F3.125% N	1945	1733	1788	1889	
Mean	1879	1672	1725	1826	
Treatments	S1.75 x 30 cm	S2.75 X 45cm			
SIMA-055	1828	1621			
RHC 1217	1930	1722			
Mean	1879	1672			

ANOVA	Genotype	Spacing	Fertilizers	GXS	GXF	SXF	GX SX F
SEd	68.9	63.2	60.8	-	-	-	-
CD (5%)	NS	128.1	123.4	NS	NS	NS	NS

Soil type , depth &texture:Clay loam, pH value: 8.26 dSm/m, Available nutrient (kg/ha) : N - : 196 (Low), P_2O_5 :40 (High), K_2O : 446 (High), O.C.(g kg –1) : 7.2,

Agronomy IA: Agronomic requirements of promising pre-release *Hirsutum x barbadense* genotypes of cotton in South Zone (irrigated)

Coimbatore

The experiment was conducted under irrigated ecosystem with different spacing and nutrient levels and the spacing effect is non-significant. The results revealed that among the fertilizer levels, fertilizer N applied at the rate of 125% recorded maximum seed cotton yield (2292.40 kg/ha) (Table 18). The results found that spacing levels and interaction effect were not significant. The trial conclude that spacing of 150 X 60 cm with 125 % of nitrogen is recommended for the pre release genotype (RHB 1002).

Table18. Seed cotton yield (kg/ha) as influenced by spacing levels and nutrient levels

Treatments	S_1- 90 X 60 cm	S_2- 120 X 60 cm	S3.150 x 60 cm	Mean (Nitrogen)	Anova	SE d	CD (5%)
F_1- 75% N	1402	1408	1472	1427	Spacing	68.22	NS
F_2- 100 % N	1751	1780	1784	1771	Fertilizers	70.75	149.97
F_3- 125 %N	2171	2321	2386	2292	S X F	122.54	NS
Mean (spacing)	1774	1836	1880	1830			

Soil: Environment : Irrigated Soil Available nutrients (kg/ha) : N-224 kg/ha, P_2O_5- 28 kg/ha and K_2O- 730 kg/ha , OC (%) : 0.54%

LAM

The results of the experiment revealed that there was a significant difference in growth, yield attributing characters and yield of the HXB hybrid with different spacings and nutrient levels tested. The highest seed cotton yield (1888 kg ha^{-1}) was recorded under closer spacing (S1: 90cm x45cm) and found significantly superior to rest of the treatments. Among nitrogen levels tested, F3.125%RDN recorded the maximum seed cotton yield (1760 kg ha^{-1}) and found significantly superior over F2.100%RDN (1380 kg ha^{-1}) and F1.75 % RDN (1176 kg ha^{-1}). The interaction between different spacings and nutrient levels was found non- significant in influencing different growth, yield parameters and SCY of Cotton. The trial inferred that spacing of 90 x 45 cm with application of 125 % RDN were recommended for RHB 1002 (Table 18 A).

Table 18 A.Seed Cotton Yield (kg/ha) as influenced by spacing and nitrogen levels (RHB 1002)

Treatments	F1.75 % RDN	F2.100%RDN	F3. 125% RDN	Mean	ANOVA	SEd	CD(5%)
S1- 90 cm x 45 cm	1659	1781	2225	1888	Spacing	65.35	135.5
S2- 90 cm x 60 cm	1033	1130	1544	1236	Nitrogen	56.6	117.4
S3- 105 cm x 45 cm	1276	1715	2173	1721	SXN		NS
S4- 105 cm x 60 cm	736	894	1098	909			
Mean	1176	1380	1760				

Agronomy IA: Agronomic requirements of promising pre-release *barbadense* of cotton in South Zone (Irrigated)

Coimbatore

The experiment was conducted under irrigated ecosystem and the results revealed that CB143B genotype recorded maximum seed cotton yield (1660 kg /ha). Amongst nitrogen levels , N applied at the rate of 150%RDN recorded maximum seed cotton yield (1634 kg /ha) which was at par with 125 %RDN nitrogen (1588 kg/ha). The other interaction effect were found non significant. The results conclude that spacing of 105 x 60 cm with 125 % RDN of recommended nitrogen.

Table19. Seed cotton yield (kg/ha) of genotypes as influenced by spacing levels and nutrient levels

Treatments	V1. DB 1701			V2. CCB143 B				
	75 x 60 cm	90 x 60 cm	105 x 60 cm	75 x 60 cm	90 x 60 cm	105 x 60 cm	Grand Mean	
F1.100%RDN	1234	1462	1584	1394	1659	1774	1518	
F2.125%RDN	1439	1472	1610	1466	1747	1796	1588	
F3.150%RDN	1451	1542	1711	1535	1769	1797	1634	
Interaction (two way)	S1. 75 x 60 cm	S2.90 x 60 cm	S3. 105 x 60 cm	V1. DB 1701	V2. CB143 B	Interaction	V1. DB 1701	V2. CCB143 B
F1.100%RDN	1314	1560	1679	1426	1609	S1. 75 x 60.cm	1375	1465
F2.125%RDN	1452	1610	1703	1507	1670	S2. 90 x 60 cm	1492	1725
F3.150%RDN	1493	1656	1754	1568	1700	S3.105 x 60 cm	1635	1789
Mean	1420	1608	1712	1500	1660	Mean	1500	1660
ANOVA	Genotype(V)	Spacing(S)	Fertilizers (F)	VXS	SXF	VXF	VXSXF	
SE d	35.02	42.89	42.89	60.65	74.28	60.65	105.05	
CD (5%)	71.2	87.2	87.2	NS	NS	NS	NS	

Soil: Environment : Irrigated Soil Available nutrients (kg/ha) : N-224 kg/ha,
P_2O_5- 28 kg/ha and K_2O- 730 kg/ha , OC (%) : 0.54%

LAM

The results of agronomic requirement studies of barbadense genotypes revealed that except nitrogen levels the other factors includes genotypes, spacing levels and interaction effects were found non significant. Application of soil test based 125 % recommended nitrogen application significantly increased seed cotton yield (746 kg/ha) in comparison to 100 %RDN(631 kg/ha) and 75 %RDN(496 kg/ha).The results inferred that recommended spacing of 90 x 45 cm and 125 % of RDN is recommended for the pre released barbadense genotypes (.DB1701 and CCB143 B).

Table 19 A. Seed cotton yield (kg/ha) of genotypes as influenced by spacing and nitrogen levels

Treatments	V1: DB 1701		Mean	V2: CCB143B		Mean	Grand Mean
	S1- 90 cm x 45 cm	S2- 105 cm x 60 cm		S1- 90 cm x 45 cm	S2- 105 cm x 60 cm		
F1.75%RDN	460	424	442	646	453	549	496
F2.100%RDN	527	480	504	949	567	758	631
F3.125%RDN	699	555	627	1004	726	865	746
Mean	562	487	524	866	582	724	624
	S1- 90 cm x 45 cm	**S2- 105 cm x 60 cm**	**Mean**	**F1.75%RDN**	**F2.100%RDN**	**F3.125% RDN**	**Mean**
V1: DB 1701	562	487	524	442	738	851	714
V2: CCB143B	866	582	724	549	523	641	534
Mean	714	534	-	496	631	746	-
	F1.75%RDN	**F2.100%RDN**	**F3.125% RDN**	**Mean**			
S1- 90 cm x 45 cm	553	738	851	714			
S2- 105 cm x 60 cm	439	523	641	534			
Mean	496	631	746				
ANOVA	Genotype	Spacing	Fertilizers	GXS	GXF	SXF	GXSXF
SE d	86.8	103.6	41.04	146.5	58.04	58.04	82.08
CD (5%)	NS	NS	87.01	NS	NS	NS	NS

Agronomy IA: Agronomic requirements of promising pre-release *arboretum* of cotton in South Zone (rainfed)

Dharwad (Coloured cotton)

The data on seed cotton yield as influenced by planting geometry and nitrogen levels on different genotypes is presented in table. The results revealed that genotypes and different methods of planting geometry were not influenced significantly with respect to seed cotton yield.

Application of 125% RDN levels (F_3) recorded significantly higher seed cotton yield (761 kg/ha) as compared to other levels (Table 20). However, it was on par with 100% RDN (F_2) (714 kg/ha).Interaction effects were not found significant. The results concluded that 90 x 30 cm with application of 100 % RDN is recommended.

Table 20. Seed Cotton Yield/ha (kg/ha) of genotypes as influenced by spacing levels and nutrient levels

Treatment	G1:CAN 405				G2:DDCC 1				
	S1:60X30	S2:75 X 30	S3:90 X 30	Mean	S1:60X30	S2:75 X 30	S3:90 X 30	Mean	G.Mean
F1:75% RDN	688	696	576	653	629	661	626	639	646
F2:100% RDN	676	734	635	682	617	684	724	675	678
F3:125% RDN	685	735	736	719	686	818	682	729	724
Interaction (two way)	**S1:60X30**	**S2:75 X 30**	**S3:90 X 30**	**G1:CAN 405**	**G2:DDCC 1**	**Spacing**	**G1:CAN 405**	**G2:DDCC 1**	**Mean**
F1:75% RDN	659	679	601	653	639	S1:60X30	683	644	649
F2:100% RDN	647	709	680	682	675	S2:75 X 30	722	721	701
F3:125% RDN	686	777	709	719	729	S3:90 X 30	649	677	698
Mean	664	721	663	685	681	Mean	685	681	683
ANOVA	**Genotype**	**spacing**	**fertilizer**	**GXS**	**GXF**	**SXF**	**GXSXF**		
S. Em+	23.5	25	18.1	43.3	31.3	31.3	54.2		
CD (5%)	NS	NS	51.8	NS	NS	NS	NS		

Soil pH: 7.0 – 7.2 , Available N- 220 kg/ha P_2O_5- 28 kg/ha , K_2O- 495kg/ha, OC: 0.55% Recommended spacing: 60x30 cm,
Recommended Nutrients:0:25:25 kg NPK/ha, Environment: rainfed, Total rainfall received during cropping season: 993.8 mm

Dharwad

The data on seed cotton yield per hectare is presented in table. These *G. arboreum* genotypes produced on par yield levels. Among the different planting geometry 60 x30 cm (S_1) recorded significantly higher seed cotton yield (312 kg/ha) as compared to other levels. Seed cotton yield was significantly increased with 125 % nitrogen (F_3) (307 kg/ha) as compared to other levels (Table 21). Interaction of spacing and nitrogen levels were found not significant. Among the interactions DLSa-17 (G_3) recorded numerically highest seed cotton yield (423 kg/ha) with 60 x 30 cm (S_1) spacing and 125 % RDN (F_3) as compared to any other interaction. These genotypes can be cultivated with recommended spacing of 60 x 30 cm and application of 125 % RDN to increase the yield levels.

Table 21. Seed cotton yield (kg/ha) of genotypes as influenced byplanting geometry and nitrogen levels

Treatments	G1:PAIG-380			G2: PA 837			G3: DLSA 17			GRAND MEAN for F
	S_1:60X 30 cm	S_2:75 X 30cm	S_3:90 X 30cm	S_1:60X30cm	S_2:75 X 30cm	S_3:90 X 30cm	S_1:60X30cm	S_2:75 X 30cm	S_3:90 X 30cm	
F_1:75%RDN	254	203	205	252	259	277	333	262	240	254
F_2:100%RDN	253	254	227	340	252	287	347	262	299	280
F_3:125%RDN	275	268	226	336	262	348	423	294	329	307
Interaction (two way)	**S_1:60X 30 cm**	**S_2:75 X 30cm**	**S_3:90 X 30cm**	**G1:PAIG-380**	**G2: PA 837**	**G3: DLSA 17**		**G1:PAIG-380**	**G2: PA 837**	**G3: DLSA 17**
F_1:75%RDN	280	242	241	221	263	279	S_1:60X30 cm	260	309	368
F_2:100%RDN	313	256	271	244	293	303	S_2:75 X 30cm	242	258	273
F_3:125%RDN	345	275	301	256	315	349	S_3:90 X 30cm	219	304	289
Mean	**312**	**258**	**271**	**241**	**290**	**310**		**241**	**290**	**310**
ANOVA	**Genotype**	**Spacing**	**Fertilizer**	**GXS**	**GXF**	**SXF**	**GXSXF**			
SE. M±	**15.0**	**8.6**	**7.1**	**14.9**	**12.3**	**12.3**	**21.2**			
CD at 5%	**NS**	**26.6**	**20.3**	**NS**	**NS**	**NS**	**NS**			

pH: 7.0 – 7.2 , Available N- 220 kg/ha P_2O_5- 28 kg/ha , K_2O- 495kg/ha, OC: 0.55% Recommended spacing: 60x30 cm ,RDF: 40:25:25 kg NPK/ha, Environment: rainfed, Total rainfall received during cropping season: 993.8 mm

Nandyal

The results of agronomic requirement study conducted under rainfed condition found that higher number of bolls per square meter was recorded with 60x30 cm (21.2), and 125% RDN (22.7). Higher boll weight was recorded with 60x 30 cm(2.8g), and 125% RDN (3.0g) .There was significant effect of different spacing, nitrogen levels and genotypes on seed cotton yield. Among N level, higher seed cotton yield (775 kg/ha) was recorded with 60x30 cm, where as lowest with 60x 15 cm(506 kg/ha). Higher seed cotton yield (689 kg ha^{-1}) was recorded with 125% RDN and was on par with 100 % RDN (630 kg ha^{-1}) (Table 22). The results inferred that 60 x 30 cm with application of 100 % RDN recommended for PA 837 and PAIG 380.

Table 22: Seed cotton yield (kg/ha) of genotypes as influenced by spacing levels and nitrogen Levels

Treatments	Yaganti		PA 837		PAIG 380		Grand mean		
	S1: 60X30 cm	S2: 60X15 cm	S1: 60X30 cm	S2: 60X15 cm	S1: 60X30 cm	S2: 60X15 cm			
N1.75% RDN	721	378	810	336	935	431	602		
N2.100%RDN	684	519	803	513	736	523	630		
N3.125%RDN	791	554	717	660	778	636	689		
Interaction (two way)	S1: 60X30 cm	S2: 60X15 cm	Yaganti	PA 837	PAIG 380	Interaction (two way)	Yaganti	PA 837	PAIG 380
N1.75%RDN	822	382	550	573	682	S1: 60X30 cm	732	777	816
N2.100%RDN	741	518	601	658	629	S2: 60X15 cm	484	503	530
N3.125%RDN	762	617	672	688	707				
Mean	775	506	608	646	673		606	640	673
ANOVA	S	F	V	SXF	SXV	FXV	SXFXV		
SE m±	21	20	17	28	25	30	43		
SE d	29	28	25	40	35	43	61		
CD(P=0.05)	129	65	51	92	NS	NS	NS		
CV(%)	12								

Nandyal (colour cotton)

The results of agronomic requirement studies found that there was significant effect of different spacing and nutrient levels. Higher number of bolls per square meter (14.4) was recorded with 60X15 cm (14.4) and125% RDN (16.2). The significantly higher boll weight was recorded with 60X15 cm (2.3 g), and 125% RDN (2.2g). The significantly higher seed cotton yield (351 kg/ha) was recorded with 60X15 cm, whereas lower seed cotton yield (254 kg/ha) was recorded with 60x30 cm (Table 23).Amongst nitrogen levels significantly higher seed cotton yieldwas recorded with 125% RDN(362kg ha^{-1}). The interaction results found that 60 x 15 cm with application of 125 % RDN found higher seed cotton yield with DDCC1 (504 kg/ha) and CAN 405 (318 kg/ha).

Table 23. Seed cotton yield (kg/ha) of genotypes as influenced by spacing levels and nitrogen levels

Treatments	V1. DDCC1		V2. CNA 405		Grand mean			
	S1.60X30 cm	S2.60 X 15 cm	S1.60X30 cm	S2.60 X 15 cm				
N1.75% RDN	293	331	135	307	266			
N2.100% RDN	260	415	212	229	279			
N3.125% RDN	465	504	167	318	362			
Interaction (two way)	S1.60X30 cm	S2.60 X 15 cm	Interaction (two way)	V1. DDCC1	V2. CNA 405	Interaction (two way)	V1. DDCC1	V2. CNA 405
N1.75% RDN	214	319	75% RDN	312	221	S1.60X30 cm	339	169
N2.100% RDN	236	322	100% RDN	337	221	S2.60 X15 cm	417	285
N3.125% RDN	313	411	125% RDN	485	240	Mean	378	227
Mean	254	351	Mean	378	227			
ANOVA	S	F	V	SXF	SXV	FXV	SXFXV	
SE d	12.5	20.0	10.7	28.0	15.1	18	26	
SE m±	8.8	14.1	7.5	20.0	10.7	13	18	
CD (5%)	54	46	23	NS	NS	40	57	

Agronomy1B: Evaluation of compact cultures under HDPS with different spacing and nutrient levels

Preamble: Cotton is capable of producing acceptable yields in a wide range of plant populations. This is fortunate from a historical perspective as per the cotton stand establishment observed in the country. However, the general conclusion may not be applicable to all germplasm / situations. High density planting with compact genotypes proved, as high potential system of cotton cultivation in many situations. Many cotton producing countries like Brazil, China, Australia, Spain Uzbekistan, Argentina and Greece tested, proved and adopted narrow row planting system of cotton as tool to achieve higher productivity. Previously, there were no exclusive genotypes for high density planting system. Keeping this in view, development of compact genotypes is prioritized. The agronomic requirement studies are under taken for pre released genotypes in multi-location.

North Zone (irrigated)

Bathinda

The compact culture requirement of spacing and nutrient requirement studied found that PHB 115 produced significantly higher seed cotton yield under planting geometry of 67.5 x 20 cm (2761 kg/ha) followed by 67.5 x 15 cm (2703 kg/ha) and 67.5 x 10 cm (2573 kg/ha). Significantly least yield was recorded under 67.5 x 60 cm (2209). Amongst nitrogen levels, there was significant improvement in seed cotton yield with the increase in nitrogen level up to 125% RDN (2693 kg/ha) as compared to 100% RDN (2442 kg/ha). Further increase in nitrogen to 150% RDN did not resulted in yield improvement (2550 kg/ha). The Interaction effect the different planting geometries and nitrogen levels was non-significant. The results conclude that 67.5 x 20 cm with 125 % nitrogen is recommended for PHB 115.

Table 24. Seed cotton yield (kg/ha) as influenced by spacing levels and nutrient levels (PHB 115) at Bathinda

Treatments	S1.67.5 X 10 cm	S2.67.5X 15 cm	S3. 67.5X 20 cm	S4.67.5 X 60 cm	Mean (Fertilizers)	Anova	SE d	CD (5%)
F1.100% RDN	2337	2522	2661	2249	2442	Spacing	135.1	330
F2.125% RDN	2715	2856	2870	2330	2693	Fertilizers	105.3	193
F3.150% RDN	2668	2732	2751	2048	2550	S X F	182.4	NS
Mean (spacing)	2573	2703	2761	2209				
F 2383 at 67.5 x 15 cm (HDPS check)					2674			
F 2228 at 67.5 x 60 (normal spacing check)					2532			

Soil parameters: pH= 8.8, EC=0.20 m mhos/cm, OC (%) = 0.37, Available P_2O_5= 10.0 kg/ha& Available K_2O= 236 kg/ha, Recommended nutrients: 75 kg N and 30 kg P_2O_5/ha, Environment: irrigated; Total rainfall during cropping period: 448 mm

Hisar

The spacing and nutrients requirement studies found that the significantly higher seed cotton yield (2992 kg/ha) was recorded with 67.5x15 cm as compared to all other spacing except 67.5x20 cm. Amongst nutrient levels, application of 150% RDF resulted significantly higher seed cotton yield (2746 kg/ha) as compared to 100% RDF application and was at par with 125% RDF application (Table 25). The study concluded that planting at 67.5 x 15 cm with application of 125 % RDF were found optimum for PHB 115.

Table 25. Seed cotton yield (kg/ha) as influenced by spacing levels and nutrient levels (PHB 115)

Treatments	F1 100% RDF	F2 125% RDF	F3 150% RDF	Mean (Fertilizers)	ANOVA	SE d	CD (5%)
S1.67.5 X 10 cm	2222	2492	2531	2415	Spacing	171	426
S2.67.5X 15 cm	2740	3128	3107	2992	RDF levels	105	224
S3.67.5X 20 cm	2477	2694	2810	2660	SXR	210	NS
S4. 67.5X 30c,m	2335	2423	2538	2429	RXS	242	NS
Mean (spacing)	2441	2684	2746				

Available N : 144 kg/h, Available P_2O_5 : 135 kg/h, Availabe K_2O : 250 kg/h, O.C.(%) : 0.48, RDF: 90:30;0;25 N:P;:Zn kg/ha, environment: Irrigated, Total rainfall : 351.7 mm

Agronomy 1B: Evaluation of compact cultures under HDPS with different spacing and nutrient levels in Central Zone (rainfed)

Akola

The results of compact culture studies found that the seed cotton yield was significantly highest with RHCHD-1433(1345 kg ha^{-1}) followed by RHCHD-1406(1238 kg ha^{-1}) and AKH-081 (1115 kg ha^{-1}). Amongst spacing levels, seed cotton yield was significantly highest (1442 kg ha^{-1}) with plant density (1.66 lakh ha^{-1}) i.e. with 60x10 cm spacing which was found significantly superior over spacing of 45X10 cm (1279kg ha^{-1}) and 60X30 (1176kg ha^{-1}) cm and 75X10 cm(1033kg ha^{-1}).The results on nutrient level found that highest seed cotton yield of 1289 kg $ha^{-1}$was recorded in125 % RDN which was found significantly superior over 75 % N (1175kg ha^{-1}) and at par with 100 % N (1233 kg ha^{-1}) (Table 26) . The interaction of three factors effect of seed cotton yield were non significant . Hence planting at 60 x 10 cm with and application of 100 % RDN found optimum for genotypes includes RHC HD 1433, RHC HD 1406 and AKH 081.

Table 26. Seed cotton yield (kg/ha) of genotypes as influenced by spacing levels and nutrient levels

Treatments	V1: RHC HD 1433				V2: RHC HD 1406				V3: AKH-081				Mean F
	S1. 45x10 cm	S2. 60X10 cm	S3.75x10 cm	S4.60x30 cm	S1. 45x10 cm	S2. 60X10 cm	S3.75x10 cm	S4.60x30 cm	S1. 45x10 cm	S2. 60X10 cm	S3.75x10 cm	S4.60x30 cm	
F1.75% RDN	1403	1480	1074	1247	1161	1395	977	1073	1048	1243	950	1046	**1175**
F2.100% RDN	1446	1557	1103	1273	1297	1509	1038	1119	1149	1263	944	1103	**1233**
F3.125% RDN	1473	1629	1138	1314	1350	1568	1091	1276	1184	1331	978	1137	**1289**
Interaction (two way)	**S1. 45x10 cm**	**S2. 60X10 cm**	**S3.75x10 cm**	**S4.60x30 cm**	V1: RHC HD 1433	V2: RHC HD 1406	V3: AKH-081		Interaction	V1: RHC HD 1433	V2: RHC HD 1406	V3: AKH-081	
F1.75% RDN	1204	1373	1000	1122	1301	1151	1072		S1. 45x10 cm	1440	1269	1127	
F2.100% RDN	1297	1443	1028	1165	1345	1241	1115		S2. 60X10 cm	1555	1491	1279	
F3.125% RDN	1336	1509	1069	1243	1389	1321	1158		S3.75x1 cm	1105	1035	957	
									S4.60x30 cm	1278	1156	1095	
Mean	1279	1442	1033	1176	1345	1238	1115		Mean	1345	1238	1115	
ANOVA	Genotype	Spacing	Fertilizers		VXS	VXF	SXF		VXSXF				
S.E m±	29	34	23		59	40	47		81				
CD (5%)	86	100	66		NS	NS	NS		NS				

Soil parameters :pH value: 7.82, EC (dSm^{-1}): 0.14, O.C.($g\ kg^{-1}$) : 3.90, Available N : 220 kg/ha, P_2O_5 : 17.80 kg/ha, K_2O : 366 kg/ha, recommended Fertilizer dose : 60:30:30 Kg NPK/ha , Environment : Rainfed, Cotton Species : Hirsutum Cotton, Total Rainfall during Cropping period : 771.6 mm

Nanded

The results on compact culture requirement of spacing and nutrient requirement found that RHC HD 1406 and RHC HD 1433 were on par with production of seed cotton yield. The closer spacing (60 x 10 cm) recorded the significantly highest seed cotton yield(1525 kg/ha) and was at par

with 75 x 10 cm spacing (1455 kg/ha). Amongst nitrogen levels, application of 125% RDN was significant to increase seed cotton yield (1505 kg/ha) over lower levels (Table 27).The study conclude that spacing of 60 X 10 cm with application of 125 % of nitrogen is recommended

Table 27. Seed cotton yield (kg/ha) of genotypes as influenced by spacing levels and nutrient levels

Treatments	G1. RHC HD 1433				G2. RHC HD 1406				Grand Mean
	S1. 45 x 10 cm	S2.60 x 10 cm	S3.75 x 10 cm	S4. 60 x 30 cm	S1. 45 x 10 cm	S2.60 x 10 cm	S3.75 x 10 cm	S4. 60 x 30 cm	
F_1.75%RDN	1488	1390	1298	1190	1059	1476	1360	1424	1336
F_2.100 RDN	1548	1490	1424	1242	1185	1585	1533	1504	1439
F_3.125% RDN	1618	1563	1564	1326	1249	1646	1552	1523	1505
Interaction (two way)	**S1. 45 x 10 cm**	**S2.60 x 10 cm**	**S3.75 x 10 cm**	**S4. 60 x 30 cm**	G1.RHC HD 1433	G2. RHC HD 1406			
F_1.75%RDN	1273	1433	1329	1307	1342	1330			
F_2.100%RdN	1367	1538	1479	1373	1426	1452			
F_3.125% RDN	1434	1604	1558	1424	1518	1493			
Mean	1358	1525	1455	1368	1428	1424			
ANOVA	Genotype	Spacing	Fertilizers	GXS	GXF	SXF	GXSXF		
SE d	26.53	37.53	20.98	53.07	41.96	59.34	93.92		
CD (5%)	N.S.	113.84	60.45	160.99	N.S.	N.S.	N.S.		

Soil properties :pH - 7.92; Ec - 0.28 dSm^{-1}, OC - 0.48(%), available N - 202.74 kg/ha; P_2O_5- 12.18 kg/ha& K_2O - 523.75 kg/ha, Recommended spacing - 60 x 10 cm, recommended nutrients - 75:37.5:37.5 NPK kg/ha, Cotton species - *G. hirsutum*, Environment - Rainfed and **rainfall** - 976.9 mm**.**

Agronomy 1B: Evaluation of compact cultures under HDPS with different spacing and nutrient levels in Central Zone (Irrigated)

Rahuri

The results revealed that RCH-1406 recorded significantly higher seed cotton yield (2373 kg ha^{-1}) than TCH-1897 (2123kg ha^{-1}). The spacing 60 cm x 10 cm registered significantly highest plant population recorded (1.66 lakh ha^{-1}) and which are beneficial effect in recorded the highest seed cotton yield (2682 kg ha^{-1}).The fertilizer level of 150 % RDF recommended dose of fertilizer (120:60:60 NPK kg ha-1) registered significantly increased the seed cotton yield (2488 kg ha^{-1}) than rest of the fertilizer levels but it was at par with of 125 % RDF recommended dose of fertilizer (100:50:50 NPK kg ha^{-1}) (Table 28).The results stated that the variety RCH-1406, spacing 60 cmx10 cm and fertilizer level of 125 % recommended dose of fertilizer (100:50:50 NPK kg ha^{-1}) are more beneficial to increase the seed cotton yield.

Table 28. Seed cotton yield (kg/ha) of genotypes as influenced by spacing levels and nutrient levels

Treatments	V_1.TCH-1897				V_2.RHC-1406				Grand Mean
	S_1.60X 10 cm	S_2.75X 10 cm	S_3.90X 10 cm	S_4.90X 60 cm	S_1.60X 10 cm	S_2.75X 10 cm	S_3.90X 10 cm	S_4.90X 60 cm	
F_1.100% RDF	1988	1852	1753	1796	2442	1777	1749	1778	1892
F_2.125% RDF	2660	2248	2003	1996	3080	2547	2251	2120	2363
F_3.150% RDF	2708	2352	2109	2007	3216	2569	2765	2179	2488
Interaction (two way)	S_1.60X10	S_2.75X10	S_3.90X10	S_4.90X60	V_1.TCH-1897	V_2.RHC-1406	Interaction	V_1.TCH-1897	V_2.RHC-1406
F_1.100% RDF	2215	1814	1751	1787	1847	1936	S_1.60X10 cm	2452	2913
F_2.125% RDF	2870	2397	2127	2058	2227	2499	S_2.75X10 cm	2151	2297
F_3.150% RDF	2962	2461	2437	2093	2294	2682	S_3.90X10 cm	1955	2255
Mean	2682	2224	2105	1979	2123	2373	S_4.90X60 cm	1933	2026
--	--	--	--	--	--	--	Mean	2123	2373
ANOVA	Genotype	Spacing	Fertilizers	VXS	VXF	SXF	GXSXF	--	--
SEm±	56.03	79.02	39.13	112.04	55.31	78.03	111.20	--	--
CD (5%)	158.11	243.12	113.02	NS	159.03	NS	NS	--	--

Soil: Medium deep black soil, pH:8.68, Available N : 160.00 kg ha^{-1}, P_2O_5: 11.00 kg ha^{-1}, K 2O : 627.00 kg ha^{-1}, O.C.(g kg $^{-1}$) : 0.37, Environment:Irrigated

Surat

The results of evaluation of compact cultures under HDPS with different spacing and nutrient levels under irrigated condition revealed that closer spaced crop recorded significantly higher sympodial length as compared to normal spacing . Planting at 75 x 10 cm spacing recorded highest sympodial length of 29.0 cm followed by 60 x 10 cm (28.9 cm) and 90 x 10 cm (27.9 cm).Significant higher bolls per sqm (100.6) was recorded in S_s(75x10 cm) as compared to normal spacing S_4 (56.3 bolls/ sqm) and S_1 (89.6 bolls/sqm), however it was found at par with S_3 (94.7 bolls/sqm). None of the individual factors as well as their interaction produced any significant difference on boll weight. Nitrogen levels did not influence seed cotton yield significantly (Table 29). Spacing was found to significantly affect the seed cotton yield. Spacing at S_2 (75 x 10 cm) recorded higher seed cotton yield (1788 kg/ha) as compared to rest of the spacing. The study inferred that 75 x 10 cm with application of 100 % RDN recommended for the pre released genotypes (RCH HD 1406 and TCH 1897).

Table 29. Seed cotton yield (kg/ha) of genotypes as influenced by spacing levels and nutrient levels

Treatments	G1. RCH HD 1406				G2. TCH 1897				Grand Mean
	S1.60 X 10 cm	S2.75 X 10 cm	S3.90 X 10 cm	S4.120 X 45 cm	S1.60 X 10 cm	S2.75 X 10 cm	S3.90 X 10 cm	S4.120 X 45 cm	
F1.100%RDN	1512	1775	1869	1312	1481	1543	1389	1370	**1531**
F2.125%RDN	1528	2176	1920	1427	1497	1620	1475	1408	**1631**
F3.150%RDN	1343	1944	1886	1389	1559	1667	1492	1427	**1588**
Interaction (two way)RDN	**S1.60 X 10 cm**	**S2.75 X 10 cm**	**S3.90 X 10 cm**	**S4.120 X 45 cm**	**G1. RCH HD 1406**	**G2. TCH 1897**	**Interaction**	**G1. RCH HD 1406**	**G2. TCH 1897**
F1.100%RDN	1497	1659	1629	1341	1617	1446	**S1.60X10 cm**	1461	1512
F2.125%RDN	1512	1898	1698	1418	1763	1500	**S2.75 X 10 cm**	1965	1610
F3.150%RDN	1451	1806	1689	1408	1641	1536	**S3.90 X 10 cm**	1892	1452
							S4.120 X 45 cm	1376	1402
Mean	**1487**	**1788**	**1672**	**1389**	**1673**	**1494**		**1673**	**1494**
ANOVA	**Genotype**	**Spacing**	**Fertilizers**	**GXS**	**GXF**	**SXF**	**GXSXF**		
SE d	35.17	38.05	32.96	53.82	46.61	65.91	93.21		
CD (5%)	**NS**	**108**	**NS**	**153**	**NS**	**NS**	**NS**		

Soil type: *Vertisol*, deep black, clay texture, pH:7.76, EC:0.4dS/m, OC(%):0.45, Available N:224.8 kg/ha, P_2O_5:28.4 kg/ha K_2O:396.1 kg/ha, RDF (HDPS): 225-00-00NPK kg/ha, Environment: Irrigated

Agronomy 1B: Evaluation of compact cultures under HDPS with different spacing and nutrient levels in South Zone (rainfed)

Nandyal

The results of pre released compact culture trial found that higher sympodial length (23.2 cm) was recorded with 60x10 cm, which was on par with 45x10 cm (21.6 cm) and 75x10 cm (21.6 cm). Higher sympodial length (22.5 cm) was recorded 125% RDN and was on par with 100 % RDN (21.2). Significantly higher number of bolls per square meter (36.2) was counted with 60 × 10 cm, which was on par with 45 x 10 cm(32.5). The results revealed that significantly higher seed cotton yield (1548 kg ha^{-1}) was recorded with spacing of 60 cm x 10 cm, which was on par with 45 cm x10 cm(1367 kg/ha). The significantly least seed cotton yield (1105 kg ha^{-1}) was recorded with spacing of 75 cm x 10 cm. There was significant effect of different nitrogen levels on seed cotton yield (Table 30). Significantly higher seed cotton yield (1489 kg ha^{-1}) was found with 125% RDN as compared to 100 and 75 % RDN

Table 30. Seed cotton yield (kg/ha) as influenced by spacing levels and nitrogen levels (CNH 1128).

Treatments	S1.45 X 10 cm	S2.60 X 10 cm	S3.75 X 10 cm	S4.60 X 15 cm	Mean (nitrogen levels)	ANOVA	SE d	SE m±	CD (5%)
N_1: 75 % RDN	1363	1413	798	1324	**1224**	**Spacing**	127	90	266
N_2: 100 % RDN	1277	1290	1223	1161	**1238**	**N levels**	110	78	231
N_3: 125 % RDN	1461	1942	1293	1262	**1489**	**S X N**	221	156	NS
Mean (spacing)	**1367**	**1548**	**1105**	**1249**					

Dharwad

The data on seed cotton yield of genotypes as influenced by planting geometry and nitrogen levels is presented in Table 31.Application of 125% RDN (F_3) recorded significantly higher seed cotton yield (742 kg/ha) as compared to other two levels. It showed that nitrogen levels can be increased up to 125%. . Different planting geometry was not showing the significant difference. The interactions effect was found non-significant. The compact cotton variety CNH-1128 can be grown with normal spacing of 60x30 cm with increased nitrogen levels of 125% RDN under Dharwad conditions.

Table 31. Seed cotton yield (kg/ha) as influenced by spacing levels and nutrient levels (CNH 1128)

Treatments	S_1: 45 X10 cm	S_2:60X 10 cm	S_3:75X 10 cm	S_4: 60x30 Recommend	MEAN	Anova	S.Em	CD at 5%
F_1:75% RDN	623	592	672	656	636	Spacing	14.9	NS
F_2:100% RDN	657	668	699	701	681	Ferti	4.7	14.2
F_3:125% RDN	688	704	764	811	742	S X F	19.0	NS
Mean (spacing)	656	655	711	723				

Soil pH: 7.0 – 7.2, Available N- 220 kg/ha P_2O_5- 28 kg/ha , K_2O- 495kg/ha, OC: 0.55% Recommended spacing: 60x30 cm,RDF: 40:25:25 kg NPK/ha, Environment: rainfed, Total rainfall received during cropping season: 993.8 mm.

Agronomy 1B: Evaluation of compact cultures under HDPS with different nutrient levels in South Zone (irrigated)

Raichur

The agronomic requirement studies results found that significantly higher seed cotton yield was recorded with 150% recommended dose of fertilizers (2935 kg/ha) as compared to 100% RDF. However, 125% RDF recorded 2735 kg/ha which was found on par with 150% RDF . The testing of different spacing resulted in non-significant result. Planting of closure spacing of 75 cm X 30 cm recorded numerically higher seed cotton yield (2827 kg/ha) (Table 32). Interaction found non-significant. The trial conclude that 75 x 30 cm with application of 125 % RDF were found optimum.

Table 32. Seed cotton yield (kg/ha) as influenced by spacing levels and nutrient levels (RHC HD 1433)

Treatments	S1:60 cm X 10 cm	S2: 75 cm X 10 cm	S3: 90 cm X 10 cm	S4:75 cm X 30 cm	Mean (Fertilizers)	ANOVA	SE. d	CD (5%)
F1: 100% RDF	2464	2545	2635	2591	2559	Fertilizers	80	226
F2: 125% RDF	2656	2734	2739	2803	2733	Spacing	149	NS
F3: 150% RDF	2877	2826	2932	3087	2935	F X S	258	NS
Mean (spacing)	2672	2702	2769	2827				

Soil: Medium Black soils, Shallow and fine textured, pH:8.10, Available N: : 252 kg/ha, P_2O_5: 35 kg/ha, K_2O 273 kg/ha, O.C.(g kg^{-1}) : 0.53%& environment: Irrigated

Coimbatore

The experiment was conducted under irrigated ecosystem in Coimbatore revealed that among the fertilizer levels, fertilizer N applied at the rate of 125% RDN recorded the significantly highest seed cotton yield (2357 kg/ha) (Table 33). Among spacing levels, spacing of 75 X 30 cm recorded the significantly highest seed cotton yield (2260 kg/ha) . The interactions has no significance effect.

Table 33. Seed cotton yield (kg/ha) as influenced by spacing levels and nutrient levels (RHC HD 1433)

Treatments	$S1S_1$- 60 cm X 10 cm	S275 cm X 10 cm	S390 cm X 10 cm	S475 cm X 30 cm	Mean	Anova	SE d	CD (5%)
F1.75 % RDN	1532	1584	1623	1834	1643	Spacing	72.2	149.7
F2.100 % RDN	1680	1718	1807	2146	1838	Fertilizers	62.5	129.7
F3.150% RDN	2069	2132	2427	2801	2357	S X F	125.0	NS
Mean (spacing)	1760	1811	1952	2260	1946			

Soil: Available N: 224 kg/ha, P_2O_5: 28 kg/ha, K_2O:730 kg/ha, OC(%): 0.54, Environment : Irrigated

AGR II: Augmenting ELS Cotton production

Preamble: The demand for the textile products made out of ELS cotton (32 mm and above) is growing exponentially. Despite of good harvest, there is mismatch in demand & supply of different staple group of cotton particularly in ELS cotton. The country is still importing ELS cotton annually from Egypt, Sudan, U.S.A and others. The demand for ELS cotton in India is about 9 lakh bales against the availability of only about 4 lakh bales. Chamrajnagar station is recently established under AICRP (cotton) to address the region specific problem of ELS cotton cultivation. The rainfall pattern observed is continuous rains from April to December and multi sowing dates are commonly followed by farmers. Hence times of sowing experiment is proposed to find out optimum times of sowing of ELS cotton. In addition to that developing packages of practices for ELS cotton also aimed here.

Chamrajnagar

The experiment was conducted to find out optimum sowing periods of bimodal rainfall region; where sowing of ELS cotton was taken at multi sowing dates by farmers. The experimental results on times of sowing revealed that significantly highest seed cotton yield (1782 kg/ha), observed at 2nd fortnight of April and was on par with 1st fortnight of April (1673 kg/ha) , May 1st fortnight (1748 kg/ha) and sowing at May 2nd fortnight (1687 kg/ha). The significantly highest Gross returns (Rs. 97,992 /ha), net returns (Rs. 52,765/ha) and B:C ratio (2.17) was obtained with sowing at 2nd fortnight of April which were on par with May 1st fortnight (GR of 96,122 /ha, NR of 50,142/ha and B:C ratio of 2.09) and sowing at May 2nd fortnight (GR of Rs. 92,803 /ha, NR of Rs. 48,698 /ha and B:C ratio of 2.10) (Table 34). The trial inferred that optimum times of sowing ranged from 2nd fortnight of April to May 2nd fortnight. The total and effective rainfall received during the optimum sowing periods ranged from 543.3 to 573.9 mm.

Table 34. Effective rainfall (mm) ,Seed cotton yield (kg/ha), economics as influenced by times of sowing at Chamrajnagar

Times of sowing	Effective rainfall (mm)	Bolls/m^2	Seed cotton yield (kg/ha)	Cost of cultivation (Rs. ./ha)	Gross return (Rs. ./ha)	Net return (Rs. ./ha)	B:C Ratio
T_1: March-2nd Fortnight	466.0	156.0	1527	42605	84003	41398	1.97
T2: Apirl-1st Fortnight	495.9	172.8	1673	44480	91997	47517	2.07
T3: April-2nd Fortnight	543.3	180.0	1782	45230	97992	52762	2.17
T4: May-1st Fortnight	573.9	174.5	1748	45980	96122	50142	2.09
T5: May-2nd Fortnight	552.5	169.6	1687	44105	92803	48698	2.10
T6: June-1st Fortnight	491.8	156.0	1583	43355	87083	43728	2.01
T7: June- 2nd Fortnight	502.5	149.1	1505	42605	82757	40152	1.94
T8: July-1st Fortnight	456.0	141.2	1462	42230	80428	38198	1.90
T9: July-2nd Fortnight	416.4	130.1	1301	41855	71537	29682	1.71
T10: Aug-11st Fortnight	342.4	115.4	1233	41605	67797	26192	1.63
T11: Aug- 2nd Fortnight	289.5	102.9	1090	41480	59932	18452	1.44
T12: September 1st Fortnight	232.2	89.4	980	41105	53918	12813	1.31
SEd		16.12	53.78	1133.04	2957.97	2051.93	0.04
CD (5%)		33.44	111.54	2349.78	6134.46	4255.43	0.08

AGR II B Developing Package for inter specific ELS Bt hybrid

Chamrajnagar

The results of comparison of DCH 32 Bt with isogenic lines DCH 32 non Bt found that DCH -32 Bt cotton hybrid has recorded significantly higher number of sympodial branches per plant (20.1), bolls/m^2 (103.6) and seed cotton yield (1557 kg/ha). Between the spacings levels, seed cotton yield (1593 kg/ha) was maximum with 75 % of recommended spacing . Boll weight didn't differ between the spacings. Among the nitrogen levels significantly higher growth and yield parameters were noticed with every increase in nitrogen levels. Application of 150 % RDN significantly recorded higher seed cotton yield (1666 kg/ha) compared to other nitrogen levels. However, yield was found to be on par with 125% RDN (Table 35).The economics also followed the similar trend. While the interaction effect was found to be non significant for all the parameters under the study. The significantly highest gross returns (Rs. 86,619/ha) and net returns (Rs. 40,430/ha) were recorded in DCH-32 Bt cotton hybrid with 75% recommended spacing and application of 150% RDN.

Table 35: Seed cotton yield (kg/ha) as influenced by spacing and nutrient levels of ELS Bt hybrid

Treatments	**G1.DCH 32 Bt**			**G2.DCH 32 non Bt**			**Grand Mean**
Nutrients	S1.Rd spacing	S2.75% Rd spacing	Mean	S1.Rd spacing	S2.75% Rd spacing	Mean	
F0. 0%N	1128	1345	1237	928	1283	1106	1171
F1.100% RDN	1436	1684	1560	1208	1416	1312	1436
F2.125% RDN	1528	1825	1677	1376	1608	1492	1584
F3.150% RDN	1619	1893	1756	1464	1687	1576	1666
Interaction(two way)	S1.Rd spacing	S2.75% Rd spacing	Mean	G1.DCH 32 Bt	G2.DCH 32 non Bt	Mean	Grand Mean
F0. 0%N	1028	1314	1171	1237	1106	1172	1171
F1.100% RDN	1322	1550	1436	1560	1312	1436	1436
F2.125% RDN	1452	1717	1585	1677	1492	1585	1584
F3.150% RDN	1542	1790	1666	1756	1576	1666	1666
Mean	1336	1593	1465	1557	1371	1464	1464
Anova	Genotype (G)	Spacing (S)	Nutrient (F)	GXS	GXF	SXF	GXSXF
SE d	58.23	58.23	82	82.36	116.48	116	164.72
CD (5%)	118.97	118.97	168	NS	NS	NS	NS

Soil type: Medium black, clay loam, pH:7.76 Available N : 212.6, P_2O_5 : 21.15, K_2O : 284.5, O.C.(g kg^{-1}) : 0.26, Recommended 150: 75: 75 kg NPK/ha, Environment: rainfed, Total rainfall received during the cropping periods:763 mm&Recommended spacing 90 x 60 cm

Coimbatore

The experiment was conducted under irrigated ecosystem with ELS Bt hybrid results revealed that DCH 32 Bt (1742 kg/ha) recorded higher higher seed cotton yield than DCH 32 Non Bt (1591 kg/ha).Spacing levels did not influence seed cotton yield significantly . However, application of N applied at the rate of 150% RDN (1772 kg/ha) influenced significantly which was on par with 125 % RDN (Table 36). The interaction effect were found non significant.With respect to economics, the highest gross return (Rs. 1,01,008/ha) and net return (Rs. 23, 893/ha) were recorded with DCH 32 Bt and with application of nitrogen at the rate of 150% . Amongst spacing levels, the highest gross return(Rs. 1, 02, 748/ha) and net return (Rs. 23908) and in the spacing adopted 120 cm X 60 cm.

Table36. Seed cotton yield (kg/ha) of genotypes influenced by spacing levels and nutrient levels

Treatments	**G_1.DCH 32 Bt**		**G_2.DCH 32 non Bt**		**Grand Mean**		
Nutrients	**S2.120 X60 cm**	**S1. 90 X 45cm**	**S2.120 X60 cm**	**S1. 90 X 45 cm**			
F_0. 0 % RDN	1667	1618	1458	1446	1547		
F_1.100%RDN	1756	1720	1549	1543	1642		
F_2.125%RDN	1782	1778	1667	1591	1705		
F_3.150%RDN	1806	1805	1756	1720	1772		
Interaction (two way)	**S2.120 X60**	**S1. 90 X 45**	**V2. DCH 32 non Bt**	**V1.DCH 32 Bt**	Interaction	**V1.DCH 32 Bt**	**V2. DCH 32 non Bt**
F_0. 0%RDN	1563	1532	1452	1643	**S1. 90 X 45 cm**	1730	1575
F_1.100%RDN	1653	1631	1546	1738	**S2.120 X60 cm**	1753	1608
F_2.125%RDN	1725	1685	1629	1780	**Mean**	1742	1591
F_3.150%RDN	1781	1762	1738	1805			
Mean	1680	1653	1591	1742			
ANOVA	**Fertilizers (F)**	**Genotype (V)**	**VXF**	**Spacing (S)**	**FXS**	**VXS**	**VXSXF**
SE d	40.5	28.6	57.2	28.6	57.2	40.5	80.9
CD (5%)	82.6	58.4	NS	NS	NS	NS	NS

Agronomy IV: Technology for organic cotton Production

Preamble: India is the largest producer of organic cotton in the world. India's contribution to global organic cotton production is 51 per cent. Evolving organic nutrient management strategy is very much required to support our organic production system. Market prices of organic manures are costly. Hence evolving low cost organic nutrient management strategy is proposed by integrating different sources of nutrients.

Sriganganagar

The field experiment was conducted in the plot which was converted as an organic method of cultivation since last ten years. It was observed that T_3: Recommended of Nutrient through organic based on P equivalent basis gave maximum seed cotton yield(4212 kg/ ha), which was on par with seed treatment and soil application of recommended bio fertilizers and foliar application of PPFM (T4,3727 kg/ha), application of neem cake @ 250 kg/ha (T5, 3682 kg/ha) ,combined application seed treatment and soil application of recommended bio fertilizers and foliar application of PPFM along with application of neem cake @ 250 kg/ha (T8, 3697 kg/ha) , and combined application of seed treatment and soil application of recommended bio fertilizers and foliar application of PPFM along with application of neem cake @ 250 kg/ha with raising of Sunnhemp between rows incorporated before flowering (T11, 3758 kg/ha) . This treatment of supplying recommended nutrients through organic based on P equivalent basis (T_3 gives significantly the highest gross (Rs. 2,14,962/ha) and net monetary returns (Rs. 2,00, 213/ha) as well as B: C ratio (5.16) as compare to rest of the treatments (Table 37) and the same method (T_3) observed higher improvement of organic carbon (0.28%).

Table 37. Seed cotton yield (kg/ha), economics and organic carbon (%) as influenced by organic nutrient management

Treatments	Seed cotton Yield (kg/ha)	Gross return (Rs. /ha)	Net Return (Rs. /ha)	MBCR	Organic carbon (%)	
					Initial	Final
T_1.Absolute control (No organic & inorganic)	3136	177989	142964	4.08	0.22	0.22
T_2.Control (RDN through inorganic)	3788	214962	176937	4.65	0.22	0.22
T_3.RD of Nutrient through organic based on P equivalent basis	4212	239038	200213	5.16	0.22	0.28
T_4.Seed treatment and soil application of recommended bio fertilizers and foliar application of PPFM	3727	211523	174598	4.73	0.22	0.23
T_5.Neem cake 250 kg/ha	3682	208943	171518	4.58	0.22	0.23
T_6.Raising of Sun hemp / fodder cowpea between rows incorporated before flowering	3348	190027	150652	3.83	0.26	0.28
T_7.Intercropping with green gram/black gram/ ground nut/soybean	3455	196045	156670	3.98	0.22	0.25
T_8.T_4+T_5	3697	209803	168528	4.08	0.23	0.27
T_9.T_4+T_6	3561	202064	160789	3.90	0.24	0.25
T_{10}.T_4+T_5+T_6	3758	213242	169567	3.88	0.23	0.25
T_{11}.T_4+ T_5 + T_7	3409	193466	149791	3.43	0.20	0.22
SEd ±	270	177989	142964	4.08		
CD (5%)	530	214962	176937	4.65		

Central Zone

The result of organic nutrient management revealed that significantly highest seed cotton yield was recorded with package includes application of 100 % RDF of nutrient through organic based on P equivalent basis at Rahuri (1448 kg/ha), Bhawanipatna (1454 kg/ha) and Nanded(983kg/ha). The same method realized higher net return of Rs. 40,706 and 33,841/ha and benefit cost ratio of 1.77 and 1.73at Rahuri and Bhawanipatna respectively. The higher enhanced organic carbons tatus at Bhawanipatna(0.66%) and Akola (0.52%) estimated with same package includes application of 100 % RDF of nutrient through organic based on P equivalent basis (T_3) (Table38).

Soil application of recommended bio fertilizers, foliar application of pink pigmented facultative methylotrophs (PPFM) at flowering, soil application of neem cake @ 250 kg/ha and raising of sunnhemp between rows incorporated before flowering (T_{10}) registered significantly higher seed cotton yield at Khandwa(1214kg/ha) and Akola (1340 kg/ha). The same package (T_{10}) registered enhanced organic carbon status at Khandwa (0.83%)(Table 39).The packages including seed treatment and soil application of recommended bio fertilizers, foliar application of pink pigmented facultative methylotrophs (PPFM) at flowering, soil application of neem cake 250 kg/ha and intercropping with black gram(T_{11}) registered significantly higher seed cotton yield at Junagadh (1411 kg/ha) and Surat (1201 kg/ha) and). The same package (T_{11}) was observed the highest net return of Rs. 25,775, 29,767and 47,897/ha at Surat, Junagadh and Khandwa respectively (Table 40). The same methods (T11) had been observed significantly higher available nitrogen (191.1 kg/ha) , P_2O_5 (9.5 kg/ha) and K_2O (545.7 kg/ha). Soil availability of nutrients non significantly influenced by different treatments at Junagadh (Table 41).

Table 38. Seed cotton yield (kg/ha) as influenced by organic nutrient management packages in Central Zone

Treatments	Surat	Bhawanipatna	Nanded	Rahuri	Junagadh	Akola	Khandwa
T1.Absolute control (No organic& inorganic)	633	822	618	629	850.00	886	804
T2.Control (RDN through inorganic)	1365	1527	837	1523	926.50	1418	1003
T3.RD of Nutrient through organic based on P equivalent basis	962	1454	983	1448	867.00	1329	986
T4.Seed treatment and soil application of recommended bio fertilizers and foliar application of PPFM	916	977	717	755	982.60	1077	942
T5.Neem cake 250 kg/ha	947	1080	740	765	1105.00	1252	1030
T6.Raising of Sun hemp between rows incorporated before flowering	1004	1028	761	741	1037.00	1164	944
T7.Intercropping with green gram	997	921	779	695 (461)	1207.00	1158 (281)	799 (1210)
T8.T4+T5	1075	1314	753	1136	1309.00	1153	1161
T9.T4+T6	1117	1267	735	924	1173.00	1243	1031
T10.T4+T5+T6	1128	1345	718	1256	1377.00	1340	1214
T11.T4+ T5 + T7	1201	1178	762	1144 (546)	1411.00	1151 (325)	1213 (1230)
SEd	54.73	40.32	31.89	86.12	83.33	72.41	67.0
CD (5%)	162	**118.92**	94.07	244.23	262.58	213.5	140

Table 39.Soil organic carbon (%) as influenced by organic nutrient management packages in Central Zone

Treatments	Surat		Bhawanipatna		Junagadh		Akola		Khandwa	
	Initial 2016-17	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final
T1.Absolute control (No organic& inorganic)	0.46	0.43	0.50	0.52	0.56	0.86	0.38	0.33	0.48	0.47
T2.Control (RDN through inorganic)	0.45	0.52	0.65	0.67	0.60	0.99	0.38	0.44	0.49	0.70
T3.RD of Nutrient through organic based on	0.47	0.67	0.64	0.66	0.58	0.92	0.38	0.52	0.50	0.72
T4.Seed treatment and soil application of recommended bio fertilizers and foliar application of PPFM	0.48	0.56	0.56	0.58	0.62	1.08	0.38	0.42	0.48	0.62
T5.Neem cake 250 kg/ha	0.40	0.66	0.60	0.62	0.67	1.12	0.38	0.50	0.49	0.73
T6.Raising of Sun hemp between rows incorporated before flowering	0.50	0.68	0.57	0.59	0.67	1.10	0.38	0.45	0.50	0.63
T7.Intercropping with green gram	0.48	0.71	0.57	0.59	0.65	1.15	0.38	0.45	0.50	0.69
T8.T4+T5	0.47	0.68	0.56	0.58	0.69	1.17	0.38	0.48	0.48	0.67
T9.T4+T6	0.47	0.69	0.60	0.62	0.69	1.14	0.38	0.47	0.51	0.72
T10.T4+T5+T6	0.44	0.69	0.60	0.62	0.73	1.18	0.38	0.52	0.52	0.83
T11.T4+ T5 + T7	0.48	0.69	0.57	0.59	0.70	1.25	0.38	0.51	0.52	0.63
SEd	0.038	0.31	0.02	0.02	0.03	0.01	-	-	0.028	0.028
CD (5%)	NS	0.09	**0.05**	**0.05**	0.09	0.02	-	-	NS	0.07

Table 40.Net Return (Rs./ha) and Benefit Cost Ratio as influenced by organic nutrient management packages in Central Zone

Treatments	Surat		Bhawanipatna		Nanded		Rahuri		Junagadh		Akola		Khandwa	
	Net	BCR	Net	BCR	Net	BCR	Net	BCR	Net	MBCR	Net	MBCR	Net	MBCR
T1.Absolute control (No organic& inorganic)	8723	1.33	2442	1.06	5240	1.16	2971	1.17	9588	1.25	18959	1.63	-3280	0.93
T2.Control (RDN through inorganic)	38867	2.07	38354	1.84	9141	1.25	46850	2.29	6242	1.13	40230	2.06	1546	1.02
T3.RD of Nutrient through organic (FYM) based on P equivalent basis	10065	1.23	33841	1.73	-10338	0.85	40706	1.77	1887	1.04	8022	1.12	-16601	0.76
T4.Seed treatment and soil application of recommended bio fertilisers and foliar application of PPFM	19595	1.64	10154	1.23	8465	1.24	8457	1.27	12657	1.31	25808	1.77	1804	1.03
T5.Neem cake 250 kg/ha	19717	1.61	15146	1.34	6952	1.19	7206	1.19	16532	1.37	31738	1.85	-150	0.99
T6.Raising of Sun hemp between rows incorporated before	22509	1.69	11541	1.26	10741	1.31	3089	1.16	13051	1.3	29321	1.84	2408	1.04
flowering														
T7.Intercropping with green gram	22773	1.71	6801	1.16	29890	1.85	10613	1.18	23091	1.53	44608	2.23	38751	1.72
T8.T4+T5	23149	1.64	27373	1.61	5718	1.14	27241	1.7	26501	1.58	24312	1.62	4528	1.07
T9.T4+T6	25221	1.7	24101	1.53	7527	1.21	13403	1.39	19081	1.42	32092	1.88	2079	1.03
T10.T4+T5+T6	23171	1.6	27219	1.58	1977	1.05	25147	1.67	27028	1.55	31685	1.75	2886	1.04
T11.T4+ T5 + T7	25775	1.64	20398	1.46	26691	1.64	26775	1.48	29767	1.62	38813	1.88	47897	1.7
SEd			2167.06	0.06	1829	-	--	--	-	-	3993	-		
CD (5%)			**6391.84**	**0.18**	5396	-	--	--	-	-	11778	-		

Table 41.Available nutrient status (kg/ha) as influenced by organic nutrient management packages in Central Zone

Treatments	Junagadh			Rahuri		
	N	P_2O_5	K_2O	N	P_2O_5	K_2O
T1.Absolute control (No organic& inorganic)	196	35	197	147.6	7.0	498.4
T2.Control (RDN through inorganic)	259	38	209	172.3	8.2	537.3
T3.RD of Nutrient through organic based on	218	39	211	183.6	8.8	548.7
T4.Seed treatment and soil application of recommended bio fertilizers and foliar application of PPFM	201	38	215	181.3	8.2	535.0
T5.Neem cake 250 kg/ha	188	40	198	186.3	9.1	543.7
T6.Raising of Sun hemp between rows incorporated before flowering	226	37	207	187.3	8.7	545.7
T7.Intercropping with green gram	215	41	204	186.6	8.2	544.7
T8.T4+T5	206	38	216	188.6	9.1	538.7
T9.T4+T6	229	37	201	184.9	9.2	541.7
T10.T4+T5+T6	221	40	203	188.7	9.5	544.7
T11.T4+ T5 + T7	226	37	200	191.1	9.5	545.7
SEd	15	2	10	5.3	0.3	6.9
CD (5%)	NS	NS	NS	15.0	0.9	19.5

South Zone

The organic nutrient management packages including seed treatment and soil application of recommended bio fertilizers, foliar application of pink pigmented facultative methylotrophs (PPFM) at flowering, soil application of neem cake @250 kg/ha and intercropping of black gram (T_{11}) had registered significantly higher seed cotton yield at Raichur (1114 kg/ha) (Table 42).The same method (T_{11}) had been estimated higher net return (Rs. 25,150/ha) and benefit cost ratio (1.86) at Nandyal (Table 43) and high organic carbon (0.65 %) at Raichur . The nutrient management method, application of recommended dose of nutrients through organics, based on P equivalent basis (T_3) recorded significantly higher seed cotton yield at Nandyal (1107 kg/ha). Seed treatment and soil application of recommended bio fertilizers and foliar application of PPFM , application of neem cake 250 kg/ha and raising of sunnhemp between rows and incorporated before flowering (T_{10}) recorded higher yield of 1592 and 1404 kg/ha at Sriviiliputhur and Coimbatore respectively . The same method (T_{10}) had been calculated high net return of Rs. 13,351 and 33,785/ha respectively at Srivilliputhur and Coimbatore and soil organic carbon content (0.55 %) also at Coimbatore (Table 44).

Table 42.Seed Cotton Yield (Kg/ha) as influenced by organic nutrient management packages in SZ

Seed cotton yield

Treatments	Srivillipu thur	Raic hur	Nand yal	Dhar wad	Coimba tore
T1.Absolute control (No organic & Inorganic)	1201	761	550	254	1221.60
T2.Control (RDN through inorganic)	1726	1148	1301	371	1486.03
T3.RD of Nutrient through organic based on P equivalent basis	1348	791	1107	381	1298.16
T4. Seed treatment and soil application of rec. bio fertilizers and foliar application of PPFM	1320	846	1035	332	1227.16
T5.Neem cake @250 kg/ha	1335	846	736	367	1247.67
T6.Raising of .Sunnhemp / fodder cowpea between rows incorporated before flowering	1347	833	644	206	1173.18
T7.Intercropping with green gram/black gram/ ground nut/soybean	1286	884	648	208	1206.70
T8.T4+T5	1409	957	790	329	1281.19
T9.T4+T6	1501	981	725	206	1322.16
T10.T4+T5+T6	1592	1067	904	242	1404.10
T11: T4+ T5 + T7	1563	1114	1,091	247	1310.43
SEd	83.5	**42**	93	19	79.73
CD at 5 %	179.5	**122**	194	**57**	166.32

Table 43. Net return (Rs. /ha) and Benefit Cost ratioas influenced by organic nutrient management packages in South Zone

Treatment schedule	Srivilliputhur		Raichur		Nandyal		Dharwad		Coimbatore	
	NR (Rs. /ha)	B:C	NR (Rs. /ha)	B:C	NR (Rs. /ha)	B:C	NR (Rs. /ha)	B:C	NR (Rs. /ha)	B:C
T1.Absolute control (No organic & Inorganic)	4351	1.08	8665	1.4	1400	1.05	-1095	0.95	15880	1.59
T2.Control (RDN through inorganic)	25126	1.4	19641	1.75	35908	2.23	29043	1.46	39704	2.29
T3.RD of Nutrient through organic based on P equivalent basis	-8952	0.88	-522	0.98	19050	1.52	12066	1.17	11343	1.23
T4. Seed treatment and soil application of rec. bio fertilisers and foliar application of PPFM	8720	1.15	10582	1.46	24513	1.9	11269	1.18	29930	2.06
T5.Neem cake @250 kg/ha	9485	1.16	7928	1.31	9200	1.33	8687	1.13	29194	1.97
T6.Raising of Sunnhemp / fodder cowpea between rows incorporated before flowering	697	1.01	9282	1.39	5033	1.19	5143	1.05	27506	1.97
T7.Intercropping with green gram/black gram/ ground nut/soybean	4086	1.07	11835	1.5	5218	1.19	25735	1.52	29223	2.04
T8.T4+T5	2159	1.03	10872	1.4	10829	1.38	8439	1.11	29297	1.93
T9.T4+T6	13351	1.21	14345	1.58	8323	1.3	8045	1.11	33093	2.11
T10.T4+T5+T6	6892	1.09	16022	1.6	16081	1.55	13044	1.2	33785	2.03
T11: T4+ T5 + T7	6213	1.08	15428	1.53	25150	1.9	36111	1.68	15880	1.3
SEd			**1678**				-314	0.99		
CD at 5 %			**4878**				**2567**	**0.05**		

Table 44. Organic carbon (%) status as influenced by organic nutrient management packages in South Zone

	Soil Organic Carbon (%) SOC					
	Raichur		Coimbatore		Dharwad	
	Initial	Final	Initial	Final	Initial	Final
T1 : Absolute control (No organic & inorganic)	0.59	0.60	0.52	0.52	0.60	0.51
T2 : Control (RDN through inorganic)	0.59	0.60	0.52	0.52	0.61	0.60
T3 : RD of Nutrient through organic based on P equivalent basis	0.60	0.63	0.52	0.52	0.62	0.70
T4 : Seed treatment with bio fertilisers and foliar application of PPFM at flowering and Boll Development Stage	0.60	0.60	0.52	0.52	0.58	0.58
T5 : Neem cake 250 kg/ha	0.60	0.64	0.52	0.52	0.57	0.65
T6 : Raising of Sun hemp between rows incorporated before flowering	0.61	0.64	0.53	0.53	0.55	0.66
T7 : Intercropping with Green gram and crop residue application after harvest of pods	0.61	0.65	0.53	0.53	0.58	0.66
T8 : T4 + T5	0.61	0.65	0.52	0.52	0.61	0.67
T9 : T4 + T6	0.62	0.65	0.53	0.53	0.58	0.65
T10 T4 + T5 + T6	0.61	0.64	0.55	0.55	0.54	0.70
T11 : T4 + T5 + T7	0.62	0.65	052	052	0.61	0.69
SEd			0.02	0.02	**0.02**	0.68
CD at 5 %			NS	NS	**NS**	**0.04**

Agronomy V: Conservation agriculture in cotton based cropping system

Preamble: Conservation agriculture protects the soil from erosion, conserves water and nutrients, promotes soil biological activity and contributes to integrated pest management (IPM), diversification of crops in associations, sequences and rotations to enhance system resilience and controlled traffic that lessen soil compaction. Thus, CA avoids straw burning, improves soil organic carbon (SOC) content, enhances input use efficiency and has the potential to reduce greenhouse gas emissions

Rahuri

The result of conservation treatments revealed that **c**onventional tillage with no residue management (T_1) recorded significantly the highest seed cotton yield (2172kg/ha) and wheat grain yield (2910 kg/ha) and cotton equivalent yield (3481 kg/ha) Which was closely followed by Permanent bed system + Zero tillage + 100 % residue management(T_7) , with respect to seed cotton yield (1918 kg/ha) and cotton equivalent yield (3162 kg/ha) and it was at par with the treatment T_7 (Permanent bed system + Zero tillage + 100 % residue management) in case of wheat grain yield (3162 kg/ha) (Table 45).The **c**onventional tillage with no residue management (T_1) recorded highest gross monetary returns of (Rs. 1,87,968/ha) and net return (Rs. 99,294/ha)by cotton-wheat rotation based cropping system which was followed by Permanent bed system + Zero tillage + 100 % residue management(T_7) (Gross Return Rs. 1,70,725/ha and Net Return Rs. 95,300/ha), but the conservation treatment T_7recorded highest B:C ratio of 2.26 from cotton - wheat cropping system.

Table 45. Seed cotton yield (kg/ha), wheat grain yield (Kg/ha) and economics as influenced by conservation treatments at Rahuri

Treatments	Seed cotton yield (Kg/ha)	Wheat Grain yield (Kg/ha)	Cotton equivalent Yield (Kg/ha)	Gross returns (Rs. /ha)	Cost of cultivation (Rs. /ha)	Net returns (Rs. ha^{-1})	B:C
T_1: Conventional tillage + No residue management	2172	2910	3481	187968	88674	99294	2.12
T_2: Zero tillage + No residue management	1416	2150	2384	128733	68225	60508	1.89
T_3: Zero tillage + 50 % residue management	1545	2313	2585	139613	72120	67493	1.94
T_4: Zero tillage + 100 % residue management	1570	2425	2661	143719	72746	70973	1.98
T_5: Permanent bed system + Zero tillage + No residue management	1660	2536	2802	151283	69306	81977	2.18
T_6: Permanent bed system + Zero tillage + 50 %residue management	1833	2684	3041	164228	73675	90553	2.23
T_7: Permanent bed system + Zero tillage + 100% residue management	1918	2763	3162	170725	75425	95300	2.26
S.E. ±	81.2	102.2	98.01	--	-	--	--
C.D. at 5%	226.1	289.3	272.36	--	-	--	--

Soil type: Medium black, pH value-8.68, Available nutrients (kg/ha) N: 162.13, P_2O_5: 11.31, K_2O :586.00 Environment : Irrigated

Junagadh

The results of conservation experiment conducted at Junagadh revealed that all conservation practices attempted had expressed equal effect in comparison to **c**onventional tillage with no residue management (T_1) **.** However, the highest seed cotton yield (2274 kg/ha) and sorghum yield (758 kg/ha) and cotton equivalent yield (2563 kg/ha) recorded with permanent bed system + Zero tillage + 100 % residue management (T_7) which were 23.2, 23.0 and 23.1 per cent higher than **c**onventional tillage with no residue management (T_1) respectively. The economic analysis showed that highest gross return (Rs. 2,29,143/ha), net return (Rs. 1,37,151 /ha) and B:C ratio (2.49) were calculated with permanent bed system + Zero tillage + 100 % residue management(T_7) which were 23.1, 51.6 and 28.0 per cent higher than **c**onventional tillage with no residue management (T_1) respectively. The conservation treatments observed reduced cost of cultivation as compared to **c**onventional tillage with no residue management (T_1) (Table 46).

Table 46. Bulk density, seed cotton yield (kg/ha), quantity of residue used, labour used and economics as influenced by conservation treatments

Treatments	Bulk density		Seed cotton Yield (kg/ha)	Sorghum grain yield (kg/ha)	Cotton Equivalent Yield (kg/ha)	Cost of cultivation system(Rs. /ha)	Gross return of system (Rs. /ha)	Net Return of system (Rs. /ha)	BCR
	0-15 cm	16-30 cm							
T_1. Conventional tillage+ No residue management	1.39	1.42	1847	616	2082	95676	186159	90483	1.95
T_2. Zero tillage+ No residue management	1.35	1.38	1488	496	1677	88244	149941	61697	1.70
T_3.Zero tillage+ 50 % residue management	1.38	1.41	1577	526	1778	89389	158952	69563	1.78
T_4.Zero tillage+ 100 % residue management	1.34	1.37	1633	544	1841	90534	164509	73975	1.82
T_5.Permanent bed system + Zero tillage + No residue management	1.33	1.36	1742	581	1964	88711	175579	86868	1.98
T_6.Permanent bed system + Zero tillage+ 50 % residue management	1.29	1.33	1891	630	2132	90497	190507	100010	2.11
T_7.Permanent bed system + Zero tillage+ 100 % residue management	1.34	1.38	2274	758	2563	91992	229143	137151	2.49
SEd	0.04	0.04	154	-	-				
CD (5%)	NS	NS	NS	-	-				

Total Rainfall:1808.10mm, Rainy Days:63, EC: 0.55ds/m, pH:7.80, OC 0.90% Av.Nitrogen392kg/ha, Av.P2O5 92.33/ha, Av.K2O 449.06kg/ha, Environment :Irrigated

South Zone

Chamrajnagar

The results of conservation experiment conducted at Chamrajnagar under rainfed condition with two year rotation of cotton- sorghum cropping system indicated that among the conservation practices significantly higher seed cotton yield (2047 kg/ha) and sorghum grain yield (3712 kg/ha) and seed cotton equivalent yield (3284 kg/ha) were recorded with Conventional tillage with no residue management (T_1) which was at par with permanent bed system with zero tillage and 100 % residue management (T_7) (seed cotton yield (1936 kg/ha) and sorghum grain yield (3246 kg/ha) and Seed cotton equivalent yield (3018 kg/ha)). The significantly lowest seed cotton yield (1185 kg/ha) , sorghum grain yield (2434 kg/ha) and seed cotton equivalent yield (1996 kg/ha) were recorded in zero tillage without residue management (T_2). The significantly highest Cost of cultivation (Rs. 73,691 kg/ha) calculated with Conventional tillage with no residue management (T_1) and all conservation treatments were registered significantly less one. The system net returns (Rs. 81,684/ha) and benefit cost ratio (2.34) were highest calculated with permanent bed system with

zero tillage and 100 % residue management (T_7) (Table 47). Among the treatments the bulk density was lower in (T7) Permanent bed system + Zero tillage+ 100 % residue management 1.38 g/cc at 0-15cm depth. while the bulk density at 16-30 cm found to be non significant.

Table 47. Bulk density, seed cotton yield (kg/ha), grain yield (kg/ha), and economics as influenced by conservation treatments

Treatments	Bulk density (0-15 cm)	Bulk Density (16-30sm)	Seed Cotton yield (kg/ha)	Sorghum Yield (kg/ha)	Seed Cotton Equivalent yield (kg/ha)	Cost of cultivation (Rs. /ha)	Gross Returns (Rs. /ha)	Net Returns (Rs. /ha)	B:C Ratio
T1.Conventional tillage+ No residue management	1.53	1.55	2047	3712	3284	73691	145077	71386	1.97
T2.Zero tillage+ No residue management	1.55	1.56	1185	2434	1996	49210	82431	33221	1.68
T3.Zero tillage+ 50 % residue management	1.47	1.54	1410	2793	2341	54060	110666	56606	2.05
T4.Zero tillage+ 100 % residue management	1.45	1.56	1547	2841	2494	56110	121153	65043	2.16
T5.Permanent bed system + Zero tillage + No residue management	1.46	1.57	1550	2767	2472	56135	116358	60223	2.07
T6.Permanent bed system + Zero tillage+ 50 % residue management	1.42	1.57	1849	3156	2901	59110	133899	74789	2.27
T7.Permanent bed system + Zero tillage+ 100 % residue management	1.38	1.55	1936	3246	3018	60860	142544	81684	2.34
SEd	0.04	0.05	147.62	215.11	149.13	1427	6079	5198	
CD (5%)	0.1	NS	321.64	468.69	324.93	3110	13245	11325	

Srivilliputhur

The results on the seed cotton yield revealed that conventional tillage without residue incorporation (T_1) registered the highest seed cotton yield (1810 kg/ha), maize grain yield (4689 kg/ha) and cotton equivalent yield (4689 kg/ha) which was at par with zero tillage with 100 % residue management(T_4) (Seed cotton yield (1675 kg/ha), Maize yield (4478 kg/ha) & seed cotton equivalent yield (4478 kg/ha) and T_7 Permanent bed system + Zero tillage + 100 % residue management(Seed cotton yield (1646 kg/ha), Maize yield (4365 kg/ha) &seed cotton equivalent yield (4478 kg/ha)(Table 48).The economic analysis found that conventional tillage without residue incorporation(T_1) registered the highest cotton equivalent yield 3714 kg/ha,

net return(Rs. 30,690/ha) and benefit cost ratio (1.28) which was followed by zero tillage with 100 % residue management(T_4)and permanent bed system + Zero tillage+ 100 % residue management in Cotton-maize cropping system (T_7). The labour use was higher in the conventional tillage system of ridges and furrows methods (489 man days/ha),where as it was lesser with other conservation treatments.

Table 48. Effect of conservation treatments on yield of cotton and Maize, Seed cotton equivalent yield an economics of maize-cotton cropping system

Treatments	Grain yield of maize (kg/ha)	Seed cotton yield (kg/ha)	Total cotton equivalent yield of maize - cotton cropping system (kg/ha)	Cost of cultivation of cropping system(Rs. / ha)	Gross Income of cropping system(Rs. / ha)	Net Income of cropping system(Rs. / ha)	BCR
T_1 - Conventional tillage+ No residue management	4689	1810	4689	119700	188969	69269	1.58
T_2 Zero tillage + No residue management	4206	1546	4206	106300	165626	59326	1.56
T_3 Zero tillage + 50 % residue management	4310	1622	4310	108300	171610	63310	1.58
T_4 Zero tillage + 100 % residue management	4478	1675	4478	110300	180878	70578	1.64
T_5 Permanent bed system + Zero tillage + No residue management	4235	1536	4235	104300	165735	61435	1.59
T_6 Permanent bed system + Zero tillage + 50 % residue management	4273	1590	4273	106400	169233	62833	1.59
T_7 Permanent bed system + Zero tillage + 100 % residue management	4365	1646	4365	108400	176095	67695	1.62
SEd.	172.2	78.1					
CD(P=0.05)	360.2	164.0					

Agronomy VII: Input use pattern and Cost of cultivation

Preamble: The objective of collecting input use pattern and cost of cultivation in different region with existing cotton type to create CICR data base and also to understand input use pattern.

North Zone

The details of input use and cost of cultivation for different domains of north zone was surveyed and different type of cost (Rs. /ha), cost of production (Rs. /Q) and net returns (Rs. /ha) were calculated. The cost of cultivation (Cost C3) was arrived as Rs. 92,953, 81,160, 1,10,255,94,902, 1,12,585and 78,177/ha respectively for Faridkot (Bt hybrid), Faridkot (arboreum), Bathinda (Bt hybrid) , Bathinda (non Bt hirsutum) , Hisar (Bt hybrid)and Hisar (arboreum) (Table 49).The cost of agro inputs was assessed, which was 25.1,23.1,17.8,18.9 and 12.4 per cent of cost of cultivation (Cost C3)respectively of Faridkot (Bt hybrid), Faridkot (arboreum), Bathinda (Bt hybrid), Bathinda (non Bt hirsutum) , Hisar(Bt hybrid) and Hisar (arboreum). The share of labour cost in total cost of cultivation arrived in the range of 47.9,47.6,45.5,53.8, 39.2 and 42.9 per cent of Cost C3 of Faridkot (Bt hybrid), Faridkot (arboreum), Bathinda (Bt hybrid), Bathinda (non Bt hirsutum) , Hisar (Bt hybrid) and Hisar (arboreum) respectively. The mean seed cotton yield of 25.0, 20.5,21.9, 17.9,24.0 and 17.0 q/ha was attained by survey at Faridkot (Bt hybrid), Faridkot (arboreum), Bathinda (Bt hybrid), Bathinda (non Bt hirsutum) , Hisar (Bt hybrid) and Hisar (arboreum) respectively (Table). The total gross return was ranged Rs. 1,24,238, 99,663, 1,18,225, 96,125, 1,32,000 and 91, 800/ha respectively for Faridkot (Bt hybrid), Faridkot (arboreum), Bathinda (Bt hybrid), Bathinda (non Bt hirsutum) , Hisar (Bt hybrid) and Hisar (arboreum). The different type of costs of cultivation Viz., Cost A1, Cost A2, Cost B1,Cost B2, Cost C1, Cost C2 and Cost C3 were calculated (Table50). The cost of cultivation per quintal on the basis of Cost C3 was arrived as Rs. 3,769, 3,956, 5,029, 5,308, 4,691 and 4,599 respectively for Faridkot (Bt hybrid), Faridkot (arboreum), Bathinda (Bt hybrid), Bathinda (non Bt hirsutum) , Hisar (Bt hybrid) and Hisar (arboreum). (Table).The net return from cotton cultivation was ranged from arrived as Rs. 31,285, 27,243, 7,155, 559, 19,415, and 13,623/ha respectively for Faridkot (Bt hybrid), Faridkot (arboreum), Bathinda (Bt hybrid), Bathinda (non Bt hirsutum) , Hisar (Bt hybrid) and Hisar (arboreum).

Table 49.Cost of different inputs and labours and their share in cost of cultivation

Centres	Faridkot				Bathinda				Hisar			
Genotypes	Bt hybrid		arboreum		Bt hybrid		Non Bt(hirsutum)		Bt hybrid		arboreum	
Inputs	Value (Rs. /ha.)	%	Value (Rs. /ha.)	%	Value (Rs. /ha.)	%	Value (Rs. /ha.)	%	Value (Rs. /ha.)	%	Value (Rs. /ha)	%
i.Seeds	7000	7.5	733.3	0.9	4958	4.5	585	0.62	3700	3.3	600	0.8
ii.Fertilizers	6571	7.1	5678	7	6908	6.27	5707	6.01	10500	9.3	1020	1.3
iii.Manures	3583	3.9	2833.3	3.49	1950	1.77	1064	1.12	0	0	0	0
iv.Weedicides	3115	3.4	2569.2	3.17	1314	1.19	865	0.91	0	0	0	0
v.Plant protection chemicals	1934	2.1	5061.3	6.24	8033	7.29	9024	9.51	4875	4.3	1500	1.9
vi.Growth regulators/ hormones	746	0.8	75	0.09	250	0.23	122	0.13	0	0	0	0
Total	22950	24.7	16950.1	20.88	23413	21.24	17367	18.3	19075	16.9	3120	4
B. Cost of labour (Rs. /ha)		0		0		0		0		0		0
i. Field preparation	4180	4.5	4015	4.95	4422	4.01	4339	4.57	2400	2.1	2400	3.1
ii. Sowing	3271	3.5	3172.5	3.91	3920	3.56	4870	5.13	2500	2.2	2500	3.2
Total of application charges for input	6487	7	6565.4	8.09	12072	10.95	13697	14.43	10000	8.9	3400	4.3
ix. Weeding	12475	13.4	12129.2	14.94	9302	8.44	9549	10.06	4000	3.6	4000	5.1
x. Interculture	0	0	0	0	2985	2.71	3254	3.43	4000	3.6	2000	2.6
xi. Picking& cleaning	15300	16.5	12720.8	15.67	14573	13.22	12337	13	20000	17.8	18000	23
xii. Cotton stalk pulling/cutting	2800	3	0	0	2933	2.66	2995	3.16	1250	1.1	1250	1.6
Total	44513	47.9	38603	47.56	50207	45.54	51041	53.78	44150	39.2	33550	42.9
Miscellaneous (Rs. /ha)	1931	2.1	2134.7	2.63	815	0.74	664	0.7	3250	2.9	5150	6.6
Other expenses (rent, interest, depreciation, managerial cost& etc.) (Rs. /ha)	23560	25.3	23472	28.92	35820	32.49	25830	27.22	46110	41	36357	46.5
Grand total(Rs. /ha)(C3)	92953	100	81160	100	110255	100	94902	100	112585	100	78177	100
Seed cotton yield	25		20.5		21.93		17.88		24		17	
Gross return (Rs. /ha)	124238		99662.8		118225		96125		132000		91800	

Table 50. Different type of costs, cost of per quintal of production and net return (Rs. /ha)

Centre	Geno-types	Particulars	Cost A1	Cost A2	Cost B1	Cost B2	Cost C1	Cost C2	Cost C3
Faridkot	Bt hybrids	Total cost of cultivation (Rs. /ha)	63758	63758	69982	76462	78023	84503	92953
		Cost of production (Rs. /q)	2586	2586	2838	3101	3163	3427	3769
		Net Return(Rs. /ha)	60480	60480	54256	47776	46215	39735	31285
	arboreum	Total cost of cultivation (Rs. /ha)	52718	52718	59634	67044	66372	73782	81160
		Cost of production(Rs. /q)	2570	2570	2907	3268	3235	3596	3956
		Net Return(Rs. /ha)	55807	55807	48397	40987	41876	34466	27243
Bathinda	Bt hybrids	Total cost of cultivation (Rs. /ha)	75073	88239	94963	94963	100232	100232	110255
		Cost of production(Rs. /q)	3424	4025	4331	4331	4572	4572	5029
		Net Return(Rs. /ha)	42337	29171	22447	22447	17178	17178	7155
	Non Bt (hirsutum)	Total cost of cultivation (Rs. /ha)	68977	74377	80476	80476	86274	86274	94902
		Cost of production(Rs. /q)	3858	4160	4501	4501	4825	4825	5308
		Net Return(Rs. /ha)	26483	21083	14985	14985	9186	9186	559
Hisar	Bt hybrids	Total cost of cultivation (Rs. /ha)	70800	89550	98350	98350	102350	102350	112585
		Cost of production(Rs. /q)	2950	3731	4098	4098	4265	4265	4691
		Net Return(Rs. /ha)	61200	42450	33650	33650	29650	29650	19415
	arboreum	Total cost of cultivation (Rs. /ha)	41820	60570	68070	68070	71070	71070	78177
		Cost of production(Rs. /q)	2460	3563	4004	4004	4181	4181	4599
		Net Return(Rs. /ha)	49980	31230	23730	23730	20730	20730	13623

Cost A1 (Variable cost)
Cost A2: Cost A1+rent paid for leased in land
Cost B1: Cost A1 +interest on value of owned capital assets (excluding land)
Cost B2: cost B1+ rental value of owned land
Cost C1: Cost B1+imputed value of family labours
Cost C2: Cost B2+imputed value of family labours
Cost C3:Cost C2x1.10(10% for management cost)

Central Zone

The details of input use and cost of cultivation for different regions of central zone was surveyed and various type of cost (Rs. /ha), cost of production (Rs. /q) and net returns(Rs. /ha) were calculated. The cost of cultivation (Cost C3) was arrived as Rs. 96,305, 77,000, 87,230, 93,296, 1,59,707, and 56,936 /ha respectively for Akola (Bt hybrid rainfed), Bhawanipatna (non Bt hybrids rainfed), Junagadh (Bt hybrid irrigated), Nanded (Bt hybrid rainfed), Rahuri (Bt hybrid (irrigated), and Khandwa(Bt hybrid rainfed) (Table 51). The cost of agro inputs was calculated, which was 21.1,23.3, 34.8, 22.84, 16.5, and 29.4 per cent of total cost of cultivation on the basis of Cost C3 respectively for Akola (Bt hybrid rainfed), Bhawanipatna (non Bt hybrids rainfed), Junagadh (Bt hybrid irrigated), Nanded (Bt hybrid rainfed), Rahuri (Bt hybrid (irrigated), and Khandwa(Bt hybrid rainfed). The share of labour cost in total cost of cultivation arrived on the basis of Cost C3 are 35.3,43.8,48.2,47.6,50.6, and 49.1 per cent respectively for Akola (Bt hybrid rainfed), Bhawanipatna (non Bt hybrids rainfed), Junagadh (Bt hybrid irrigated), Nanded (Bt hybrid rainfed), Rahuri (Bt hybrid (irrigated), and Khandwa(Bt hybrid rainfed)(Table).The mean seed cotton yield of 16.0,18.2,20.0,14.0,27.83 and 16.0 q/ha were reported by survey at Akola (Bt hybrid rainfed), Bhawanipatna (non Bt hybrids rainfed), Junagadh (Bt hybrid irrigated), Nanded (Bt hybrid rainfed), Rahuri (Bt hybrid (irrigated), and Khandwa(Bt hybrid rainfed) respectively. The different types of cost of cultivation (Cost A1, Cost A2, Cost B1, Cost B2, Cost C1, Cost C2 and Cost C3) were calculated (Table 52). The cost of cultivation per quintal on the basis of Cost C3 was arrived as Rs. 6,019, 4,231, 4,362, 6,683, 5,739, 3,559, 3,432 and 3,249/ha respectively with Akola (Bt hybrid rainfed), Bhawanipatna (non Bt hybrids rainfed), Junagadh (Bt hybrid irrigated), Nanded (Bt hybrid rainfed), Rahuri (Bt hybrid (irrigated), Khandwa(Bt hybrid rainfed), Surat (rainfed) and Surat (irrigated).The net return from cotton cultivation was ranged from Rs. -8,065, 28,560, 15,270, -16,674, 10,272, 31,064, 31,707 and 59,866 /ha on the basis of cost C3 in respectively with at Akola (Bt hybrid rainfed), Bhawanipatna (non Bt hybrids rainfed), Junagadh (Bt hybrid irrigated), Nanded (Bt hybrid rainfed), Rahuri (Bt hybrid (irrigated), Khandwa(Bt hybrid rainfed), Surat (rainfed) and Surat (irrigated).

Table 51.Cost of different inputs and labours and their share in cost of cultivation in Central zone

Centres	Akola		Bhawanipatna		Junagadh		Nanded		Rahuri		Khandwa	
Genotypes	Bt hybrid		Non Bt		Bt hybrid		Bt hybrid		Bt hybrid		Bt hybrid	
Inputs	Value (Rs. /ha.)	%	Value (Rs. /ha.)	%	Value (Rs. /ha.)	%	Value (Rs. /ha.)	%	Value (Rs. /ha.)	%	Value (Rs. /ha.)	%
i.Seeds	3750	3.9	2000	2.6	2920	3.3	2809	3.01	3000	1.9	2920	5.1
ii.Fertilizers	3700	3.8	8110	10.5	8525	9.8	8774	9.4	10830	6.8	11040	19.4
iii.Manures	3700	3.8	2500	3.2	6000	6.9	1704	1.83	4240	2.7	0	0
iv.Weedicides	1950	2	1000	1.3	1310	1.5	856	0.92	2572	1.6	450	0.8
v.Plant protection chemicals	3600	3.7	4050	5.3	7220	8.3	5809	6.23	3331	2.1	2310	4.1
vi.Growth regulators/ hormones	3600	3.7	315	0.4	900	1	1355	1.45	474	0.3	0	0
Irrigation charges					3475	4	0	0	1974	1.2	0	0
Total	20300	21.1	17975	23.3	30350	34.8	21307	22.84	26421	16.5	16720	29.4
B. Cost of labour (Rs. /ha)												
i.Field preparation	10000	10.4	8000	10.4	4410	5.1	9561	10.25	7090	4.4	4500	7.9
ii.Sowing	2500	2.6	3600	4.7	1000	1.1	2498	2.68	3290	2.1	3080	5.4
Total of application charges for input	7530	7.8	5600	7.3	7570	8.7	6932	7.43	19180	12	2800	4.9
ix.Weeding	3000	3.1	2000	2.6	1500	1.7	3461	3.71	7409	4.6	6720	11.8
x.Interculture	3000	3.1	2500	3.2	3750	4.3	4940	5.29	3700	2.3	2800	4.9
xi.Picking& cleaning	6000	6.2	10000	13	22500	25.8	12856	13.78	37262	23.3	7500	13.2
xii.Cotton stalk pulling/cutting	2000	2.1	2000	2.6	1300	1.5	4186	4.49	2816	1.8	560	1
Total	34030	35.3	33700	43.8	42030	48.2	44434	47.63	80747	50.6	27960	49.1
Miscelaneous (Rs. /ha)	0	0	0	0	0	0	0	0	0	0	0	0
Other expenses (rent, interest, depreciation, managerial cost& etc.) (Rs. /ha)	41975	43.6	25325	32.9	14850	17	27555	29.54	52539	32.9	12256	21.5
Grand total(Rs. /ha)(C3)	96305	100	77000	100	87230	100	93296	100	159707	100	56936	100
Seed cotton yield	16	0.01721	18.2		20		14		27.83		16	
Gross return (Rs. /ha)	110300	118.662	105560		102200		76622		149435		88000	

Table 52. Different type of costs, cost of per quintal of production and net return (Rs. /ha) Central Zone

Akola	Cost calculation	Cost A1	Cost A2	Cost B1	Cost B2	Cost C1	Cost C2	Cost C3
	Total CC(Rs. /ha)	56850	56850	71850	78850	80550	87550	96305
	Cost of production(Rs. /q)	3553	3553	4491	4928	5034	5472	6019
	Net Return(Rs. /ha)	24450	24450	16390	9390	7690	690	-8065
Bhawani	Total CC(Rs. /ha)	53,000	53,000	58,000	67,000	61,000	70,000	77,000
	Cost of production(Rs. /q)	2,912	2,912	3,187	3,681	3,352	3,846	4,231
	Net Return(Rs. /ha)	52,560	52,560	47,560	38,560	44,560	35,560	28,560
Junagadh	Total CC(Rs. /ha)	75800	75800	77800	79300	77800	79300	87230
	Cost of production(Rs. /q)	3790	3790	3890	3965	3890	3965	4362
	Net Return(Rs. /ha)	26700	26700	24700	23200	24700	23200	15270
Nanded	Total CC(Rs. /ha)	64867	64867	72903	72937	82864	82898	93296
	Cost of production(Rs. /q)	4647	4647	5222	5225	5936	5938	6683
	Net Return(Rs. /ha)	11755	11755	3719	3685	-6242	-6276	-16674
Rahuri	Total CC(Rs. /ha)	111808	1E+05	121433	121433	131303	131303	159707
	Cost of production(Rs. /q)	4,018	4,018	4,363	4,363	4,718	4,718	5,739
	Net Return(Rs. /ha)	37627	37627	28002	28002	18132	18132	10272
Khandwa	Total CC(Rs. /ha)	41760	41760	44260	51760	44260	51760	56936
	Cost of production(Rs. /q)	2610	2610	2766	3235	2766	3235	3559
	Net Return(Rs. /ha)	46240	46240	43740	36240	43740	36240	31064
Surat (R)	Total CC(Rs. /ha)	36029	36029	36547	40547	41230	45230	52852
	Cost of production(Rs. /q)	2340	2340	2373	2633	2677	2937	3432
	Net Return(Rs. /ha)	48530	48530	48012	44012	43329	39329	31707
Surat (I)	Total CC(Rs. /ha)	63916	63916	67327	72327	71726	75566	86434
	Cost of production(Rs. /q)	2403	2403	2531	2719	2696	2841	3249
	Net Return(Rs. /ha)	82384	82384	78973	73973	74574	70734	59866

Cost A1 (Variable cost)
Cost A2: Cost A1+rent paid for leased in land
Cost B1: Cost A1 +interest on value of owned capital assets (excluding land)
Cost B2: cost B1+ rental value of owned land
Cost C1: Cost B1+imputed value of family labours
Cost C2: Cost B2+imputed value of family labours
Cost C3: Cost C2x1.10(10% for management cost)

South Zone

The details of input use and cost of cultivation for different domains of South zone was surveyed and different type of cost (Rs. /ha), cost of production (Rs. /Q) and net returns (Rs. /ha) were calculated. The cost of cultivation (Cost C3) was arrived as Rs. 1,26,852, 88,436, 1,51,642, 85,674 and 75,977 /ha respectively for LAM (Bt hybrid- rainfed), Nandyal (Bt hybrid- rainfed), Srivilliputhur (Bt hybrid-irrigated), Coimbatore (Bt hybrid - irrigated) and Chamrajnagar(Bt hybrid(HxB) -rainfed).The cost of agro inputs was assessed , which was 26.96,21.6,9.7, 20.0 and 16.4 per cent respectively of total cost of cultivation on the basis of Cost C3 for LAM (Bt hybrid- rainfed), Nandyal (Bt hybrid- rainfed), Srivilliputhur (Bt hybrid-irrigated), Coimbatore (Bt hybrid - irrigated) and Chamrajnagar (Bt hybrid (HxB) -rainfed) (Table 53). The share of labour cost in total cost of cultivation arrived as 44.8, 46.2, 47.2, 52.4 and 38.8 per cent of Cost C3 respectively for LAM (Bt hybrid- rainfed), Nandyal (Bt hybrid- rainfed), Srivilliputhur (Bt hybrid-irrigated), Coimbatore (Bt hybrid - irrigated) and Chamrajnagar (Bt hybrid (HxB) -rainfed). The mean seed cotton yield of 21.0, 20.0, 25.5, 26.0 and 16.8 q/ha was attained by survey at LAM (Bt hybrid- rainfed), Nandyal (Bt hybrid- rainfed), Srivilliputhur (Bt hybrid-irrigated), Coimbatore (Bt hybrid - irrigated) and Chamrajnagar (Bt hybrid (HxB) -rainfed) respectively. The different type of cost of cultivation (Cost A1, Cost A2, Cost B1, Cost B2, Cost C1, Cost C2 and Cost C3) were calculated (Table 54). The cost of cultivation per quintal on the basis of Cost C3 was arrived as Rs. 6,041, 4,475, 6,215, 3,295, and 4,522/ha respectively with LAM (Bt hybrid- rainfed), Nandyal (Bt hybrid- rainfed), Srivilliputhur (Bt hybrid-irrigated), Coimbatore (Bt hybrid - irrigated) and Chamrajnagar (Bt hybrid (HxB) -rainfed).

Table 53. Cost of different inputs and labours and their share in cost of cultivation in South zone

Centres	LAM		Nandyal		Srivilliputhur		Coimbatore		Chamrajnagar	
Genotypes	Bt hybrid		Bt hybrid		Bt hybrid		Bt hybrid		ELS Bt hybrid	
Inputs	Value (Rs. /ha.)	%	Value (Rs. /ha.)	%	Value (Rs. /ha.)	%	Value (Rs. /ha.)	%	Value (Rs. /ha.)	%
i.Seeds	3789	3.0	2500	2.8	3800	2.5	2475	2.9	2920	3.8
ii.Fertilizers	9457	7.5	6307	7.1	3600	2.4	4254	5.0	7200	9.5
iii.Manures	974	0.8	787	0.9	0	0.0	5175	6.0	0	0.0
iv.Weedicides	1288	1.0	0	0.0	0	0.0	2275	2.7	0	0.0
v.Plant protection chemicals	17845	14.1	8896	10.1	7300	4.8	2438	2.8	2330	3.1
vi.Growth regulators/ hormones	784	0.6	625	0.7	0	0.0	500	0.6	0	0.0
vii.Irrigation charges	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	34137	26.9	19115	21.6	14700	9.7	17117	20.0	12450	16.4
B. Cost of labour (Rs. /ha)		0.0		0.0		0.0		0.0		0.0
i.Field preparation	8640	6.8	6625	7.5	5600	3.7	3150	3.7	4800	6.3
ii.Sowing	1895	1.5	2750	3.1	3800	2.5	5880	6.9	4200	5.5
Total of application charges for input	11226	8.8	7444	8.4	12200	8.0	16170	18.9	6600	8.7
ix.Weeding	7550	6.0	5000	5.7	20000	13.2	8300	9.7	1560	2.1
x.Interculture	5700	4.5	4029	4.6	0	0.0	2550	3.0	5600	7.4
xi.Picking& cleaning	18490	14.6	15000	17.0	30000	19.8	7245	8.5	5250	6.9
xii.Cotton stalk pulling/cutting	3300	2.6	0	0.0	0	0.0	1600	1.9	1500	2.0
Total	56801	44.8	40848	46.2	71600	47.2	44895	52.4	29510	38.8
Miscellaneous (Rs. /ha)	2590	2.0	0	0.0	2000	1.3	0	0.0	0	0.0
Other expenses (rent, interest, depreciation, managerial cost& etc.) (Rs. /ha)	33325	26.3	28473	32.2	63342	41.8	23662	27.6	34017	44.8
Grand total(Rs. /ha)(C3)	126852	100.0	88436	100.0	151642	100.0	85674	100.0	75977	100.0
Seed cotton yield	21		20		25.5	0.0	26		16.8	
Gross return (Rs. /ha)	112350		108680		1224570	807.5	115700		126000	

Table 54. Different type of costs, cost of per quintal of production and net return(Rs. /ha) in South Zone

LAM	Cost calculation	Cost A1	Cost A2	Cost B1	Cost B2	Cost C1	Cost C2	Cost C3
	Total CC(Rs. /ha)	93528	96207	93777	111562	97535	115320	126852
	Cost of production(Rs. /q)	4454	4581	4466	5312	4645	5491	6041
	Net Return(Rs. /ha)	18822	16143	18573	788	14815	-2970	-14502
Nandyal	Total CC(Rs. /ha)	55628	55628	55999	79409	56987	80397	88436
	Cost of production(Rs. /q)	2815	2815	2833	4018	2884	4068	4475
	Net Return(Rs. /ha)	53052	53052	52681	29271	51693	28283	20244
SVPR	Total CC(Rs. /ha)	77500	77500	93056	109056	123456	137856	151642
	Cost of production(Rs. /q)	3176	3176	3814	4470	5060	5650	6215
	Net Return(Rs. /ha)	44940	44940	31384	15384	984	-13416	-27202
Coimbatore	Total CC(Rs. /ha)	61086	61086	65436	70086	73236	77886	85674
	Cost of production(Rs. /q)	2349	2349	2517	2696	2817	2996	3295
	Net Return(Rs. /ha)	54614	54614	50264	45614	42464	37814	30026
Chamrajnagar	Total CC(Rs. /ha)	43820	43820	46220	66220	49070	69070	75977
	Cost of production(Rs. /q)	2608.33	2608.33	2751.19	3941.67	2920.83	4111.31	4522.44
	Net Return(Rs. /ha)	48580	48580	46180	26180	43330	23330	16423

Agronomy VIII: Strategies to mitigate/minimize soil crust formation in cotton in North zone

Preamble: Soil aggregates are easily dispersed in soils of low organic matter under the impact of rain drops, thus forcing a thin layer of dispersed soil (clay) on the soil surface which on drying develops high strength and form crust and is common problem in North zone. This reduces the exchange of gases between soil and atmosphere and also injures the tips of emerging seedlings, resulting in drastic reduction in plant population and thus forcing farmers for resowing. The repeated sowing and irrigation favoured for high weed infestation. Hence breaking of soil crust is attempted here.

North Zone

The treatments effect is varying with intensity of problem by different centres. The results indicated that amongst treatments, running of peg/spike tooth weeder (two days after crust) observed higher germination percentage (78.7 %), seed cotton yield (3517 kg/ha) and net return (Rs. 1,33,403/ha) at Bathinda. The same treatment observed higher germination percentage (72.17 %) and seed cotton yield (4527 kg/ha) at Sriganganagar also. The germination percentage counted revealed that 67.9,67.9 and 75.0 per cent respectively with Goond Katira @12.5 kg/ha (T9), Goond Katira@ 25 kg/ha (T10), and Goond Katira@50 kg/ha (T11) at Faridkot. The highest yield of 2021,2103 and 2814 kg/ha and net return ((Rs. /ha) of 43,200, 39,266 and 98,168 were recorded respectively under GoondKatira@12.5 kg/ha (T9), Goond Katira @ 25 kg/ha (T10), and Goond Katira@50 kg/ha (T11) at Faridkot. The results at SIRSA revealed that the significantly highest germination percentage (86.5 %), seed cotton yield (3414 kg/ha) and net return of Rs. 1,12,610/ ha were obtained under Farm yard manure @ 3 t/ ha in seed rows followed (T6) (Table 55)The study in North Zone results further interpreted that soil crust could be solved practically and economically by Farm yard manure @ 3 t/ ha in seed rows , and running of peg/spike tooth weeder (two days after crust).

Table 55: Germination percentage, seed cotton yield (kg/ha) and economics as influenced by soil crust management strategies in North Zone

Treatments	SNGR		Bathinda				Faridkot				SIRSA			
	Germination (%)	Yield kg/ha	Germination (%)	SCY (kg/ha)	Cost of Treatment/ha	Net Return (Rs. /ha)	Germination (%)	SCY (kg/ha)	Cost of Treatment/ha	Net Return (Rs. /ha)	Germination (%)	SCY (kg/ha)	Cost of Treatment/ha	Net Return (Rs. /ha)
T_1: Absolute control (without soil crust)	100	5732	93.5	3338	0	127373	91.7	3387	0	125127	90.6	3,028	0	97,108
T_2: Control (with soil crust)	31.01	2543	15.7	821	0	12841	13.1	355	0	**-6799**	8.3	611	0	-19,270
T_3: Super Absorbent Polymer @12.5 kg/ha-1	41.14	3571	34.3	1591	5975	41917	36.9	1338	11250	24737	15.6	942	5975	-9,307
T_4: Super Absorbent Polymer @25 kg/ha-1	45.57	3851	34.3	1436	11600	29225	66.7	1857	22500	36069	20.8	903	11600	-16,810
T_5: Super Absorbent Polymer @50 kg/ha-1	44.30	3424	37.0	1705	22850	30235	57.1	1748	3000	50815	28.1	1,043	22850	-21,335
T_6: Farm yard manure @ 3 t/ ha in seed rows	43.04	3469	64.8	2942	3100	106258	53.6	1721	2500	50127	86.5	3,414	3100	1,12,610
T_7: Chopped crop residue/wheat bhusa @3 t/ha	62.66	4042	71.3	3017	2750	110014	33.3	1065	7500	16602	77.1	3,245	2750	1,04,790
T_8: Running of peg/spike tooth weeder (two days after crust))	72.17	4527	78.7	3517	2100	133403	60.7	1803	15000	41192	84.4	3,053	2100	96,195
T_9: Gaund Kathira@12.5 Kg/ha	44.94	3248	31.5	1395	4100	34883	67.9	2021	22500	43200	12.5	564	4100	-25,649
T_{10}: Gaund Kathira@25 Kg/ha	44.94	3645	32.4	1481	7850	35021	67.9	2103	30000	39266	16.7	721	7850	-21,823
T_{11}: Gaund Kathira@50 Kg/ha	42.40	3542	35.2	1508	15350	28767	75.0	2814	2000	98168	22.9	863	15350	-22,502
SEd		183.1	3.6	157		7158	-	230	-	20906	3.66	114.8	--	5,526
CD(5%)		382.6	7.4	320		14547	-	480	-	26.0	10.79	338.8	--	16,312

Agronomy IX: Standardisation of geometry for Bt varieties

Preamble: Bt-cotton technology is only expected to protect the cotton crop from bollworm attacks. Clearly the yield benefits should come from the hybrids or varieties. For best yield benefits, it is important that the hybrids or varieties must be ideally suited for specific agro-eco-zones. For example the best options for rainfed regions would be early-maturing short duration straight varieties, which are amenable for high-density planting system also. The newly released Bt varieties are taken for evaluation and suitability and geometry requirement

North Zone

The agronomic requirement and performance of Bt varieties was assessed under irrigated condition in North Zone. The trial includes Bt varieties of G1. PAU Bt1, G2. PAU Bt2, G3. PAU Bt3 and G4. CICR Bt 6 were planted in different spacing levels (S1.67.5 X 15 cm, S2.67.5X 30 Cm, S3.80 X 15 cm and S4.67.5 X 60 cm) and compared with Bt hybrids (RCH 776 BG II Bt planted with recommended spacing and applied recommended nutrients of the regions). Among Bt varieties, PAU Bt 3 registered the significantly highest seed cotton yield of 3512 and 3169 kg/ha, gross return of Rs. 1,75,600 and 1,66,673/ha , net return of Rs. 1,27,554 and 1,20,114 and /ha and benefit cost of 2.64 and 2.57 respectively of Faridkot and Bathinda .The comparison of ruling Bt hybrid against high performed Bt variety revealed that Bt hybrid recorded 10.5, 20.5 and 34.6 per cent higher seed cotton yield respectively at Faridkot, Bathinda and Sriganganagar

The results on spacing attempted revealed that wider planting geometry (67.5 x 60 cm) resulted in significantly least seed cotton yield, gross return , net return and benefit cost ratio. The reduction of seed cotton yield was 17.6 , 38.7 and 24.6 per cent were calculated as compared to high performing narrow geometry respectively at Faridkot, Bathinda and Sriganganagar. Among narrow geometries, the spacing level of S2.67.5 x 30 cm registered highest seed cotton yield (2954 kg/ha), gross return (Rs. 1,47,719/ha), net return(Rs. 1,03,666/ha) and benefit cost ratio (2.31) at Faridkot (Table 56). Planting at S3.80 X 15 cm registered highest seed cotton yield of 3071 and 2116 kg/ha, gross return of Rs. 1,61,533/ha, net return of Rs. 1,15,386/ha and benefit cost ratio 2.48 at Bathinda .The narrow planted geometries (S1.67.5 X 15 cm, S2.67.5X 30 cm, and S3.80 X 15 cm) within were not differed significantly with respect to seed cotton yield, gross return , net return and benefit cost ratio in all three centres.The interaction effect were found non-significant

Table 56.Seed cotton yield (kg/ha) , Gross Return(Rs. /ha), Net return (Rs. /ha) and Benefit Cost ratio of Bt varieties planted under different spacing levels in North Zone

Genotype	Faridkot				Bathinda				Sriganga nagar
	Seed cotton yield(kg/ha)	Gross Return (Rs. /ha)	Net Return (Rs. /ha)	B:C ratio	Seed cotton yield(kg/ha)	Gross Return(Rs. /ha)	Net Return (Rs. /ha)	B:C ratio	Seed cotton yield kg/ha)
G1. PAU Bt1	2306	115346	75133	1.83	2653	139530	96583	2.23	1739
G2. PAU Bt2	3150	157548	111849	2.44	3115	163831	117650	2.52	2140
G3. PAU Bt3	3512	175600	127554	2.64	3169	166673	120114	2.57	2150
G4. CICR Bt 6	2170	108513	69188	1.73	2183	114822	75163	1.87	1516
Bt hybrid I	3881	194093	141511	2.69	3818	208477	156399	2.98	2894
SE d	141.6	7083	6162	0.09	114.9	6042	5238	0.08	87.5
CD (5%)	292	14620	12719	0.2	237	12471	10811	0.16	252.7
Spacing									
S1.67.5 X 15 cm	2812	140613	96235	2.13	2851	149971	105163	2.32	1886
S2.67.5X 30 Cm	2954	147719	103666	2.31	2982	156837	111790	2.46	1849
S3.80 X 15 cm	2859	142984	98697	2.2	3071	161533	115386	2.48	2116
S4.67.5 X 60 cm	2513	125691	85127	2	2215	116515	77172	1.93	1698
SE d	112.8	5640	4907	0.07	98.2	5171	4483	0.07	98.0
CD (5%)	276	13806	12010	0.19	240	12656	10972	0.16	282.6

Central Zone

The agronomic requirement and performance of Bt varieties were assessed under rainfed condition in Central Zone. The trial includes Bt varieties ofG1. Suraj Bt, G2. PKV 081 Bt, G3. Rajat Bt, and G4. GJHV374 Bt were planted in different spacing levels (S1.60 X 15 cm, S2.60X 30 cm, S3.90 X 15 cm and S4.90 X 60 cm) and compared with ruling Bt hybrids planted with recommended spacing and nutrients of the regions. The results revealed that G3.Rajat Bt registered significantly higher performance at Akola(1608 kg/ha), Rahuri(2141 kg/ha), Junagadh (2085 kg/ha), Surat (2017 kg/ha) and Khandwa (1140 kg/ha) as compared to other Bt varieties; However which was on par with G2.PKV 081 Bt at Akola (1562 kg/ha) (Table 57 & 58). At Nanded, Bt varieties performed non significantly (Table 57&58). The results of The significantly higher gross return of Rs. 88,677, 59,299, 1,06,333/ha and Benefit Cost Ratio of 2.3, 1.1 and 1.56 recorded respectively with Akola , Nanded and Junagadh with G3.Rajat Bt . The significantly highest net return of Rs. 49,903, and 38,469 /ha were arrived with Akola and Junagadh respectively. Amongst spacing levels, planting at 60 x 15 cm registeredthe significantly highest seed cotton yield at Akola(1589 kg/ha) and Nanded (1159 kg/ha). Different spacing levels, tried did not influence significantly seed cotton yield at Junagadh and Rahuri. The interaction effect were found non-significant in all tested centres. The narrow planting at S1.60 X 15 cm was calculated 9.1,17.3, 13.8 and 27.6 per cent higher seed cotton yield as compared to wider spacing of S4.90 x 60 cm spacing respectively at Akola, Nanded, Junagadh and Khandwa. The results further add that as compared to ruling Bt hybrids high performing Bt varieties registered 7.7 and 7.2 per cent less yield at Akola and Nanded respectively. But at Rahuri , Surat and Khandwa high performing Bt varieties registered 36.0 , 34.0 and 5.5 per cent increase in seed cotton yield

Table 57. Seed cotton yield (kg/ha) and economics of Bt varieties as influenced by spacing in central zone

Genotypes	Akola				Nanded			
	Seed cotton yield (kg/ha)	Gross Return (Rs. /ha)	Net Return (Rs. /ha)	B:C ratio	Seed cotton yield (kg/ha)	Gross Return (Rs. /ha)	Net Return (Rs. /ha)	B:C ratio
G1. Suraj Bt	1505	83016	45217	2.2	895	47877	-3936	0.92
G2. PKV 081 Bt	1562	86146	47294	2.2	1116	59702	6120	1.11
G3. Rajat Bt	1608	88677	49903	2.3	1108	59299	5778	1.1
G4. GJHV374 Bt	1377	75942	38069	2.0	1050	56150	3100	1.05
SE d	18	966	966	0.03	41.14	2622	2230	0.04
CD (5%)	51	2820	2820	NS	N.S.	7640	6498	0.12
Control (Bt hybrid)	1951				1203	66045	4774	1.08
Spacing								
S1.60 X 15 cm	1589	87638	47495	2.18	1159	62015	7268	1.13
S2.60X 30 Cm	1519	83789	45421	2.18	1001	53558	425	1
S3.90 X 15 cm	1488	82073	43928	2.15	1020	54588	2531	1.04
S4.90 X 60 cm	1456	80281	43641	2.19	988	52867	838	1.01
SE d	20	1078	1078	0.02	36.3	2925	2488	0.05
CD (5%)	68	3731	3731	NS	105.8	N.S.	N.S.	N.S.

Table 58. Seed cotton yield (kg/ha) and economics of Bt varieties as influenced by spacing - CZ

Genotypes	Junagadh				Rahuri	Surat	Khandwa
	Seed cotton yield (kg/ha)	Gross Return (Rs. /ha)	Net Return (Rs. /ha)	B:C ratio	Seed cotton yield (kg/ha)		
G1. Suraj Bt	1725	87962	23031	1.36	1819	1825	1076
G2. PKV 081 Bt	1672	84048	19960	1.31	1612	1873	1104
G3. Rajat Bt	2085	106333	38469	1.56	2141	2017	1140
G4. GJHV374 Bt	1575	82555	19025	1.3	1526	1530	1137
SE d	75.03				46.1	59.58	40
CD (5%)	218.99				134.13	174	80
Control (Bt hybrid)					1574	1505	1080
Spacing							
S1.60 X 15 cm	1838	93740	25144	1.36	1747	1555	1389
S2.60X 30 Cm	1766	92310	27209	1.41	1832	1717	1192
S3.90 X 15 cm	1831	90481	25930	1.4	1662	2225	1178
S4.90 X 60 cm	1621	84366	22204	1.36	1856	1749	1088
SE d	102.19				77.02	83.09	916
CD (5%)	NS				NS	288	33

Agronomy X:Multi-tier cropping system to enhance resource utilization, profitability and sustainability of *Bt* cotton *(Gossypium hirsutum)*production system

Akola

The results of multitier cropping system revealed that the significantly highest seed cotton yield (1712 kg/ha) was recorded with Sole Bt cotton (T1) which was on par with Bt cotton intercropped with green gram in 1:1 ratio (T10) . The seed cotton yield was reduced by multitier intercropping and reduction in yield ranged from 8.64 to 30.43 per cent. Among the systems, paired row Bt cotton with two rows of green gram (T2) produced higher seed cotton equivalent yield of 2068 kg/ha, which was on par with cotton+ green gram intercropping system (2034 kg/ha) at 1:1 row proportion (T10).Multitier cropping system enhanced the relative production efficiency (3.28 to 20.78 %), relative economic efficiency (7.48 to 48.66 %,) and system profitability (232 to 321 Rs. /ha/day).Amongst the multitier intercropping systems evaluated, paired row planting of Bt cotton with two rows of green gram (T2) was having the highest RPE,REE,and system profitability. The same system registered significantly highest gross return of Rs. 1,14,033/ha., net return of Rs. 72, 213/ha and B:C ratio of 2.73 also(Table 59). Multitier cropping system observed higher availability of nutrient status because of legume inclusion. Significant reduction of weed population was observed by multitier cropping system

Table 59. Seed Cotton yield (kg/ha), Seed cotton equivalent yield(kg/ha) and economics as influenced by multitier cropping system

Treatments	Seed cotton Yield (kg/ha)	Seed cotton equivalent yield (kg/ha)	Relative Production Efficiency (RPE)%	Relative Economic Efficiency (REE)%	System Profitability (Rs. /ha/Day)	Gross return (Rs. /ha)	Net Return (Rs. /ha)	BCR
T_1: Sole Bt cotton (90x60 cm)	1712	1712	--	--	--	94417	48577	2.06
T_2: Paired row planting of Bt cotton with two rows of Green gram(A)	1444	2068	20.78	48.66	321	114033	72213	2.73
T_3:Paired row planting of Bt cotton with two rows of Black gram (B)	1282	1790	4.53	17.09	253	98697	56877	2.36
T_4:Paired row planting of Bt cotton with two rows of Soybean (C)	1233	1758	2.7	7.48	232	96969	52211	2.17
T_5:Paired row planting of Bt cotton with one row of Green gram (A)+one row ofBlack gram (B)	1356	1797	4.99	16.62	252	99129	56649	2.33
T_6:Paired row planting of Bt cotton with one row of Black gram (B) + one rows of Soybean (C)	1191	1768	3.28	10.57	239	97509	53709	2.23
T_7:Paired row planting of Bt cotton with one rows of Soybean (C)+one row of Green gram(A)	1322	1909	11.52	24.69	269	105289	60570	2.35
T_8:Paired row planting of Bt cotton with one row of Greengram (A)+ one row of Black gram (B)+ one rows of Soybean (C)	1191	1869	9.14	19.83	259	103049	58209	2.3
T_9: Cotton + Pigeonpea (6:2) (90x60 cm)	1304	1935	13	30.79	282	106690	63534	2.47
T_{10}: Cotton + Greengram (1:1) (90x60 cm)	1564	2034	18.79	38.91	300	112159	67479	2.51
S.E m±	64.13	58.6	--	--	--	3232	3232	--
CD (5%)	190.54	174.12	--	--	--	9602	9602	--

Soil parameters : pH value: 7.80, EC (dSm^{-1}): 0.13, O.C.($g\ kg^{-1}$) : 3.90, Available N : 204 kg/ha, P_2O_5 : 17.60 kg/ha, K_2O : 336 kg/ha Recommended spacing: 90x60 cm, Recommended Fertilizer dose : 60:30:30 Kg NPK/ha , Environment : Rainfed, Cotton Species : Bt Hybrid, Total Rainfall during Cropping period : 771.6 mm ,

Bhawanipatna

The results of multitier intercropping system attempted under rainfed condition at Bhawanipatna found that different growth and yield parameters and seed cotton yield were significantly affected by multitier intercropping systems. The significantly highest seed cotton yield (2176 kg/ha) was harvested with sole cotton (T1). The significantly least seed cotton yield (1618 kg/ha) was obtained in farmers practice i,e. cotton with arhar intercrop without any definite row ratio(T9). Seed cotton equivalent yield (2308 kg/ha), Gross Return (Rs. 1,33,882/ha, net return (Rs. 78,487/ha) and befit cost ratio (2.42) were the significantly highest with T_2.Paired row of Bt cotton with two rows of intercrop(arhar) (Table 60).Relative production

(6.1 %) and economic efficiency (10.1 %) were maximum recorded also with paired row of Bt cotton with two rows of intercrop (Arhar) (T2) . Weed smothering efficiency (WSE) was maximum calculated with T6. Paired row of Bt cotton with one rows (Black gram) +one row (Soybean) at all the three dates of observation i,e. 30 DAS (25.7), 60 DAS (25.3) and 90 DAS (24.2) . The same system (T6) was observed the highest Diversification index (24.2) also

Table 60. Seed Cotton yield (kg/ha), intercrop yield, Seed cotton equivalent yield(kg/ha) and economics as influenced by multitier cropping system

Treatments	Seed cotton Yield (kg/ha)	Intercrop yield (kg/ha)	Seed cotton equivalent yield (kg/ha)	Relative production efficiency (RPE%)	Relative Economic efficiency(REE%)	Gross return (Rs. /ha)	Net Return (Rs. /ha)	BCR
T_1. Sole Bt cotton	2176	0	2176	0.0	0.0	126208	71300	2.30
T_2.Paired row of Bt cotton with two rows of intercrop(Arhar)	1850	443	2308	6.1	10.1	133881	78487	2.42
T_3.Paired rowof Bt cotton with two rows of intercrop (Black gram)	1784	383	2181	0.2	-0.9	126491	70648	2.27
T_4.Paired row of Bt cotton with two rows of intercrop (Soybean)	1761	680	2219	2.0	2.7	128677	73259	2.32
T_5.Paired row of Bt cotton with one rows (Arhar) +one row (Black gram)	1786	250+197	2213	1.7	2.1	128369	72809	2.31
T_6. Paired row of Bt cotton with one rows (Black gram) +one row (Soybean)	1771	213+330	2214	1.7	2.2	128388	72845	2.31
T_7. Paired row of Bt cotton with one rows (Soybean) +one row (Arhar)	1769	310+203	2188	0.6	0.3	126911	71495	2.29
T_8. Paired row of Bt cotton with one rows (Arhar) +one row (BG) +one row (Soybean)	1646	150+ 130+190	2086	-4.1	-8.7	121007	65117	2.17
T_9. Farmers practice (intercrop Arhar without row ratio)	1618	303	1932	-11.2	-20.3	112057	56831	2.03
T_{10}.Recommended intercropping(Cotton + Arhar = 8:2)	1841	316	2168	-0.4	-1.3	125739	70345	2.27
SEm+	37.00	-	43.92			2547.19	2549.16	0.05
CD (5%)	109.13	-	129.54			7513.08	7518.87	0.14

Soil: pH - 6.1, Available N: 120 kg/ha , P_2O_5 : 37.5 kg/ha , K_2O: 248 kg/ha, rainfall during cropping period: 991.2 mm, Genotype of cotton: Gajab plus, Arhar-PRG-176, Black gram-TAU-1 and Soybean-AMS 2014-1

Junagadh

The results of multitier intercropping system attempted under irrigated condition at Junagadh revealed that significantly highest seed cotton yield (3010 kg/ha) was harvested with paired row planting of Bt cotton with two rows of intercrop of Sesamum (T2) as compared to Sole Bt cotton(T1). The highest seed cotton equivalent yield (3475 kg/ha) and gross return (Rs. 1,77,224/ha) were recorded with paired row planting of Bt cotton with two rows of intercrop (C) Groundnut (T4) (Table 61). However, the relative production(54.0%) and economic (25.3%) and net return (Rs. 86,777/ha) were maximum with paired row planting of Bt cotton with two rows of intercrop of Sesamum (T2) (Table 61). The weed smothering efficiency was found effectively higher with farmers practice (T9)(54.14 %).

Table 61. Seed cotton yield (kg/ha), intercrop yield, Seed cotton equivalent yield(kg/ha) and economics as influenced by multitier cropping system

Treatments	Seed cotton Yield kg/ha)	Intercrop yield (kg/ha)	Seed cotton equivalent yield(kg/ha)	Relative production efficiency (RPE %)	Relative Economic efficiency(REE%)	Gross return (Rs. /ha)	Net Return (Rs. /ha)	BCR
T_1. Sole Bt cotton	2250	0	2250	-	-	153325	69283	1.82
T_2.Paired row planting of Bt cotton with two rows of intercrop (A)Sesamum	3010	250	3465	54.0	25.3	174388	86777	1.99
T_3.Paired row planting of Bt cotton with two rows of intercrop (B) Soyabean	2500	400	2936	30.5	16.3	165044	80557	1.95
T_4.Paired row planting of Bt cotton with two rows of intercrop (C) Groundnut	2620	500	3475	54.4	24.3	177224	86104	1.94
T_5.Paired row planting of Bt cotton with one rows (A) Sesamum+one row (B) Soyabean	2690	100+180	3068	36.4	23.2	170532	85332	2.00
T_6Paired row planting of Bt cotton with one rows (B) Soyabean+one row (C) Groundnut	2690	150+260	3298	46.6	22.3	171020	84720	1.98
T_7Paired row planting of Bt cotton with one rows (C) Groundnut +one row (A) Sesamum	2580	290+120	3294	46.4	22.3	170946	84723	1.98
T_8Paired row planting of Bt cotton with one rows (A) Sesamum+one row (B) Soyabean +one row (C) Groundnut	2360	89+110+237	3047	35.4	15.5	165142	80010	1.94
T_9.Farmers practice	2610	300	3155	40.2	21.8	170606	84418	1.98
T_{10}.Recommended intercropping (Cotton: Sesamum=1:1)	2260	350	2896	28.7	13.0	162715	78257	1.93
SEd	139.26							
CD (5%)	445.52							

Total Rainfall:1808mm, Rainy Days:63, EC: 0.58ds/m, pH:8.21, OC 1.02% Av.Nitrogen: 410kg/ha, Av.P_2O_5 88.62kg/ha, Av.K_2O 403.33kg/ha, Environment :Irrigated

Surat

The results of multitier cropping system revealed that seed cotton yield was affected significantly due to different systems. The significantly higher seed cotton yield (1154 kg/ha) was recorded in T_2: Paired row planting of Bt Cotton (within the pair 60 cm and between the pair of 180 cm) which was statistically at par with Sole Bt Cotton (T1, 1110 kg/ha) , Bt cotton intercropped with cluster bean, cow pea and soybean (T3, 1058 kg/ha) and Farmers practice (T7, 1048 kg/ha). The significantly highest seed cotton equivalent yield (1882 kg/ha), gross return(Rs. 1,03,505/ha) , net return (Rs. 53,785/ha), benefit cost ratio (2.08) and weed smothering efficiency (54.1 %) were recorded with Bt cotton intercropped with cow pea, soy bean, and Indian bean (T5) (Table 62) . Multi-tier cropping system treatments recorded range of relative production efficiency (RPE) from 26.15 to 69.54 %, relative economic efficiency (REE) from 63.1 to 227.9 %, and land equivalent ratio (LER) from 1.33 to 1.56

Table 62. Seed Cotton yield (kg/ha), intercrop yield, Seed cotton equivalent yield(kg/ha) and economics as influenced by multitier cropping system

Treatments	Seed cotton Yield (kg/ha)	Seed cotton equivalent yield (kg/ha)	Relative production efficiency (RPE %)	Relative Economic efficiency (REE %)	Land equivalent ratio	Gross return (Rs. /ha)	Net Return (Rs. /ha)	BCR
T_1: Sole Bt Cotton recommended spacing (120 cm x 45 cm)	1110	1110	0.0	0.0	1.00	61050	16404	1.37
T_2: Paired row planting of Bt Cotton (within the pair 60 cm and Between the pair of 180 cm) recommended paired row spacing	1154	1154	4.0	12.9	0.96	63470	18516	1.41
T_3: Bt cotton (paired 60 cm) + Cluster bean (60 cm) + Cow pea (60 cm) + Soyabean(60 cm) + Bt cotton (paired 60 cm)	1058	1400	26.1	63.1	1.33	77015	26747	1.53
T_4: Bt cotton (paired 60 cm) + Cluster bean (60 cm) + Soyabean (60 cm) + Indian bean(60 cm) + Bt cotton (paired 60 cm)	948	1786	60.9	192.8	1.56	98220	48032	1.96
T_5: Bt cotton (paired 60 cm) + Cow pea (60 cm) + Soyabean (60 cm) + Indian bean (60 cm) + Bt cotton (paired 60 cm)	1014	1882	69.5	227.9	1.52	103505	53785	2.08
T_6: Bt cotton (paired 60 cm) + Cluster bean (60 cm) + Cow pea (60 cm) + Indian bean (60 cm) + Bt cotton (paired 60 cm)	963	1761	58.6	186.0	1.54	96875	46912	1.94
T_7: Farmers practice	1048	1048	-5.6	-18.1	1.06	57640	13428	1.30
T_8 : Recommended intercropping	988	1346	21.3	56.7	1.41	74020	25712	1.53
SEd	39.06							
CD (5%)	118							

Soil: pH –7.82, EC: 0.37 dS/m, OC(%):0.48, Available N: 220.56 kg/ha , P_2O_5 : 33.59 kg/ha , K_2O: 625.52 kg/ha and recommended spacing: 120 x 45 cm

Nanded

Sole Bt cotton (T1) recorded highest seed cotton yield (1356 kg/ha) which was on par with recommended intercropping of cotton + green gram (1:2) (T10). The significantly highest seed cotton equivalent yield (2009 kg/ha), gross return(Rs. 1,10,289/ha) , net return (Rs. 45,320/ha) and benefit cost ratio (1.70) were recorded with Bt cotton intercropped with green gram (1:2) (T10) (Table 63) Which was closely followed by farmers practice of growing pigeon pea in cotton (6:1) (T9) with respect to gross return(Rs. 96,246/ha) and net return(Rs. 45,320/ha) (Table 63). Bt Cotton + green gram (1:2) (T10).was the most efficient intercropping system with relative production efficiency (48.2%), relative Economic efficiency (279.5%) and land equivalent ratio (1.58). Whereas, intercropping of Bt cotton with one row of green gram, fox tail millet and fenugreek (T8) recorded greater weed smothering efficiency (48.34%) as well as greater diversification index (2.094).

Table 63. Seed Cotton yield (kg/ha), intercrop yield, Seed cotton equivalentyield(kg/ha) and economics as influenced by multitier cropping system

Treatments	Seed cotton Yield (kg/ha)	Intercrop yield(kg/ha)	Seed cotton equivalent yield (kg/ha)	Relative production efficiency (RPE%)	Relative Economic efficiency(REE%)	Land equivalent ratio	Diversificatio nindex	Grossreturn(Rs. /ha)	NetReturn(Rs. /ha)	BCR
T_1. Sole Bt cotton	1356	-	1356	0	0	1.00	1.00	74437	11943	1.19
T_2.Paired row planting of Bt cotton with two rows of intercrop (Green gram)	1013	387	1384	2.1	24.0	1.07	1.65	75962	14808	1.24
T_3.Paired row planting of Bt cotton with two rows of intercrop (Foxtail millet)	1053	377	1410	4.0	35.1	1.24	1.61	77395	16137	1.26
T_4.Paired row planting of Bt cotton with two rows of intercrop (Fenugreek)	1223	980	1461	7.7	25.0	1.01	1.38	80196	14925	1.23
T_5.Paired row planting of Bt cotton with one rows (Green gram) +one row (Foxtail millet)	1012	227+294	1508	11.2	82.2	1.30	1.98	82809	21766	1.36
T_6Paired row planting of Bt cotton with one rows (Foxtail millet) +one row (Fenugreek)	1115	267+443	1475	8.8	49.8	1.20	1.65	80967	17888	1.28
T_7Paired row planting of Bt cotton with one rows (Fenugreek) +one row (Green gram)	1113	400+234	1434	5.8	30.3	1.06	1.58	78746	15567	1.25
T_8Paired row planting of Btcotton with one rows (Green gram) +one row (Foxtail millet) +one row (Fenugreek)	1004	206+240+387	1523	12.3	73.4	1.25	2.09	83607	20708	1.33
T_9.Farmers practice (Cotton + Pigeon pea; 6:1)	1019	676	1753	29.3	193.3	1.23	1.95	96246	35027	1.57
T_{10}.Recommended intercropping (Cotton + Green gram, 1:2)	1253	789	2009	48.2	279.5	1.58	1.36	110289	45320	1.70
SEd	57.32	-	59.19			-	-	3250	2837	-
CD (5%)	170.31	-	175.86			-	-	9655	8430	-

Soil properties : pH - 8.05; Ec - 0.28 dSm^{-1}, OC - 0.49(%), available N - 119.15 kg/ha; P_2O_5- 12.15 kg/ha& K_2O - 478.25 kg/ha; Recommended spacing - 120 x 45 cm, recommended nutrients - 120:60:60 NPK kg/ha, Cotton species - *G. hirsutum*, **Environment** - Rainfed and **rainfall** - 976.9 mm

Rahuri

The data revealed from table 64 , multitier cropping system of paired row planting of Bt. Cotton with two rows of green gram (T2) recorded the significantly highest seed cotton yield (1768 kg/ha) which was on par with Sole Bt cotton (T1, 1690 kg/ha),Paired row planting of Bt cotton with two rows of soybean intercrop (T3, 1593 kg/ha), Paired row planting of Bt cotton with one rows of green gram and one row of soybean (T5, 1617 kg/ha), paired row planting of Bt cotton with one rows of soybean and one row of pigeon pea (T6, 1521 kg/ha),recommended intercropping (T10, 1595 kg/ha) and farmers practice (T9, 1452 kg/ha). The smothering effect of green gram is maximum as compared to other intercrops , thus recorded lower weed dry weight. The highest seed cotton equivalent yield (2783 kg ha^{-1}) gross monetary returns (Rs. .142437/ha.), net monetary returns (Rs. 76063/ha.) and B:C ratio (2.18) were recorded with paired row planting of Bt. Cotton with two rows of green gram (T2). The same system (T2) observed higher relative production (64.7 %) and economic (100.8 %) efficiency

Table 64. Seed Cotton yield (kg/ha), intercrop yield, Seed cotton equivalent yield(kg/ha) and economics as influenced by multitier cropping system

Treatments	Seed cotton Yield (kg/ha)	Seed cotton equivalent yield (kg/ha)	Relative Production Efficiency (RPE)%	Relative Economic Efficiency(REE)%	Gross return (Rs. /ha)	Net Return (Rs. /ha)	BCR
T_1 – Sole Bt cotton	1690	1690	0.0	0.0	87035	38762	1.80
T_2- Paired row planting of Bt cotton with two rows of green gram intercrop (A).	1768	2783	64.7	100.8	143325	77845	2.19
T_3 -Paired row planting of Bt cotton with two rows of soybean intercrop (B).	1593	2182	29.1	26.1	112373	48880	1.77
T_4 - Paired row planting of Bt cotton with two rows of pigeonpea intercrop (C).	1226	1936	14.6	-4.3	99704	37093	1.59
T_5- Paired row planting of Bt cotton with one rows of green gram (A) + one row of soybean (B).	1617	2527	49.5	60.0	130141	62021	1.91
T_6 - Paired row planting of Bt cotton with one rows of soybean (B) + one row of pigeonpea (C)	1521	2448	44.9	52.1	126072	58964	1.88
T_7 - Paired row planting of Bt cotton with one rows of pigeonpea (C) + one row of green gram (A).	1238	2167	28.2	9.5	111601	42427	1.61
T_8 .Paired row planting of Bt cotton with one row of A+ one row of B + one row of C.	1333	2294	35.7	16.0	118141	44981	1.61
T_9 –Farmers practice	1452	1753	3.7	0.6	90280	39009	1.76
T_{10} - Recommended intercropping.	1595	2380	40.8	46.9	122570	56930	1.87
SEd	112.09				--	--	--
CD (5%)	317.28				--	--	--

Dharwad

The data on seed cotton yield recorded in different multitier cropping system per hectare is presented in table 65. Among the treatments seed cotton yield was significantly increased with paired row planting of cotton with one row of peas + one row of green gram (T_7) (1509 kg/ha) However, it was par with all treatments except T_1 and T_8. Seed cotton equivalent yield (2662 kg/ha) was the significantly highest recorded with paired row planting of cotton with two rows of vegetable beans (T_3) which was on par with T_5.Paired row planting of Bt cotton with one rows of green gram and one row veg Beans (T_5, 2603 kg/ha) and Paired row planting of Bt cotton with one rows of green gram and one row of veg Beans and one row of Veg Peas (T8, 2461 kg/ha). The higher performance because of more yields obtained of intercrop beans and high economic values associated with bean. Paired row planting of Bt cotton with two rows of beans (T_3) recorded significantly higher gross returns (Rs. 1,33,100/ ha) net returns (Rs. 74,465/ha) and B:C ratio (2.27) as compared to any other treatments. The same intercropping system (T3) calculated higher relative Production Efficiency (113.3 %)relative Economic Efficiency (566 %) and Land Equivalent Ratio (2.13). Efficiency of all intercropping treatments were increased as compared to sole cropping (T_1) and farmers practice (T_9).

Table 65. Seed Cotton yield (kg/ha), intercrop yield, Seed cotton equivalent yield (kg/ha) and economics as influenced by multitier cropping system

Treatments	Seed cotton Yield (kg/ha)	Intercrop yield (kg/ha)	Seed Cotton equivalent yield (kg/ha)	Relative production efficiency (RPE %)	Relative Economic efficiency (REE %)	Land equivalent ratio	Diver sification index	Gross return (Rs. /ha)	Net Return (Rs. /ha)	BCR
T_1. Sole Bt cotton (Paired row) (60-120-60x 60cm)	1248	0	1248	0.0	0	1.00	1.00	62400	11207	1.22
T_2.Paired row planting of Bt cotton with two rows of intercrop (A) Green gram	1391	949	2245	80.3	381	1.80	1.89	112267	53529	1.91
T_3.Paired row planting of Bt cotton with two rows of intercrop (B) veg Beans	1365	324	2662	113.3	566	2.13	2.00	133100	74465	2.27
T_4.Paired row planting of Bt cotton with two rows of intercrop (C) Veg Peas	1424	0	1424	14.3	13	1.14	1.00	71217	12345	1.21
T_5.Paired row planting of Bt cotton with one rows (A) Green gram +one row (B) veg Beans	1419	600+ 1609	2603	108.3	540	2.08	2.49	130150	71300	2.21
T_6Paired row planting of Bt cotton with one rows (B) veg Beans +one row (C) Veg Peas	1351	2178+0	2223	78.3	371	1.78	1.91	111133	52552	1.90
T_7Paired row planting of Bt cotton with one rows (C) Veg Peas +one row (A) Green gram	1509	647	2092	67.3	305	1.67	1.67	104583	45370	1.77
T_8Paired row planting of Bt cotton with one rows (A) Green gram +one row (B) veg Beans +one row (C) Veg Peas	1144	587+ 1973	2461	97.3	485	1.97	2.72	123050	65299	2.13
T_9.Farmers practice (without intercrop with 90x60 cm spacing	1439	0	1439	15.0	139	1.15	1.00	71967	26660	1.59
T_{10}.Recommended intercropping (Cotton + Green gram)	1332	941	2179	74.7	368	1.75	1.91	108933	52230	1.92
SE.m	**65.4**	**-**	**72**	**5.8**	**32**	**0.06**	**0.02**	**3620**	**3383**	**0.05**
CD	**194.3**	**-**	**215**	**17.4**	**94**	**0.17**	**0.07**	**10754**	**10052**	**0.16**

Srivilliputhur

The results of multitier cropping system revealed that seed cotton yield was not significantly influenced by different intercropping systems. The highest seed cotton equivalent yield (3749 kg/ha) was harvested with intercropping of one row of onion and cluster bean with paired Bt cotton (T5) followed by intercropping of two rows of cluster bean (T3, 3697 kg / ha) and two rows of onion (T2,3689 kg /ha).The weed population counted at 45 DAS was the lowest with intercropping of three crops (onion, cluster bean and coriander) (T8, 146.4 no / m^2) which recorded the highest weed smothering efficiency (23.0%) also. Among intercropping system, intercropping of cluster bean and onion with Bt cotton (T5) recorded the highest

relative production efficiency (RPE) of 56.5 % followed by two rows of cluster bean intercropping (T3, 54.4 %). The relative economic efficiency (REE) and land equivalent ratio of two rows of cluster bean intercropping with Bt cotton (T3) was the highest of 94.8 % and 1.44 respectively; which was followed by one row cluster bean and one row onion (T5, REE (82.4%) and LER (1.44) (Table 66) .Higher Diversification index was associated with intercropping of one row of onion and cluster bean (T5, 2.03) The higher nutrient uptake was observed with all the intercropping system treatments than sole cotton.The economic analysis indicated that the total cost of cultivation was higher under all the intercropping system. The higher gross return (Rs. 1,89,919/ha) was calculated with intercropping one row of onion and cluster bean in Bt cotton(T5). However, net return (Rs. 1,03,513/ha) and BC ratio (2.24) were higher with intercropping of two rows of cluster bean (T3)

Table 66. Seed Cotton yield (kg/ha), intercrop yield, Seed cotton equivalent yield (kg/ha) and economics as influenced by multitier cropping system

Treatments	Seed cotton Yield (kg/ha)	Intercrop yield (kg/ha)	Seed cotton equivalent yield (kg/ha)	Relative production efficiency (RPE %)	Relative Economic efficiency(REE%)	Land equivalent ratio	Diver sification index	Gross return (Rs. /ha)	Net Return (Rs. /ha)	BCR
T_1. Sole Bt cotton	2395	--	2395	0.0	0.0	1.00	1.0	122145	53145	1.77
T_2.Paired row planting of Bt cotton with two rows of intercrop (Onion)	2422	1810	3689	54.0	81.9	1.10	1.81	186872	96672	2.07
T_3.Paired row planting of Bt cotton with two rows of intercrop (Cluster bean)	2443	3136	3697	54.4	94.8	1.44	1.81	187313	103513	2.24
T_4.Paired row planting of Bt cotton with two rows of intercrop (Coriander)	2431	1130	2838	18.5	34.6	1.29	1.71	144321	71521	1.98
T_5.Paired row planting of Bt cotton with one rows (Onion) +one row (Cluster bean)	2449	1008+ 1487	3749	56.5	82.4	1.28	2.03	189919	96919	2.04
T_6 Paired row planting of Bt cotton with ne rows (Cluster bean) +one row (Coriander)	2443	1379+ 611	3215	34.2	56.1	1.26	1.62	163171	82971	2.03
T_7 Paired row planting of Bt cotton with one rows (Coriander) +one row (Onion)	2434	853+ 558	3232	34.9	46.5	1.19	1.64	164033	77833	1.90
T_8 Paired row planting of Bt cotton with one rows (Onion) +one row (Cluster bean) +one row (Coriander)	2460	737+ 1145+ 456	3598	50.2	65.3	1.33	1.97	183063	87863	1.92
T_9.Farmers practice (Cotton + 2 rows Black Gram)	2415	126	2554	6.6	8.7	1.14	1.11	130095	57795	1.80
T_{10}.Recommended intercropping (Cotton + 2 rows Green Gram)	2420	131	2564	7.1	9.7	1.14	1.12	130625	58325	1.81
SEd	89.5									
CD (5%)	NS									

Soil type: Clay loam, pH value:8.26 dSm^{-1}Available Nutrients (kg/ha):N : 196 (Low), P_2O_5 : 40 (High) and K_2O : 446 (High), O.C.(g kg^{-1}) : 7.2, Recommende Fertilizer:120 : 60 : 60 kg NPK / ha & Environment: Irrigated

Raichur

The total rainfall received was 1248.2 mm during the cropping periods as against 698.4 mm as normal of last 34 years. The excess rainfall and subsequent water logging affected intercrops of chili and coriander and vitiated. However, the inter crops includes black gram, green gram and groundnut were survived but performed poorly. Significantly higher seed cotton yield (2662 kg/ha) was recorded in Sole Bt cotton (T1). Bt cotton+ green gram (T9) recorded significantly lower weed number (4.6/m2) and higher weed smothering efficiency (49.46%).The significantly highest seed cotton equivalent yield (2678 kg/ha), Gross Returns (Rs. 1,54,448/-), Net Returns (Rs. 84, 912/-) and B: C (2.18) were recorded in Bt cotton + Green Gram intercropping system (T9) (Table 67). The same intercropping system (T9) recorded higher relative Economic Efficiency (25.35%) and LER (1.21).

Table 67: Seed Cotton yield (kg/ha), intercrop yield, Seed cotton equivalent yield(kg/ha) and economics as influenced by multitier cropping system

Treatments	Seed cotton Yield (kg/ha)	Intercrop yield (kg/ha)	Seed cotton equivalent yield(kg/ha)	Relative production efficiency (RPE %)	Relative Economic efficiency (REE %)	Land equivalent ratio	Gross return (Rs. /ha)	Net Return (Rs. /ha)	BCR
T_1. Sole Bt cotton	2662	0	2662	0.0	0.0	1.00	133938	64076	1.99
T_2.Paired row planting of Bt cotton with two rows of intercrop, Black gram (A)	2257	244	2483	-6.7	-2.5	1.13	134061	62465	1.89
T_3.Paired row planting of Bt cotton with two rows of intercrop, Chilli (B)	2351	0	2351	-11.7	-11.7	0.89	126954	56600	1.79
T_4.Paired row planting of Bt cotton with two rows of intercrop, Coriander (C)	2296	0	2296	-13.7	-18.5	0.86	124002	52190	1.79
T_5.Paired row planting of Bt cotton with one row of Blackgram (A) + one row of Chilli (B)	2250	155	2393	-10.1	-12.7	1.03	129215	55943	1.73
T_6 Paired row planting of Bt cotton with one row of Chilli (B)+one row of Coriander (C)	2447	0	2447	-8.1	-17.7	0.92	132156	52760	1.81
T_7 Paired row planting of Bt cotton with one row of Coriander(C) +one row of Black gram(A)	2233	155	2377	-10.7	-31.5	1.03	128367	43889	1.77
T_8 Paired row planting of Bt cotton with one row of Black gram(A) + one row of Chilli (B) + one row of Coriander (C)	2263	108	2363	-11.2	-21.3	0.98	127603	50435	1.67
T_9. Farmers practice (Green gram as inter crop)	2480	200	2678	0.6	32.5	1.21	154448	84912	2.18
T_{10}.Recommended intercropping (Groundnut as intercrop)	2161	430	2559	-3.9	2.7	1.01	138194	65795	1.90
SEd	**86**	**42**	**97**				**5280**	**5280**	**0.07**
CD (%)	**251**	**122**	**283**				**15349**	**15349**	**0.21**

Soil pH: 8.12, Available soil nitrogen: 249 kg/ha, phosphorus: 35 kg/ha, potassium: 272 kg/ha. OC: 0.52%.

Coimbatore

The experiment was conducted under irrigated ecosystem at Coimbatore. The results of multitier intercropping system revealed that seed cotton yield was significantly influenced by the intercropping treatments. Amongst the system, paired row planting of Bt cotton with two rows of cluster bean (T2) registered significantly the highest seed cotton yield (2090 kg/ha) However, the system was on par with planting of sole Bt cotton (T1, 1859 kg/ha), Paired row planting of Bt cotton with two rows of intercrop (coriander) (T4, 1974 kg/ha), Paired row planting of Bt cotton with intercropping of one rows of cluster bean, beet root and coriander (T8, 1850 kg/ha). The highest seed cotton equivalent yield (3652 kg/ha), relative production efficiency (96.4%) and gross return(Rs. 1,97,203 /ha) were registered with paired row planting of Bt cotton with intercropping of one rows of cluster bean, beet root and coriander (T8). The multitier inter cropping of paired row planting of Bt cotton with two rows of cluster bean (T2) calculated with the highest relative economic efficiency (334.8 %) , net return(Rs. 1,23,494/ha) and benefit cost ratio(2.68). The system (T2)registered higher net return of 82.3 and 130 per cent respectively as compared to farmers practice (cowpea intercropping) (T9) and recommended intercropping (black gram).

Table 68. Seed Cotton yield (kg/ha), intercrop yield, Seed cotton equivalent yield(kg/ha)and economics as influenced by multitier cropping system

Treatments	Seed cotton Yield (kg/ha)	Intercrop yield (kg/ha)	Seed cotton equivalent yield(kg/ha)	Relative production efficiency (RPE%)	Relative Economic efficiency(REE%)	Land equivalent ratio	Gross return (Rs. /ha)	Net Return (Rs. /ha)	BCR
T_1. Sole Bt cotton	1859	0	1859	0.0	0.0	1.00	100391	28391	1.39
T_2.Paired row planting of Bt cotton with two rows of intercrop (Cluster bean)	2090	2400	3645	96.1	334.8	1.62	196834	123434	2.68
T_3.Paired row planting of Bt cotton with two rows of intercrop (Beetroot)	1702	2000	2998	61.3	209.5	1.04	161907	87857	2.19
T_4.Paired row planting of Bt cotton with two rows of intercrop (Coriander)	1974	325	2456	32.1	109.5	1.87	132612	59472	1.81
T_5.Paired row planting of Bt cotton with one rows (Cluster bean) +one row (Beetroot)	1650	1680+1100	3516	89.1	309.2	1.31	189879	116169	2.58
T_6Paired row planting of Bt cotton with one rows (Beetroot) +one row (Coriander)	1801	1200+138	2846	53.1	183.9	1.49	153680	80606	2.10
T_7Paired row planting of Bt cotton with one rows (Coriander) +one row (Cluster bean)	1697	1610+180	3052	64.2	220.7	1.71	164824	91060	2.23
T_8Paired row planting of Bt cotton with one rows (Cluster bean) +one row (Beetroot) +one row (Coriander))	1850	1563+900+ 140	3652	96.4	333.0	1.72	197203	122929	2.66
T_9.Farmers practice (Cowpea)	1881	560	2607	40.2	138.5	1.45	140775	67725	1.93
T_{10}.Recommended intercropping (Black gram)	1754	400	2347	26.2	89.1	1.44	126735	53685	1.73
SEd	122.3								
CD (5%)	256.9								

Environment: Irrigated, Soil pH: OC: 0.54%, Available N: 224 kg/ha ,P_2O_5: 28 kg/ha, K_2O:730 kg/ha, Total rainfall: 360 mm

Chamrajnagar

The data of multitier intercropping system trial revealed that significant reduction of seed cotton yield by multitier intercropping systems as compared to sole Bt cotton(T1, 1962 kg/ha) . However, seed cotton yield among the intercropping systems were found to be on par with each other. Seed cotton equivalent yield (3394 kg/ha) , gross return (Rs. 1,52,.742/ha) , net return (Rs. 87,727/ha) and benefit cost ratio (2.35) were significantly highest in farmers practice (cluster bean intercropping (T9). The same intercropping system (T9) recorded significantly highest relative production efficiency (72.8%), relative economic efficiency (91.7%) and land equivalent ratio (1.34). also. Similarly, the weed smothering efficiency was maximum in cotton + cluster bean intercropping system (T9, 59.0 %) and the lowest was recorded in paired row cotton intercropped with sesame (T4, 24.6 %)(Table 69).The diversity index was maximum in cotton + groundnut intercropping system (T10, 1.78). The nutrient uptake estimated was significantly highest with Bt cotton with cluster bean intercropping system (T9) with 158.7, 44.2 and 92.9 kg NPK/ha, respectively. While the nutrients available in post harvest soil of different systems were varied significantly except for soil available P.

Table 69. Seed Cotton yield (kg/ha), intercrop yield, Seed cotton equivalent yield (kg/ha) and economics as influenced by multitier cropping system

Treatments	Seed cotton Yield (kg/ha)	Intercrop yield (kg/ha)	Seed cotton equivalent yield(kg/ha)	Relative production efficiency(RPE %)	Relative Economic efficiency(REE%)	Land equivalent ratio	Diver sification index	Gross return (Rs. /ha)	Net Return (Rs. /ha)	BCR
T_1. Sole Bt cotton	1962		1962	-	-	1.00	1.00	88300	45660	2.07
T_2.Paired row planting of Bt cotton with two rows of green gram	1683	345	2322	18.4	30.2	1.21	1.40	104473	59308	2.31
T_3.Paired row planting of Bt cotton with two rows of black gram	1678	332	2308	17.7	27.9	1.21	1.39	103855	58315	2.28
T_4.Paired row planting of Bt cotton with two rows of sesame	1522	112	2114	7.8	14.8	1.01	1.29	95131	52381	2.23
T_5.Paired row planting of Bt cotton with one row of each green gram and black gram	1603	168+158	2139	9.0	12.8	1.20	1.40	96253	51463	2.15
T_6 Paired row planting of Bt cotton with one row of each black gram and sesame	1522	148+94	2106	7.4	12.7	1.16	1.32	94791	51441	2.19
T_7 Paired row planting of Bt cotton with one row of each green gram and sesame	1578	172+104	2122	8.2	13.9	1.21	1.35	95510	51960	2.19
T_8 Paired row planting of Bt cotton with one row of each green gram, black gram and Sesame	1509	120+166+73	2083	6.2	7.1	1.21	1.39	93743	48893	2.09
T_9. Farmers practice (cotton + cluster bean)	1653	5728	3394	72.8	91.7	1.34	1.50	152742	87727	2.35
T_{10}.Recommended intercropping (cotton+ groundnut)	1615	768	2464	25.6	39.7	1.29	1.78	110881	63716	2.35
SEd	99.96		82.12	4.05	6.64	0.07	0.06	3695.48	3148.3	0.04
CD (5%)	210		172.5	8.58	14.08	0.14	0.12	9450.2	6614.3	0.09

Soil : Medium black soils, clay loam, pH :8.02, Available Nutrients(kg/ha) N : 223.4 (kg/ha), P_2O_5 : 20.8 (kg/ha), K_2O : 276.3 (kg/ha), O.C.(g kg $^{-1}$) : 0.25Fertilizer dose followed:150: 75: 75 kg NPK/ha (Base crop RDF), Environment: Rainfed & Rainfall received during cropping periods

Nandyal

The excess rainfall of more than 75 per cent during the cropping periods affected all intercrops and performed poorly. However, seed cotton yield was significantly influenced by different intercropping systems. Higher seed cotton yield (1262 kg ha^{-1}) was recorded with sole Bt cotton (T1), which was comparable with Farmers practice.T_9 (1140 kg/ha). Significantly lowest seed cotton yield was recorded with Recommended intercropping (1: 3 ratio of cotton + green gram)T_{10} (635 kg/ha)(Table 70). The significantly highest seed cotton equivalent yield (1262 kg ha^{-1}) was recorded with sole Bt cotton (T1), which was comparable with T3 (1242 kg/ha), T7 (1196 kg/ha) T4 (1158 kg/ha) and T9 (1140 kg/ha).Significantly lowest seed cotton equivalent yield (777 kg ha^{-1}) was recorded with T_{10}.Higher Weed count (no/m2) at 20 and 45 DAS was recorded with T9- farmers practice(15.47 and 17.8 m^2 respectively). Higher Weed smothering efficiency was noticed with Paired row planting of Bt cotton with one row foxtail millet + one row green gram+ one row red gram T8 (55.1 %) . The significantly highestgross return (Rs. 63117/ha) and net return(Rs. 14994/ha) were recorded with sole Bt cotton (T1). Highest B: C ratio was recorded with Paired row planting of Bt cotton with two rows of foxtail millet (T4)(1.4).

Table 70. Seed cotton yield (kg/ha), seed cotton equivalent yield (kg/ha) and economics as influenced by intercropping systems

Treatments	Seed Cotton Yield (kg/ha)	Seed Cotton equivalent Yield(kg/ha)	Relative production efficiency(RPE %)	Relative economic efficiency (REE%)	Weed smothering efficiency (%)	Gross Return (Rs. /ha)	Net Return (Rs. /ha)	B: C ratio
T1: Sole Bt cotton	1262	1262	0	0.0	0	63117	14994	1.3
T2: Paired row planting of Bt cotton with two rows of green gram	840	990	-21.6	-53.1	49.6	42008	7035	1.2
T3: Paired row planting of Bt cotton with two rows of red gram	959	1242	-1.6	-26.0	3.2	47967	11094	1.3
T4: Paired row planting of Bt cotton with two rows of foxtail millet	1038	1158	-8.2	-6.4	42.2	51914	14041	1.4
T5: Paired row planting of Bt cotton with one row green gram+ one row red gram	892	1093	-13.4	-67.3	24.6	44648	4900	1.1
T6: Paired row planting of Bt cotton with one row red gram+ one row foxtail millet	911	1035	-18.0	-70.9	16.2	45568	4370	1.1
T7: Paired row planting of Bt cotton with one row foxtail millet + one row green gram	1036	1196	-5.2	-38.7	27.9	51810	9187	1.2
T8: Paired row planting of Bt cotton with one row foxtail millet + one row green gram+ one row red gram	789	920	-27.1	-98.1	55.1	39495	289	1.0
T9: Farmers practice.	1140	1140	-9.7	-61.4	0	57000	5782	1.1
T10: Recommended intercropping(1: 3 ratio of cotton +green gram)	635	777	-38.4	-98.0	7.8	31797	297	1.0
SEd	92	93						
CD (5%)	193	195						

Soil :Deep Black Cotton soils, pH value:8.0, Available Nutrients(kg/ha): N : 128 (kg/ha), P_2O_5 : 32 kg/ha), K_2O : 341(kg/ha), O.C.(g kg^{-1}) : - 0.36, Environment: Rainfed& total amount of rainfall received during cropping periods:858 mm rainfall in 32 rainy days

LAM

The data of multitier intercropping system trial revealed that reduction of seed cotton yield by multitier intercropping systems as compared to sole Bt cotton (T1, 1192 kg/ha) . The intercrops green gram and korra were failed due to continuous rains recorded during September and October. Seed cotton equivalent yield (1267 kg/ha), gross return (Rs. 66,296/ha), net return (Rs. 13,976/ha) and benefit cost ratio (1.27) were higher with T3: Paired row Bt cotton+ 2 rows of Red gram (RG) (Table 70 A). The same intercropping system (T3) recorded highest relative production efficiency (6.3%), and relative economic efficiency (18.7%)

Table 70 A. Seed Cotton yield (kg/ha), intercrop yield (kg/ha), Seed cotton equivalent yield (kg/ha) and economics as influenced by multitier cropping system

Treatments	Seed cotton Yield (kg/ha)	Seed cotton equivalent yield (kg/ha)	Relative production efficiency (RPE%)	Relative Economic efficiency (%)	Weed smothering efficiency(%)	Gross return (Rs. /ha)	Net Return (Rs. /ha)	BCR
T1: Sole Bt cotton	1192	1192	0.0	0.0	0.00	63199	11779	1.23
T2: Paired row Bt cotton+ 2 rows of Greengram (GG)	942	942	-21.0	-119.8	54.25	49941	-2329	0.96
T3: Paired row Bt cotton+ 2 rows of Redgram (RG)	992	1267	6.3	18.7	35.73	66296	13976	1.27
T4: Paired row Bt cotton+ 2 rows of kora	1111	1111	-6.8	-43.4	46.59	58867	6667	1.13
T5: Paired row Bt cotton+ One row GG+One row RG	966	1172	-1.7	-14.6	52.78	62634	10064	1.19
T6: Paired row Bt cotton+ One row RG+One row Korra	986	1215	1.9	3.3	43.54	64663	12163	1.23
T7: Paired row Bt cotton+ One row Korra+One row GG	995	995	-16.5	-97.6	51.59	52735	285	1.01
T8: Paired row Bt cotton+ One row GG +One row RG+ One row Korra	850	1102	-7.6	-55.8	64.35	57599	5209	1.10
T9: Farmers' Practice	1175	1175	-1.4	-50.4	0.00	62261	5841	1.10
T10: Recommended practice (intercrops-3 rows of Greengram)	819	819	-31.3	-176.9	32.70	43416	-9054	0.83
SEd	87.27	-						
CD(0.05)	183.26	-						

Note: The other intercrops (Green gram and Korra) grown in the experiment were failed due to continuous rains recorded during September and October months, 2020 except, red gram crop.

PHYSIOLOGY and BIOCHEMISTRY

PHY 1	PGR for optimum morpho frame and enhanced yield
PHY2	Preparing for climate change - Growth and development of *arboreum c*otton in response to growth regulators
PHY 3	Moisture Stress management through use of different Osmo-protectants
BIO CHEM1	Screening of Cotton genotypes for abiotic stress tolerance and estimation of seed oil, gossypol and protein
BIO CHEM1A	Screening of Cotton genotypes for drought and salinity tolerance
BIO CHEM1B	Estimation of seed oil, gossypol and protein
BIO.CHEM.2	Bio Chem.2. Biochemical basis of tolerance/susceptible of pest and disease
BIO.CHEM.2A	Bio Chem.2 A. Evaluation of Bt hybrids for biochemical basis of susceptible/tolerance of sucking pests
BIO.CHEM.2B	Bio Chem.2B. Evaluation of Biochemical basis of resistance against CLCuD
BIO.CHEM.2C	Bio Chem.2C. Evaluation of Biochemical basis of Tobacco streak virus

PHY 1PGR for optimum morpho frame and enhanced yield

Preamble: Plant growth and development are regulated by natural plant hormones, these processes may be influenced either by altering the plant hormone level or by changing the capacity of the plant response to natural hormones. Bt cotton, the plant morphoframe doesn't develop fully due to early switch over to reproductive phase under resource constraints condition. Modification of morphoframe by agrochemicals could greatly help in dispensing away these limitations

Sirsa

The results revealed that seed cotton yield was significantly higher with Bt hybrid (3447kg/ha) as compared to hirsutum variety (2374 kg/ha), irrespective of the growth regulator applied. Among the growth regulators applied, significantly higher number of bolls (46.5), boll weight (3.15 g) and seed cotton yield (3198 kg/ha) were significantly higher with application of Ethrel @ 45 ppm at 40 DAS + Mepiquat chloride @100 ppm at 90 DAS (B3) over ethrel @ 45 ppm at 40 DAS (B1) as well as with Control (Water spray)(B4) irrespective of the cotton genotype (Table 71). The interaction effect were found non significant.

Table 71. No of bolls/plant, Boll weight (g) and Seed cotton yield (kg/ha) as influenced by genotypes and PGR application

Treatments	No of bolls/plant			Boll weight (g)			Seed cotton yield (kg/ha)		
	G1 .Bt hybrid: RCH 776 BGII	G2. Hirsutum variety: CSH-3075	Mean	G1 .Bt hybrid: RCH 776 BGII	G2. Hirsutum variety: CSH-3075	Mean	G1 .Bt hybrid: RCH 776 BGII	G2. Hirsutum variety: CSH-3075	Mean
B1. Ethrel @ 45 ppm at 40 DAS	49.8	31.4	40.6	3.42	2.16	2.79	3,353	2,224	2,788
B2. Mepiquat chloride @100 ppm at 90 DAS	54.2	33.1	43.7	3.54	2.13	2.84	3,448	2,318	2,883
B3. Ethrel @ 45 ppm at 40 DAS +Mepiquat chloride @100 ppm at 90 DAS	57.6	35.4	46.5	3.84	2.46	3.15	3,686	2,709	3,198
B4. Control (Water spray)	48.1	31.8	39.9	3.39	2.13	2.76	3,301	2,245	2,773
Mean	52.4	32.9		3.55	2.22		3,447	2,374	
ANOVA	SE d	CD (5%)		SE d	CD (5%)		SE d	CD (5%)	SE d
Gen.	1.98	9.17		0.15	0.71		129.3	599.2	129.3
GR	1.49	3.28		0.06	0.13		85.8	189.0	85.8
Gen. X GR	2.11	NS		0.09	NS		121.4	NS	121.4

Soil parameters: pH= 8.1, EC=0.22 m mhos/cm, OC (%) = 0.31, Environment: irrigated

Central Zone

Junagadh

The use of PGR for optimum morpho frame management in Bt and non Bt cotton by Ethrel and Mepiquat Chloride trial was conducted under irrigated at Junagadh. The average boll weight was found significantly higher (4.93 g) in Bt hybrid by Ethrel @45ppm at 40 DAS application as compare to control B4 (4.75 g) , whereas genotypes differences also found significant. The application of Ethrel @ 45ppm at 40 DAS in Bt hybrid was inhibit vegetative growth of plants and it divert the photosynthate towards development of reproductive organs i.e. no. of bolls and boll weight were increased altimetry biomass was reduced at harvest. The seed cotton yield (3797 kg/ha) was found significantly highest in application of Ethrel @ 45ppm at 40 DAS in Bt hybrids compared to control B4 (3359 Kg/ha) whereas non significant effect was found by application of PGR in non Bt cotton variety GN. Cot.32.The net monetary return (Rs. 1,06,237/ha) was found significantly highest in application of Ethrel @ 45ppm at 40 DAS in Bt hybrid as compared to control B4 (**Rs.** . 89,759/ha) (Table 72). The B:C ratio(2.21) was found significantly highest in application of Ethrel @ 45ppm at 40 DAS in Bt hybrid as compared to control B4 (2.09)

Table 72. Seed cotton yield (kg/ha) , gross Return(Rs. /ha) , net return(Rs. /ha) and benefit Cost ratio as influenced by genotypes and PGR application

Treatments	Seed cotton yield (kg/ha)			Gross Return(Rs. /ha)			Net Return(Rs. /ha)			B:C ratio		
	Bt hybrid (First Class BGII)	Variety(GN. Cot. 32)	Mean	Bt hybrid (First Class BGII)	Variety (GN.Cot. 32)	Mean	Bt hybrid (First Class BGII)	Variety (GN.Cot. 32)	Mean	Bt hybrid (First Class BGII)	Variety (GN.Cot . 32)	Mean
B1. Ethrel @ 45 ppm at 40 DAS	3797	2540	3169	193319	130785	162052	106237	56906	81572	2.21	1.77	1.99
B2. Mepiquat chloride @100 ppm at 90 DAS	3270	2113	2692	166933	109137	138035	83857	38216	61036	2.01	1.54	1.77
B3. Ethrel @ 45 ppm at 40 DAS +Mepiquat chloride @100 ppm at 90 DAS	2996	2231	2614	152987	114961	133974	71954	41960	56957	1.89	1.57	1.73
B4. Control (Water spray)	3359	2495	2927	171667	128697	150182	89759	55864	72812	2.09	1.77	1.93
Mean	3356	2345		171227	120895		87952	48237		2.05	1.66	
ANOVA	S.Em.±	CD (5%)		S.Em.±	CD (5%)			S.Em.±	CD (5%)		S.Em.±	CD (5%)
Gen.	91.14	276.5		957	2903			2886	8753		0.03	0.1
GR	128.89	391		1353.4	NS			4081	12379		0.04	0.13
Gen.XGR	182.28	NS		1914	NS			5771	NS		0.06	NS

Soil type: Medium Black, pH value 7.80, EC ds/m= 0.58, Available Nutrients (kg/ha) N:312 (kg/ha) , P_2O_5:69.76 (kg/ha) and K_2O: 292 (kg/ha) Environment: irrigated

Khandwa

The morpho frame management experiment conducted in Bt and non Bt cotton by using ethrel and mepiquat chloride under rainfed condition at Khandwa revealed that boll weight (g) was increased significantly by application of ethrel @45 ppm at 40 DAS followed by mepiquat chloride @ 100 ppm at 90 DAS (B3) (4.25 g) as compared to Control- water spray(B4) (3.61 g). The genotypes, PGR as well as interactions were found significant effect on seed cotton yield. Foliar application ethrel @ 45 ppm at 40 DAS followed by mepiquat chloride @ 100 ppm at 90 DAS registered the highest seed cotton yield (1680 kg/ha), gross return (Rs. 92,400/ha), net return (Rs. 34,490/ha) and benefit cost ratio (1.59) (Table 73). The interaction effect found that higher seed cotton yield (1810 kg/ha) gross return (Rs. 99, 550/ha), net return (Rs. 41,130/ha) and benefit cost ratio (1.70) significantly with RASI 659 BG II with ethrel @ 45 ppm at 40 DAS followed by mepiquat chloride @ 100 ppm at 90 DAS.

Table 73. Seed cotton yield (kg/ha) , gross Return(Rs. /ha) , net return(Rs. /ha) and benefit Cost ratio as influenced by genotypes and PGR application

Treatments	Seed cotton yield (kg/ha)			Gross Return(Rs. /ha)			Net Return(Rs. /ha)			B:C ratio		
	G1. Rassi 659	G2. Suraj	Mean	Bt hybrid (First Class BGII)	Variety (GN.Cot. 32)	Mean	Bt hybrid (First Class BGII)	Variety (GN.Cot . 32)	Mean	Bt hybrid (First Class BGII)	Variety (GN.Cot . 32)	Mean
B1. Ethrel @ 45 ppm at 40 DAS	1510	1240	1375	83050	68200	75625	25230	11600	18415	1.43	1.2	1.315
B2. Mepiquat chloride @100 ppm at 90 DAS	1720	1420	1570	94600	78100	86350	37490	22200	29845	1.65	1.39	1.52
B3. Ethrel @ 45 ppm at 40 DAS +Mepiquat chloride @100 ppm at 90 DAS	1810	1550	1680	99550	85250	92400	41130	27850	34490	1.7	1.48	1.59
B4. Control (Water spray)	1420	1220	1320	78100	67100	72600	21600	11600	16600	1.38	1.2	1.29
Mean	1615	1357		88825	74663	81743.8	31363	18313	24837.5	1.54	1.3175	1.42875
ANOVA	S.Em.±	CD (5%)										
Gen.	9.33	20.01										
GR	6.59	14.15										
Gen.XGR	13.19	28.30										

Soil type : Black, medium & loam, pH value:8.1,Available Nutrient status (kg/ha):N: Low, P_2O_5 : Medium, K_2O : Medium, Recommended level of fertiliser:100 : 50 : 50 kg NPK/ha, Environment: Rainfed

Surat

The plant growth regulator study conducted with objective to physiological manipulation of morphoframe, growth and development of cotton at Surat under irrigated condition revealed that Boll weight , number of sympodia, seed cotton yield (kg/ha), gross return (Rs. /ha), net return (Rs. /ha) and benefit cost ratio were non significantly influenced application of PGRs and interaction effect was also found non significant. However, between genotypes, V1.G.CotHy 12 BG II registered significantly higher seed cotton yield (2330 kg/ha) , gross return (Rs. 1,28,359/ha), net return (Rs. 77,857/ha) and benefit cost ratio (2.54) (Table 74).

Table 74. Seed cotton yield (kg/ha), gross Return(Rs. /ha), net return(Rs. /ha) and benefit Cost ratio as influenced by genotypes and PGR application

Treatments	Seed cotton yield (kg/ha)			Gross Return(Rs. /ha)			Net Return(Rs. /ha)			B:C ratio		
	V1.G.Cot Hy 12 BG II	V2. GN Cot 32	Mean	V1.G.Cot Hy 12 BG II	V2. GN Cot 32	Mean	V1.G.Cot Hy 12 BG II	V2. GN Cot 32	Mean	V1.G.Cot Hy 12 BG II	V2. GN Cot 32	Mean
B1. Ethrel @ 45 ppm at 40 DAS	2401	1052	1726	132046	57859	**94953**	81784	19291	**50538**	2.63	1.50	2.14
B2. Mepiquat chloride @100 ppm at 90 DAS	2184	789	1486	120104	45754	**82929**	69895	7255	**38575**	2.39	1.19	1.87
B3. Ethrel @ 45 ppm at 40 DAS +Mepiquat chloride @100 ppm at 90 DAS	2421	906	1663	133146	49822	**91484**	81343	10545	**45944**	2.57	1.27	2.01
B4. Control (Water spray)	2330	833	1582	128142	45835	**86988**	78405	8531	**43468**	2.58	1.23	2.00
Mean	2334	895		**128359**	**49818**		**77857**	**11405**		2.54	1.30	
ANOVA	S.Em.±	CD (5%)		S.Em.±	CD (5%)			S.Em.±	CD (5%)		S.Em.±	CD (5%)
Gen.	101.1	216.9		5435.1	11657.2			4943	10601.8		0.07	0.15
GR	143.0	NS		7686.4	N.S.			6590.5	N.S.		0.10	N.S.
Gen.XGR	202.3	NS		10870	N.S.			9880	N.S.		0.14	N.S.

Soil: pH-7.35 , EC-.0.88dS/m, Avail.N-420 kg/ha, Avail P_2O_5-28.54kg/ha, Avail K_2O-451kg/ha, Total rainfall-1937mm, Rainy days-70 Environment: Irrigated

Dharwad

The plant growth regulator study conducted with objective to physiological manipulation of morphoframe, growth and development of cotton at Dharwad under rainfed condition revealed that that total reproductive bolls per plant(33.4), Boll weight (5.23 g) and seed cotton yield (1182 kg/ha) were significantly higher in combined spray of ethrel @ 45 ppm at 40 DASand mepiquat chloride spray at 90 DAS (B3) in Bt hybrid followed by mepiquat chloride spray at 90 DAS (B2) and least one was noticed in control(B4) . The interaction effect was found significant and the highest number of bolls per plant (36.5) , boll weight(5.2 g) and seed cotton yield (1373 kg/ha) were recorded high in Ajeet- 199 Bt with ethrel plus mepiquat chloride spray (B3)(Table 75) . Among the bio-stimulants, combined spray of Ethrel and mepiquat spray at 40 days and 90 days respectively recorded higher in all physiological parameters followed by mepiquat spray alone at 90 days spray compare to water spray. Between Bt hybrids and hirsutum variety cotton, Bt hybrid Ajeet-199 shows higher response than hirsutum variety Sahana in all parameters.

Table 75. Seed cotton yield (kg/ha), gross Return(Rs. /ha), net return(Rs. /ha) and benefit Cost ratio as influenced by genotypes and PGR application

Treatments	Boll weight (g)			No of Bolls/plant			Seed cotton yield(kg/ha)		
	G1 : Bt hybrid (Ajeet 199	G2 : Hirsutum variety (Sahana)	Mean	G1 : Bt hybrid (Ajeet 199	G2 : Hirsutum variety (Sahana)	Mean	G1 : Bt hybrid (Ajeet 199	G2 : Hirsutum variety (Sahana)	Mean
B1. Ethrel @ 45 ppm at 40 DAS	5.0	4.0	4.5	34.0	27.6	30.8	1202	968	1085
B2. Mepiquat chloride @100 ppm at 90 DAS	5.0	4.1	4.5	34.3	28.0	31.2	1285	977	1131
B3. Ethrel @ 45 ppm at 40 DAS+Mepiquat chloride @100 ppm at 90 DAS	5.2	4.5	4.9	36.5	30.2	33.4	1373	990	1182
B4. Control (Water spray)	4.3	3.8	4.0	31.5	26.1	28.8	1106	781	944
Mean	4.9	4.1	4.5	34.1	28.0	31.0	1241	929	1085
ANOVA	S Ed	CD		S Ed	CD		SEd	CD	
Gen.	0.07	0.21		0.71	2.11		3.87	11.1	
GR	0.09	0.27		1.01	3.03		4.48	13.41	
Gen.XGR	0.13	0.38		1.42	4.26		5.16	15.48	

Soil type: Medium deep black Soil, pH value-7.0-7.5, Available nutrient status (kg/ha) N : 255 kg/ka,P_2O_5 : 34 kg/ha, K_2O: 514 kg/ha, O.C.(g kg $^{-1}$) : 0.55 %, Recommended Fertilizer:100:50:50 kg NPK/ha for Bt hybrids, 80:40:40 kg NPK/ha for varieties, Environment : Rainfed , Total rainfall received was993.8 mm as against the average rainfall of 644.1mm

LAM

The morpho frame management experiment conducted in Bt and non Bt cotton by using ethrel and mepiquat chloride under rainfed condition at LAM revealed that boll weight (g) was increased significantly by application of B2. Mepiquat chloride @100 ppm at 90 DAS(B2) (3.4 g) as compared to Control- water spray(B4) (3.1 g). The genotypes, PGR as well as interactions were found non significant effect on single plant yield and seed cotton yield. However, Foliar application ethrel @ 45 ppm at 40 DAS followed by mepiquat chloride @ 100 ppm at 90 DAS registered the numerically highest seed cotton yield (1680 kg/ha)(Table 75 A).

Table 75A Seed cotton yield (kg/ha), gross Return(Rs. /ha), net return(Rs. /ha) and benefit Cost ratio of Genotypes as influenced by PGR application

Treatments	Boll weight (g)			Single plant yield (g)			Seed cotton yield (kg/ha)		
	G1. Jadoo BG II	G2. NDLH 1938	Mean	G1. Jadoo BG II	G2. NDLH 1938	Mean	G1. Jadoo BG II	G2. NDLH 1938	Mean
B1. Ethrel @ 45 ppm at 40 DAS	2.8	2.8	2.8	103.9	123.4	113.7	1499	1676	1587
B2. Mepiquat chloride @100 ppm at 90 DAS	4.0	2.8	3.4	130.1	66.3	98.2	1839	886	1362
B3. Ethrel @ 45 ppm at 40 DAS +Mepiquat chloride @100 ppm at 90 DAS	2.7	3.1	2.9	113.6	127.3	120.5	1682	1822	1752
B4. Control (Water spray)	3.4	2.8	3.1	134.5	102.4	118.5	1940	1436	1688
Mean	3.2	2.9	3.1	120.5	104.9	112.7	1740	1455	1597
ANOVA	SEd	CD (5%)		SEd	CD (5%)		SEd	CD (5%)	
Gen.	0.08	0.16		11.02	NS		197.1	NS	
GR	0.23	0.23		15.58	NS		278.8	NS	
Gen.XGR	0.32	0.32		22.03	NS		394.2	NS	

Soil type: Black Cotton Soil, Clay loam, O.C. (%) : 0.3, Available Nutrient status (kg/ha) N : 212 kg ha^{-1}, P_2O_5 : 48 kg ha^{-1}, K_2O: 890 kg ha^{-1}

PHY 2. Preparing for Climate Change: Effect of environment on crop phenology development & yield.

Preamble: Desi cotton is known for tolerance of abiotic stress. However, the land races are known for photo and thermo sensitive characters. Delay sowing observed excessive vegetative growth with less or no flowering. However erratic onset of monsoon is not uncommon byclimate change. Hence the experiment is proposed to induce flowering by spraying PGRs in desi cotton under delay sowing situation

Surat

The experimental results revealed that number of bolls per square meter and boll weight (g)were non significantly differed for the growth regulator however the number of bolls per square meter, and plant yield (g) were significantly differed by times of sowing. Delayed sowing showed significant reduction in number of bolls, boll weight and plant yield..The seed cotton yield (kg/ha) was significantly affected due to time of sowing only. D2+20 days delay sowing was showed significantly least seed cotton yield (368.7 kg/ha) than Normal sowing (633.6 kg/ha) and D1+20 days delay(528.0 kg/ha) (Table 76). Days required for 50% squaring, first flowering and 50% flowering was significantly reduced by normal sowing . The results add that number of flowers produced at 50% flowering were varied by sowing date and PGRs application and their interaction effect. The delay sowing D1+20 days produced significantly highest number of flowers(75.7/plant) which was followed by D2+20 days (55.7/plant) and normal sowing (50.1/plant) recorded least one. However, the enhanced effect on flowering is not reflected in seed cotton yield may be due to shedding of flowers in delay sowing treatments.

Table 76. No. of flowers at 50 % flowering and Seed cotton yield (kg/ha) as influenced by delay sowing and PGRs application

Treatments	No. of flowers at 50 % flowering				Seed cotton yield (kg/ha)			
	D1. Normal sowing	D2. D1+20 days delay	D3. D2+20 days delay	Mean	D1. Normal sowing	D2. D1+20 days delay	D3. D2+20 days delay	Mean
G1.Control	66.0	73.3	57.7	**65.67**	760.1	517.6	472.6	**583.5**
G2.Mepiquat Chloride @ 20 g a.i. / ha at 45 &60 DAS	65.7	85.3	60.3	**70.44**	578.8	572.4	290.5	**480.6**
G3.Salicylic Acid @ 0.5 mM at 45 &60 DAS	37.3	48.7	61.7	**49.22**	693.6	574.7	299.5	**522.6**
G4.1-Methyl cyclo propene @10g ai /ha at 45 &60 DAS	36.0	71.7	45.3	**51.00**	658.6	521.4	313.0	**497.7**
G5.2,3,5, Tri iodo benzoic acid (TIBA) @ 100 ppm at 45 &60 DAS	38.7	80.0	45.0	**54.56**	517.3	597.1	276.6	**463.7**
G6.Triacontanol @0.1 mg/l at 45 &60 DAS	57.0	95.3	64.0	**72.11**	593.3	384.8	368.7	**448.9**
Mean	**50.1**	**75.7**	**55.7**		**633.6**	**528.0**	**336.8**	
ANOVA	**GR**	**D**	**GR x D**		**GR**	**D**	**GR x D**	
SE d	1.54	1.52	2.67		25.5	48.92	44.17	
CD (5%)	3.16	4.22	6.01		52.1	135	109.1	

Note: pH-7.42 , EC-.0.85dS/m, Avail.N-440 kg/ha, Avail P-30 kg/ha, Avail K-387.3 kg/ha, Total rainfall-1937mm, Rainy days-70

Junagadh

The results exposed that significantly highest seed cotton yield (1587 kg/ha) of arboreum was produced by timely sown crop (D_1=21st July) as compare to 20 days late (D2=1st July) and 40 days late (D_3=31st July) sown crop. In response to growth regulators treatments, Salicylic Acid @ 0.5 mM at 45 & 60 DAS (G3) produced significantly highest yield (1225 kg/ha) and it was at par with Triacontanol @0.1 mg/l at 45 &60 DAS (G_6) (1207 kg/ha) as compared to other PGR treatments and control (Table 77). The results further add that number of flowers produced at 50% flowering were not varied by sowing date and PGRs application and their interaction effect. The enhanced effect on flowering is not reflected in seed cotton yield may be due to shedding of flowers in delay sowing treatments.

Table 77. No. of flowers at 50 % flowering and Seed cotton yield (kg/ha) as influenced by delay sowing and PGRs application

Treatments	No. of flowers at 50 % flowering				Seed cotton yield (kg/ha)			
	D1. Normal sowing	D2. D1+20 days delay	D3. D2+20 days delay	Mean	D1. Normal sowing	D2. D1+20 days delay	D3. D2+20 days delay	Mean
G1.Control	70.33	78.33	70.00	**72.89**	1545	1028	799	**1124**
G2.Mepiquat Chloride @ 20 g a.i. / ha at 45 &60 DAS	65.67	72.67	71.00	**69.78**	1450	967	781	**1066**
G3.Salicylic Acid @ 0.5 mM at 45 &60 DAS	65.67	73.00	64.00	**67.56**	1715	1164	797	**1225**
G4.1-Methyl cyclo propene @10g ai /ha at 45 &60 DAS	61.67	73.67	61.67	**65.67**	1614	989	604	**1069**
G5.2,3,5, Tri iodo benzoic acid (TIBA) @ 100 ppm at 45 &60 DAS	55.67	74.67	69.33	**66.56**	1526	915	698	**1046**
G6.Triacontanol @0.1 mg/l at 45 &60 DAS	71.00	73.67	70.33	**71.67**	1674	1102	846	**1207**
ANOVA	**GR**	**D**	**GRxD**		**GR**	**D**	**GRxD**	
SE d	1.80	1.84	3.12		47.68	28.13	82.59	
CD (5%)	NS	NS	NS		137.69	110.42	NS	

Soil type: Medium Black, pH value 7.80, EC ds/m= 0.58, Available Nutrients (kg/ha) N:312 (kg/ha) , P_2O_5:69.76 (kg/ha) and K_2O: 292 (kg/ha) Environment: irrigated

Khandwa

The experimental results revealed that the date of sowing and growth regulators had significant effect on boll weight. The maximum boll weight (3.14 g) was observed significantly with the normal date of sowing (D1) which was closely followed by D2. The higher boll weight (3.53 g) was found significantly with Salicylic Acid @ 0.5 mM at 45 &60 DAS (G3).The interaction effect found that the maximum (4.0 g) boll weight was obtained significantly with the interaction D1G3.The maximum seed cotton yield (1422 kg/ha) was produced significantly with normal date of sowing (D1) as compare to the other date of sowing D2 and D3. Application of Salicylic Acid @ 0.5 mM at 45 &60 DAS produced significantly highest seed cotton yield(1261 kg/ha) (Table 78). The interaction effect between date of sowing and growth regulators was also found significant in respect of seed cotton yield. The maximum seed cotton yield (1495 kg/ha) were found significantly with the interaction D1G3 as compare to the rest of the interactions. The date of sowing was not found significant in respect of no. of flowers at flowering. The growth regulators was found significantly in respect of no. of flowers at 50% flowering. The maximum no. of flowers at 50% flowering (39.0/plant) was observed significantly in Salicylic Acid @ 0.5 mM at 45 &60 DAS (G3); Which reflected in seed cotton also.

Table 78. No. of flowers at 50 % flowering and Seed cotton yield (kg/ha) as influenced by delay sowing and PGRs application

Treatments	No. of flowers at 50 % flowering				Seed cotton yield (kg/ha)			
	D1. Normal sowing	D2. D1+20 days delay	D3. D2+20 days delay	Mean	D1. Normal sowing	D2. D1+20 days delay	D3. D2+20 days delay	Mean
G1.Control	35	35	34	34.7	1375	1209	920	1168
G2.Mepiquat Chloride @ 20 g a.i. / ha at 45 &60 DAS	38	37	36	37.0	1420	1213	972	1202
G3.Salicylic Acid @ 0.5 mM at 45 &60 DAS	40	38	39	39.0	1495	1272	1015	1261
G4.1-Methyl cyclo propene @10g ai /ha at 45 &60 DAS	37	40	37	38.0	1400	1200	950	1183
G5.2,3,5, Tri iodo benzoic acid (TIBA) @ 100 ppm at 45 &60 DAS	36	36	35	35.7	1395	1235	930	1187
G6.Triacontanol @0.1 mg/l at 45 &60 DAS	35	37	38	36.7	1450	1220	995	1222
Mean	36.83	37.16	36.50		1422.50	1224.83	963.66	
ANOVA	DOS	GR	DOS x GR		DOS	GR	DOS x GR	
SE d	0.62	0.88	1.54		3.83	5.42	9.39	
CD (5%)	NS	1.81	NS		7.79	11.01	19.08	

Soil type: Black, medium & loam, pH value: 8.1, Soil fertility status before start of expt. (available kg ha^{-1})N : Low, P_2O_5: Medium, K_2O : Medium, Environment : rainfefd

Dharwad

The results revealed that significant difference for number of bolls per square meter, bolls weight (g) and seed cotton yield (kg/ha) were recorded with different sowing dates. PGRs and their interactions. Among, salicylic Acid @ 0.5 mM at 45 &60 DAS (G3) recorded significantly more number of bolls per square meter (160.20) followed byG6.Triacontanol @0.1 mg/l at 45 &60 DAS (155.90) and the least was recorded by control (81.50). Single plant yield was high in normal date of sowing D1(68.50 g) than in late sown D2 (60.50 g) and D3 (57.59 g). Days to squaring, days to flowering and days to boll bursting were early in normal date of sowing compare to D2 and D3.Seed cotton yield kg/ha showed significantly higher in D1 (1174 kg/ha) and Salicylic Acid @ 0.5 mM at 45 &60 DAS (G3) (1054 kg/ha) and their interaction effect D1G3(1241 kg/ha) (Table 79). The results on number of flowers at 50 % flowering found significant with salicylic Acid @ 0.5 mM at 45 &60 DAS (G3 19.0/plant)

Table 79. No. of flowers at 50 % flowering and Seed cotton yield (kg/ha) as influenced by delay sowing and PGRs application

Treatments	No. of flowers at 50 % flowering				Seed cotton yield (kg/ha)			
	D1. Normal sowing	D2. D1+20 days delay	D3. D2+20 days delay	Mean	D1. Normal sowing	D2. D1+20 days delay	D3. D2+20 days delay	Mean
G1.Control	13.5	10.0	8.5	10.7	1130	961	655	915
G2.Mepiquat Chloride @ 20 g a.i. / ha at 45 &60 DAS	18.0	12.0	11.3	13.8	1176	952	701	943
G3.Salicylic Acid @ 0.5 mM at 45 &60 DAS	21.6	18.5	16.8	19.0	1241	1131	790	1054
G4.1-Methyl cyclo propene @10g ai /ha at 45 &60 DAS	16.8	14.5	11.5	14.3	1152	962	686	933
G5.2,3,5, Tri iodo benzoic acid (TIBA) @ 100 ppm at 45 &60 DAS	15.6	12.5	10.5	12.9	1140	991	661	931
G6.Triacontanol @0.1 mg/l at 45 &60 DAS	19.7	17.0	14.5	17.1	1206	1000	710	972
Mean	17.5	14.1	12.2	10.7	1174	999	700	
ANOVA	**GR**	**D**	**GR x D**		**GR**	**D**	**GR x D**	
SE d	0.81	0.90	1.01		9.16	11.01	10.14	
CD (5%)	2.41	2.61	3.03		27.10	32.17	30.41	

Soil type: Medium deep black soil, pH value:7-7.5, Soil fertility status (available kg ha^{-1}) N : 250 kg/ka, P_2O_5 : 33 kg/ha, K_2O: 510 kg/ha, O.C.(g kg^{-1}) : 0.55 % Recommended nutrients: 80:40:40 kg NPK/ha, Environment: rainfed Total rainfall received was 993.8 mm as against the average rainfall of 644.1mm

LAM

The results revealed that significant difference of seed cotton yield (kg/ha) were recorded with different sowing dates. Normal sowing registered significantly highest seed cotton yield (1554kg/ha) PGRs and their interactions were found non significant. Among, Triacontanol @0.1 mg/l at 45 &60 DAS recorded numerically higher seed cotton yield (1759 kg/ha)(Table 79 A).

Table 79 A . Boll weight (g) and Seed cotton yield (kg/ha) as influenced by growth regulators and times of sowing.

Treatments		Boll weight (g)				Seed Cotton yield (kg/ha)			
		D1.Normal sowing	D2.D1+20 days delay	D3.D2+20 days delay	Mean	D1.Normal sowing	D2.D1+20 days delay	D3.D2+20 days delay	Mean
G_1	Control	2.3	2.7	2.8	2.6	1228	938	537	1228
G_2	Mepiquat Chloride @ 20 g a.i. / ha at 45 &60DAS	2.0	2.5	2.5	2.4	1543	870	630	1543
G_3	Salicylic Acid @ 0.5 mM at 45 &60 DAS	2.8	2.1	2.4	2.5	1432	710	552	1432
G_4	1-Methyl cyclo propene @10g ai /ha at 45 & 60 DAS	2.3	2.4	2.4	2.4	1728	980	553	1728
G_5	2,3,5, Tri iodo benzoic acid (TIBA) @ 100 ppm at 45 &60 DAS	2.6	2.2	2.4	2.4	1636	981	600	1636
G_6	Triacontanol @0.1 mg/l at 45 &60 DAS	2.3	2.3	2.5	2.4	1759	843	556	1759
Mean		2.4	2.4	2.5	2.5	1554	887	571	1554
ANOVA			GR	D	GRxD		GR	D	GR x D
SE d			0.1	0.1	0.2		126	89	219
CD (5%)			NS	NS	NS		NS	182	NS

Soil type:Black Cotton Soil, Clay loam, pH value:7.8, Soil fertility status(kg/ha) N : 212 kg $ha^{-1,}$ P_2O_5 : 48 kg $ha^{-1,}$ K_2O : 890 kg $ha^{-1,}$ O.C. (g/kg) : 3.0 Spacing followed:60 x 30 cm &Environment: Rainfed

PHY 3 Stress management through use of different Osmo-protectants (irrigated trial)

Deficit irrigation

The crop which received no water after first irrigation exhibited the least values for various growth, yield attributes and seed cotton yield as compared to normal irrigated crop. The conventional irrigation without imposing stress registered significantly higher seed cotton yield at Faridkot (3237 kg/ha), Bathinda (2924 kg/ha), Sirsa (1923 kg/ha)Sriganganagar(3841kg/ha) and Surat (2197 kg/ha) (Table 80).The result on moisture stress management strategies revealed that under normal irrigation without moisture stress found that application of 2% KNO3 - four sprays registered the significantly highest seed cotton yield at Faridkot(3670 kg/ha), Bathinda (3747 kg/ha), Sriganganagar (4154 kg/ha) and Sirsa (3764 kg/ha). Even though no moisture stress imposed; however the crop responded significantly for 2% KNO3 - four sprays because of fact that KNO3 is not only

osmoprotectant, which also supply both N & K through foliar.The result on moisture stress management strategies revealed that application of salicylic acid @ 100 ppm registered the significantly mean highest seed cotton yield at Faridkot(3354 kg/ha) and Hisar (3289 kg/ha)and Glycine Betaine @100 ppm at Surat (2297 kg/ha). The moisture stress imposed by providing one supplementary irrigation at five weeks after sowing is managed successfully by the application of salicylic acid @ 100 ppm at Faridkot (2912 kg/ha), 2% KNO3 - four sprays at Bathinda (3416 kg/ha) and Sirsa (2998 kg/ha), PPFM@1 % at Hisar (3200 kg/ha) and 2% Urea – 4 spray at Surat (2526 kg/ha) (Table 80). The stress imposed by providing limited moisture supply to crop plants interacted with osmoprotectants and the significantly highest seed cotton yield was harvested with Salicylic acid @ 100 ppm at Bathinda (3125 kg/ha) and 2% KNO3 - four sprays at Sirsa(2751 kg/ha) and Glycine Betaine @100 ppm at Surat (2235 kg/ha).

Table 80. Seed cotton yield (Kg/ha) as influenced by moisture stress and osmoprotectant under deficit irrigation condition

Treatments	Control	2% Urea – 4 spray	2% KNO3 - 4 sprays	500 ppm Thio urea	Salicylic acid @50 ppm	Glycine Betaine @100 ppm	Salicylic acid @ 100 ppm	PPFM@1 %	Mean	ANOVA	CD5%
Faridkot											
1. Control (irrigation as per recommendation)	3237	3484	3670	3151	3376	3453	3459	3451	3410	Stress	95
2. Only one irrigation at 5 weeks after sowing	2256	2518	2465	2121	2782	2745	2912	2615	2551	Mgt	165
3. Two supplementary irrigation	2755	3164	3258	2580	3532	3494	3691	3167	3205	SxM	286
Mean	2749	3055	3131	2617	3229	3230	3354	3077			
Bathinda											
1. Control (irrigation as per recommendation)	2924	3570	3747	3382	3427	3551	3506	3266	3422	Stress	77.7
2. Only one irrigation at 5 weeks after sowing	2774	3246	3416	3069	3235	3224	3287	2907	3145	Mgt	143.7
3. No supplementary irrigation after sowing irrigation	2258	2612	2779	2669	2903	3115	3125	2513	2747	SxM	248.8
Mean	2652	3143	3314	3040	3188	3297	3306	2895			
Hisar											
1.No water stress / Control/	3170	2592	2963	3215	2741	2933	2608	3393	2952	Stress	NS
2.No water after first irrigation	3022	2237	2222	2474	3052	3022	3052	3200	2785	Mgt	421
3 .one supplementary irrigation	3481	2445	2726	2518	2237	2622	2844	3274	2768	SxM	NS
Mean	3225	2425	2637	2736	2777	2860	2835	3289		SxM	NS
SNGR											
1.No water stress / Control/	3841	3811	4154	3743	4179	3740	3942	3784	Stress	21.4	43.0
2.No water after first irrigation	2518	2741	3199	2798	3242	3037	3146	2682	Mgt	57.0	114.6
3One supplementary irrigation	3301	3532	3711	3553	3754	3632	3649	3510	S x M	171.11	N. S.
Mean	3220	3361	3688	3365	3725	3470	3579	3325	Stress	21.4	43.0
Sirsa											
1.No water stress / Control/	1,923	2,713	3,764	2,083	2,400	3,361	3,582	1,994	2,727	Stress	198
2.No water after first irrigation	1,752	2,261	2,998	1,861	2,058	2,526	2,840	1,821	2,265	Mgt	157
3.Limited water supply	1,209	2,125	2,751	1,733	1,845	2,368	2,585	1,502	2,015	S x M	299
Mean	1,628	2,366	3,171	1,892	2,101	2,752	3,002	1,772			
Surat											
W1.RD Irri.	2197	2192	2270	1793	2233	2354	1918	2293	2156	W	75
W2. Sowing irrigation only	2454	2526	2184	1797	2335	2304	2111	2353	2258	T	73
W3. Rainfed	2140	2147	2035	1847	1952	2235	1873	2162	2049	WxT	147
Mean	2264	2288	2163	1813	2173	2297	1967	2269	2154		

South Zone

Dharwad

The effect of osmo-protectants on cotton showed significant difference under rainfed condition . Physiological parameters like photosynthesis (32.0µmol m-2 sec-1) , chlorophyll stability index (45.0 mg/gm of fresh leaves) and proline relative water content(78.3 %), specific leaf weight (9.4 mg/cm2)showed high in 2% KNO3 - 4 sprays followed by Glycine Betaine @100 ppm and lower were observed in control (water spray treatment).Bolls per square meter was higher in 2% KNO_3 spray(T3) (143.0) followed by glycine Betaine (T6) (141.7) compare to control (113.0). The significantly highest seed cotton yield recorded with T3.Foliar application of 2 % KNO_3- 4 sprays at weekly intervals (1290 kg/ha) followed by T6.Foliar application of Glycine Betaine @100 ppm-Single spray(1180 kg/ha) compare to control (922kg/ha) (Table 81).

Table 81. Physiological parameters and seed cotton yield as influenced by moisture stress with osmoprotectant

Treatments	Photosynthesis (µmol m-2 sec-1)	Transpiration (mmol m-2 sec-1)	Chlorophyll stability mg/gm of fresh leaves	Proline content (%)	RWC (%0-	SLW(mg /cm2)	Boll per sq meter	Boll weight (g)	Seed cotton yield (kg/ha)
T1.Control (water spray)	25.6	3.5	37.3	2.6	74.2	6.9	113.0	4.18	922
T2.Foliar application of 2 % urea-4 sprays at weekly intervals	27.9	3.9	40.3	2.9	75.4	7.5	124.3	4.29	980
T3.Foliar application of 2 % KNO_3- 4 sprays at weekly intervals	32.0	5.3	45.0	3.1	78.3	9.4	143.0	4.55	1290
T4.Foliar application of 1 % Thio urea –Single spray	26.4	3.9	41.2	2.8	75.7	7.9	130.3	4.32	968
T5.Foliar application of Salicylic acid @50 ppm-Single spray	27.5	4.0	42.1	2.8	76.4	8.3	131.7	4.33	1056
T6.Foliar application of Glycine Betaine @100 ppm-Single spray	30.3	4.7	43.8	3.0	77.3	9.1	141.7	4.5	1180
T7.Foliar application of Salicylic acid @ @ 100 ppm-Single spray	29.3	4.4	42.4	2.9	76.9	9.0	141.0	4.43	1085
T8.Foliar application of PPFM@1 % -3 spray at 10 days interval	29.9	4.5	43.1	2.9	76.5	8.8	140.1	4.39	1064
SE d	0.5	1.0	0.4	0.3	0.3	0.3	0.7	0.09	13
CD (5%)	1.4	2.9	1.1	0.8	0.9	0.9	2.1	0.25	38

Soil type: Medium deep black soil, pH value:7-7.5, Soil fertility status (available kg ha^{-1}) N : 250 kg/ka, P_2O_5 : 33 kg/ha, K_2O : 510 kg/ha, O.C.(g kg^{-1}) : 0.55 % Recommended nutrients: 80:40:40 kg NPK/ha, Environment: rainfed Total rainfall received was993.8 mm as against the average rainfall of 644.1mm

LAM

The effect of osmo-protectants on cotton showed significant difference under rainfed condition. Foliar application of 2 % urea-4 sprays at weekly intervals registered significantly highest in physiological parameters like chlorophyll stability index 69.42), proline (1.77 µmoles/gm tissue), relative water content 83.14%) and specific leaf weight (8.31mg/cm2) However, seed cotton yield recorded was not varied with treatments (Table 81 A).

Table 81A . Physiological parameters and seed cotton yield as influenced by moisture stress with osmoprotectant

Treatments	Chlorophyll stability index	Proline content µmoles/gm tissue	RWC(%)	SLW(mg/cm2)	Seed cotton yield (kg/ha)
T1.Control (water spray)	61.48	1.56	72.34	7.43	730
T2.Foliar application of 2 % urea-4 sprays at weekly intervals	63.84	1.60	71.51	7.82	965
T3.Foliar application of 2 % KNO_3- 4 sprays at weekly intervals	69.42	1.77	83.14	8.31	671
T4.Foliar application of 1 % Thio urea –Single spray	66.40	1.73	70.38	7.79	1009
T5.Foliar application of Salicylic acid @50 ppm-Single spray	66.57	1.66	73.30	7.99	1323
T6.Foliar application of Glycine Betaine @100 ppm-Single spray	68.30	1.71	83.75	8.21	754
T7.Foliar application of Salicylic acid @ @ 100 ppm-Single spray	64.33	1.61	71.81	7.93	892
T8.Foliar application of PPFM@1 % -3 spray at 10 days interval	65.73	1.64	73.66	7.62	993
SE d	1.08	0.03	1.07	0.18	245
CD (5%)	2.24	0.07	2.21	0.36	NS

Soil type:Black Cotton Soil, Clay loam, pH value:7.8, Soil fertility status(kg/ha) N : 212 kg $ha^{-1,}$ P_2O_5 : 48 kg $ha^{-1,}$ K_2O : 890 kg $ha^{-1,}$ O.C. (g/kg) : 3.0 Spacing followed:60 x 30 cm &Environment: Rainfed

BIO CHEM1. Screening of Cotton genotypes for abiotic stress tolerance and estimation of for seed oil

BIO CHEM1a. Screening of Cotton genotypes for drought tolerance and estimation of for seed oil, gossypol and protein (Hisar)

Hisar

The results revealed that specific leaf weight (SLW) was increased in most of genotypes, whereas, the relative water content (RWC) was found to decrease in rainfed condition as compared to irrigated condition .The genotypes H 1529, H 1530, F 1567 and H 1098i showed maximum increase in specific leaf weight under rainfed condition as compared to irrigated control. The proline and protein content increased in most of genotypes in rainfed condition as compared to irrigated condition (Table82). The highest and lowest proline content was observed in H 1521 and F 2662 genotype under

rainfed condition, respectively. The genotypes H 1529, F 2662, H 1520, H 1569, H 1530 and H 1518 showed maximum increase in proline content under rainfed condition as compared to irrigated control.

The genotypes H 1567 and H 1569 showed highest seed cotton yield under irrigated and rainfed conditions, respectively. Seed Cotton yield under irrigated condition differ significantly from rainfed condition, however, least decrease in seed cotton yield was observed in H 1464, H 1569, H 1527, H 1528, H 1529 and H 1533. The seed biochemical quality parameter also influenced by the drought stress in cotton . The crude oil content decreased significantly under drought condition in most of the genotypes except H 1489, H 1567 and H 1530, and gossypol content found to decrease under drought condition (Table 83).The genotypes, F 2662, H 1569, H 1529, H 1530 and H 1533, and performed best because of high degree indices for CSI, SLW and proline content and very less reduction in RWC and seed cotton yield under restricted irrigation condition.

Table 82. Physiological and biochemical parameters of genotypes as influenced by moisture stress

Genotypes (B)	RWC (%)		SLW (mg/cm^2)		Protein (%)		Proline content (µmoles/g) of tissue		Seed cotton yield (kg/ha)	
	IR (A)	RF (A)	IR (A)	RF (A)	IR (A)	RF (A)	IR (A)	RF (A)	IR (A)	RF (A)
PBH 116	67.4	65.5	4.40	5.30	1.63	1.75	1.07	1.51	2,212	1,406
H 1464	83.4	75.0	4.73	5.57	2.25	2.72	1.01	1.28	2,641	2,538
H 1489	65.5	63.0	4.86	5.96	2.02	2.15	1.23	1.75	2,847	2,572
F 2662	74.4	71.7	4.91	6.05	2.06	2.22	0.55	0.92	2,212	2,024
H 1518	70.6	63.7	4.27	4.93	2.01	2.26	1.52	2.20	3,584	2,607
H 1566	72.1	68.5	4.58	5.64	2.21	2.23	1.35	1.68	3,018	2,092
H 1520	62.2	60.9	5.23	6.11	2.25	2.47	1.09	1.69	3,395	2,435
H 1521	78.1	70.1	4.95	6.08	2.15	2.49	1.95	2.33	2,864	2,504
H 1567	72.3	66.6	5.42	6.70	2.35	2.56	1.59	2.04	4,047	3,018
H 1568	63.5	62.4	5.53	5.82	2.71	2.48	1.25	1.31	3,601	3,121
H 1569	74.2	70.4	5.22	5.61	2.36	2.51	1.01	1.55	3,841	3,567
H 1527	80.0	70.9	5.36	5.68	2.10	2.33	0.88	1.21	2,778	2,709
H 1528	75.6	72.7	4.22	5.17	2.01	2.20	1.64	2.22	2,949	2,778
H 1529	75.4	68.4	4.74	5.91	2.07	2.09	0.58	1.24	3,327	3,258
H 1530	73.7	70.3	4.60	5.72	2.06	2.19	0.90	1.35	3,738	3,293
H 1533	79.0	77.0	5.66	6.04	2.40	2.38	1.05	1.47	2,367	2,195
H 1098i	72.4	67.3	4.70	5.81	2.22	2.43	1.54	2.14	3,258	2,847
Mean	**72.93**	**68.49**	**4.91**	**5.77**	**2.17**	**2.32**	**1.19**	**1.64**	**3,098.53**	**2,644.68**
C.D. (5%)										
A	**2.61**		**0.24**		**0.06**		**0.01**		**48.94**	
B	**7.61**		**0.71**		**0.16**		**0.04**		**142.68**	
A X B	**NS**		**NS**		**NS**		**0.06**		**201.79**	

Table 83. Biochemical seed quality parameters of genotypes as influenced by moisture stress condition

Genotypes (B)	Crude Oil (%)		Crude Protein (%)		Total Gossypol (%)	
	IR (A)	RF(A)	IR (A)	RF(A)	IR (A)	RF(A)
PBH 116	19.8	17.6	15.1	14.3	0.45	0.38
H 1464	17.9	16.5	14.0	13.9	0.60	0.49
H 1489	18.7	19.0	16.4	16.0	0.54	0.48
F 2662	17.5	17.1	13.7	14.3	0.44	0.36
H 1518	19.3	17.1	14.0	13.0	0.40	0.35
H 1566	18.5	18.1	13.7	12.6	0.44	0.33
H 1520	17.6	16.7	14.7	12.4	0.41	0.30
H 1521	20.5	19.6	13.6	12.8	0.54	0.41
H 1567	19.9	20.1	13.0	14.6	0.51	0.36
H 1568	18.5	17.6	11.7	14.3	0.46	0.29
H 1569	17.4	17.2	13.8	13.8	0.39	0.20
H 1527	20.2	16.5	14.0	14.5	0.33	0.21
H 1528	19.8	18.9	13.4	13.7	0.39	0.23
H 1529	20.0	19.2	11.5	14.4	0.33	0.29
H 1530	17.9	18.3	13.7	13.4	0.47	0.36
H 1533	20.4	18.0	12.4	15.1	0.47	0.37
H 1098i	19.4	18.2	14.1	15.1	0.52	0.42
Mean	**19.0**	**18.0**	**13.7**	**14.0**	**0.45**	**0.34**
C.D. (5%)						
A	**0.13**		**NS**		**0.01**	
B	**0.37**		**1.27**		**0.04**	
A X B	**0.53**		**1.8**		**0.06**	

Surat

The screening of genotypes for drought tolerance found that seed cotton yield was significantly higher with Suraj under rainfed and NDLH-2051-1 under irrigated conditions (Table 84). Relative water content (RWC), SLW (Specific Leaf weight) and SLA (Specific Leaf Area) were significantly differed between genotypes in rainfed conditions. Root shoot ratio were not significantly differed under rainfed condition. Total chlorophyll content and proline content were significant due to genotypes under rainfed However proline content was non significant under irrigated condition. Reducing sugar was found the significantly highest in genotype NDLH-2051-1 (8.43 mg/g of tissue) and lowest in G.Cot-16 (6.17 mg/g of tissue) under rainfed condition. Chlorophyll stability and protein content were significantly differed among all genotypes in rainfed and irrigated conditions. Chlorophyll stability index was found significantly the highest in GISV-332 and GJHV-568 under rainfed condition (Table 85).

Table 84. Physiological parameters of genotypes as influenced by moisture stress condition

Genotypes	Seed cotton yield (kg/ha)		RWC(%)		SLW(mg/cm2)		SLA(cm2/mg)		Root/shoot ratio	
	Rainfed	Irrigated	Rainfed	Irrigated	Rainfed	Irrigated	Rainfed	Irrigated	Rainfed	Irrigated
GISV-328	1421.7	2118.6	96.04	92.33	0.91	1.06	1.10	0.95	0.19	0.14
GISV-332	1040.7	2436.4	96.39	90.38	0.70	0.89	1.43	1.12	0.14	0.13
GJHV-548	1193.7	2670.6	91.89	91.77	1.07	1.31	0.95	0.76	0.19	0.18
GJHV-568	1433.7	2550.9	86.83	91.81	0.92	0.92	1.09	1.08	0.16	0.19
NDLH-2051-1	1625.2	3070.1	97.36	85.59	0.94	1.34	1.07	0.75	0.18	0.18
G.Cot-16	1134.4	2543.7	94.67	87.67	1.27	1.47	0.78	0.68	0.15	0.18
LRA-5166	959.4	1557.0	94.86	91.16	1.18	1.25	0.85	1.08	0.15	0.15
Suraj	1653.3	1790.4	90.53	93.32	1.24	1.04	0.81	0.75	0.15	0.15
SE d	135.94	72.22	0.88	0.79	0.048	0.026	0.051	0.017	0.034	0.025
CD (5%)	294.39	156.41	1.91	1.71	0.103	0.056	0.111	0.037	N.S.	N.S.

Table 85. Physiological parameters of genotypes as influenced by moisture stress condition

Genotypes	Reducing Sugar(mg/g of tissue)		Chlorophyll stability index (%)		Proline(mg/g of tissue)		Protein content(%)	
	Rainfed	Irrigated	Rainfed	Irrigated	Rainfed	Irrigated	Rainfed	Irrigated
GISV-328	6.57	2.90	92.15	93.61	0.76	0.45	2.90	3.95
GISV-332	7.22	3.95	98.74	89.50	1.09	0.52	3.95	3.64
GJHV-548	6.49	4.12	94.45	87.61	1.01	0.72	4.12	4.12
GJHV-568	7.40	3.92	97.29	94.55	0.74	0.69	3.92	4.15
NDLH-2051-1	8.43	4.92	96.33	93.42	1.08	0.73	4.92	4.90
G.Cot-16	6.17	3.57	91.20	91.43	1.04	0.51	3.57	4.05
LRA-5166	6.43	4.60	94.74	94.47	1.04	0.47	4.60	6.08
Suraj	6.87	4.76	90.68	94.64	1.17	0.53	4.76	5.63
SE d	0.34	0.026	0.76	0.47	0.017	0.094	0.026	0.025
CD (5%)	0.74	0.056	1.66	1.02	0.036	N.S.	0.056	0.054

Junagadh

The seed cotton yield was found significantly higher in NDLH 2051-1 (2119 kg/ha) as compared to zonal, local and quality checks i.e. Yamuna Phule, GN. Cot.22 and Suraj respectively. The RWC was found significantly highest in NDLH 2051-1 followed by GJHV 568 as compared to GN.Cot.22 (LC).In case of SLW was found significantly highest in NDLH 2051-1 as compared to Yamuna Phule (ZC) and GN.Cot.22 (LC). The root: shoot ratio was found highest in NDLH 2051-1 as compared to all the checks (Table 86). In case of total chlorophyll the genotype GJHV 568 was produce highest chlorophyll content as compared to Yamuna Phule (ZC).CSI was found highest in NDLH 2051-1 and GISV-328 as compared to Yamuna Phule (ZC).The highest oil % (18.75%) was found in GISV-328. The highest proline content was found in GJHV 568. The highest protein content (20.1%) was found in GISV-332whereas lowest (18.3%) in GJHV 568. Significantly highest gossypol content (0.857 mg/g tissue) was found in GISV-328and lowest (0.777 mg/g tissue) in NDLH 2051-1.

Table 86. Physiological parameters genotypes as influenced by moisture stress condition

Genotype	Total Chlorophyll mg/gm of fresh leaves	Chlorophyll Stability Index	Proline content µmoles/gm tissue	Root/ shoot ratio	RWC (%)	SLW (mg/cm^2)	Seed cotton yield (kg/ha)	SLA (cm^2/mg)
GISV-328	10.8	69.02	0.209	0.077	79.3	7.6	1531	0.139
GISV-332	8.7	60.85	0.214	0.071	76.7	7.4	1373	0.128
GJHV 548	9.9	67.16	0.231	0.080	80.4	7.7	1626	0.138
GJHV 568	11.7	70.87	0.283	0.079	83.6	7.8	1896	0.143
NDLH 2051-1	12.3	83.20	0.259	0.108	84.1	8.9	2119	0.149
Yamuna Phule(ZC)	10.9	65.65	0.210	0.080	81.6	7.6	1636	0.135
GN.Cot.22 (LC)	8.9	57.94	0.205	0.057	71.0	7.2	1139	0.132
Suraj (QC)	10.5	63.79	0.241	0.088	81.1	8.0	1665	0.141
SEm.±	0.528	3.54	0.013	**0.005**	2.34	0.205	130.6	0.004
CD (5%)	1.6	10.73	0.040	**0.014**	7.10	0.622	396.1	NS
CV%	8.73	9.10	9.85	**10.22**	5.08	4.56	13.9	5.42

Dharwad

The drought screening study included nineteen cotton genotypes including local and zonal checks. The genotype NDLH20511 exhibited maximum CSI, RWC and proline content. The genotype DB1701 showed high root/shoot ratio, carbohydrate, protein and proline content. Genotype CCB143B exhibited high CSI, root/shoot ratio and carbohydrate content. Genotype PA837 exhibited maximum levels of CSI, root/shoot ratio, carbohydrate and proline content, whereas, PAIG380 exhibited higher levels of CSI, RWC, root/shoot ratio and protein content. Therefore based on the physiological and biochemical parameters it was evident that the genotypes NDLH20511, DB1701, CCB143B, PA837 and PAIG 380 were found to be drought tolerant (Table 87).

Seed oil, protein and gossypol content in cotton seeds were varying significantly across the sub-plots. Mean oil content was found to be 19.61% with oil content ranging from 17 to 22%. Oil content in seeds was maximum in Sima5, DB1701, CCB143B, DDCC1, CNA405, RHCHD1433, CNH1128 (>20%). Mean protein content was found to be 19.98% ranging from 16 to 24%. Protein content was found maximum in 16301 DB, RHC1217, DB1701, DDCC1, CNH1128, RBH1002 (>21%). Mean gossypol content in seed was found to be about 4.3 mg/g. The least gossypol was recorded to be in Sima5, NDLH20511, RHCHD1433, CNH1128, RBH1002 (<4 mg/g seed). The genotype CNH1128 exhibited high oil, protein and low gossypol content, whereas, DB1702 and DDCC1 exhibited high protein and oil content (Table 88).

Table 87. Physiological parameters of genotypes as influenced by soil moisture stress

Genotypes	Root/shoot ratio			RWC (%)			Leaf proline (µmol.g^{-1} of tissue)			Chlorophyll content(mg/gfr. wt.)		
	Rainfed	Irrigated	Mean	Rainfed	Irrigated	Mean	Rainfed	Irrigated	Mean	Rainfed	Irrigated	Mean
Sima 5	0.22	0.28	0.25	82.08	82.43	82.25	3.01	0.52	1.77	3.25	2.97	3.11
NDLH 20511	0.25	0.31	0.28	82.12	80.13	81.13	3.22	0.56	1.89	3.01	3.18	3.09
ARBH813 (LC)	0.27	0.27	0.27	80.92	83.55	82.23	3.08	0.54	1.81	2.88	3.01	2.94
Sahana (ZC)	0.22	0.26	0.24	80.73	81.70	81.22	3.48	0.60	2.04	2.90	3.05	2.97
16301DB	0.27	0.22	0.24	80.86	82.67	81.77	3.11	0.54	1.82	3.21	3.10	3.16
RHC1217	0.28	0.27	0.28	80.89	82.12	81.51	1.98	0.34	1.16	2.81	2.99	2.90
DB1701	0.43	0.47	0.45	78.61	83.25	80.93	2.30	0.40	1.35	3.44	3.12	3.28
CCB143B	0.32	0.41	0.37	72.73	78.62	75.67	2.18	0.38	1.28	3.19	3.46	3.32
Suvin (LC/ZC)	0.40	0.33	0.37	80.87	82.69	81.78	2.43	0.42	1.43	3.60	3.91	3.76
PA837	0.34	0.31	0.33	80.80	81.58	81.19	2.31	0.40	1.36	3.27	3.79	3.53
PAIG380	0.31	0.28	0.29	81.13	80.75	80.94	2.28	0.40	1.34	3.71	4.20	3.95
DDCC1	0.32	0.33	0.32	81.41	82.55	81.98	2.06	0.36	1.21	3.78	3.85	3.82
CNA405	0.22	0.25	0.24	83.05	83.13	83.09	2.05	0.36	1.20	3.74	3.94	3.84
DLSa-17 (LC/ZC)	0.25	0.32	0.28	81.03	81.51	81.27	2.07	0.36	1.21	3.84	3.81	3.83
RHCHD-1433	0.29	0.31	0.30	78.57	84.15	81.36	1.84	0.32	1.08	3.00	3.09	3.05
CNH1128	0.29	0.31	0.30	80.16	82.31	81.23	1.73	0.30	1.02	3.05	3.30	3.18
Suraj (LC/ZC)	0.30	0.38	0.34	82.17	85.86	84.01	1.61	0.28	0.95	3.03	3.00	3.02
RBH1002	0.25	0.30	0.27	77.80	81.48	79.64	1.46	0.25	0.86	2.86	3.48	3.17
DCH 32 (LC/ZC)	0.34	0.31	0.33	78.53	80.58	79.56	1.34	0.23	0.78	3.33	3.16	3.24
Mean	0.29	0.31	0.30	80.23	82.16	81.20	2.29	0.40	1.34	3.26	3.39	3.32
	MP	Genotype (SP)	Interaction	MP	Genotype (SP)	Interaction	MP	Genotype(SP)	Interaction	MP	Genotype (SP)	Interaction
SEm	0.007	0.029	0.029	0.142	1.239	0.619	0.004	0.011	0.018	0.028	0.075	0.120
CD (5%)	NS	0.084	0.041	NS	NS	1.712	0.075	0.032	0.016	NS	0.215	0.106

Table 88. Evaluation of seed oil (%) , gossypol (mg/g tissue)and protein content (%)of genotypes

S. No.	Genotypes	Oil content (%)		Protein content (%)		Total gossypol (mg/g tissue)
		%	Angular transformed	%	Angular transformed	
1	Sima 5	20.50	27.08	19.58	26.25	3.51
2	NDLH 20511	18.00	25.27	16.52	23.96	3.34
3	ARBH813 (LC)	21.00	27.43	24.52	29.66	5.06
4	Sahana (ZC)	21.50	27.78	18.52	25.47	4.94
5	16301DB	17.00	24.53	24.48	29.64	4.06
6	RHC1217	18.50	25.64	21.82	27.83	5.01
7	DB1701	20.00	26.73	23.94	29.28	5.11
8	CCB143B	21.00	27.43	17.12	24.43	4.56
9	Suvin (LC/ZC)	17.50	24.90	21.15	27.36	4.76
10	PA837	17.00	24.53	20.73	27.07	4.38
11	PAIG380	19.00	26.01	20.48	26.89	4.97
12	DDCC1	20.50	27.08	21.15	27.36	4.75
13	CNA405	22.00	28.13	19.36	26.09	4.43
14	DLSa-17 (LC/ZC)	21.50	27.78	19.21	25.98	4.68
15	RHCHD-1433	21.00	27.43	16.67	23.31	3.72
16	CNH1128	21.00	27.43	21.15	27.36	3.27
17	Suraj (LC/ZC)	21.00	27.43	17.15	22.07	4.12
18	RBH1002	17.50	24.90	21.06	27.30	3.07
19	DCH 32 (LC/ZC)	17.00	24.53	19.03	25.85	4.94
	Mean	19.61	26.42	19.98	26.48	4.30
	SEm		0.019		0.054	0.063
	CD (5%)		0.006		0.163	0.188

BIO CHEM1B: Screening of Cotton genotypes for salinity stress tolerance and estimation of for seed oil, gossypol and protein

Hisar

The results revealed that average boll weight (g), and seed cotton yield(kg/ha) under salt stress condition were differ significantly among the genotypes. The boll weight(g) was found highest in genotype H 1520. The maximum seed cotton yield was observed in the genotype H 1464 followed by H 1569, H 1518 and H 1533. The genotypes H 1569 had highest potassium to sodium ratio followed by H 1464, H 1567, H 1520 and H 1489.The gossypol content was highest in genotype H 1464 while it was lowest in genotype H 1569. The highest crude oil and protein content were observed in the H 1567 and H 1528 genotypes, respectively. Among all the genotypes screened for salt tolerance H 1569, H 1464 and H 1567 genotype performed best (Table 89).

Table 89. Quality parameters, ratio of K/N and seed cotton yield (kg/ha) of genotypes

Genotypes	Crude Oil (%)	Crude Protein (%)	Total Gossypol (%)	Boll wt (g)	Seed Cotton Yield (kg/ha)	K/Na
PBH 116	17.95	25.64	0.369	2.4	1,658	1.97
H 1464	15.40	23.96	0.474	2.9	2,163	3.16
H 1489	18.50	23.62	0.446	2.9	1,943	2.53
F 2662	18.35	23.96	0.346	2.7	1,752	2.29
H 1518	17.10	24.41	0.296	3.2	2,062	2.31
H 1566	18.00	21.62	0.282	3.1	1,852	2.19
H 1520	16.35	22.44	0.250	3.4	1,966	2.91
H 1521	19.15	24.33	0.423	2.9	1,885	2.46
H 1567	20.60	25.94	0.312	3.1	2,028	2.99
H 1568	16.55	24.35	0.267	3.0	1,623	1.85
H 1569	18.40	24.59	0.153	2.8	2,100	3.63
H 1527	17.55	24.61	0.170	2.8	1,783	2.57
H 1528	20.10	26.44	0.185	2.9	1,543	1.68
H 1529	19.30	24.14	0.233	2.5	1,726	2.24
H 1530	17.95	22.91	0.327	3.1	1,809	2.40
H 1533	19.35	24.41	0.357	3.2	2,042	2.13
H 1098i	18.25	24.61	0.396	2.8	2,004	2.81
C.D. (5%)	0.84	NS	0.011	0.2	51.79	0.76
SE (m)	0.28	0.78	0.004	0.1	17.90	0.25

BIO CHEM1B: Estimation of seed oil, gossypol and protein

Hisar

The genotypesof Br 02 trial were evaluated for crude protein, oil and total gossypol content (Table 90). The highest oil content (18.80 %) was observed in CSH 89. The highest crude protein content (24.00 %) was observed in F 2228. The highest total gossypol content (0.61 %) was observed in F 2228. The PBH 79 had lowest total gossypol (0.25 %).

Table 90. Evaluation of cotton genotypes for seed oil, gossypol and protein (Biochemistry)

Genotypes	Crude Oil (%)	Crude Protein (%)	Total Gossypol (%)
F 2732	16.30	18.30	0.48
PBH 197	17.70	20.70	0.52
HS 310	16.60	19.50	0.56
CSH 90	18.10	19.20	0.42
Quality Check (CSH 3129)	18.40	21.30	0.43
RS 2958	16.70	22.70	0.31
F 2743	17.90	19.50	0.38
H 1569	17.40	20.80	0.34
CSH 89	18.80	17.50	0.44
LC	17.50	19.50	0.30
PBH 79	16.70	21.20	0.25
H 1480	18.10	18.20	0.43
RS 2943	18.20	23.70	0.60
ZC (F 2228)	16.40	24.00	0.61
SE (m)	0.15	0.80	0.01
C.D. (5%)	0.45	2.46	0.02

Junagadh

The highest oil % was found in GISV-328(18.99%) followed by NDLH 2051-1 whereas highest protein (21.4 mg/g of tissue) was found in Suraj (QC) followed by NDLH 2051-1 and Yamuna Phule (ZC). The highest Gossypol was produced in Yamuna Phule (ZC) followed by GN.Cot.22 (LC) (Table 91.)

Table 91. Evaluation of cotton genotypes for seed oil, gossypol and protein (Biochemistry)

Sr. No	Genotypes	Oil content (%)	Protein (mg/g of tissue)	Total Gossypol (mg/g of tissue)
1	GISV-328	18.99	19.0	0.965
2	GISV-332	18.73	20.3	0.730
3	GJHV 548	18.55	19.5	0.933
4	GJHV 568	18.78	20.6	1.025
5	NDLH 2051-1	18.86	21.4	0.788
6	Yamuna Phule(ZC)	18.61	21.2	1.078
7	GN.Cot.22 (LC)	18.41	20.4	1.068
8	Suraj (QC)	18.63	21.4	1.063
	SEm.±	0.099	0.122	0.074
	CD (5%)	0.301	0.369	0.225
	CV%	0.92	1.03	13.44

Surat

The results an evaluation of cotton genotypes of pre released cultures for seed oil, fatty acid profile, gossypol and protein showed significant variations amongst the genotypes in rainfed and irrigated condition. Higher oil content was observed in GJHV-548 (17.52%) followed by GISV-332 (17.49%) under rainfed condition while in irrigated condition, highest oil content was found in GISV-328 (18.53%)(Table 92). Gossypol content ranges from 0.61 to 0.83% in different genotypes in both conditions. Lowest gossypol content was observed in LRA-5166 and Suraj (0.61%) in irrigated condition. Higher gossypol content was found in GJHV-548 (0.83%) in rainfed condition. Highest protein content was observed in GJHV-568 (19.19%) in rainfed condition.

Table 92. Evaluation of cotton genotypes for seed oil, gossypol and protein (Bio chemistry)

Genotypes	Oil content(%)		Protein content (%)		Total Gossypol(%)	
	Rainfed	Irrigated	Rainfed	Irrigated	Rainfed	Irrigated
GISV-328	17.19	18.53	18.84	14.75	0.70	0.62
GISV-332	17.49	17.01	18.35	16.52	0.62	0.63
GJHV-548	17.52	17.03	18.10	16.65	0.83	0.62
GJHV-568	17.23	17.09	19.19	16.06	0.64	0.65
NDLH-2051-1	17.24	17.15	18.35	16.80	0.66	0.63
G.Cot-16	17.00	17.12	17.60	14.51	0.64	0.62
LRA-5166	17.32	17.20	17.49	14.34	0.66	0.61
Suraj	17.12	16.99	16.90	17.53	0.61	0.61
SE d	0.32	0.26	0.32	0.14	0.017	0.012
CD (5%)	N.S.	N.S.	0.71	0.32	0.036	N.S.

Note: pH7.12 , EC-0.98 dS/m, Avail.N-450kg/ha, Avail P_2O_5-28kg/ha, Avail K_2O-402kg/ha, Total rainfall-1937mm, Rainy days-70

BIO.CHEM.3: Evaluation of Bt hybrids for biochemical basis of tolerance to sucking pests

Surat

The results revealed that seed cotton yield (kg/ha) was significantly higher for AJIT -155 BG-II followed by AJIT -199 BG-II under unprotected condition. Jassid population (No/3 leaves) was significantly differed among Bt genotypes under unprotected condition at 30, 60 and 90 DAS. Protein, reducing sugar, phenol, tannin, flavonoid and gossypol content were estimated at 30, 60 and 90 DAS and were correlated with counted Jassid population. The significance of correlation was estimated. The table value for t is 2.306 and none of the calculated t value is crossed more than 2.306 and means that correlation are weak and non significant (Table 93). Hence the results interpreted that none of the selected metabolites had significant influence on Jassid population recorded at all three times

Table. 93. Coefficient (r) of correlation between Jassid population in different intervals with plant metabolites

Metabolites	30 DAS	60 DAS	90 DAS
Protein	0.669	1.427	-0.657
Phenol	0.744	1.075	-0.433
Reducing sugar	0.792	2.051	-0.300
Tannin	1.075	1.398	0.734
Flavanoid	-0.042	0.853	-0.784
Gossypol	-0.809	0.582	0.609

BIO.CHEM.3: Evaluation of Bt hybrids for biochemical basis of tolerance to sucking pests

Hisar

The results in Table 94 depicts the effect on biochemical constituents in cotton genotypes upon sucking insect-pests infestation. The different biochemical constituent differs significantly among the genotypes, treatment. The interaction among genotype and treatment was also significant for the biochemical constituents. The secondary metabolites were found higher in the unprotected condition as compared to protected condition in most of the genotypes, whereas the primary metabolite higher under protected condition in all the studied genotype. The maximum yield was observed in ACH-177-2 followed by RCH-776 and N5P2-531-2 in protected condition. The overall mean population of whitefly adults, leafhopper nymph and thrips nymphs/ 3 leaves varied from 75.36 to 146.96, 66.15 to 119.70 and 9.85 to 19.06, respectively as shown in Table 95. The population of all sucking pest varied significantly among the genotypes and treatments and found higher in all the genotypes under the unprotected condition. It differs non significantly for the interaction between genotypes and treatments.

Table 94: Bio chemical constituent of genotypes influenced by protected and unprotected condition

Genotypes	Sugar (%)		Phenol (%)		Gossypol (%)		Tannin (%)		Seed cotton yield (kg/ha)	
	Spray	Non-spray	Spray	Non-spray	Spray	Non-spray	Spray	Non-spray	Spray (A)	Non-spray (A)
Ankur-555	2.14	1.19	0.83	0.96	0.12	0.16	0.63	0.69	4,561	4,215
Ajay-555	3.19	1.56	1.01	1.26	0.25	0.25	0.54	0.64	4,630	4,353
RCH-776	2.12	1.55	0.67	0.91	0.16	0.1	0.77	0.73	5,003	4,630
RCH-650	3.23	1.27	0.85	0.69	0.13	0.16	0.36	0.44	3,524	3,179
ACH-177-2	2.44	1.4	0.93	1.01	0.16	0.17	0.67	0.63	5,113	4,906
N5P2-531-2	3.25	1.6	0.89	0.98	0.13	0.18	0.82	0.74	4,768	4,561
NCS-9013-2	3.04	1.04	0.86	0.69	0.15	0.27	0.72	0.69	3,524	3,386
RCH-773-2	5.05	2.49	1.29	1.17	0.27	0.33	0.77	0.73	4,008	3,801
U-51-2	2.94	1.59	0.98	1.21	0.19	0.25	0.81	0.74	4,215	3,870
Shree Ram-6588	3.39	1.43	0.8	1.07	0.19	0.28	0.31	0.51	3,801	3,421
Mean	3.08	1.51	0.91	0.99	0.17	0.21	0.64	0.65	4,315	4,032
ANOVA	SE (m)	C.D. (5%)	SE (m)	C.D. (5%)	SE (m)	C.D. (5%)	SE (m)	C.D. (5%)	C.D. (5%)	
T*	0.031	0.063	0.006	0.012	0.003	0.005	0.003	0.006	71	
G*	0.07	0.14	0.014	0.027	0.006	0.012	0.007	0.014	158	
T x G	0.099	0.198	0.019	0.038	0.008	0.016	0.01	0.019	NS	

Table 95. Sucking pest population in genotypes under protected and unprotected condition

Genotypes	White fly (No/3 leaves)		Thrips population (No. of nymphs & adults/ 3 leaves		Leafhopper population (No. of nymphs/ 3 leaves)	
	Spray	Non-spray	Spray	Non-spray	Spray	Non-spray
Ankur-555	64.10 (8.05)	91.80 (9.60)	43.80 (6.68)	80.00 (8.69)	7.50 (2.86)	13.00 (3.70)
Ajay-555	71.40 (8.51)	119.00 (10.95)	59.30 (7.77)	105.30 (10.09)	10.30 (3.33)	21.40 (4.73)
RCH-776	75.50 (8.74)	128.80 (11.39)	65.60 (8.14)	123.30 (11.05)	10.00 (3.32)	20.70 (4.66)
RCH-650	69.90 (8.42)	115.70 (10.80)	67.00 (8.24)	116.90 (10.83)	10.60 (3.40)	20.70 (4.66)
ACH-177-2	79.40 (8.94)	150.50 (12.27)	75.30 (8.70)	123.60 (11.13)	11.20 (3.49)	17.70 (4.32)
N5P2-531-2	83.40 (9.17)	168.30 (13.01)	69.80 (8.41)	135.80 (11.70)	9.60 (3.26)	22.30 (4.83)
NCS-9013-2	69.40 (8.39)	170.10 (13.08)	69.50 (8.38)	132.20 (11.54)	10.20 (3.33)	20.80 (4.67)
RCH-773-2	77.10 (8.83)	204.10 (14.31)	70.70 (8.43)	156.30 (12.54)	8.90 (3.14)	21.10 (4.66)
U-51-2	75.40 (8.64)	147.70 (12.18)	74.50 (8.59)	114.70 (10.71)	12.40 (3.63)	19.80 (4.56)
Shree Ram-6588	88.00 (9.27)	173.60 (13.21)	66.00 (8.12)	108.90 (10.48)	7.80 (2.92)	13.10 (3.75)
Mean	75.36	146.96	66.15	119.70	9.85	19.06
ANOVA	SE (m)±	C.D. (5%)	SE (m)±	C.D. (5%)	SE (m)±	C.D. (5%)
T	0.12	0.33	0.14	0.39	0.06	0.17
G	0.26	0.74	0.31	NS	0.14	NS
TxG	0.37	NS	0.43	NS	0.19	NS

Dharwad

The experiment on biochemical basis of tolerance/susceptibility of Bt hybrids were investigated at Dharwad with intra hirsutum and inter specific Bt hybrids. Seven HxH Bt hybrids and seven HxB Bt hybrids were evaluated for sucking pest tolerance. Differential expression of primary and secondary metabolites was observed. Among the HxH hybrids, it was found that Ajeet155, NCS-954-Raju, and Jadoo exhibited least leafhopper infestation and also exhibited higher levels of primary and secondary metabolites. Whereas, among the HxB hybrids, RCH708-Rasi exhibited higher levels of primary and secondary metabolites with least sucking pest infestation. In conclusion, Ajeet-155, NCS954-Raju and Jadoo among HxH and RCH708 Rasi among HxB hybrids were promising hybrids exhibiting tolerance to sucking pest infestation (Table 96). The correlation of jaasid population with metabolites found that the significant negative correlation found with protein (-0.736), tannin (-0.629), polyphenol (-0.701) and flavonoids (-0.7738).

Table 96. Jassid population (No/plant), primary and secondary metabolites level of genotypes at 90 DAS

Treatments	Jassid population (No. of nymphs/ 3 leaves)		Carbohydrates (mg/gfr. wt.)	Proteins	Tannins	Polyphenols	Flavonoids	Gossypol
	Original value	Transformed value						
H x H hybrids								
Ajeet 155	4.53	2.24	122.07	197.67	201.18	7.97	13.68	1.08
MRC 7351	6.6	2.66	92.73	128.67	126.51	1.45	9.04	0.73
MRC 7373	6.4	2.63	78.64	174.5	180.07	5.57	11.76	0.89
NCS 954 Raju	4.53	2.24	120.23	186.67	197.62	6.9	14.09	1.19
Jadoo	4.8	2.25	120.61	170.67	192.73	7.37	14.27	1.1
Rasi Neo RCH 578	6.27	2.59	102.83	175.33	166.29	4.18	12.43	0.81
Drona 118-2	6.87	2.71	96.16	145.33	165.18	4.09	10.95	0.59
Mean	5.71	2.47	104.75	168.4	175.65	5.36	12.32	0.91
SEM		**0.166**	0.098	0.317	0.189	0.007	1.028	0.009
CD (5%)		**0.51**	0.307	0.988	0.588	0.023	3.203	0.027
H x B hybrids								
Puli	5.6	2.46	93.69	208.33	225.18	3.36	12.61	1.88
Bio 6188-2	6	2.55	101.56	173.5	179.4	2.86	11.77	1.69
RCH 708 Rasi	4.33	2.19	140.16	201	284.07	3.73	15.1	1.93
SP 904	7.33	2.79	140.16	134.33	148.96	2.4	10.48	1.18
MRC 7918	7.73	2.86	52.61	152.33	178.51	2.29	10.49	1.17
DCH 32	6.87	2.71	98.32	168	187.4	2.96	13.71	1.8
DCH 32 (NBT)	6.13	2.57	89.75	178	211.62	2.72	13.29	1.75
Mean	6.29	2.59	102.32	173.64	202.16	2.9	12.49	1.63
SEM		**0.135**	0.572	0.681	0.493	0.006	1.051	0.01
CD (5%)		**0.417**	1.781	2.123	1.537	0.019	NS	0.031

Evaluation of biochemical basis of resistance against Cotton leaf curl disease (CLCuD)

Hisar

The results of biochemical basis of resistance against Cotton leaf curl disease (CLCuD) revealed that gossypol and tannin content were differing significantly among the genotypes. Among these genotypes, tolerant genotypes (H 1098i and CSH 3075)showed higher phenol, gossypol and tannin content in both sprayed and non-sprayed condition as compared to susceptible genotypes. Higher seed cotton yield was observed in tolerant genotypes as compare to susceptible genotypes in both sprayed and non-sprayed condition. The data reveals that tolerant genotypes H 1098i and CSH 3075 recorded less incidence of CLCuV infection (Table 97).

Table 97. Effects of CLCuV on sugar (%), phenol(%), gossypol(%), tannin(%) , seed cotton yield (kg/ha) and rating of CLCuD by resistant and susceptible genotypes

Genotype (B)	Sugar (%)		Phenol (%)		Gossypol (%)		Tannin (%)		Yield (Kg/ha)		CLCuD PDI at 100 DAS
	Non-Spray (A)	Spray (A)	Non-Spray (A)	Spray (A)	Non-Spray (A)	Spray (A)	Non-Spray (A)	Spray (A)	Non-Spray (A)	Spray (A)	
H-1098i (R)	2.77	3.03	0.93	0.74	0.29	0.2	0.72	0.62	2,821	3,699	25.77
CSH-3075 (R)	2.54	2.77	0.8	0.61	0.21	0.17	0.82	0.7	1,894	2,695	23.32
HS-6 (S)	3.53	3.81	0.71	0.52	0.18	0.14	0.54	0.53	1,589	1,990	34.07
RST-9 (S)	3.46	3.51	0.78	0.59	0.2	0.17	0.65	0.61	1,526	1,806	38.02
Mean A	3.08	3.28	0.8	0.62	0.22	0.17	0.68	0.61	1,957	2,547	
C.D. (5%)											
A	0.14		0.05		0.02		0.01		126		
B	0.2		0.07		0.02		0.01		178		
A X B	NS		NS		0.03		0.02		251		

Surat

The experiment an evaluation of Biochemical basis of resistance against Tobacco streak virus was conducted with two resistant (R1. MCU-7 & R2. MRC 7918 BG II)and two susceptible genotypes (S1. CO-14 &S2. RCH-659 BG II). However, the disease incidence was not occurred and the study concluded with available data on content of metabolites in different genotypes. The results found that mean content of flavonoid (6.87 mg/g of tissue) , gossypol (0.95 %) and phenol (14.37 mg/g of tissue) were higher with resistant genotypes (Table 98). The susceptible genotypes registered higher value of reducing sugar (23.7 mg/ g of tissue)

Table 98. Seed cotton yield (kg/ha) and metabolites content of resistant and susceptible genotypes of tobacco streak virus

Genotypes	Seed Cotton yield (kg/ha)	Flavonoid (mg/g of tissue)	Gossypol (%)	Protein (mg/g of tissue)	Reducing sugar (mg/g of tissue)	Phenol (mg/g of tissue)	Tannin (mg/100g of dry tissue)
MCU 7 (R)	796	5.11	0.94	13.69	11.57	12.5	18.5
MRC 7918 BG II (R)	877	8.63	0.96	15.05	13.24	15.18	20.22
Mean	837	6.87	0.95	14.37	12.4	13.84	19.36
CO 14 (S)	523	8.38	0.93	12.46	30.36	10.55	22.4
RCH-659 BG II (S)	2739	5.82	0.94	11.74	17.03	10.73	18.46
Mean	1631	7.1	0.93	12.1	23.7	10.64	20.43

R- Resistant S- susceptible

Dharwad

Seven genotypes were sown at ARS, Dharwad, to evaluate tolerance to tobacco streak virus (TSV). The symptoms of infection due to TSV were not observed in any of the genotypes, however the plant metabolites were analyzed. Differential expression of primary and secondary metabolites was observed among the genotypes. However, the expression of secondary metabolites was found to be higher among the TSV tolerant genotypes (MRC7918, MCU7, and CO14) compared to the TSV-susceptible genotypes (Ankur 3034, RCH659, Suvin and Tierra).The resistant genotypes had higher mean percentage of tannin(30.2%), polyphenols (41.3%), flavonoids (29.8 %) and gossypol (65.4 %) (Table 99). However, the susceptible genotypes registered higher carbohydrates (8.8%) and protein (15.3%).

Table 99. Metabolites content of resistant and susceptible genotypes of tobacco streak virus

Genotypes	Tannins (mg/g fr. wt.)	Polyphenols (mg/g fr. wt.)	Flavonoids (mg/g fr. wt.)	Gossypol (mg/g fr. wt.)	Carbohydrates (mg/g tissue)	Protein (mg/g tissue)
MRC 7918 (R)	71.28	5.78	14.83	1.19	237.46	60.63
MCU7 (R)	78.39	5.47	12.92	1.57	183.03	71.91
CO14 (R)	90.17	5.09	15.5	1.21	218.88	59.4
Mean	79.9	5.4	14.4	1.3	213.1	64.0
Ankur3034 (S)	61.94	3.17	10.88	0.83	208.5	76.02
RCH659 (S)	66.39	4.37	11.06	0.83	235.6	82.99
Suvin (S)	64.17	3.07	11.54	0.78	298.99	60.84
Tierra (S)	53.06	4.81	10.96	0.76	184.13	75.19
Mean	61.39	3.855	11.11	0.8	231.805	73.76
SEm	0.795	0.071	0.527	0.004	0.308	0.272
CD (5%)	2.336	0.208	1.546	0.012	0.904	0.799

CROP PROTECTION
ENTOMOLOGY

The following experiments were conducted in the discipline of Entomology under All India Coordinated Research Project (AICRP) on Cotton, in five centers of North Zone (Faridkot, Bathinda, Hisar, Sirsa, Sriganganagar), eight centers in Central Zone (Akola, Nanded, Rahuri, Surat and Bharuch, Junagadh,Khandwa, Bhawanipatna and Banswara) and seven centers in South Zone (Lam Guntur, Nandyal, Dharwad, Raichur, Chamarajanagar, Coimbatore, TNAU and Srivilliputhur).

Expt. No.	**Title of the Experiment**	**Participating Centers**
Ent 1(a)	Screening of breeding material for resistance to insect-pests (National and Zonal Trials)	All centers of North, Central & South zones
Ent 1(b)	Advance screening of promising entries for development of repository for sucking pests	All North Centers Central zone: Surat, Nanded, Junagarh, Rahuri South zone: Dharwad and Raichur
Ent 2	Seasonal dynamics to develop suitable forecasting model	All centers
Ent 3	Survey for key and emerging pests in farmers' fields for weekly advisory	All centers
Ent 4	Determination of nymphal based ETL estimation and yield losses for cotton whitefly *Bemisia tabaci***.**	North Zone (Sriganganagar, Hisar, Faridkot, Sirsa and Bathinda)
Ent 5(a)	Management of sucking pests in cotton	All centers of South & Central zone
Ent 5 (b)	Management of thrips through bio-rational approaches	All centers of North Zone
Ent 6	Evaluation of new microbial formulations against bollworm complex of cotton	All centers of North Zone Central zone: Surat, Nanded, Junagarh, Rahuri South zone: Nandyal, Warangal, Dharwad, Raichur
Ent 7 (a)	Intensive survey for Pink Bollworm on Bt hybrids in the farmers' fields	All centers of North Zone
Ent 7 (b)	Validation of IPM module for bollworm *(H. armigera*, *Earias* sp, *P. gossypiella* and *Spodoptera litura*)	All centers of South & Central zone

Ent.1 (a): Screening of breeding material for resistance to insect pests (National & Zonal Trials)

NORTH ZONE

The results obtained from North Zone screening trials are presented in Table 1-14. The following genotypes were identified as tolerant/moderately tolerant to leafhopper as indicated below.

Trial No.	Tolerant/Moderately tolerant cultures –Leaf hopper	Trial No.	Tolerant/Moderately tolerant cultures –Leaf hopper
Br02a	----	Br 22a/b	-
Br06a	F 2785, F 2772, RS 2946, H 1601.	Br 24 a	-
Br04a	---	Br 25a/b	-
Br06a(CVT)	RS 2928	Br 25a	-

NT, National trials; ZT, Zonal trials

CENTRAL ZONE

The results obtained from Central Zone screening trials are presented in Table 15-57. The following genotypes were identified as tolerant/ moderately tolerant to leafhopper as indicated below.

Trial No.	Moderately tolerant cultures –Leafhopper
Br02a(NT)	GJHV 548, RB 602, TCH 1941, TSH 387, GISV 332 **(5)**
Br02b(NT)	NDLH 2061-4, CNH 119, TSH 337, NH 723, GBHV 202, RAH 1081, AKH 2013, CNH 1137, RB 1910, AKH 2016-1, RAH 1083 **(11)**
Br02a/bCC (NT)	CNH 19325, CNH 19480, SHSCC 5 **(3)**
Br06a(NT)	TCH 1895, RB 1901 **(2)**
Br 22a/b	----
Br 32b	GShv 833/16, GShv 789/16, GBhv 316, LC, GShv 219/16, GBhv 324, GVhv 996 **(6)**
Br03a (ZT)	GJHV 566, RHC 1409, GISV 323, RAH 1076 **(4)**
Br03a/b (ZT)	DHCC 1901, LHCC 4, CNH 18528, DHCC 1801, CNH 18529, CNH 17395 **(6)**
Br04a (ZT)	TSH 367, GJHV-522 **(2)**
Br 05a	GJHH 19, GTHH 1203 **(2)**
Br06a (ZT)	CNH 20-31, RHC 1651, TCH 1895, RB 1901, RAHC 1032 **(5)**
Br 15a (ZT)	DHB 1902, DHB 2002, LAHB 2, DHB 2003 **(4)**
Br03b (ZT)	NDLH – 2057-1, TVH 007 **(2)**
Br04b (ZT)	NDLH – 2035-5 **(1)**
Br06a (ZT)	RHC-HD 1312, CCH 19-2, RHC-HD 1438, RHC-HD 1405, SHC 374 **(5)**
Br 06b (ZT)	GISV 312, CNH 09-77, DSC 1851, AKH 1302 **(4)**
Br 24b (ZT)	CNA 2036, NDLA 3104-4, MDL 2667, AKA 2013-8, JLA-1207, CNA 2035, DWDa 1802, NDLA 3116-3, MDL 2663 **(9)**
Br 24b-LL(ZT)	CNA 1065, PA 873, PAIG 379, PA 869, QC (PA 255), CINA 1068, CINA 1069, CINA 1067 **(7)**
Br 24b CC (ZT)	CNA 18562, DDCC 1902, DDCC 1801, CNA 1092, CNA 1091, CNA 17522, CNA 19475, CNA 18563, DDCC 1802, DDCC 2001, DDCC 1901 **(11)**

NT, National trials; ZT, Zonal trials

SOUTHZONE

The results obtained from South Zone screening trials are presented in Tables 15-77. The following genotypes were identified as tolerant/moderately tolerant to leafhopper as indicated below.

Trial No.	Moderately tolerant cultures–Leafhopper
Br02a(NT)	GISV 328, TSH 387, GISV 332 (3)
Br02b(NT)	CNH 18298, NH 723, GBHV 202, AKH 2013-3,ADB728(5)
Br02a/bCC(NT)	CNH 19325, CNH 19480, SHSCC 5 (3)
Br06a(NT)	---
Br06b(NT)	CNH 1140, CNH 121 (2)
Br 15a ZT)	----
Br 22a/b	NDLA 3140, CNA 18392, CNA 2034, CNA 1071, JLA-1512, PA 885, DWD 2051, CNA 18408, CNA 1072, JLA-1430, NDLA 3151, PA 881, GAM 266, MDL 2674, GAM 269 (15)
Br 32b	GShv 833/16, GShv 789/16, GBhv 316, GShv 219/16, GBhv 324, GVhv 996 (6)
Br03a(ZT)	RHC 1409 (1)
Br04a(ZT)	---
Br05a(ZT)	RAHH 2012, RAHH 2011 (2)
Br06a(ZT)	----
Br03b(ZT)	NDLH 2051-3, CCH 19-2 (2)
Br04b(ZT)	NDLH – 2035-5 (1)
Br05b(ZT)	DHH 2051, RAHH 2011 (2)
Br06b(ZT)	TVH 002, RAHC 1029, AKH 1302, DSC 185 (4)
Br.CCHir(ZT)	
Br 13a (ZT)	----
Br 14a- (ZT)	----
Br. 24b (ZT)	CNA 2035, NDLA 3116-3, JLA 1102, DWDa 1802, CNA 1031, CNA 1054, NDLA 3104-4, JLA-1227 (8)
Br. 24b LL (ZT)	CINA 1068, PA 807, PA 806, CINA 1069, PAIG 396, PAIG 384, PA 833, PA 880, CINA 1067, CNA 1065 (10)

NT, National trials; ZT, Zonal trials.

Ent.1 (b): Advanced screening of promising entries for development of repository for sucking pests (Leafhopper) (Table 78-80)

Zone	Centres	Leafhopper cultures–Tolerant/Moderately tolerant
North	Bathinda, Faridkot, Hisar, Sriganganagar	HS-297, PBH-139, F-2596, H-1519, PBH-42, PBH-39, GSHV 199, F-2462, PBH-116, RS-2909, RAH 1070, F-2662, H-1528, PBH-86, L-1534 (15)
Central	Junagadh, Surat, Nanded and Rahuri	AKH 09-5, AKH 2006-2, GJHV 516, GSHV 173, GISV-310, GISV-319, JK-4, JK-5, KHANDWA 2, LHDP 1, NDLH 1938, NDLH 2010, GISV 272, Phule 688, Phule Yamuna. (14)
South	Dharwad and Raichur	GJHV 523, RAHC 1039 (2)

Ent.2:Seasonal dynamics todevelopsuitableforecastingmodel(Table81-159).

NORTHZONE

States	Genotypesforsucking pests	GenotypesBollworm		Centres
		NonBt	BG-IIhybrids	
Rajas	GanganagarAgeti,RS 2013	HS-6	Any popularBt hybrid/ RCH 650 BG-II	Sriganganagar
Punjab	GanganagarAgeti,RS 2013	HS-6	RCH650BG-II	Faridkot,Bathinda
Haryana	GanganagarAgeti,RS 2013	HS-6	RCH-650BG-II	Hisar

CENTRAL AND SOUTH ZONE

States	Genotypes for sucking pests	GenotypesBollworm		Centers
		Non-Bt	BG-IIhybrids	
Rajasthan	DCH32	Suraj	RCH-2BG-II	Banswara
Gujarat	DCH32	Suraj	RCH-2BG-II	Surat, Junagadh, Bharuch
MP	DCH32	Suraj	RCH-2BG-II	Khandwa
Maharashtra	DCH32	Suraj	Ajeet155 BG II	Nanded, Akola,Rahuri
Odisha	DCH32	Suraj	----------	Bhawanipatna
Karnataka	DCH32	Suraj	JadooBG-II /BahubaliBG-II	Dharwad, Raichur,Chamarajanagar
AP	DCH32	Suraj	JadooBG II	Guntur, Nandyal
TamilNadu	DCH32	Suraj	JadooBG II	Coimbatore,Srivilliputhur

North Zone- Population range and peak activity period (SMW)

Centre Name	Population range and peak activity period (SMW) of sucking pests /3leaves				Natural Enemies / plant (Range)
	Leafhopper	Thrips	Whitefly	Aphid	
Bathinda	0.00-8.40 (35)	0.00-62.10 (31)	0.80-46.50 (24-31)	0.00	0.00-5.00 (24-31)
Faridkot	0.00-14.9 (31)	0.00-52.1 (31)	0.50-18.2 (23-31)	0.00	0.00-11.1 (23-35)
Hisar	0.07-15.53 (31)	0.33-175.57 (30)	5.60-358.67 (23-37)	0.00	0.07-15.53 (37)
Sirsa	0.00-10.30 (33)	0.00-74.20 (31)	0.00-48.10 (23-38)	0.00	0.02-1.42 (30)
Sriganganagar	0.00-5.67 (35)	0.00-78.87 (27)	0.00-98.40 (38)	0.00	0.00-4.60 (22-33)

Centre Name	Population range and Peak activity of Bollworm (SMW)/plant								Peak activity of boll damage due to bollworm & Boll damage % (Range)							
	Non- Bt Cotton				Bt Cotton				Non- Bt Cotton				Bt Cotton			
	H. armigera	*S. litura*	*P. gossypiella*	*Earies* spp.	*H. Armigera*	*S. litura*	*P. gossypiella*	*Earias* spp.	Green boll damage due to PBW (%)	Green boll damage due to SBW&ABW (%)	Open Boll Damage (%)	Locule Damage (%)	Green boll damage due to PBW (%)	Green boll damage due to SBW&ABW (%)	Open Boll Damage (%)	Locule Damage (%)
Bathinda	0.00-0.40 (32)	0.0-0.20(39)	0.00-1.50 (39-42)	0.0-0.20 (31)	–	–	0.00-1.00 (40-42)	–	0.0-7.50 (34-42)	0.0	4.0-6.0	1.55-2.84	0.0-2.5 (34-42)	0.00	4.00	1.80
Faridkot	–	–	3.0-4.0 (39-41)	1.0-2.0 (36-38)	–	–	–	–	0.0-8.3 (32-36)	0.0-3.0 (32-36)	5.4	2.2	0.00	0.00	0.00	0.00
Hisar	0.00		0.0-3.0 (23-41)	0.0-4.0 (32-42)	0.00		0.00-2.00 (23-39)	0.0-1.0 (32-39)	0.0-4.0 (32-41)	0.00-6.0 (32-41)	8.9-9.10	0.76-1.57	0.0-2.0 (32-41)	0.0-2.0 (32-41)	–	–
Sirsa	0.00	0.00	4.0-6.0 (39-41)	0.0-1.89 (38)	0.00	0.00	0.00-0.67 (39)	0.00	9.3-14.0 (43)	–	15.3-18.6 (37-43)	9.9-10.89 (37-43)	0.0-2.0 (37-43)	0.00	2.36	0.59
Sriganga Nagar	0.00	0.00	3.0-4.0 (28-43)	0.0-5.0 (22-43)	0.00	0.00	0.00	0.00	5.00-25.0 (37-43)	0.00-4.0	0.0-30.0 (45)	0.0-21.07 (45)	0.00	0.00	0.00	0.00

LEAFHOPPER: In Punjab at Bathinda, maximum population of leafhopper was observed during 35SMW. In Faridkot, leafhopper infestation was found maximum from 31 SMW. In Haryana (Hisar & Sirsa) peak of leafhoppers, was observed during 31-33rd SMW. In Sriganganagar, peak leafhopper infestation was reported during 38st SMW.

WHITEFLY: In Punjab (Bathinda & Faridkot), maximum population of whitefly adults was observed during 24 &31st SMW. In Haryana (Hisar & Sirsa), whitefly was at its peak during 37-38 SMW. In Sriganganagar, whitefly appeared during 24th and 25th SMW and reached its peak during 33rd to 38th SMW.

THRIPS: In Punjab (Bathinda & Faridkot), maximum population of thrips was observed during 31st SMW. In Haryana (Hisar & Sirsa), thrips was at its peak during 30-31 SMW. In Sriganganagar, thrips reached its peak during 27th SMW.

NATURAL ENEMIES: In Punjab, population range of predators and peak activity were recorded during 23 to 35st SMW in Bathinda (0.00 to 5.00) and 33 to 35 in Faridkot (0 to 11.10). In Haryana, population range of predators and peak activity varied in Hisar and Sirsa with maximum predators (0.07-15.53) recorded in Hisar during 37 SMW and in Sirsa predator's population ranged 0.02-1.42 during 30th SMW. In Sriganganagar, population range (0.00-4.60) and peak activity was recorded during 22th & 33 SMW.

BOLLWORMS on NBt: In Punjab at Bathinda, PBW peak activity (1.00-1.50 larvae/20 green bolls) through destructive sampling was during 39-42 SMW and maximum green boll damage due to PBW was 7.50%, green boll damage due to other bollworms was nil but the open boll damage and locule damage was 4.00-6.00 and 1.55-2.84 percent. In Faridkot, PBW peak activity (4.00 larvae/20 green bolls) recorded through destructive sampling was during 41 SMW and maximum green boll damage due to PBW was 8.33 %, green boll damage due to other bollworms was 3% but the open boll damage and locule damage was 5.4 and 2.2 percent. In Haryana at Hisar, PBW peak activity (2.00-3.00 larvae/20 green bolls) through destructive sampling was during 39-41 SMW and maximum green boll damage due to PBW was 2.0%, green boll damage due to other bollworms was 4.0% but the open boll damage and locule damage was 8.97-9.10 and 0.76-1.57 percent. In Haryana at Sirsa, PBW peak activity (4.00-6.00 larvae/20 green bolls) through destructive sampling was during 39-41 SMW and maximum green boll damage due to PBW was 0.67%, green boll damage due to other bollworms was 6.0% but the open boll damage and locule damage was 15.34-18.68 and 9.97-10.89 percent. In Rajasthan at Sriganganagar, PBW peak activity (3.00-4.00 larvae/20 green bolls) through destructive sampling was during 42-43 SMW and maximum green boll damage due to PBW was 5-25%, green boll damage due to other bollworms was 4.0% but the open boll damage and locule damage was 0.00-0.30 and 0.00-21.07 percent

BOLLWORMS on BG-II: In Punjab at Bathinda, PBW peak activity recorded (1.00 /20 green bolls) through destructive sampling was during 42 SMW and maximum green boll damage due to PBW was 2.5%, green boll damage due to other bollworms was nil but the open boll damage and locule damage was 4.00 and 1.8 percent. In Haryana at Hisar, PBW peak activity (0.67/20 green bolls) through destructive sampling was during 39 SMW and maximum green boll damage due to PBW was 2.0 %, green boll damage due to other bollworms was 2.0%. In Sirsa, PBW peak activity (0.67/20 green bolls) through destructive sampling was during 39 SMW and maximum green boll damage due to PBW was 2.0%, but the open boll damage and locule damage was 2.36 and 0.59 percent. In Sriganganagar, bollworm damage due to PBW and other bollworms not observed.

Central Zone- Population range and peak activity period (SMW)

Centers Name					Natural Enemies / plant (Range)
	Jassid	Thrips	Whitefly	Aphid	
Banswara	0.33-7.67(30-47)	----	1.67-22.67(36-48)	----	0.10-0.50(36-48)
Surat	0.00-28.20(45)	0.60-38.30(43)	0.00-13.65(44)	0.00-59.95(50)	4.00-4.65(49)
Junagadh	1.3-13.9(50)	1.0-12.7(34)	0.9-7.5(30-41)	0.0-33.0(51)	0.10-0.23(31-47)
Bharuch	0.00-21.30(43)	0.00-42.40(47)	0.00-9.55(48)	0.00-56.20(52)	0.00-2.85(42)
Khandwa	0.00-6.80(31-42)	---	0.00-30.40(31-45)	1.60-29.20(31-50)	0.00-1.80(31-35)
Nanded	0.00-5.40(35)	0.00-8.00(33)	0.00-4.20(43)	0.00--34.4(30)	0.37-1.25(31-34)
Akola	0.30-16.90(34-48)	---	0.60-7.40(36-51)	0.00-14.40(39-52)	0.00-0.27(35-42)
Rahuri	2.04-19.16(28-31)	0.26-125.36(35)	0.72-9.18(41)	6.52-120.86(48)	0.82-2.98(39-48)
Bhawanipatna	0.00--19.12(41)	0.0-10.04(31-39)	0.00-5.12(31-46)	0.0--45.2(31-47)	0.00-4.20(33-51)

Centers Name	Population range and Peak activity of Bollworm (SMW)/plant								Peak activity of boll damage due to bollworm & Boll damage % (Range)							
	Non-Bt Cotton				Bt Cotton				Non-Bt Cotton				Bt Cotton			
	H. armigera	*S. litura*	*Pectinophora gossypiella*	*Earias spp.*	*H. armigera*	*S. litura*	*Pectinophora gossypiella*	*Earias spp.*	Green Boll damage (%) PBW	Green Boll damage (%)	Open Boll damage (%)	Locule damage (%)	Green Boll damage (%) PBW	Green Boll damage (%)	Open Boll damage (%)	Locule damage (%)
Banswara	-	-	-	-	-	-	-	-		-	-	-		-	-	-
Surat	0.0-2.40 (30-44)	0.0-2.20 (30-44)	0.0-8.00 (30-50)	0.60-1.00(39)	00-00	0.-0.0	0.0-6.0 (30-49)	0.0-0.0		0.00-28.36 (44)	-	-		0.0-0.0	0.0-2.40 (30-44)	0.0-2.20 (30-44)
Junagadh	0.00-0.75 (30-47)	0.0-0.00	0.00-16.00 (30-52)	0.00-0.50 (30-48)	0.00-0.50 (30-47)	0.00-0.00	0.00-9.0 (30-50)	0.00-0.0	17.57	-	20.57	13.89	6.08	-	0.0-0.75 (30-47)	0.0-0.0
Bharuch	0.0-1.00 (27-41)	0.0-1.75 (27-40)	0.0-4.00 (27-46)	0.0-2.00 (27-49)	00-00	0.0-2.0 (30-42)	0.0-2.0 (27-49)	00-00	-	-	-	-	-	-	0.0-1.00 (27-41)	0.0-1.75 (27-40)
Khandwa	0.00-0.60 (31-48)	--	0.40-0.95 (40-49)	0.0-0.80 (31-41)	0.0-0.60 (30-47)	-	0.0-0.45 (30-45)	0.0-0.20 (30-35)	-	-	-	-	-	-	0.00-0.60 (31-48)	--
Nanded	0.0-3.0 (29-38)	0.0-2.0 (29-37)	0.0-3.0 (29-48)	0.0-3.0 (29-34)	0.0-2.0 (29-39)	0.0-1.0 (29-42)	0.0-2.0 (29-45)	0.0-2.0 (29-45)	0.00-42.0 (51)	0.0-22.00 (36)	52.81	33.65	0.00-32.00	0.0-0.80	0.0-3.0 (29-38)	0.0-2.0 (29-37)
Akola	0.10-1.00 (39-41)	-	2.00-32.00 (39-1)	0.10-2.20 (36-50)	0.10-0.40 (41-42)	-	2.00-22.00 (40-49)	0.10(49)		3.45-6.28	-	-		2.55-4.55	0.10-1.00 (39-41)	-
Rahuri	1.23-1.30(41)	0.24-1.47 (43-48)	2.56-39.30 (40-48)	0.00-1.74 (28-34)	-	-	5.85-35.18 (42-48)	-	-	-	16.4-73.97 (48)	6.7-44.9 (48)	6.37-73.26 (40-48)	-	1.23-1.30 (41)	0.24-1.47 (43-48)
Bhawanipatna	0.00-1.33 (44)	0.00-4.33 (43)	0.00	1.66(42)	-	-	-	-		0.00-9.00 (31-42)		-	-	-	1.33(44)	4.33(43)

LEAFHOPPER: In Khandwa peak infestation of leafhopper was observed throughout the season but it was severe from 31-50 standard weeks. In Surat leafhopper appeared throughout crop season with peak population during 45th SMW. In Bharuch leafhopper appeared from 43 SMW. In Junagarh, peak activity of leafhopper was noticed between 50th SMW. In Nanded, peak incidence of leafhoppers was during 35th SMW. In Akola peak infestation of leafhoppers was noticed from 34-48th SMW. In Rahuri peak infestation of leafhoppers was noticed from 28-31th SMW. In Bhawanipatna peak leafhopper appeared during 41th SMW.

APHIDS: In Surat peak activity of aphid was observed during 49-50th SMW. In Bharuch aphid peak appeared from 50thSMW. In Junagarh, peak activity of aphid was noticed between 51 SMW. In Nanded, peak aphid incidence was during 30th SMW. In Akola peak infestation of aphid was noticed from 39-52 SMW. In Rahuri peak infestation of aphid was noticed from 48th SMW. In Bhawanipatna peak aphid appeared during 31-47th SMW.

WHITEFLY: In Banswara, maximum population of whitefly was observed during 36 & 48th SMW.In Khandwa peak infestation of whitefly was observed 31-45th standard week. In Surat peak whitefly appeared throughout crop season with peak population during 44-46th SMW. In Bharuch whitefly appeared from 48thSMW. In Junagarh, peak activity of whitefly was noticed between 40-41 SMW. In Nanded, peak incidence of whitefly was during 43th SMW. In Akola peak infestation of whitefly was noticed from 36-51 th SMW. In Rahuri peak infestation of whitefly was noticed from 41-42th SMW. In Bhawanipatna peak whiteflyappeared during 31-46th SMW.

THRIPS: In Surat peak thrips population recorded during 42-43th SMW. In Bharuch peak activity thrips appeared from 47thSMW. In Junagarh, peak activity of thrips was noticed between 34th SMW. In Nanded, peak incidence of thrips was during 32-33th SMW. In Rahuri peak infestation of thrips was noticed from 41th SMW. In Bhawanipatna peak thrips appeared during 31-46th SMW.

NATURAL ENEMIES: In Banswara, maximum population of natural enemies was observed during 36-48th SMW.In Khandwa peak population of natural enemies was observed during 31-35th standard week. In Surat peak predators appeared during 49th SMW. In Bharuch peak natural enemies appeared from 40-42thSMW. In Junagarh, peak activity of predators was noticed between 31-47th SMW. In Nanded, peak incidence of predators was during 43th SMW. In Akola peak infestation of predators was noticed from 35-42th SMW. In Rahuri peak infestation of predators was noticed from 39-48 SMW. In Bhawanipatna peak predators appeared during 33-51th SMW

BOLLWORMS on N-Bt: In Banswara infestation and damage of spotted bollworm and American bollworm was not observed or negligible. In Junagadh peak population of *Helicoverpa* and *Earias* was observed during 30-47th SMW. Pink bollworm peak was observed from 30thto 52nd SMW. Green boll damage (%) due to PBW recorded was 17.67, open boll damage (%) and locule damage (%) was 20.57 and 13.89, respectively. In Surat peak incidence of *H. armigera, E. vittella & S. litura* was observed in 30-44th SMW. Pink bollworm peak recorded during 30 to 50th SMW. Green boll damage peak due to bollworms other than PBW was 0.0-28.36%. In Nanded, incidence of *H. armigera, E. vittella & S. litura* was observed during 29-38th SMW. Green boll damage due to PBW was 0-42.0%, boll damage due to other bollworm was 0-22%. Open boll damage and locule damage was 52.80 &33.65% respectively. InBharuch, peak infestation of *H.armigera, Earias* and *Spodoptera* was noticed from 27-49th SMW. Pink bollworm was peak recorded during 27th to 46th SMW. In Akola, incidence of *H. armigera (39-41SMW), E. vittella (36-50 SMW)* was observed with very negligible incidence. Pink bollworm peak

recorded during 39 to 1st SMW. Green boll damage due to PBW was nil, peak boll damage due to another bollworm was 3.45-6.28 %. In Khandwa, negligible incidence of bollworm was noticed.

BOLLWORMS on Bt: In Banswara infestation and damage of spotted bollworm and American bollworm was not observed or negligible. In Junagadh peak population of *Helicoverpa* was observed during 30-47th SMW. Pink bollworm peak was observed from 30thto 50th SW. Green boll damage (%) due to PBW recorded was 6.08, open boll damage (%) and locule damage (%) was 0.75 and 3.0, respectively. In Surat peak incidence Pink bollworm recorded during 30th to 49th SMW. In Nanded, incidence of *H. armigera (29th-39th SMW), E. vittella & S. litura* was observed during 29-45th SMW. Green boll damage due to PBW was 0-32.0%, boll damage due to other bollworm was 0-0.8%. Open boll damage and locule damage was 3.0 & 2.0% respectively. In Bharuch, peak infestation of *Spodoptera* was noticed from 30th-42th SMW. Pink bollworm was peak recorded during 27th to 49th SMW. In Akola. In peak incidence of *H. armigera (41-42SMW), E. vittella (49 SMW)* was observed with very negligible incidence. Pink bollworm peak recorded during 40th-49th SMW. Green boll damage due to PBW was nil, peak boll damage due to other bollworm was 2.55-4.55 %. In Khandwa, negligible incidence of bollworm was noticed.

South Zone - Population range and peak activity period (SMW)

Centers Name	Population range and peak activity period (SMW) of sucking pests /3leaves				Natural Enemies/Plant
	Leafhopper	Thrips	Whitefly (SMW)	Aphid	
Lam,Guntur	1.30- 41.40 (1)	0.00-13.84 (35)	0-4.80 (46)	0.44- 16.20 (1)	0.00-0.16 (50)
Nandyal	1.80- 9.20 (42)	-	-	-	-
Dharwad	0.00- 12.70 (42)	0.00-43.90 (38)	0-2.50 (41)	0.00- 46.75 (47)	0.00-0.90 (46)
Raichur	2.23- 16.80 (47)	0.00-26.78 (37)	0.00-7.80 (46)	0.00- 5.40 (40)	0.00-2.88 (51)
Chamrajanagara	1.20- 7.75 (39)	0.00- 6.25 (34)	0.00-2.40 (39)	0.48- 41.25 (39)	0.00-6.23 (39)
Coimbatore	0.00-16.40 (44)	0.00-14.94 (43)	0.00-4.37 (43)	0.00- 28.60 (43)	0.00-2.86 (43)
Srivilliputtur	-	-	-	-	-

Centers Name	Population range and Peak activity of Bollworm (SMW)/plant								Peak activity of boll damage due to bollworm & Boll damage % (Range)					
	Non-Bt				Bt				Non-Bt			Bt		
	H. armigera	*S. litura*	*P. gossypiella*	*Earias spp.*	*H. armigera*	*S. litura*	*P. gossypiella*	*Earias spp.*	Green Boll damage (%)	Open Boll damage (%)	Locule damage (%)	Green Boll damage (%)	Open Boll damage (%)	Locule damage (%)
Lam	0.0-0.04 (43)	0.00-3.04 (42)	0.00-23.00 (3)	-	0.00	0.0-0.96 (42)	0.00-20.00 (1)	-	10.00-100 (1-4)	-	2.32-93.33 (45-4)	10.00-100 (44-1)	-	4.76-80.48 (44-4)
Nandyal	0.00	0.00	1.00-17.00 (52)	0.00	-	-	1.00-14.00 (52)	-	-	-	-	-	-	-
Dharwad	0.00-5.80 (39)	-	0.00-25.00 (49)	0.00-2.0 (44)	0.00-0.20 (36-40)	-	0.0-18.00 (49)	0.00-0.20 (44)	4.00-29.20 (39-50)	2.00-28.20 (48)	8.40-22.70 (49)	0.40-5.10 (46)	3.0-27.25 (48)	6.90-26.50 (48)
Raichur	0.00-0.58 (49)	0.00-4.18 (46)	0.00-24.00 (52)	0.00	-	-	-	-	0.0-12.00	95.32	92.14	0.00-10.00	71.54	65.28
Chamrajnagar	0.00	0.00	8.75-13.25 (50)	0.00	0.00	0.00	6.25-10.25 (50)	0.00	-	23.50	28.50	-	22.52	21.50
Coimbatore	0.00	0.00-2.84 (44)	0.0-1.98 (51)	0.00	0.00	0.0-1.52 (46)	0.00-0.67 (51)	0.00	-	1.27-9.88 (2)	1.2-2.6 (2)	-	1.26-4.67 (2)	1.32-1.56 (2)
Srivilliputtur	_	_	_	_	_	_	_	_	_	_	_	_	_	_

LEAFHOPPER/3leaves:
In Lam Guntur, leafhopper incidence was observed thorough out crop growth period. Population ranged from 1.30 to 41.40 per three leaves with peak population during 1st SMW. In Dharwad, incidence of leaf hopper ranged between 0-12.70/3leaves and attained peak at 47th SMW. In Raichur leafhopper population ranged between 2.23-16.80/3 leaves and reached maximum during 47th SMW. In Chamrajnagara, infestation of leafhopper was moderate and ranged between 1.20-7.75/3leaves. In Coimbatore, infestation of leafhopper ranged between 0-16.40/3 leaves and peak incidence at 43rd SMW. Leafhopper maximum was recorded in Guntur.

WHITEFLY/3leaves: In Lam Guntur, whitefly peak during 46th SMW. In Dharwad, population ranged between 0-2.51 and its peak in 41st SMW. In Raichur, population range 0-7.80/3leaves and peak in 46th SMW. In Chamarajanagar population ranged between 0-2.40/3 leaves and peak in 39th SMW, In Coimbatore population range between 0-4.37/3leaves and peak during 43rd SMW. Whitefly maximum population was observed in Raichur.

THRIPS/3leaves: In Lam, Guntur, thrips were at peak during 35th SMW. In Dharwad, 38th standard week. In Raichur, population of thrips was severe during 37th SMW. In Chamrajnagara, thrips was noticed 34th SMW. In Coimbatore, infestation of thrips population peak in 43rd SMW. Maximum population observed in Dharwad & Guntur.

APHIDS/3 leaves: In Lam Guntur, aphid was at peak during January. In Dharwad, aphid incidence was noticed from 32nd SMW to 37th SMW and peak during 47th SMW. In Raichur very negligible incidence of aphid was noticed. In Chamrajnagara, aphid population was medium to high during the season and peak was observed during 39th SMW. In Coimbatore, population of aphids attained its peak during 43rd SMW. Highest population was recorded in Dharwad.
BOLLWORMS on NBt: In Lam Guntur, severe incidence of pink bollworm was observed and peak incidence (23 larvae per 20 green bolls) was observed during 3rd SMW, *H. armigera* and *S. litura* were at low level. In Nandyal, the incidence of *H. armigera, E. insulana and S. exigua* was negligible throughout the cropping period. Pink bollworm 17 larvae per 20 green bolls crossed ETL from 46th SMW and peak in 52nd SMW. In Dharwad, infestation of *Helicoverpa* and spotted bollworm was moderate. Infestations of 25 PBW /20 green bolls were at peak during 49th SMW. In Raichur, *H. armigera* population was low during the season Pink bollworm incidence was severe and peak incidence was recorded from October to December and maximum 24 larves/ 20 green bolls in 52nd SMW. In Chamrajnagara, population of *Earias spp and Spodoptera* was not noticed throughout the season. Infestation of PBW /20 green bolls were at peak during 50th SMW. In Coimbatore infestation of pink bollworm was noticed from third week of November and continued to exist till the end of the cropping season with peak during 52th SMW. Highest bollworm population in Non-Bt was in Lam & Dharwad.

BOLLWORMS on BT: In Lam Guntur, Incidence of *bollworms* was negligible. Severe incidence of Pink bollworm was observed at 1st SMW. In Nandyal, peak pink bollworm larvae per 20 green bolls were recorded during 52ndSMW. In Dharwad, peak infestation of *H. armigera* observed during 36-40th SMW & spotted bollworm during 44th SMW.PBW peak infestation was observed during 49th SMW. In Chamarajanagar and Coimbatore, peak PBW infestation was during 50-51 SMW. Highest incidence of PBW & others bollworm in BG- II cotton observed in Lam Guntur & Dharwad. But the open boll damage was highest in Raichur.

Ent 3: Survey for key and emerging pests in cotton in farmers' fields for weekly advisory– All centers (Table No -160)

NORTH ZONE

In Bathinda, a total of 134 villages were surveyed and 736 locations were visited for surveillance of insect pests of cotton in Bathinda region of Punjab starting from May to November of kharif, in which whitefly, leafhopper, thrips and pink bollworm crossed ETL in whitefly 56, 76 and 20 locations respectively. In Faridkot, 346 locations were surveyed in 166 villages in which thrips crossed ETL in 9 locations, leafhopper crossed ETL in 13 locations mainly during May-October. Whitefly was above ETL in 67 locations during May – October. In Hisar, during the survey, a total of 156 locations of 76 villages were surveyed from Aug to Oct. Out of 109 4, 0 locations were found to cross ETL of whiteflies, leafhoppers and thrips, respectively. In Sirsa, total 132 locations of 97 villages were surveyed, out of these 59, 5 and 9 locations were crossed ETL for whitefly, leafhopper and thrips respectively. In Sriganganagar, total number of 62 villages and 252 locations were surveyed during Kharif 2020-21 for infestation of insect pests, whitefly, leafhopper and thrips crossed ETL in 117, 1 and 59 locations respectively.

CENTRAL ZONE

In Banswara, 118 Villages were surveyed in which Leaf hopper crossed ETL at 23 locations. In Junagadh, 243 and locations villages were surveyed for whitefly, leafhopper, thrips, aphids and PBW crossed ETL in 60, 36, 48, 48 and 97 locations respectively. In Surat, 983 at location villages were surveyed in which leaf hopper; thrips, aphids and PBW were crossed ETL in 55, 20, 55 and 39 locations respectively. In Akola, 187 villages were surveyed in which whitefly; leaf hopper, thrips and PBW crossed ETL in 27, 58, 22 and 51 locations respectively. In Nanded, 900 and location villages were surveyed for whitefly, leafhopper *and E. vittella c*rossed ETL in 58, 22 and 51respectively. In Rahuri, a total number of 410 villages were surveyed for pest infestation in which whitefly, leafhopper, thrips, aphids and PBW crossed ETL in 23, 25, 35, 186 and 36 locations respectively. In Bhawanipatna, a total of 392 villages and location were surveyed in which leafhopper, thrips, aphids, *H. armigera*, *E. vittella* and *S. litura* crossed ETL in 121, 39, 10, 8, 11 and 17 locations respectively.

SOUTH ZONE

In Lam Guntur, whitefly, leafhopper, aphids and PBW crossed ETL in 9, 12, 1 and 48 locations out of 103 locations surveyed at 52 villages. In Dharwad, 295 locations of 97 villages were surveyed for pest infestation in which whitefly, leafhopper, thrips, aphid's mirid bug and PBW crossed ETL in 6, 72, 47, 26, 33 and 44 locations respectively. In Raichur, 1335 locations of 68 villages were surveyed in which leafhopper, thrips and PBW crossed ETL in 130, 38 and 249 locations respectively. In Chamarajanagar, out of 1004 locations of 103 village's surveyed leafhopper, aphids and PBW crossed ETL in 55, 56 and 33 locations. In Coimbatore out of 137 locations of 54 villages surveyed; leafhopper, thrips PBW and stem weevil crossed ETL only in stem weevil in 685 locations respectively.

Ent4a : Determination of nymphal based ETL estimation and yield losses for cotton whitefly *Bemisia tabaci*. (Table 161-165)

Cultivar: RCH773; Locations: Bathinda, Faridkot, CICR Sirsa, HAU, Hisar, ARS, Sriganganagar; Replications: Three

S.No	Treatment	Observation	Additional Observation		
			Nymphs to be observed	Additional Observations	Required Observation
1	1 nymph/leaf ---(30 or more live red eyed nymph on selected &tagged 10plants)	Nymphal counts from one (uniformly fixed) leaf of upper/middle/lower strata of 30 tagged plants	5th main stem internodes leaf of each 10 plant (randomly selected and tagged)	Observe three leaves from upper/middle/lower strata for total number of nymphal and adults counts only from 3plants of each plot other than the selected 10 tagged plants	Observe/counts the number of ants/3leaves in all treatments
2	2 nymph/leaf – (60 or more live red eyed nymph on selected&tagged10 plants)				
3	4 nymph/leaf 120 or more live red eyed nymph on selected&tagged10 plants)				
4	6 nymph/leaf 180 or more live red eyed nymph on selected & tagged10 plants)				
5	Honey dew symptoms on 20 percent of the total plants	Count on plot basis			
6	Honey dew symptoms on 30 percent of the total plants				
7	Honey dew symptoms on 40 percent of the total plants				
8	Honey dew symptoms on 50 percent of the total plants				
9	6-8 adults//leaf (Treated control)				
10	Untreated control				

Results –SIRSA/ Hisar/Bathinda/Faridkot/Sriganganagar

- After sowing, plots were regularly monitored (twice a week) for whitefly nymphal and adult population. Total 10 plants were observed and one leaf between 5^{th}-7^{th} main stem was observed for total number of red eyed nymphs on it. From each plot, plants having desired level of nymphal count/leaf were fixed. Whitefly adults and Ant's count was also recorded at each observation.
- In treatment-1 (30 or more live red eyed nymph) when average population of 30 leaves of 10 plants was 30 nymphs or above/, treatment in the form of interventions started.
- In treatment-2 (60 or more live red eyed nymph) when average population of 30 leaves of 10 plants was 60 nymphs or above, treatment in the form of interventions started.
- In treatment-3 (120 or more livered eyed nymph) when average population of 30 leaves of 10 plants observed was120 nymphs or above, treatment in the form of interventions started.
- In treatment-4 (180 or more live red eyed nymph) when average population of 30 leaves of 10 plants observed was 180 nymphs or above, treatment in the form of interventions started.
- These plants were observed twice a week and whenever the fixed level of nymphs/30leaves arrived, plot was sprayed.
- In treatment -5, plants were observed and whenever Honey dew symptoms on 20 per cent of the plants were observed, treatment initiated.
- In treatment -6, plants were observed and whenever Honey dew symptoms on 30 per cent of the plants were observed, treatment initiated.
- In treatment -7, plants were observed and whenever Honey dew symptoms on 40 per cent of the plants were observed, treatment initiated.
- In treatment -8, plants were observed and whenever Honey dew symptoms on 50 per cent of the plants were observed, treatment initiated.
- In treatment -9, adults' population /3 leaves were observed and whenever the counts reached to 6-8 adults/ leaf (Treated control) interventions were applied.
- In treatment -10, no intervention was applied, untreated control
- All the observations were recorded with 5-8 **X** magnification lens and special care was taken to determine if the nymphs are dead due to predators (i.e., shrunken, deflated, or ghost-like in appearance), parasites [i.e., golden, black, or possessing asymmetrical or insecticides i.e., discolored or distorted in body-shape). Dead nymphs were excluded from counts.
- The Insect growth regulators Lano10EC (pyriproxyfen) @ 500ml/ acre was applied when desired level of nymphal number /adult number /honey dew percent observed in a particular treatment.
- In case of treatment-9, if the desired level of adult (above ETL) arrived diafenthiuron or pyriproxyfen were applied at recommended rates.
- At the end yield data was also recorded and yield loss over treated control was calculated.

In Bathinda, Observations of nymphal counts from one leaf of upper/middle /lower strata of 10 tagged plants and adult count were recorded. In the treatment (T_1 --30 or more live red eyed nymph/10 plants) the average nymphal count/leaf on tagged plant was 1.22-4.29 and on 5^{th} main stem leaf was 3.00-8.53 followed by 1.93-5.24 and 2.80-9.73 in treatment (T_2 -60 or more live red eyed nymph/10 plants). The whitefly adults/3leaves ranged between 3.40-10.47 and 4.80-11.20 and there is no yield reduction in treatment T_1 and T_2. In treatment T_3 (120 or more live red eyed nymphs/10plants) and T_4 (180 or more live red eyed nymph/10plants), average nymph/ leaf was 1.67-9.49 and 2.27-11.78 respectively. The yield reduction in these treatments as compared to control was 2.92 & 6.32 % respectively. In treatment T_5-T_8 honey dew symptoms (20%, 30%, 40%, and 50% honey dew symptoms) the average nymphal count/leaf was 4.86, 5.72, 6.06 and 8.31 respectively. In the treatment (T9-

treated control) average adult population of whitefly /3leaves was 7.12 (3.27-16.67). The treatment (T_{10}) was an untreated control in which the population of adult whitefly was ranged 6.10-42.60/3leaves and yield reduction was maximum (15.84%).

In Sirsa, observations of nymphal counts from one leaf of upper/middle /lower strata of 10 tagged plants and adult count were recorded. In the treatment (T_1 --30 or more live red eyed nymph/10 plants) the average nymphal count/leaf on tagged plant was 0.71-2.11 and on 5th main stem leaf was 0.53-3.90 followed by 1.11-4.57 and 0.43-4.93 in treatment (T_2 -60 or more live red eyed nymph/10 plants). The whitefly adults/3leaves ranged between 7.97-16.47 and 9.90-17.27 and there is no yield reduction in treatment (T_1) but in case of T_2 the yield reduction was 3.53 % respectively. In treatment T_3 (120 or more live red eyed nymphs/10plants) and T_4 (180 or more live red eyed nymph/30 plants), average nymph/ leaf was 1.13-4.36 and 1.17-6.62, respectively. The yield reduction in these treatments as compared to control was 10.27 &15.63 %respectively. In treatment T_5-T_8 honey dew symptoms (20%, 30%, 40%, and 50% honey dew symptoms) the honey dew % was15.31,26.47, 33.07 and 35.67 % respectively and none of the treatment reached to the desired level. In the treatment (T_9 treated control) average adult population of whitefly /3leaves was 8.25(6.87-14.48). The treatment (T_{10}) was an untreated control in which the population of adult whitefly was ranged 6.83-21.83/3leaves and yield reduction was maximum (28.04%).

In Hisar, observations of nymphal counts from one leaf of upper/middle /lower strata of 10 tagged plants and adult count were recorded. In the treatment (T_1 --30 or more live red eyed nymph/10 plants) the average nymphal count/leaf on tagged plant was 0.23-5.37 and on 5th main stem leaf was 0.33-8.43 followed by 0.53-6.57 and 0.73-9.20 in treatment (T_2 -60 or more live red eyed nymph/10 plants). The whitefly adults/3leaves ranged between 1.73-20.57 and 1.80-21.77 and there is no yield reduction in treatment T_1 and T_2. In treatment T_3 (120 or more live red eyed nymphs/10plants) and T_4 (180 or more live red eyed nymph/10 plants), average nymph/ leaf was 1.93-9.23 and 2.47-12.60, respectively. There is no yield reduction in treatment (T_3) as compared to control while in case of treatment (T_4) the yield reduction was 0.67 %respectively. In treatment T_5-T_8 honey dews symptoms (20%, 30%, 40%, 50% honey dew symptoms) the average nymphal count/leaf was 19.65, 21.55, 30 .91 and 32.79 respectively. In the treatment (T_9 treated control) average adult population of whitefly /3leaves was 15.89 (1.73-41.43). The treatment (T_{10}) was an untreated control in which the population of adult whitefly was ranged 4.67-18.33/3leaves and yield reduction was maximum (29.53%).

In Sriganganagar, the observations of nymphal counts from one leaf of upper/middle /lower strata of 10 tagged plants and adult count were recorded. In the treatment (T_1 --30 or more live red eyed nymph/10 plants) the average nymphal count/leaf on tagged plant was 0.17-4.53 and on 5th main stem leaf was 0.47-10.33 followed by 0.43-5.97 and 0.67-12.06 in treatment (T_2 -60 or more live red eyed nymph/10 plants). The whitefly adults/3leaves ranged between 1.27-17.67 and 1.33-21.57 and there is no yield reduction in treatment T_1 and T_2. In treatment T_3 (120 or more live red eyed nymphs/10plants) and T_4 (180 or more live red eyed nymph/10plants), average nymph/ leaf was 1.33-8.76 and 1.97-11.67, respectively. There is no yield reduction in treatment (T_3) and (T_4). In treatment T_5-T_8 honey dew symptoms (20%, 30%, 40%, and 50% honey dew symptoms) the average nymphal count/leaf was 22.53, 26.17, 37.26 and 45.33 respectively. In the treatment (T_9 treated control) average adult population of whitefly /3leaves was 12.83 (4.67-41.26). The treatment (T_{10}) was an untreated control in which the population of adult whitefly was ranged 7.76-94.87 /3leaves and yield reduction was maximum (20.91%).

Ent 5a. Management of sucking pests in cotton (166-188)

S.NO.	Name of the insecticide/ Treatment	g.a.i /ha	Dosage in ml /ha
1	Spinetoram11.7%	50	420
2	Pyriproxyfen 10% EC	100	1000
3	Dinotefuran20%SG	30	150
4	Spiromesifen 240 SC (22.9%)	144	600
5	Diafenthiuron 50WP	300	600
6	Flonicamid 50% WG	75	150
7	Imidacloprid 200 SL (17.8%)	25	125
8	Control	--	----

Central Zone

In Surat, based on sprays applied against sucking pests' minimum population of leafhopper/ 3 leaves (1.36/3leaves) was observed in flonicamid > dinotefuran (2.20)>diafenthiuron (3.09)>imidacloprid as compared to control (10.51/3leavse). Minimum population for thrips/3 leaves was recorded in flonicamid (4.57)>spinetoram (4.87)>dinotefuran (5.23) in comparison to control (10.03). Minimum population for whitefly/3leaves was recorded in spiromesifen (1.16)>diafenthiuron (1.24)>flonicamid (1.38)>pyriproxyfen (2.04) as compared to control (3.49). Minimum population for aphid/ 3leaves was in flonicamid>dinotefuran>diafenthiuron and were superior over all treatments. In case of mealybug/twig minimum population was in flonicamid>diafenthiuron>dinotefuran.

In Junagarh, based on sprays applied against sucking pests' minimum population of leafhopper/3leaves was observed in spinetoram (2.47) > pyriproxyfen (2.81)>flonicamid (4.00)>spiromesifen (4.21) as compared to control (7.10). Minimum population for thrips/3leaves was recorded in spinetoram (1.77)>pyriproxyfen (1.97)>dinotefuran (2.26) in comparison to control (4.21). Minimum population for whitefly/3leaves was recorded in diafenthiuron (1.42)> spinetoram (1.68)>pyriproxyfen (1.84)>flonicamid (2.20) as compared to control (4.12). Minimum population for aphid/ 3leaves was in spinetoram>pyriproxyfen>flonicamid.

In Rahuri, based on sprays applied against sucking pests' minimum population of leafhopper/3leaves was observed in imidacloprid17.8SL>spinetoram (7.02) >dinotefuran (7.07) > pyriproxyfen (7.20) as compared to control (14.47/3leaves). Minimum population for thrips/3leaves was recorded in imidacloprid (0.80)>spinetoram (1.16)>dinotefuran (1.31)>flonicamid (1.33) in comparison to control (8.67). Minimum population for whitefly/3leaves was recorded in dinotefuran (2.50)>flonicamid (3.24)>spinetoram (3.38)>pyriproxyfen (3.45) as compare to control (7.39). Minimum population for aphid/ 3leaves was in imidacloprid>spiromesifen>diafenthiuron>flonicamid and were superior over all treatments. No phytotoxicity symptoms were observed in any treatment.

In Akola, based on of sprays applied against sucking pests' minimum population of whitefly/3leaves was recorded in imidacloprid>flonicamid>spinetoram>dinotefuran as compared to control (3.49). Population of leafhoppers, thrips and aphids was very low in the experiment.

In Nanded, all treatments were superior over control in population reduction. The pretreatment population of aphid varied between 31-42.67 and after spray application it ranged between 1.07-2.70. However, there was no difference in population reduction in control as well as in treatment applied.

In Khandwa, population of sucking pests was very low and experiment was inconclusive.

In Banswara, based sprays applied against sucking pests' minimum population of leafhopper/3leaves (1.33) was observed in flonicamid >dinotefuran (1.67)>pyriproxyfen (3.00) as compared to control (9.67). Minimum population for whitefly/3leaves was recorded in flonicamid (3.00)> dinotefuran (3.33)>diafenthiuron (4.00)>spiromesifen (4.33) as compared to control (26.67).

In Bhwanipatna, based on sprays applied against sucking pests' minimum population of leafhopper/3leaves (0.71) was observed in flonicamid > spiromesifen (1.75)>dinotefuran (2.18)>pyriproxyfen (2.18) as compared to control (10.36). Minimum population for thrips/3leaves was recorded in flonicamid (0.32)>spiromesifen (0.78)>imidacloprid (1.25)>pyriproxyfen (2.58) in comparison to control (10.46). Minimum population for whitefly/3leaves was recorded in imidacloprid (0.33)> spiromesifen (0.43) >diafenthiuron> flonicamid (0.52) as compared to control (5.88). Minimum population for aphid/ 3leaves was in flonicamid>diafenthiuron >pyriproxyfen and were superior over all treatments.

South Zone

In Lam, based on sprays applied against sucking pests' minimum population of leafhopper/3leaves was observed in imidacloprid 200 SL (0.53)> flonicamid 50%WG(0.67)> diafenthiuron 50WP (0.93)>imidacloprid (1.00) as compared to control (6.00).Minimum population for whitefly/3leaves was recorded in diafenthiuron 50WP (1.00)> flonicamid 50%WG (1.33)> spinetoram11.7% (1.4)> spiromesifen 240 SC (1.73) as compared to control (6.2). Minimum population for natural enemies/plant was in imidacloprid 200 SL, spiromesifen240 SC(0.03),spinetoram11.7%,diafenthiuron50WP(0.07)and pyriproxyfen 10% EC (0.13)

In Nandyal, based on sprays applied against sucking pests' minimum population of leafhopper/3leaves was observed in flonicamid 50%WG (5.60) > dinotefuran20%SG (5.80)> pyriproxyfen 10% EC (6.27)> spinetoram11.7% (7.13) as compared to control (16.33). Minimum population for thrips was recorded in spinetoram11.7%>dinotefuran20%SG> diafenthiuron 50WP (0.00)> flonicamid 50% WG (0.4)> pyriproxyfen 10% EC (0.47) in comparison to control (1.8). Minimum population for whitefly/3leaves was recorded in spinetoram11.7%> dinotefuran20%SG (0.33)> flonicamid 50% WG (0.4)> pyriproxyfen 10% EC> imidacloprid 200 SL (0.47)> spiromesifen 240 SC (0.53) as compared to control (0.87).

In Dharwad, based on sprays applied against sucking pests' minimum population of leafhopper/3leaves was observed in spinetoram11.7% (1.31)> flonicamid 50% WG (1.71), dinotefuran20%SG (1.85)> diafenthiuron 50WP (1.93) as compared to control (12.91/3leaves). Minimum population for thrips was recorded in spinetoram11.7% (4.12)> flonicamid 50% WG (5.68)> dinotefuran20%SG (5.89)> diafenthiuron 50WP (6.71) in comparison to control (37.91). Minimum population for aphid/ 3leaves was in flonicamid 50% WG (6.92)> spinetoram11.7%, (7.15)> dinotefuran20%SG (8.12)> imidacloprid 200 SL (9.1) and were superior over all treatments. No phytotoxicity symptoms were observed in any treatment. Minimum population for natural enemies/plant was in spinetoram11.7% (0.27), pyriproxyfen 10% EC (0.33), diafenthiuron 50WP and flonicamid 50% WG (0.4).

In Raichur, based on sprays applied against sucking pests' minimum population of leafhopper/3leaves was observed in diafenthiuron 50WP (0.32) >pyriproxyfen10%EC (0.33)>dinotefuran20%SG (0.71)> imidacloprid 200 SL (0.89)> spiromesifen 240 SC (1.05) as compared to control (14.85). Minimum population for thrips/3leaves was recorded in spinetoram11.7 %

(0.59)>imidacloprid 200 SL (1.2)> diafenthiuron 50WP (1.39)> spiromesifen 240 SC (2.13) in comparison to control (24.46). Minimum population of whitefly/3leaves was recorded in imidacloprid 200 SL (0.2)> spiromesifen 240 SC (0.25)> pyriproxyfen 10% EC (0.42)> spinetoram11.7 %((0.47) as compared to control (3.51).

In Chamrajanagara, as per sprays applied against sucking pests' minimum population of leafhopper/3leaves was observed in flonicamid 50% WG (0.48)> pyriproxyfen 10% EC (0.65) >dinotefuran20%SG (0.73)> diafenthiuron 50WP (0.89) as compared to control (7.08). Minimum population for thrips was recorded in spinetoram11.7% (0.37)> flonicamid 50% WG (0.5)> pyriproxyfen 10% EC (0.73)> dinotefuran20%SG (0.84) in comparison to control (7.87). Minimum population of whitefly/3leaves was recorded in spinetoram11.7% (0.28)> flonicamid 50% WG (0.39)> pyriproxyfen 10% EC (0.5)> dinotefuran20%SG (0.74) as compared to control (5.69). Minimum population for aphid/ 3leaves was in flonicamid 50% WG (0.71)> pyriproxyfen 10% EC (0.8)> dinotefuran20%SG (1.21)> diafenthiuron 50WP (2.05) and were superior over all treatments. No phytotoxicity symptoms were observed in any treatment. Minimum population for natural enemies/plant was in imidacloprid 200 SL (0.5), spiromesifen 240 SC EC (0.54), spinetoram11.7% (0.63) and diafenthiuron 50WP (0.67).

In Coimbatore, sprays applied against sucking pests recorded minimum population of leafhopper/3leaves in dinotefuran20%SG (0.05> imidacloprid 200 SL (0.09) > diafenthiuron 50WP (0.10)> spiromesifen 240 SC (0.70) as compared to control (9.62). Minimum population for thrips/3leaves was recorded in spinetoram11.7 % (0.04)> dinotefuran20%SG (0.05)> imidacloprid 200 SL (0.09)> diafenthiuron 50WP (0.10) in comparison to control (4.34). Minimum population for aphid/ 3leaves was in imidacloprid 200 SL (0.00)> flonicamid 50% WG (0.01)> spinetoram11.7%>pyriproxyfen 10% EC (0.02) as compared to control (9.56) and were superior over all treatments.

Experiment 5b. Management of thrips through biorational approaches (Table 189-191)

Treatments		Dosage/lit
T1	Sesame oil	10ml
T2	Pongamia oil	10 ml
T3	Castor oil	10ml
T4	Neem oil	5ml
T5	Neem 300 ppm	5ml
T6	Neem1500ppm	5 ml
T7	Horticultural Mineral oil	5ml
T8	Spinosad 2.5EC	0.8ml
T9	Profenophos 50 EC	3.3ml
T10	Diafenthiuron 50EC	1.6ml
T11	Control	

Locations: Bathinda, Faridkot, Sirsa, Hisar, Sriganganagar (Replication three)

Methodology: First spray after observing ETL of Thrips (10 nymphs of thrips /leaf), subsequent sprays at 15 days interval up to 80 days. Among the eleven treatments, in general chemical insecticides were performed better in lowering the thrips numbers as compared to different oils. Based on the percentage reduction of population the order of efficacy of the treatments were

Bathinda: -Spinosad 2.5% EC >Pongamia oil> Diafenthiuron 50% EC > Sesame oil>Castor oil> Profenophos 50% EC> Neem oil > Neem 300ppm> Neem 1500ppm> Horticultural Mineral oil.

Faridkot: - Spinosad 2.5% EC > Profenophos 50% EC> Diafenthiuron 50% EC>Pongamia oil >Neem 1500ppm >Neem 300ppm>Neem oil > Sesame oil >Castor oil >Horticultural Mineral oil.

Hisar: - Spinosad 2.5% EC> Diafenthiuron 50% EC > Profenophos 50% EC> Sesame oil> Castor oil> Pongamia oil> Neem 1500ppm > Neem oil> Neem 300ppm > Horticultural Mineral oil.

Sirsa: - Spinosad 2.5% EC >Profenophos 50% EC >Diafenthiuron 50% EC>Castor oil>Pongamia oil>Sesame oil>Neem 1500ppm>Neem oil > Neem 300ppm> Horticultural Mineral oil.

Sriganganagar: - Spinosad 2.5% EC>Diafenthiuron 50% EC>Profenophos 50% EC> Neem oil>Neem 1500ppm > Horticultural Mineral oil >Neem 300ppm> Pongamia oil>Castor oil> Sesame oil.

No plant phytotoxicity in any of the treatment was observed. Also the effect of differenttreatments on natural enemies was non-significant.

Ent6: Evaluation of new Bt formulation against bollworm complex of cotton (Table192-217)

Variety:FDK124; **Locations**:Bathinda,Faridkot,Sirsa,Hisar,Sriganganagar

TimeandNo.Spray: First spray after observation of 5-10% of fruiting body damage followed by 2-3 sprays as per the infestation.

Replications-Four

S.N	Treatments	Dosage/litre
1.	Bt-127SCformulation	2.0ml/l
2.	Bt-127SCformulation	3.0ml/l
3.	Bt-127SCformulation	4.0ml/l
4.	Chlorantraniliprole18.5SC	0.3ml/l
5.	Untreated check	

In Bathinda:

Chlorantraniliprole18.5SC @ 0.3ml/l was found best treatment with minimum population of 2.33 larvae/plant followed by chlorpyriphos 20EC @ 4.0ml/l with 2.47 larvae/plant. Highest seed cotton yield of 21.41 q/ha was recorded in the treatment with Lambda cyhalothrin5%EC @ 1.0-2.0.

In Faridkot:

At 14 DAS, chlorantraniliprole 18.5 SC @ 0.3ml/l was found best treatment with minimum population of 0.00 larvae/plant followed by Bt-127SC formulation @ 3.0ml/l, Bt-127SC formulation @ 4.0ml/l, lambda cyhalothrin 5% EC @ 1.0-2.0 with 0.32 larvae / plant. Maximum mean percent reduction of population was recorded as 100 and 84.6 in Chlorantraniliprole 18.5 SC @ 0.3ml/ l and Bt-127SCformulation @ 3.0ml/l, Bt-127SC formulation @ 4.0ml/l, Lambda cyhalothrin 5% EC @ 1.0-2.0 respectively.

In Hisar:

Minimum count (0.93 larvae/plant) was obtained with chlorantraniliprole18.5SC which was followed by Bt-127 @ 4.0 ml/litre (1.28 larvae/plant) and Bt-127 @ 3.0 ml/litre (1.33 larvae/plant). Highest seed cotton yield (24.81 q/ha) was obtained with Chlorantraniliprole 18.5SC followed by Bt-127

@ 4.0 ml/litre (21.95q/ha) and Bt-127 @ 3.0 ml/litre (21.38 q/ha). Maximum mean percent reduction (65.05) of population was observed in Chlorantraniliprole 18.5 SC@ 0.3ml/litre

In Sirsa:

Chlorpyriphos 20EC 18.5SC @ 2.5 ml/l recorded the minimum number of larvae of 0.96 followed by Bt-127 SC formulation at (4ml/lit) and chlorantraniliprole18.5SC @ 0.3ml/l with 1.16 and 1.27 larvae / plant. Maximum mean percent reduction (59.32) of population was observed in chlorpyriphos 20EC 18.5 SC@ 2.5 ml/l. Highest seed cotton yield (22.17 q/ha) was recorded in chlorpyriphos 20EC treated plot.

In Sriganganagar:

Minimum bollworm population of 1.40 larvae/plants was recorded in treatment Chlorantraniliprole 18.5 SC @ 0.3 ml/l with maximum mean percent reduction of population over control was 75.09 followed by Bt-127 SC formulation@ 3.00 ml/l with a population of 2.33 larvae/plants and a mean percent reduction of population was 56.10 over control. Bt-127 SC formulation @2.00 ml/l recorded 2.53 larvae/plants with a percent reduction in larval population over control as 50.24.

Central Zone: Surat, Nanded, Junagadh, Rahuri SouthZone:Nandyal,Dharwad,Raichur

Treatments

Variety:Local popular non Btvariety/hybrid susceptible to bollworms

Time and No.Spray: First spray after observation of 10% of fruiting body damage followed by 3sprays at 15 days interval.

Replications-3

Observations:

- Larval population before and 3,7and14daysafter eachspray
- Natural enemies before and 3,7 and14days after each spray
- Phytotoxicity symptoms before and 15and 30 days after spray
- Seed cotton yield

*Brigade-B(WP formulation) sponsored by Kan–biosys,Pune

**Bt-127SC formulation supplied by DOR, Hyderabad

S. N	Treatments
1	Bt-127SCformulation@2.0ml/litre
2	Bt-127SCformulation@3.0ml/litre
3	Bt-127SCformulation@4.0ml/litre
4	Brigade-B(WP formulation)@3gm/litre
5	Brigade-B(WP formulation)@5gm/litre
6	Brigade-B(WP formulation)@7gm/litre
7	Chlorantraniliprole 18.5SC@0.3ml/litre
8	Untreated check

RESULTS (Central Zone – Junagadh,Surat, Nanded,Rahuri)

JUNAGADH

Significantly low larval population of bollworms was recorded in Brigade-B @ 5 gm/l. significantly lower percent damage by bollworms to green bolls, open bolls and locule damage in Brigade-B@ 5 gm/l, than other remaining treatments.

SURAT

Pooled results of three sprays revealed that significantly lowest *H. armigera* larval population was recorded in chlorantraniliprole 18.5 SC @ 0.3 ml/lit (Av. 1.37 larvae/5 plant) followed by Brigade-BWP@7.0ml/lit (Av.1.89 larvae/5plant). The highest reduction of larval population was in chlorantraniliprole 18.5 SC @ 0.3 ml/l and Brigade-B WP @ 7.0 ml/lit i.e., 64.14 and 50.52 per cent, respectively. The lowest *E. vittella* larval population was recorded in chlorantraniliprole 18.5 SC @ 0.3ml/lit (Av. 0.96 larvae/5 plant) and was statistically at par with Brigade-BWP@7.0ml/lit (Av.1.22 larvae/5 plant) followed by Brigade-B WP @ 5.0 ml/l and Brigade-B WP @ 3.0 ml/l. The highest reduction (%) of larval population of above treatments was 66.32 in chlorantraniliprole 18.5SC@0.3ml/l and 57.19 in Brigade-BWP@7.0ml/l and lowest PBW larval population was recorded in chlorantraniliprole18.5SC@ 0.3ml/l and Brigade-BWP@7.0ml/l with 0.52 and 0.93 respectively. Damage to open boll and locules at harvest by bollworms was found below ETL in chlorantraniliprole 18.5SC @ 0.3ml/l followed by Brigade-BWP@7.0and5.0g/lit (<10.0%damage). As far as damage to open boll and locule by pink bollworm is concerned, below ETL damage was recorded in chlorantraniliprole 18.5 SC @ 0.3 ml/liter followed by Brigade-B WP @ 7.0 ml/liter. The open boll damage was recorded above ETL in Bt-127SC@ 2.0and3.0 ml/l and untreated control.

NANDED

The lowest population of *H. armigera* was observed in chlorantraniliprole 18.5SC@0.3ml/l (T7) and Brigade-BWP@7.0ml/l (T6) which was 0.33 larvae / plant followed by 0.67 larvae / plant in treatment Bt-127SC formulation @ 2.0ml/litre and Brigade-B (WP formulation) @3gm/litre respectively. Similarly, the lowest population of pink bollworm larvae / 20 green bolls was observed in chlorantraniliprole 18.5SC@0.3ml/litre (T7) followed by Brigade-BWP@7.0and5.0g/litre (T6) which was 0.33 and 0.67 respectively.

RAHURI

The lowest population of *H. armigera* was observed in chlorantraniliprole 18.5SC@0.3ml/l (T7) (0.11/ plant) which was followed by Bt-127SC formulation @ 4.0ml/liter (T3) (0.42/ plant) and Bt-127SC formulation @ 3.0ml/liter T2 (0.45/plant). Similarly, lowest population of pink bollworm (larvae/ 20 green bolls) was observed in treatment chlorantraniliprole 18.5SC@0.3ml/liter (2.90) which was followed by T6- Brigade-B(WP formulation)@7gm/liter (4.83), T-3, Bt-127 SC formulation@4.0ml/liter (5.01), T5- Brigade-B(WP formulation) @ 5gm/liter (5.15) and T2- Bt-127SC formulation @3.0ml/liter (5.35) respectively. The lowest open boll and locule damage due to pink bollworms was in chlorantraniliprole 18.5SC@0.3ml/l (T7) and Bt-127SC formulation@4.0ml/liter respectively.

SOUTH ZONE (Nandyal, Warangal, Dharwad, Raichur)

DHARWAD

After 14 days of second spraying, the lowest population of *Helicoverpa armigera* was recorded in chlorantraniliprole18.5 Sc@ 0.3ml (0.66), followed by Bt-127SC formulation@4.0ml/litre which was 2.45 larvae / plant. Similarly in case of pink bollworm larvae the lowest population was in treatment T7-chlorantraniliprole 18.5SC@0.3ml/litre, which was 1.50 larvae / plant. The green boll damage(%) due to H. armigera and pink bollworms was lowest in Chlorantraniliprole18.5 Sc@ 0.3m which was 7.87 and 10.6 respectively. Seed cotton yield was maximum of 12.15 q/ ha in the treatment chlorantraniliprole18.5 Sc@ 0.3m. The mean reduction (%) of larval population over control was maximum in treatment T-7 in case of *H. armigera* (89.77) and pink bollworm (88.00)

RAICHUR

Low larval population of pink bollworm was recorded in chlorantraniliprole18.5 Sc@ 0.3ml followed by Brigade-B (WP formulation) @3gm/litre which was 0.71 and 1.22 larvae / plant. Pink bollworm incidence in green boll is varied between 10.63 to 13.0 per 20 bolls in the treatments 1- 6, but it was 7.12 per 20 bolls in the treatment sprayed with chlorantraniliprole 18.5 SC. Untreated control recorded 6.56 larvae per 20 bolls at the end of fourth spray. Seed cotton yield was maximum of 24.38 q/ha in the treatment chlorantraniliprole 18.5 SC.

Nandyal

Low larval population of pink bollworm was recorded in Bt127-SC formulation @4.0ml followed by Bt-127 @2.0ml/litre water which was 7.22 and 9.41 larva/plant followed by Brigade -B(WP formulation)@7 g/litre. Pink bollworm incidence in open boll 29.54-57.68% varied between in treatment 1-7, but it was 57.68% in the treatment sprayed with Bt127SC formulation @4.0ml. Seed cotton yield was maximum (11.99q/ha) in the treatment Brigade-B(WP formulation)@7.0g/litre.

Ent 7a: Intensive survey for Pink Bollworm on Bt hybrids in the farmers' fields (Table 218-221)

Intensive surveys of farmer's field location adjoining to cotton ginning cum oil extraction mills were conducted during 2020-21 cotton season in North Cotton Growing Zone of India. At Bathinda 3 out of 28 locations were found infested with Pink Bollworm infestation and larval recovery from 20 green boll recovered ranged between 0-17. In Faridkot at none of the location PBW infestation was recorded. In Haryana at Hisar 25 out of 60 locations were found to be infested with PBW incidence and sever infestations were recorded at many locations. However, in Sirsa at none of the location PBW infestation was recorded. But in Jind almost all the location visited were found infested with PBW.

Ent 7b: Validation of IPM module for cotton insect pests (Table 222-225) Centers: All South and Central zone centers

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1.	Timely sowing	
2.	Installation of pheromone traps at 45 DAS	5 per ha
3.	Neem based formulation	1500 ppm
4.	Release of *Trichogramma bactarae* (thrice at weekly intervals) starting 50 DAS (at least one week after S. # 3)	1.5 lakh/ ha
5.	ETL (10 % fruiting body damage or) based application of recommended insecticides	
6.	Timely termination of crop	
7.	Use of Yellow sticky traps at 30 DAS @8 per acre	
8.	Stem application of Flonicamid 1:20 at 30, 45 & 60 DAS	
9.	For sucking pests apply Flonicamid/ dinotefuran, diafenthiuron in recommended doses at ETL	

Restrict the use of SPs 120 DAS Check: Farmer's practice

Observations: Sucking and bollworm pests, natural enemies' population, yield & economics (Net return/ha in Rs.). **Hybrid:** Popular hybrid of the region, same hybrid in IPM module and Farmer's practice.

RESULTS: CENTRAL ZONE

JUNAGADH

The mean data showed that the per cent rosette flower (2.7%) recorded least in IPM plot as compared to farmer's practices plot (10.59). Similar trend was also found in per cent green boll, open boll and locules damage in IPM plot, which was significantly least than the farmer's practices plot. The mean data of moth catches per trap reflects that the least (8.32 moths/trap) moths were recorded in IPM plot as compared to farmer's practices plot (52.16 moths/trap).

AKOLA

Minimum sucking pests' population was recorded in IPM field than check field. Overall mean of PBW larval population (8.11/20 bolls) was recorded in IPM field where as 14.44/20 bolls was recorded in farmers practice . Green boll, open boll damages by PBW were 20.11%, 41.61 in IPM fields and 51.56%, 82.69% in farmers practice respectively.

NANDED

The population of sucking pests were observed less in IPM Module as compared to farmers practice. The predominant natural enemies found were lady bird beetle and *Chrysopa* more in IPM Module. The lowest larval count (0.54 larvae/ 20 green bolls), open boll damage (9.8%) was recorded in IPM module as compared to larval count (0.67 larvae/ 20 green bolls), open boll damage (16.2%) in farmer's practice.

RAHURI

Low population of sucking pests were observed in IPM Module as compared to (control plot) farmers practice. Low incidence of flower damage (4.39%) and green boll damage (8.91%) in IPM Module as compared to 15.49 % in farmer's practice. The low open boll (16.67%) and locule damage (11.07) was recorded in IPM as compared to farmers practice where it was 26.30 % and 15.27%, respectively. In general, the IPM Module was proved effective by reducing the pest incidence and recorded seed cotton yield of 16.27qt/ ha with a net return of Rs. 59,806/-.

BHAWANIPATNA

Bollworms: Fruiting body damaged (6.8%) by bollworm complex in IPM Module recorded significantly less than farmers field practice (22.40%). The module-I (IPM) recorded minimum *H. armigera*, SBW larvae as compared to farmers field practice. Module-I (IPM) recorded highest

seed cotton yield (25.60 q/ha) as compared to module-II (non IPM) (21.80 q/ha). The net profit was highest (Rs. 95080/-) in IPM module as compared to Farmer's practice (module-II) (Rs. 69440/-). The cost benefit ratio was 2.78 and 2.22 in module-I (IPM) and module-II (Farmer's practice), respectively.

South Zone

LamGuntur

Infestation of sucking pests (Aphids, Leaf hopper, Thrips, Whitefly) in IPM was low when compared with farmers practice. The same trend was observed in the number of bollworms and fruiting body damage. Seed cotton yield was higher in IPM module as compared to farmer's practice. The PBW larvae /20 green boll based on mean of the three observations was low in IPM (11.33 larvae/ 20 green bolls) than FM (11larvae/ 20 green bolls). IPM plot had recorded green boll damage, open boll damage and locule damage of 43.33%, 22.70% and 11.03% respectively, whereas in farmers practice green boll damage, open boll damage and locule damage was 50.00%, 21.20% and 10.72% respectively. Seed cotton yield was highest in FM (9.83q/ha) than IPM (9.26q/ha).

NANDYAL

Sucking pests were not above ETL. PBW infestation on flowers was nil in IPM module as compared to farmers practice, no rosette flower incidence was recorded. IPM module plot has recorded 9.00 larvae per 20 green bolls where as in farmers practice 11.00 larvae were noticed in 20 green bolls. IPM plot had recorded green boll damage, open boll damage and locule damage of 31.70%, 24.89% and 26.07% respectively, whereas in farmers practice green boll damage, open boll damage and locule damage was 46.70%, 35.67% and 46.25% respectively.

DHARWAD

Incidence of mean PBW larvae in IPM (8.11 larvae/20 green bolls) was lower than in non IPM (18.28 larvae/20 green bolls). Synchronized spray of insecticides based on the PBW male moths trapped in the PBW Phero-Sensor TM-SP-Sleeve trap @ 10 traps/ha resulted in the reduced mean green boll damage (7.85%), open boll damage (7.38%) and locule damage in open bolls at harvest (10.26%) in the IPM than the Non IPM (23.89 %, 25.89%, 30.24% respectively). The lower incidence of PBW in IPM contributed for higher seed cotton yield of 11.25 q /ha as compared to 9.00 q / ha with non IPM with a net return of Rs. 56200/- as against Rs. 45000/- in non IPM.

RAICHUR

All the parameters like a larva per 20 bolls, open boll damage and locule damage was lower in the IPM block as compared to check. Higher seed cotton yield of 26.79 q/ha was recorded in IPM block as compared to Non-IPM (25.42q/ha).

CHAMRAJNAGARA

IPM module has recorded less rosette flower, less number of pink bollworm larvae/20 green bolls, minimum green boll damage, locule damage in green bolls, open boll locule damage. Higher yield (19.25q/ha) was recorded in IPM module as compared to farmers practice (15.20q/ha), where in higher incidence of pink bollworm was noticed.

COIMBATORE

Results indicated low population of insect pests in IPM module management, followed by farmer's practices. A meagre difference was observed in the pheromone moth catches of PBW. Stem weevil damage was more in farmers practice as compared to IPM plot. A similar influence was observed in seed cotton yield of 1978 kg/ha in IPM as compared to 1786 kg/ha in Farmers practices.

Table: 1. Ent1a. Br02a (IET): Preliminary screening of breeding material for resistance to insect pest of cotton (Sucking pests) at North Zone

Entry code	Name of Entry	Jassid injury grade					No. of Jassid/ 3leaves					Whitefly/ 3 leaves					Thrips / 3 leaves					Aphids/3 leaves		
		BT	FA	HI	SR	SG	BT	FA	HI	SR	SG	BT	FA	HI	SR	SG	BT	FA	HI	SR	SG	FA	HI	SG
101	F 2732	I	III	II	I	I	2.60	3.5	9.30	4.08	2.00	5.60	13.5	120.90	20.33	22.10	25.60	42.0	73.90	31.00	25.30	0.00	0.00	0.00
102	PBH 197	II	III	III	I	I	3.60	3.0	10.20	4.25	0.70	6.80	10.2	120.70	17.00	22.90	35.60	39.5	97.50	33.67	30.60	0.00	0.00	0.00
103	HS 310	II	III	III	I	I	3.60	0.2	15.30	4.42	1.60	11.40	2.7	120.90	15.83	28.00	42.40	13.3	120.90	31.92	25.30	0.00	0.00	0.00
104	CSH 90	I	III	II	II	I	3.40	3.2	15.40	4.67	2.50	8.20	11.7	116.40	16.25	30.20	44.80	44.5	131.40	33.50	31.40	0.00	0.00	0.00
105	Quality Check (CSH 3129)	II	IV	II	I	I	2.00	1.5	15.60	4.00	1.40	7.00	13.7	159.40	16.33	33.40	45.60	38.2	121.60	30.50	39.20	0.00	0.00	0.00
106	RS 2958	I	III	III	I	I	3.00	3.0	13.00	4.25	0.30	9.40	10.5	183.20	14.75	12.40	39.40	53.7	95.80	32.33	22.50	0.00	0.00	0.00
107	F 2743	II	III	III	II	I	2.60	1.8	15.80	4.83	1.90	6.80	12.7	145.80	15.08	27.80	30.40	53.2	127.30	30.83	30.60	0.00	0.00	0.00
108	H 1569	II	III	III	II	I	2.60	3.2	17.60	4.67	1.30	7.40	12.3	172.90	17.08	15.10	31.00	61.5	138.40	32.17	28.50	0.00	0.00	0.00
109	CSH 89	I	III	III	II	I	3.40	3.0	14.10	4.92	0.80	6.80	10.7	133.60	16.67	21.10	40.40	31.5	121.90	31.33	37.10	0.00	0.00	0.00
110	LC	II	III	II	I	I	2.20	2.2	13.80	2.58	1.20	6.60	13.5	148.50	7.08	30.70	43.80	40.7	115.00	16.42	23.00	0.00	0.00	0.00
111	PBH 79	I	III	III	II	I	1.80	2.3	12.30	5.00	1.10	7.20	16.7	177.70	16.83	24.50	47.00	37.7	112.20	31.42	27.90	0.00	0.00	0.00
112	H 1480	II	III	III	II	I	3.00	1.8	15.30	4.67	0.80	7.40	19.5	157.70	17.75	17.30	48.00	45.5	117.70	31.00	29.30	0.00	0.00	0.00
113	RS 2943	I	IV	III	II	I	3.00	1.2	13.90	5.25	1.70	7.20	7.2	130.50	18.33	23.50	36.20	15.3	105.30	30.92	35.70	0.00	0.00	0.00
114	ZC (F 2228)	II	IV	III	II	I	3.00	3.8	11.60	4.58	1.30	11.40	16.8	178.40	17.08	19.20	37.20	62.0	120.10	30.42	36.50	0.00	0.00	0.00
GA		II		III			3.20		16.10			11.20		155.30			50.20		124.30					
RS2013		II		II			2.00		12.90			7.60		154.00			49.60		117.90					
MRC 7017 Bt		II		III			3.80		10.10			11.80		210.00			71.00		111.80					
MRC7017 NBt		II		III			3.00		13.20			11.60		145.00			63.20		115.90					

BT- Bathinda; FA- Faridkot; HI – Hisar; SR- Sirsa; SG- Sriganganagar;

JIG- Jassid injury grade (I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant + marginal yellowing , III- curling of leaves almost all over the plant, IV- extreme curling, bronzing and drying of leaves)

Table:2. Ent1a. Br02a (IET): Preliminary screening of breeding material for resistance to insect pests (Boll damage) of cotton at North Zone

Entry code	Name of Entry	Natural Enemies / plant				Green boll damage (%)											Open boll damage (%)					Open boll locule damage (%)				GOB (no. /	PI	Rosette flower by PBW (%)
						ABW/SBW/TC				H.a		PBW			H,a		ABW/SBW/TC			PBW		ABW/SBW/TC			PBW			
		BT	FA	SR	SG	BT	FA	HI	SR	SG	BT	FA	SG	HI	SG	BT	FA	HI**	SR	SG	BT	HR	FA	SR	SG	SR	BT	SR
101	F 2732	1.0	4.2	0.1	2.25	3.33	0.0	32.5	15.0	0.0	6.67	0.0	12.50	0.00	0.0	8.33	3.4	8.23	13.0	15.0	7.08	1.18	1.8	6.7	7.05	20.33	0.00	0.0
102	PBH 197	0.6	1.5	0.1	2.75	1.67	0.0	17.5	15.0	0.0	3.33	0.0	7.50	7.50	0.0	3.33	1.9	18.3	14.3	11.8	1.96	3.85	1.0	8.0	5.09	18.67	0.00	0.0
103	HS 310	2.3	1.3	0.1	1.88	1.67	0.0	5.0	16.7	0.0	6.67	0.0	0.00	7.50	0.0	8.33	4.1	14.5	15.6	7.9	3.81	1.75	2.8	5.8	3.28	15.33	0.00	0.0
104	CSH 90	0.0	8.3	0.1	3.25	0.00	0.4	15.0	16.7	0.0	3.33	1.0	5.00	2.50	0.0	3.33	10.0	11.1	16.2	11.0	2.71	1.32	4.7	8.2	4.26	8.00	0.00	0.0
105	Quality Check (CSH312	2.2	2.0	0.1	3.00	0.00	0.9	15.0	11.7	0.0	3.33	0.3	0.00	7.50	0.0	5.00	13.2	9.6	10.2	8.2	3.70	0.00	5.5	5.5	3.76	17.83	0.00	0.0
106	RS 2958	0.0	3.5	0.1	2.25	0.00	0.0	7.5	11.7	0.0	0.00	0.0	12.50	5.00	0.0	6.67	10.0	10.0	10.8	16.0	3.66	0.70	4.2	4.	7.44	25.17	0.00	0.0
107	F 2743	2.2	4.8	0.1	3.13	3.33	0.0	22.5	18.3	0.0	3.33	0.7	10.00	5.00	0.0	8.33	3.8	8.5	17.1	13.0	3.57	2.19	1.8	9.2	4.74	11.17	0.00	0.0
108	H 1569	0.0	5.7	0.1	3.13	0.00	0.0	17.5	13.3	0.0	3.33	0.3	2.50	0.00	0.0	6.67	5.5	24.8	15.8	9.16	2.41	0.00	2.9	6.5	3.83	18.67	0.00	0.0
109	CSH 89	0.7	2.5	0.2	2.38	0.00	0.0	12.5	11.7	0.0	3.33	0.3	7.50	7.50	0.0	3.33	5.8	9.90	16.4	12.0	2.31	0.74	2.5	8.76	4.72	16.83	0.00	0.0
110	LC	0.0	2.5	0.03	2.21	0.00	0.8	15.0	10.0	0.0	0.00	0.0	0.00	0.00	0.0	5.00	7.0	8.78	10.5	8.0	3.10	1.58	2.8	5.2	3.42	14.17	0.00	0.0
111	PBH 79	1.3	4.7	0.1	2.50	1.67	0.0	17.5	11.7	0.0	0.00	0.0	2.50	7.50	0.0	10.0	4.2	13.2	24.1	10.0	3.37	3.36	1.7	10.7	4.27	17.50	0.00	0.0
112	H 1480	1.0	5.2	0.1	2.88	0.00	0.4	12.5	11.7	0.0	0.00	0.3	7.50	2.50	0.0	5.00	9.1	5.26	14.7	12.9	4.37	0.62	3.9	6.7	5.31	10.83	0.00	0.0
113	RS 2943	1.0	1.8	0.1	2.13	1.67	2.3	17.5	11.7	0.0	3.33	0.3	10.00	2.50	0.0	6.67	21.2	6.72	9.7	13.0	3.88	0.00	8.4	5.3	4.67	13.50	0.00	0.0
114	ZC (F 2228	2.0	6.3	0.1	2.25	3.33	0.0	10.0	16.7	0.0	0.00	0.0	5.00	0.00	0.0	6.67	13.5	5.76	17.7	12.7	2.99	1.00	5.3	7.2	5.03	9.83	0.00	0.0
GA		0.7				3.33		12.5			0.00			7.50		5.00		9.10			4.41	1.57					0.00	0.0
RS2013		3.0				1.67		10.0			6.67			5.00		6.67		8.97			4.23	0.76					0.00	0.0
MRC 7017 Bt		1.0				3.33		12.5			6.67			5.00		0.00		12.82			0.00	1.23					0.00	0.0
MRC7017 NBt		0.0				0.00		0.00			0.00					10.0		3.24			6.25	0.00					0.00	0.0

BT- Bathinda; FA- Faridkot; HI – Hisar; SR- Sirsa; SG- Sriganganagar;

Table:3. Ent1a. Br06a: Initial Evaluation Trial of Compact genotypes under irrigated condition

Entry code	Name of entry	Jassid injury grade			No. of Jassid/ 3leaves			Whitefly/ 3 leaves			Thrips / 3 leaves			Aphids/3 leaves	
		BT	HI	SG	BT	HI	SG	BT	HI	SG	BT	HI	SG	HI	SG
2601	**F 2785**	I	II	I	2.60	15.00	0.73	6.50	131.10	40.50	23.50	98.40	20.00	0.00	0.00
2602	**CSH 49**	II	III	I	2.20	13.50	1.78	5.70	146.20	29.70	26.50	117.00	30.30	0.00	0.00
2603	**CSH 50**	I	III	I	2.50	14.80	1.33	6.60	117.60	27.40	26.20	124.40	40.60	0.00	0.00
2604	**F 2772**	II	II	I	2.80	14.10	1.30	8.20	143.50	49.40	28.00	113.40	43.50	0.00	0.00
2605	**RS 2946**	I	II	I	2.30	11.50	1.08	7.60	128.60	33.70	28.80	114.30	39.90	0.00	0.00
2606	**ZC (CSH 3075)**	I	III	I	2.60	16.90	2.68	6.90	144.10	30.40	25.80	119.70	28.20	0.00	0.00
2607	**RS 2957**	II	III	I	2.20	13.30	0.63	4.40	102.40	36.60	24.20	116.90	26.70	0.00	0.00
2608	**H 1601**	II	II	I	2.50	18.80	0.88	7.90	108.50	25.30	28.70	139.00	34.20	0.00	0.00
2609	**Local Check**	II	II	I	2.40	12.70	0.85	6.40	121.50	41.30	24.30	111.60	30.20	0.00	0.00
GA		II	III		3.20	16.40		13.00	131.60		51.10	124.50			
RS 2013		II	II		2.80	11.10		9.70	110.30		49.80	91.60			
MRC 7017nBt		II	III		3.70	17.20		11.90	149.50		62.50	141.90			
MRC 7017 Bt		II	III		3.20	10.30		11.80	117.60		54.60	112.10			

BT- Bathinda; FA- Faridkot; HI – Hisar; SR- Sirsa; SG- Sriganganagar;
JIG- Jassid injury grade (I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant + marginal yellowing , III- curling of leaves almost all over the plant, IV- extreme curling, bronzing and drying of leaves

Table: 4.Ent1a. Br06a (IET): Initial Evaluation Trial of Compact genotypes under irrigated condition

Entry code	Name of Entry	Natural Enemies / plant		Green boll damage (%)						Open boll damage %				Open boll locule damage (%)			Rosette flower by PBW (%)
				H.a	ABW/SBW/TC		PBW			H.a	ABW/SBW/TC		PBW	ABW/SBW/TC		PBW	
		SG	BT	SG	BT	HI	SG	HI	BT	SG	BT	HI	SG	HI	BT	SG	BT
2601	**F 2785**	2.38	1.60	0.00	1.67	5.00	2.50	0.00	6.67	0.00	8.33	17.50	5.50	1.86	2.60	2.52	0.00
2602	**CSH 49**	2.50	1.80	0.00	1.67	7.50	8.50	5.00	13.33	0.00	15.00	6.21	12.50	2.16	9.46	5.29	0.00
2603	**CSH 50**	2.75	1.00	0.00	8.33	7.50	4.50	2.50	13.33	0.00	3.33	15.52	5.42	3.05	2.19	2.55	0.00
2604	**F 2772**	2.08	2.00	0.00	3.33	10.00	0.00	7.50	0.00	0.00	10.00	14.76	4.50	2.07	5.88	2.20	0.00
2605	**RS 2946**	2.90	0.60	0.00	3.33	2.50	3.50	2.50	3.33	0.00	5.00	8.29	8.00	1.08	2.14	3.38	0.00
2606	**ZC (CSH 3075)**	3.08	2.20	0.00	5.00	12.50	13.50	10.0	10.00	0.00	5.00	13.44	17.50	2.83	3.46	7.27	0.00
2607	**RS 2957**	2.00	1.80	0.00	5.00	5.00	9.50	2.50	6.67	0.00	10.00	12.25	11.50	1.59	5.43	5.03	0.00
2608	**H 1601**	1.53	1.40	0.00	0.00	7.50	0.00	2.50	3.33	0.00	3.33	6.75	3.50	0.00	3.38	2.09	0.00
2609	**Local Check**	1.88	1.80	0.00	0.00	12.50	2.00	7.50	6.67	0.00	8.33	12.52	6.50	0.54	4.55	2.67	0.00
GA			2.00		0.00	12.50		7.50	13.33		5.00	9.10		1.57	4.41		0.00
RS 2013			1.40		3.33	10.00		5.00	10.00		6.67	8.97		0.76	4.23		0.00
MRC 7017nBt			1.20		3.33	12.50		5.00	6.67		0.00	12.82		1.23	0.00		0.00
MRC 7017 Bt			1.80		1.67	0.00		0.00	6.67		10.00	3.24		0.00	6.25		0.00

BT- Bathinda; FA- Faridkot; HI – Hisar; SR- Sirsa; SG- Sriganganagar;

Table: 5. Ent1a. Br06a: Coordinated Variety trial of compact *G. hirsutum*

Entry code	Name of entry	Jassid injury grade				No. of Jassid/ 3leaves				Whitefly/ 3 leaves				Thrips / 3 leaves				Aphids/3 leaves
		BT	HI	SR	SG	BT	HI	SR	SG	BT	HI	SR	SG	BT	HI	SR	SG	SG
2621	**RS 2928**	I	II	I	I	4.50	15.0	4.25	1.30	8.70	163.2	12.42	38.30	64.50	106.40	21.42	24.50	0.00
2622	**PBH 174**	I	III	I	I	6.20	15.9	4.17	1.10	8.70	117.3	13.08	16.70	57.50	113.50	20.42	28.90	0.00
2623	**F 2757**	II	III	I	I	6.00	17.4	3.33	0.75	6.10	156.2	14.08	37.30	60.30	137.30	20.08	22.30	0.00
2624	**H 1530**	II	III	I	I	6.30	17.2	3.83	0.70	7.80	104.5	12.50	24.60	68.50	133.73	22.33	22.00	0.00
2625	**F 2560**	II	III	I	I	6.30	15.1	3.67	0.95	7.40	149.0	12.25	25.00	50.00	104.00	19.08	29.40	0.00
2626	**ZONAL CHECK (CSH 3075)**	I	III	I	I	4.60	14.4	3.75	0.65	8.00	121.7	13.58	17.20	62.30	117.00	20.58	21.70	0.00
2627	**CSH 100**	I	III	I	I	5.00	13.6	3.67	1.55	8.10	125.9	13.25	15.70	70.50	109.30	20.92	20.10	0.00
2628	**RS 2914**	II	III	I	I	5.70	14.5	3.58	0.50	6.40	154.0	12.50	31.00	65.20	118.90	20.83	26.70	0.00
2629	**RS 2913**	I	III	I	I	5.80	12.7	1.83	1.30	9.60	175.5	6.42	19.10	54.40	105.30	9.08	35.90	0.00
2630	**LOCAL CHECK**	II	III	I	I	6.10	14.5	3.75	1.35	7.40	157.2	13.25	38.90	69.70	117.00	18.17	34.40	0.00
GA		II	III			3.20	14.7			13.0	162.1			51.10	111.90			
RS2013		II	II			2.80	12.7			9.70	131.2			49.80	106.00			
MRC7017BT		II	III			3.70	15.1			11.9	164.8			62.50	107.10			
MRC7017NBT		II	III			3.20	17.9			11.8	144.1			54.60	135.80			

BT- Bathinda; FA- Faridkot; HI – Hisar; SR- Sirsa; SG- Sriganganagar;

JIG- Jassid injury grade (I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant + marginal yellowing , III- curling of leaves almost all over the plant, IV- extreme curling, bronzing and drying of leaves

Table: 6.Ent1a. Br06a: Coordinated Variety trial of compact *G. hirsutum*

Entry code	Name of Entry	Natural Enemies / plant			Green boll damage (%)							Open boll damage %					Open boll locule damage (%)				GOB (No. /plant
					H.a	ABW/SBW/TC			PBW			H.a	ABW/SBW/TC			PBW	ABW/SBW/TC			PBW	
		SG	BT	SR	SG	BT	HI	SR	SG	HI	BT	SG	BT	SR	HI	SG	SR	BT	HI	SG	SR
2621	**RS 2928**	2.38	3.20	0.19	0.00	3.3	5.00	13.33	8.00	2.50	10.00	0.00	5.00	12.08	8.02	12.50	4.50	2.14	0.97	5.66	10.67
2622	**PBH 174**	2.00	2.00	0.22	0.00	1.7	20.00	6.67	2.00	2.50	0.00	0.00	5.00	11.72	12.52	2.98	5.85	2.92	0.00	1.89	17.67
2623	**F 2757**	1.88	2.00	0.19	0.00	1.7	12.50	15.00	5.00	10.00	6.67	0.00	10.00	9.49	13.14	7.47	4.22	5.56	2.77	3.27	15.50
2624	**H 1530**	1.38	3.00	0.14	0.00	3.3	10.00	8.33	0.00	10.00	6.67	0.00	10.00	14.87	12.10	2.45	7.52	4.12	0.70	1.10	14.17
2625	**F 2560**	2.13	2.00	0.22	0.00	0.0	25.00	16.67	3.00	2.50	16.67	0.00	16.67	10.15	7.22	4.96	4.99	8.11	2.55	2.10	9.83
2626	**ZC (CSH 3075)**	2.88	2.60	0.17	0.00	3.3	15.00	15.00	0.00	15.00	13.33	0.00	5.00	15.89	16.89	3.45	5.97	2.19	0.96	1.46	15.50
2627	**CSH 100**	3.00	2.20	0.06	0.00	1.6	2.50	23.33	0.00	2.50	0.00	0.00	13.33	12.85	6.88	2.02	6.03	5.42	1.09	1.18	19.50
2628	**RS 2914**	3.13	1.60	0.08	0.00	0.0	12.50	15.00	1.00	10.00	3.33	0.00	5.00	14.70	3.19	3.00	5.54	2.11	1.52	1.49	12.00
2629	**RS 2913**	2.38	2.40	0.06	0.00	0.0	7.50	6.67	9.00	5.00	6.67	0.00	3.33	10.00	7.29	10.91	5.56	4.60	0.00	4.78	5.33
2630	**LC**	2.75	3.00	0.17	0.00	0.0	5.00	13.33	6.00	2.50	10.00	0.00	11.67	11.90	7.15	7.41	5.34	4.30	1.93	3.02	12.33
GA			1.80			0.0	12.50			7.50	13.33		5.00		9.10			2.45	1.57		
RS2013			1.80			3.3	10.00			5.00	10.00		6.67		8.97			4.23	0.76		
MRC7017Bt			1.60			3.3	12.50			5.00	6.67		0.00		12.82			0.00	1.23		
MRC7017NBt			1.40			1.6	0.00			0.00	6.67		10.00		3.24			6.25	0.00		

BT- Bathinda; FA- Faridkot; HI – Hisar; SR- Sirsa; SG- Sriganganagar;

Table: 7. Ent1a. Br 22a/b: Initial Evaluation Trial – *G. arboreum*

Entry code	Name of entry	JIG					Jassid /3leaves					Whitefly / 3 leaves				
		FA	HI	SR	BT	SG	BT	FA	HI	SR	SG	BT	FA	HI	SR	SG
2201	PBD 130	1	I	I	I	I	1.70	0.8	2.30	3.33	0.10	5.40	5.7	45.50	14.33	7.30
2202	CISA 6-3	1	I	I	I	I	1.20	1.7	2.90	3.25	0.20	5.70	8.3	74.20	15.00	12.00
2203	FDK 312	1	I	I	I	I	0.90	1.5	2.50	3.33	0.70	6.50	9.5	93.70	15.67	20.30
2204	RG 873	1	I	I	I	I	1.50	0.0	2.00	3.25	0.10	5.70	10.0	100.90	16.08	5.40
2205	LC	1	I	I	I	I	1.10	1.2	3.10	3.25	0.35	6.80	9.2	92.90	16.17	16.00
2206	RG 883	1	I	I	I	I	1.40	1.0	2.40	3.00	0.25	6.50	10.7	89.80	16.42	20.60
2207	FDK 324	1	I	I	I	I	1.10	0.8	2.30	2.83	0.40	5.30	10.3	81.50	14.92	14.80
2208	HD 555	1	I	I	I	I	1.10	1.2	3.10	3.00	0.20	5.80	10.2	87.90	16.83	15.10
2209	ZC (FDK 124)	1	I	I	I	I	0.90	1.3	2.10	3.50	0.20	5.80	13.5	86.80	15.58	17.80
2210	CISA 33-5	1	I	I	I	I	2.60	1.3	2.90	2.92	0.20	5.80	11.3	70.30	16.75	8.70
2211	PBD 81	1	I	I	I	I	1.10	0.5	1.90	2.92	0.60	6.30	12.3	97.30	13.67	17.20
2212	HD 556	1	I	I	I	I	1.20	1.2	2.50	3.00	0.50	5.60	12.7	85.40	18.08	19.00

Entry code	Name of entry	Thrips / 3leaves					Natural Enemies / plant				Aphids/3 leaves		
		FA	BT	HI	SR	SG	FA	BT	SR	SG	FA	HI	SG
2201	PBD 130	1.9	7.30	17.30	0.83	4.70	1.8	1.40	0.29	1.50	0.00	0.00	0.00
2202	CISA 6-3	3.2	7.20	22.20	0.33	4.30	3.3	0.40	0.32	1.75	0.00	0.00	0.00
2203	FDK 312	1.3	9.90	18.30	0.58	3.70	1.8	0.80	0.26	1.25	0.00	0.00	0.00
2204	RG 873	1.9	8.90	19.30	1.00	1.70	2.0	0.60	0.19	1.13	0.00	0.00	0.00
2205	LC	1.9	5.90	21.90	0.58	5.60	2.5	0.80	0.35	0.75	0.00	0.00	0.00
2206	RG 883	3.2	6.70	19.80	0.67	4.30	2.0	1.20	0.45	1.00	0.00	0.00	0.00
2207	FDK 324	2.2	6.20	20.60	0.58	5.20	3.3	0.40	0.31	1.00	0.00	0.00	0.00
2208	HD 555	2.5	5.90	22.40	1.08	5.40	3.3	0.80	0.19	2.00	0.00	0.00	0.00
2209	ZC (FDK 124)	3.2	5.80	20.00	0.58	4.00	3.2	0.40	0.35	1.00	0.00	0.00	0.00
2210	CISA 33-5	3.5	7.40	21.60	0.50	12.20	3.7	1.60	0.22	1.75	0.00	0.00	0.00
2211	PBD 81	1.9	6.80	18.90	0.42	5.50	2.2	1.00	0.19	1.38	0.00	0.00	0.00
2212	HD 556	2.9	6.20	16.70	0.50	5.40	3.5	0.60	0.31	2.00	0.00	0.00	0.00

BT- Bathinda; FA- Faridkot; HI – Hisar; SR- Sirsa; SG- Sriganganagar;

JIG- Jassid injury grade (I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant + marginal yellowing , III- curling of leaves almost all over the plant, IV- extreme curling, bronzing and drying of leaves)

Table: 8. Ent1a Br 22a/b: Initial Evaluation Trial – *G. arboreum*

Entry code	Name of entry	H.a	Green boll damage (%)							Open boll damage (%)						Open boll locule damage (%)					Good open boll (No. / plants)
			ABW/SBW/TC				PBW			H.a	ABW/SBW/TC				PBW	ABW/SBW/TC				PBW	
		SG	FA	BT	HI	SR	SG	HI	BT	SG	BT	FA	HI	SR	SG	BT	FA	SR	HI	SG	SR
2201	PBD 130	0.00	0.0	10.00	10.00	11.67	9.00	10.00	3.33	0.00	8.33	27.9	5.75	16.54	13.03	3.46	11.2	10.57	1.54	5.54	22.67
2202	CISA 6-3	0.00	0.3	15.00	12.50	13.33	7.00	0.00	0.00	0.00	3.33	22.0	15.46	14.30	10.06	2.94	9.4	10.85	2.69	6.04	26.17
2203	FDK 312	0.00	4.2	11.67	15.00	13.33	10.00	0.00	6.67	0.00	3.33	13.5	7.00	14.49	13.00	2.45	6.1	10.80	0.84	5.99	24.50
2204	RG 873	0.00	1.5	0.00	7.50	15.00	5.00	7.50	3.33	0.00	1.67	8.5	14.59	15.60	8.26	0.95	3.9	11.84	0.00	3.76	26.17
2205	LC	0.00	1.9	0.00	15.00	6.67	3.00	2.50	6.67	0.00	5.00	12.2	14.65	15.10	5.92	4.09	5.1	10.53	0.74	2.73	30.33
2206	RG 883	0.00	0.6	3.33	10.00	13.33	13.00	5.00	6.67	0.00	1.67	11.1	12.31	15.48	15.19	1.06	4.6	11.29	2.34	9.20	28.33
2207	FDK 324	0.00	4.4	6.67	7.50	13.33	11.00	7.50	3.33	0.00	1.67	10.3	17.22	15.91	13.00	1.43	4.4	10.33	1.90	6.15	25.17
2208	HD 555	0.00	3.8	0.00	5.00	21.67	12.00	0.00	6.67	0.00	5.00	21.5	13.33	13.85	16.16	3.48	8.8	9.32	1.14	7.64	26.00
2209	ZC (FDK 124)	0.00	0.0	1.67	12.50	13.33	8.00	5.00	0.00	0.00	1.67	16.1	10.04	14.08	10.10	2.60	6.5	9.32	2.22	5.40	29.17
2210	CISA 33-5	0.00	2.7	8.33	15.00	10.00	13.00	12.50	6.67	0.00	3.33	26.1	14.50	15.04	16.00	2.35	11.8	10.64	2.41	7.47	27.00
2211	PBD 81	0.00	4.3	1.67	7.50	6.67	15.00	5.00	6.67	0.00	5.00	17.0	9.89	17.68	19.44	4.11	8.6	11.33	2.80	10.22	24.50
2212	HD 556	0.00	1.3	16.67	25.00	10.00	11.00	22.50	0.00	0.00	6.67	21.3	8.83	14.59	16.57	5.98	9.2	11.02	2.23	5.24	25.00

Table: 9.Ent1a. Br 24 a- Coordinated Variety trial of *G. arboreum*

Entry code	Name of entry	JIG				Jassid /3leaves				Whitefly / 3 leaves				Thrips / 3leaves				Natural Enemies / plant			Aphids/3 leaves		
		FA	HI	BT	SG	BT	FA	HI	SG	BT	FA	HI	SG	BT	FA	HI	SG	FA	BT	SG	FA	HI	SG
2401	PBD 88	I	I	I	I	1.40	0.3	2.40	0.25	3.80	12.3	73.90	12.50	5.9	3.2	20.70	6.60	3.8	1.60	1.25	0.00	0.00	0.00
2402	PBD 35	I	I	I	I	1.30	0.2	3.50	0.30	3.20	17.3	87.40	18.80	7.4	2.9	23.90	8.90	4.7	0.60	3.00	0.00	0.00	0.00
2403	PBD 92	I	I	I	I	0.60	0.7	3.00	0.48	3.30	17.5	75.50	15.80	5.5	4.4	24.10	11.5	5.5	0.40	2.00	0.00	0.00	0.00
2404	FDK 124 (ZC)	I	I	I	I	1.10	0.8	2.50	0.30	2.50	18.0	98.10	17.40	7.2	3.8	21.60	10.4	4.3	1.00	1.75	0.00	0.00	0.00
2405	Local Check	I	I	I	I	1.10	1.3	3.60	0.20	4.60	13.5	91.50	13.60	6.7	3.8	26.20	8.35	4.2	0.80	1.50	0.00	0.00	0.00
2406	PBD 36	I	I	I	I	1.40	0.3	3.00	0.28	4.10	21.2	92.10	18.80	7.9	3.5	26.20	13.9	6.5	1.20	2.25	0.00	0.00	0.00
2407	FDK 281	I	I	I	I	1.10	1.7	3.80	0.55	4.70	18.3	91.80	13.30	6.8	3.2	24.40	6.40	5.5	0.80	1.75	0.00	0.00	0.00

BT- Bathinda; FA- Faridkot; HI – Hisar; SR- Sirsa; SG- Sriganganagar;

JIG- Jassid injury grade (I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant + marginal yellowing , III- curling of leaves almost all over the plant, IV- extreme curling, bronzing and drying of leaves

Table: 10. Ent1a Br 24 a- Coordinated Variety trial of *G. arboreum*

Entry code	Name of entry	Green boll damage (%)							Open boll damage (%)					Open boll locule damage(%)				
		H.a	ABW/SBW/TC			PBW			H.a	ABW/SBW/TC			PBW	ABW/SBW/TC				PBW
		SG	FA	HI	BT	SG	HI	BT	SG	BT	FA	HI	SG	BT	FA	HI		SG
2401	PBD 88	0.0	1.7	12.50	1.67	15.00	7.50	16.67	0.00	3.33	21.1	12.21	21.10	1.56	9.3	1.14		9.41
2402	PBD 35	0.0	8.2	15.00	0.00	11.00	10.00	0.00	0.00	3.33	16.6	19.24	16.00	1.52	6.9	3.31		6.54
2403	PBD 92	0.0	2.4	12.50	1.67	7.00	12.50	6.67	0.00	6.67	14.5	14.33	11.00	3.17	5.0	0.00		5.36
2404	FDK 124 (ZC)	0.0	1.4	12.50	0.00	8.00	0.00	6.67	0.00	3.33	24.0	11.26	11.00	2.49	10.4	0.00		5.82
2405	Local Check	0.0	2.2	5.00	0.00	10.00	0.00	0.00	0.00	6.67	16.4	7.30	12.82	3.13	6.9	0.40		5.00
2406	PBD 36	0.0	1.5	12.50	0.00	3.00	10.00	3.33	0.00	1.67	16.1	14.15	5.04	0.42	7.3	1.57		1.88
2407	FDK 281	0.0	2.6	7.50	0.00	7.00	0.00	0.00	0.00	6.67	13.5	16.66	10.42	3.83	5.9	0.00		3.90

BT- Bathinda; FA- Faridkot; HI – Hisar; SR- Sirsa; SG- Sriganganagar

Table: 11. Ent1a. Br 25a/b: Preliminary Hybrid Trial- Desi Hybrid

Entry code	Name of entry	Jassid injury grade					No. of Jassid/ 3leaves				Whitefly/ 3 leaves				Thrips / 3 leaves				Aphids/3 leaves	
		FA	BT	HI	SR	SG	BT	HI	SR	SG	BT	HI	SR	SG	BT	HI	SR	SG	HI	SG
2501	ZC (KR 64-NZ)		I	I	I	I	0.90	2.50	4.00	0.25	5.00	90.30	15.75	17.9	10.20	20.60	0.67	5.30	0.00	0.00
2502	CISAA 19-4		I	I	I	I	0.90	2.40	4.17	0.45	6.00	95.00	16.92	25.1	12.70	23.20	0.33	5.70	0.00	0.00
2503	KR 148		I	I	I	I	1.00	3.10	4.17	0.48	3.00	88.30	16.33	20.4	10.90	21.40	0.33	6.80	0.00	0.00
2504	KR 150		I	I	I	I	1.60	3.30	3.50	0.28	3.80	92.80	13.75	22.1	10.00	23.30	0.58	4.90	0.00	0.00
2505	CISAA 19-3		I	I	I	I	0.80	2.30	3.83	0.23	5.10	100.60	14.00	17.3	11.20	16.80	0.17	5.40	0.00	0.00
2506	KR 149		I	I	I	I	1.20	1.60	4.08	0.25	4.10	77.40	14.50	20.2	10.80	22.10	0.25	5.80	0.00	0.00
2507	LC		I	I	I	I	1.30	2.30	3.83	0.25	4.60	112.30	15.92	24.9	9.10	18.80	0.50	7.50	0.00	0.00
2508	AAH 43		I	I	I	I	1.60	2.20	3.67	0.18	4.80	92.90	9.58	13.8	9.20	20.40	0.25	6.00	0.00	0.00

JIG- Jassid injury grade (I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant + marginal yellowing , III- curling of leaves almost all over the plant, IV- extreme curling, bronzing and drying of leaves)

Table: 12.Ent1a Br 25a/b: Preliminary Hybrid Trial- Desi Hybrid

Entry code	Name of Entry	Natural Enemies / plant		Green boll damage (%)							Open boll damage (%)					Open boll locule damage (%)			Good Open Bolls	Rosette flower by PBW (%)
				H. a	ABW/SBW/TC			PBW			H.a	ABW/SBW/TC			PBW	ABW/SBW/TC				
		BT	SR	SG	HI	SR	BT	BT	HI	SG	SG	BT	HI	SR	SG	BT	SR	HI	SR	BT
2501	ZC (KR 64-NZ)	1.40	0.22	0.00	12.50	15.0	0.00	3.33	7.50	5.00	0.00	1.67	15.55	16.01	7.17	1.09	10.66	0.96	27.17	0.00
2502	CISAA 19-4	1.20	0.22	0.00	12.50	15.0	3.33	3.33	10.00	2.00	0.00	6.67	18.84	15.38	4.02	3.64	9.93	2.82	24.67	0.00
2503	KR 148	1.60	0.14	0.00	17.50	6.67	0.00	6.67	17.50	11.0	0.00	5.00	10.21	13.88	14.00	3.08	10.94	2.14	24.83	0.00
2504	KR 150	1.20	0.31	0.00	10.00	6.67	0.00	3.33	7.50	4.00	0.00	6.67	5.94	15.80	7.00	2.74	10.71	1.15	23.17	0.00
2505	CISAA 19-3	1.80	0.25	0.00	12.50	5.00	1.67	6.67	10.00	5.00	0.00	1.67	21.71	13.69	6.16	0.49	10.13	0.00	23.17	0.00
2506	KR 149	1.60	0.14	0.00	10.00	6.67	0.00	3.33	10.00	9.00	0.00	3.33	17.89	16.95	12.95	1.52	11.69	0.00	22.83	0.00
2507	LC	1.40	0.19	0.00	10.00	6.67	1.67	0.00	7.50	7.00	0.00	3.33	11.21	18.17	10.00	1.04	10.61	0.81	24.00	0.00
2508	AAH 43	1.20	0.00	0.00	17.50	8.33	3.33	3.33	0.00	6.00	0.00	3.33	20.50	13.99	8.84	2.45	8.75	3.25	19.33	0.00

Table: 13. Ent1a. Br 25a: Coordinated Desi Hybrid trial

Entry code	Name of entry	Jassid injury grade				No. of Jassid/ 3leaves				Whitefly/ 3 leaves				Thrips / 3 leaves				Aphids/3 leaves		
		FA	BT	HI	SG	BT	FA	HI	SG	FA	BT	HI	SG	FA	BT	HI	SG	FA	HI	SG
2511	KR 155	I	I	I	I	1.10	0.8	3.30	0.20	12.5	5.10	91.3	15.40	1.9	9.30	24.70	4.70	0.00	0.00	0.00
2512	KR 147	I	I	I	I	1.30	0.3	1.70	0.25	10.7	5.40	100.2	18.00	3.8	8.30	20.30	4.60	0.00	0.00	0.00
2513	KR 139	I	I	I	I	1.60	0.7	2.20	0.20	12.3	4.80	90.8	16.90	3.5	7.40	25.90	7.00	0.00	0.00	0.00
2514	ZC (KR 64)	I	I	I	I	1.40	0.8	2.90	0.28	15.0	5.10	101.6	17.10	3.2	7.80	20.90	3.80	0.00	0.00	0.00
2515	Local Check	I	I	I	I	2.00	0.8	1.50	0.23	10.5	5.20	99.9	14.40	2.9	7.70	15.60	3.60	0.00	0.00	0.00
2516	KR 136	I	I	I	I	2.20	1.5	1.80	0.35	14.3	5.90	89.9	16.70	3.2	7.00	28.00	8.50	0.00	0.00	0.00
2517	KR 133	I	I	I	I	2.10	0.7	1.90	0.28	14.0	5.80	103.4	17.50	3.2	7.40	17.20	6.40	0.00	0.00	0.00

BT- Bathinda; FA- Faridkot; HI – Hisar; SR- Sirsa; SG- Sriganganagar;

JIG- Jassid injury grade (I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant + marginal yellowing , III- curling of leaves almost all over the plant, IV- extreme curling, bronzing and drying of leaves)

Table: 14.Ent1a Br 25a: Coordinated Desi Hybrid trial

Entry code	Name of Entry	Natural Enemies / plant			Green boll damage (%)							Open boll damage (%)					Open boll locule damage (%)			
					H.a	ABW/SBW/TC			PBW			ABW/SBW/TC			H.a	PBW	ABW/SBW/TC			PBW
		FA	BT	SG	SG	HI	FA	BT	BT	HI	SG	FA	BT	HI	SG	SG	FA	BT	HI	SG
2511	**KR 155**	3.7	1.20	1.88	0.00	15.00	4.2	0.00	0.00	0.00	11.00	16.8	3.33	15.22	0.00	13.00	6.8	1.22	3.2	5.44
2512	**KR 147**	4.2	1.40	1.25	0.00	15.00	3.3	3.33	3.33	7.50	15.00	13.3	6.67	15.23	0.00	21.00	5.3	3.08	3.7	10.81
2513	**KR 139**	4.5	2.20	1.75	0.00	17.50	2.7	0.00	0.00	7.50	7.00	12.8	3.33	14.13	0.00	9.98	4.7	1.61	2.9	5.05
2514	**ZC (KR 64)**	3.5	1.20	2.13	0.00	15.00	3.3	0.00	3.33	7.50	6.00	6.4	3.33	30.75	0.00	9.00	2.9	1.72	1.6	3.91
2515	**Local Check**	5.0	1.60	1.75	0.00	10.00	3.5	0.00	6.67	5.00	8.00	10.6	3.33	15.57	0.00	11.00	4.3	1.72	3.23	5.98
2516	**KR 136**	6.0	2.00	1.38	0.00	15.00	5.1	3.33	6.67	10.00	3.00	10.6	3.33	18.30	0.00	6.06	4.3	1.94	4.2	2.97
2517	**KR 133**	4.0	1.20	1.50	0.00	17.50	2.8	1.67	3.33	15.00	9.00	13.7	3.33	12.59	0.00	11.56	5.1	2.31	1.0	5.22

BT- Bathinda; FA- Faridkot; HI – Hisar; SR- Sirsa; SG- Sriganganagar;

Table: 15. Ent 1a. Br 02a (IET): Preliminary screening of breeding materials for their reaction to key pests (Leafhopper) of cotton at Central and South Zones during 2020-21

Entry code	Name of entry	JIG									Leaf hopper/3 leaves								
		BA	JU	SU	RA	BW	LG	RC	CBE	SVPR	BA	JU	SU	RA	KH	BW	LG	RC	CBE	SVPR
301	GJHV 548	II	II	I	II	I	II	II	III	-	4.33	14.1	5.13	3.50	4.10	4.17	3.30	6.25	7.42	-
302	RB 602	II	II	I	II	II	III	II	III	-	4.67	12.8	4.20	3.22	1.90	6.67	5.15	6.01	5.75	-
303	L 1536	III	II	III	II	II	I	II	IV	-	5.00	14.3	9.07	3.61	2.55	6.33	2.98	5.92	5.92	-
304	TSH 354	III	II	I	I	III	II	I	III	-	6.33	13.3	2.60	3.83	0.70	7.16	3.48	4.01	6.42	-
305	CPD 2003	III	II	I	III	IV	III	III	III	-	6.00	16.9	4.93	4.39	6.50	8.33	3.33	8.32	6.50	-
306	ZC (Phule Yamuna/BGDS 1063)	III	II	I	II	III	II	III	III	-	6.00	14.7	2.47	4.61	0.50	7.33	4.40	8.78	7.08	-
307	TCH 1941	II	II	I	II	II	II	II	III	-	4.00	15.8	5.53	5.28	3.20	6.16	3.40	6.95	6.67	-
308	CPD 2002	III	II	III	II	II	III	II	III	-	6.33	13	8.13	4.44	3.10	6.83	3.43	5.98	6.92	-
309	GISV 328	III	II	I	I	II	II	II	II	-	5.33	13.9	2.53	3.72	0.60	6.00	4.65	6.54	6.33	-
310	SHSV 14	IV	II	I	II	II	III	III	II	-	7.00	13.9	5.33	3.50	3.10	6.83	5.48	8.95	6.83	-
311	RB 1903	II	II	I	III	I	II	II	III	-	3.67	10.3	2.13	3.56	2.70	5.50	3.83	7.52	6.50	-
312	Quality Check (Suraj)	III	II	I	I	III	II	III	II	-	5.67	12.5	4.80	3.50	3.05	7.00	4.38	8.46	6.00	-
313	ADB 727	III	II	I	I	I	II	III	I	-	6.00	11.4	6.27	3.39	0.60	4.83	4.18	8.72	4.26	-
314	TSH 387	II	II	I	I	I	II	II	II	-	4.67	17.7	4.60	3.67	0.30	5.67	3.63	7.12	7.17	-
315	GISV 332	II	II	I	I	II	I	II	II	-	4.33	14.2	3.67	2.94	6.00	6.00	3.04	6.34	7.00	-
316	CPD 2001	IV	II	III	III	IV	IV	III	III	-	8.33	15.5	6.40	3.89	6.50	8.50	6.85	8.06	5.83	-
317	BS 10-20	IV	II	I	III	IV	II	II	III	-	8.00	10.6	5.20	4.22	4.70	8.67	3.30	6.89	6.00	-
318	GJHV 568	III	II	I	I	II	II	II	III	-	5.00	16	5.53	3.33	2.40	6.00	5.88	7.15	5.33	-
319	RAH 1083	III	II	I	II	III	III	III	III	-	5.33	13.6	4.07	3.94	3.35	7.00	6.18	11.06	6.08	-
320	RAH 1081	III	II	I	II	I	III	II	II	-	5.33	15.1	3.87	3.39	3.90	5.66	5.83	7.58	6.25	-
321	LC	II	II	I	I	II	II	II	I	-	4.00	15.4	1.80	3.89	0.30	6.50	4.40	6.91	6.25	-
322	GTHV 18/19	III	II	I	I	II	II	II	III	-	5.33	12.1	5.60	3.61	1.20	6.33	4.13	6.05	5.67	-
323	RAH 1082	III	II	III	I	III	III	II	III	-	6.00	12.7	8.40	3.56	6.10	7.17	6.05	7.23	5.00	-

JIG- Jassid Injury Grade(I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant + marginal yellowing, III- curling of leaves almost all over the plant, IV- extreme curling, bronzing and drying of leaves);

BA- Banswara; JU- Junagadh; SU- Surat; RA- Rahuri; KH- Khandwa; BW- Bhawanipatna; LG- Lam, Guntur; RC- Raichur; CBE- Coimbatore; SVPR-Srivilliputtur

Table: 16. Br 02a (IET) : Preliminary screening of breeding materials for their reaction to key pests (Whitefly and Thrips) of cotton at Central and South Zones during 2020-21

Entry code	Name of entry	Whitefly/3 leaves									Thrips/3 leaves							Mealybugs (grade/plant)	Stem weevil (%)	Leaf folder (%)
		BA	JU	SU	RA	KH	BW	LG	RC	CBE	BW	SU	RA	JU	LG	RC	CBE	SU	CBE	CBE
301	GJHV 548	5.67	13.3	2.80	2.17	17.15	3.33	1.50	3.80	2.34	7.67	12.20	6.44	18	1.65	7.50	3.69	0.07	17.27	8.23
302	RB 602	7.33	14.5	4.47	2.17	21.64	3.33	2.30	2.50	1.22	9.67	22.27	7.50	14.6	1.83	8.66	3.08	0.00	21.77	6.00
303	L 1536	8.33	16.2	2.33	2.56	22.05	3.33	1.18	1.00	1.73	8.00	34.33	7.39	17.1	1.50	9.05	3.08	0.07	33.84	6.27
304	TSH 354	15.33	11.6	3.27	2.67	4.95	3.50	1.95	2.70	1.53	10.33	13.07	7.56	15.8	2.35	4.00	4.31	0.00	19.67	8.88
305	CPD 2003	12.67	15.6	4.53	2.61	21.10	4.00	1.63	2.12	1.84	10.67	22.73	8.00	17.6	0.83	8.66	4.31	0.00	13.85	6.37
306	ZC (Phule Yamuna/BGDS 1063)	12.00	12.7	2.80	2.78	5.95	2.83	1.23	0.45	1.33	10.67	11.07	8.61	16.8	1.78	11.05	4.92	0.00	21.02	6.26
307	TCH 1941	4.67	11.9	4.07	2.33	25.35	3.50	0.80	2.05	1.73	7.16	27.40	7.39	16.5	1.35	4.12	6.77	0.20	8.69	8.02
308	CPD 2002	15.00	15.1	5.80	2.78	22.79	3.67	1.83	2.65	1.53	11.00	37.13	8.50	12	1.55	8.65	5.54	0.20	23.87	6.60
309	GISV 328	8.67	12	3.73	2.44	5.75	3.83	1.08	0.65	2.25	9.00	9.93	7.44	15.5	1.13	4.01	3.69	0.27	20.97	8.53
310	SHSV 14	18.00	11.3	5.80	2.61	24.00	4.17	0.90	2.10	2.14	10.00	23.53	7.22	15.3	1.53	7.53	3.08	0.20	5.14	9.77
311	RB 1903	4.67	12.5	3.60	2.72	26.14	3.33	2.78	1.35	1.94	7.83	7.53	7.94	12	1.83	2.01	4.92	0.13	24.52	6.96
312	Quality Check (Suraj)	12.33	13.2	5.40	2.83	22.70	3.66	0.93	3.20	2.17	8.67	21.73	7.33	19.1	2.33	17.81	6.77	0.33	11.17	8.32
313	ADB 727	13.00	13.6	6.27	2.61	7.14	2.83	1.50	1.00	1.73	5.67	19.00	7.50	15.3	1.45	7.05	6.15	0.73	8.80	8.39
314	TSH 387	7.00	15.8	5.27	2.78	5.50	3.50	2.28	0.35	1.93	7.16	13.93	9.39	16.9	1.03	4.52	5.73	0.07	27.07	6.64
315	GISV 332	6.33	17.2	6.07	2.50	20.35	3.67	1.48	3.65	1.87	8.00	20.53	8.50	18.3	3.48	7.12	3.72	0.00	8.53	6.62
316	CPD 2001	17.67	16.5	6.73	2.61	26.25	3.33	1.68	3.57	1.97	11.50	35.60	8.67	13.7	1.33	4.53	4.18	0.00	22.49	7.94
317	BS 10-20	18.33	13.9	5.60	2.44	25.25	3.83	0.53	0.75	1.77	12.16	26.33	8.28	22.2	1.53	4.35	4.64	0.27	34.01	7.96
318	GJHV 568	8.00	17	6.27	2.61	25.90	3.17	1.30	3.95	1.85	7.67	26.07	8.72	16	2.35	8.56	4.38	0.33	14.83	8.61
319	RAH 1083	10.00	13	2.93	2.44	25.30	3.33	1.05	4.50	2.14	10.00	19.53	8.39	19.7	1.70	17.56	3.16	0.40	19.89	8.46
320	RAH 1081	10.67	17.5	4.07	2.39	21.80	3.83	1.78	5.85	2.10	7.17	24.13	7.33	18.7	1.83	6.18	3.24	0.00	22.30	8.33
321	LC	5.00	14.8	2.67	2.67	5.70	3.83	1.68	3.05	2.02	8.83	12.27	8.17	20.6	2.63	9.45	3.16	0.27	4.89	9.42
322	GTHV 18/19	9.33	15.5	6.00	2.22	6.65	3.00	1.68	3.20	1.93	9.67	18.67	7.06	19.4	2.65	8.12	2.95	1.07	18.18	9.60
323	RAH 1082	13.33	17.9	6.53	2.61	20.25	3.67	1.53	3.14	2.25	11.00	33.53	6.67	20.3	1.50	9.54	3.40	1.40	19.17	9.38

BA- Banswara; JU- Junagadh; SU- Surat; RA- Rahuri; KH- Khandwa; BW- Bhawanipatna; LG- Lam, Guntur; RC- Raichur; CBE- Coimbatore; SVPR-Srivilliputtur

Table: 17. Ent 1a. Br 02a (IET) : Preliminary screening of breeding materials for their reaction to key pests (Aphids and Natural enemies) of cotton at Central and South Zones during 2020-21

Entry code	Name of entry	Aphids/3 leaves								Natural Enemies/Plant**							CLCV infected plants (%)
		JU	RA	KH	BW	SU	RC	CBE	SVPR	SU	Rahuri			BW	RC	SVPR	BW
											LBB	Chr	Spi				
301	GJHV 548	13.6	7.11	14.70	14.50	31.27	3.1	15.59	-	1.33	0.44	0.00	0.17	0.17	0.65	-	0.00
302	RB 602	14.9	8.00	14.80	32.50	31.93	4.13	6.44	-	1.60	0.44	0.06	0.28	0.50	0.93	-	0.00
303	L 1536	14.5	8.44	17.90	22.00	33.67	5.13	11.36	-	1.87	0.50	0.17	0.39	0.33	1.23	-	0.00
304	TSH 354	13.5	7.78	6.30	36.33	22.27	4.13	9.09	-	1.00	0.67	0.17	0.28	0.66	0.69	-	0.00
305	CPD 2003	14.1	9.39	20.75	40.33	22.13	2.4	11.63	-	0.47	0.56	0.06	0.17	0.83	1.23	-	0.00
306	ZC (Phule Yamuna/BGDS 1063)	14.2	9.67	7.00	54.67	11.80	6.32	9.81	-	0.27	0.33	0.00	0.28	0.50	0.96	-	0.00
307	TCH 1941	14	9.44	19.45	39.17	14.87	5.42	10.02	-	0.40	0.56	0.17	0.17	0.00	0.67	-	0.00
308	CPD 2002	19.2	8.61	20.45	44.33	34.87	4.44	11.49	-	2.47	0.50	0.22	0.11	0.50	1.00	-	0.00
309	GISV 328	13.1	10.33	6.00	42.00	20.53	5.32	7.79	-	0.47	0.56	0.06	0.44	0.33	1.33	-	0.00
310	SHSV 14	16.2	8.28	15.90	45.17	18.60	6.13	10.35	-	0.87	0.44	0.17	0.11	0.17	1.23	-	0.00
311	RB 1903	16.6	9.17	23.60	32.33	12.27	4.4	12.57	-	0.40	0.39	0.06	0.17	0.33	1.13	-	0.00
312	Quality Check (Suraj)	15.1	9.17	22.15	39.67	26.87	6.13	11.45	-	0.80	0.50	0.28	0.28	0.33	1.15	-	0.00
313	ADB 727	18.5	9.50	6.85	13.17	30.53	7.02	11.47	-	1.33	0.39	0.17	0.28	0.50	0.67	-	0.00
314	TSH 387	14.7	9.17	6.15	33.33	26.33	6.13	11.39	-	1.87	0.61	0.11	0.22	0.50	0.33	-	0.00
315	GISV 332	17.6	9.83	21.30	29.33	30.27	4.46	8.52	-	1.53	0.50	0.11	0.28	0.50	1.24	-	0.00
316	CPD 2001	17.3	10.28	19.65	39.00	38.60	4.53	12.55	-	2.40	0.83	0.33	0.28	0.83	0.36	-	0.00
317	BS 10-20	13.2	9.28	19.25	42.17	43.60	5.13	8.73	-	2.67	0.67	0.17	0.17	0.00	1.15	-	0.00
318	GJHV 568	14.7	8.89	21.75	25.67	25.47	7.36	20.29	-	1.73	0.44	0.28	0.22	0.33	1.02	-	0.00
319	RAH 1083	16.1	9.72	23.65	42.67	18.73	6.09	12.15	-	1.60	0.56	0.28	0.17	0.67	0.56	-	0.00
320	RAH 1081	16.8	9.61	21.60	15.17	19.00	4.44	9.86	-	1.27	0.44	0.28	0.17	0.50	0.95	-	0.00
321	LC	15.2	9.61	6.80	22.50	13.80	0.13	8.97	-	0.40	0.50	0.22	0.17	0.83	0.79	-	0.00
322	GTHV 18/19	19.6	9.72	8.70	43.17	21.13	2.44	12.99	-	1.27	0.44	0.17	0.17	0.67	0.90	-	0.00
323	RAH 1082	14.2	9.06	25.60	39.83	29.60	1.13	13.17	-	0.53	0.33	0.17	0.22	0.50	0.96	-	0.00

BA- Banswara; JU- Junagadh; SU- Surat; RA- Rahuri; KH- Khandwa; BW- Bhawanipatna; LG- Lam, Guntur; RC- Raichur; CBE- Coimbatore; SVPR-Srivilliputtur

Table : 18. Ent 1a. Br 02a (IET) : Preliminary screening of breeding materials for their reaction to key pests (Green and Open Ball damage) of cotton at Central and South Zones during 2020-21

Entry code	Name of entry	Green boll damage (%)								Open boll damage							
		SBW/ABW/TC/PBW				PBW		*H. armigera*		SBW/ABW/TC/PBW					*H. a*	PBW	
		JU	RC	SU	LG	RC	BW	BW	SU	JU	SU	RC	CBE	LG	BW	BW	SVPR
301	GJHV 548	22.88	2.14	6.67	65.0	8.12	0.00	6.17	3.30	25.06	4.84	10.00	1.21	44.75	5.00	0.00	-
302	RB 602	28.23	4.35	6.67	55.0	21.02	0.00	7.55	2.35	30.67	5.23	21.21	2.18	29.79	6.58	0.00	-
303	L 1536	26.21	1.56	13.33	60.0	7.19	0.00	8.63	6.22	28.52	9.70	8.57	2.19	38.40	7.57	0.00	-
304	TSH 354	38.24	1.88	0.00	90.0	9.30	0.00	4.02	2.63	40.17	2.84	12.59	0.53	36.64	3.03	0.00	-
305	CPD 2003	24.19	3.42	6.67	60.0	28.14	0.00	6.53	3.91	26.9	5.74	30.12	2.48	32.23	5.53	0.00	-
306	ZC (Phule Yamuna /BGDS 1063)	29.89	2.45	0.00	75.0	21.35	0.00	5.81	2.16	31.51	2.42	20.00	2.44	21.64	4.81	0.00	-
307	TCH 1941	30.48	6.26	6.67	55.0	46.89	0.00	8.72	5.33	33.09	7.40	51.23	1.85	31.24	7.70	0.00	-
308	CPD 2002	24.92	5.36	16.67	70.0	43.29	0.00	6.70	8.25	27.42	11.1	46.05	2.48	37.44	5.67	0.00	-
309	GISV 328	41.46	4.66	0.00	60.0	37.75	0.00	6.35	1.72	43.83	1.81	41.05	1.61	30.92	5.30	0.00	-
310	SHSV 14	39.65	5.38	3.33	45.0	40.13	0.00	6.96	6.40	41.16	7.64	42.03	0.77	28.60	5.96	0.00	-
311	RB 1903	35.94	2.18	0.00	75.0	18.45	0.00	6.98	2.80	37.12	4.34	21.43	1.46	39.34	5.97	0.00	-
312	Quality Check (Suraj)	37.63	4.82	10.00	65.0	39.45	0.00	2.93	3.67	39.78	6.70	41.67	2.10	48.94	1.93	0.00	-
313	ADB 727	33.51	3.32	6.67	60.0	33.05	0.00	7.74	3.37	35.22	4.68	33.33	2.94	31.81	6.74	0.00	-
314	TSH 387	34.17	2.15	10.00	90.0	26.49	0.00	7.00	6.51	36.98	8.77	33.33	2.08	41.23	6.26	0.00	-
315	GISV 332	36.28	4.12	10.00	70.0	68.16	0.00	8.63	2.82	38.78	6.39	100.0	2.57	44.13	7.63	0.00	-
316	CPD 2001	27.03	3.22	26.67	50.0	36.02	0.00	4.12	7.94	29.72	11.1	41.89	1.99	39.61	3.12	0.00	-
317	BS 10-20	30.8	3.45	0.00	80.0	25.90	0.00	6.35	3.30	33.29	5.18	27.27	2.78	29.30	5.35	0.00	-
318	GJHV 568	28.8	1.24	3.33	30.0	9.01	0.00	6.82	4.30	30.25	6.25	13.05	1.45	32.76	5.82	0.00	-
319	RAH 1083	22.77	2.18	6.67	65.0	22.56	0.00	6.59	6.71	25.04	8.08	23.79	0.88	27.90	5.59	0.00	-
320	RAH 1081	28.36	5.12	6.67	50.0	36.09	0.00	4.36	2.89	30.58	5.78	42.08	0.28	32.37	3.36	0.00	-
321	LC	25.78	2.71	0.00	70.0	28.32	0.00	6.75	1.74	27.71	1.97	31.25	2.98	35.06	5.75	0.00	-
322	GTHV 18/19	21.5	1.14	6.67	45.0	8.05	0.00	4.88	8.67	24.48	9.06	11.23	1.94	35.73	3.88	0.00	-
323	RAH 1082	32.71	2.33	20.00	75.0	26.94	0.00	5.42	8.38	34.45	11.42	26.05	2.39	31.47	4.42	0.00	-

BA- Banswara; JU- Junagadh; SU- Surat; RA- Rahuri; KH- Khandwa; BW- Bhawanipatna; LG- Lam, Guntur; RC- Raichur; CBE- Coimbatore; SVPR-Srivilliputtu

Table: 19. Ent 1a. Br 02a (IET) : Preliminary screening of breeding materials for their reaction to key pests (Open boll locule damage and Rosette flower) of cotton at Central and South Zones during 2020-21

Entry code	Name of entry	boll locule damage (%)Open							Rosette Flower PBW (%)			Good open bolls (No./Plant)
		BW	JU	SU	RC	CBE	LG	SVPR	BW	RC	SU	BA
301	GJHV 548	2.47	20.25	1.72	15.13	4.19	31.27	-	0.00	3.68	2.54	140
302	RB 602	4.31	24.73	2.11	25.16	4.49	22.09	-	0.00	4.71	0.00	89
303	L 1536	5.04	23.15	3.91	12.26	5.02	29.39	-	0.00	2.02	7.69	112
304	TSH 354	1.03	34.73	1.05	16.79	3.15	27.22	-	0.00	3.71	0.00	63
305	CPD 2003	3.53	20.85	2.05	35.12	3.89	25.64	-	0.00	5.70	4.29	70
306	ZC (Phule Yamuna/BGDS 1063)	2.81	26.69	0.90	23.75	3.67	15.23	-	0.00	4.12	0.00	124
307	TCH 1941	4.70	26.03	2.61	57.45	5.24	21.90	-	0.00	8.91	4.29	**160**
308	CPD 2002	3.67	22.18	4.68	45.23	3.61	23.90	-	0.00	8.52	9.51	76
309	GISV 328	3.30	37.49	0.68	42.00	4.46	18.87	-	0.00	6.71	0.00	85
310	SHSV 14	3.96	36.51	2.70	44.98	3.26	20.35	-	0.00	7.71	2.90	51
311	RB 1903	3.97	32.23	1.75	36.45	4.70	22.80	-	0.00	8.95	0.00	145
312	Quality Check (Suraj)	0.23	34.29	2.70	48.99	3.47	32.03	-	0.00	9.56	2.62	64
313	ADB 727	4.74	30	1.97	38.97	3.37	23.92	-	0.00	8.71	2.38	73
314	TSH 387	4.26	30.62	3.47	36.02	4.93	28.87	-	0.00	5.67	0.00	80
315	GISV 332	5.08	33	2.88	100.00	5.35	25.49	-	0.00	1.50	3.13	114
316	CPD 2001	1.12	24.09	4.05	42.03	3.31	30.45	-	0.00	6.72	9.16	70
317	BS 10-20	3.35	27.08	1.95	33.02	5.58	22.41	-	0.00	6.58	0.00	65
318	GJHV 568	3.82	25.85	2.32	15.78	4.48	18.32	-	0.00	3.58	5.54	93
319	RAH 1083	4.57	19.82	2.77	25.07	3.66	20.15	-	0.00	4.71	4.18	111
320	RAH 1081	1.36	24.24	2.33	44.98	3.26	22.48	-	0.00	6.75	2.90	112
321	LC	3.75	21.38	0.75	38.16	5.36	21.10	-	0.00	4.56	0.00	149
322	GTHV 18/19	1.96	18.46	3.01	14.75	3.31	22.26	-	0.00	3.15	5.99	93
323	RAH 1082	2.42	29.13	4.41	28.79	5.20	19.65	-	0.00	4.89	8.83	84

Table: 20. Ent 1a. Br 02b (IET) : Preliminary screening of breeding materials for their reaction to key pests (Leaf hopper) Central and South Zone

Entry code	Name of entry	JIG				Jassid/ 3 leaves			
		BA	ND	DW	CN	BA	NA	DW	CN
351	CNH 18298	III	I	I	II	5.33	3.00	4.20	3.27
352	CPD 2052	IV	I	III	II	7.33	2.07	7.30	4.04
353	BS 10-20	III	I	III	II	6.00	2.07	7.75	3.88
354	Quality Check (Suraj)	III	I	III	II	4.33	1.73	5.10	4.94
355	NDLH 2061-4	II	I	III	II	3.67	2.87	3.40	3.73
356	CNH 119	II	I	III	II	3.00	2.80	8.20	4.80
357	TKH 1225	-	I	III	I	-	2.60	3.30	1.00
358	TSH 337	II	I	III	I	4.00	3.00	3.20	1.15
359	CNDTS 287	III	II	III	II	5.33	3.67	7.50	4.00
360	WGCV 192	III	I	III	II	5.33	2.67	8.40	3.89
361	TVH 003	III	I	III	I	4.00	2.40	8.55	1.60
362	ZC (NH 615/ NDLH 1938)	III	I	III	II	5.67	2.73	3.20	4.07
363	NDLH 2071-2	III	I	III	II	5.00	2.87	7.90	4.21
364	RAH 1082	III	II	III	III	5.67	4.53	7.40	6.84
365	CNH 18173	III	I	I	III	5.00	2.40	3.50	7.11
366	NH 723	II	II	I	II	4.00	3.20	4.10	3.94
367	RB 1908	III	II	I	III	4.67	3.07	3.30	6.07
368	GBHV 202	II	I	I	II	4.00	3.80	7.80	4.20
369	RAH 1081	II	II	III	III	3.33	4.27	8.15	5.93
370	ADB 728	IV	I	II	II	8.00	3.60	5.90	3.88
371	TKH 1197	III	II	IV	I	4.67	3.47	7.33	1.66
372	CPD 2053	III	II	III	III	6.00	3.53	8.75	5.96
373	AKH 2013-3	II	II	I	I	3.67	3.20	3.20	1.75
374	CNDTS 2131	IV	II	III	II	8.33	3.00	7.90	3.35
375	LC	II	II	III	II	3.33	3.13	8.25	4.17
376	CNH 1137	II	II	III	II	4.33	3.20	8.90	3.83
377	CPD 2051	IV	II	III	III	7.00	3.87	8.60	6.15
378	GBHV 217	III	II	III	III	4.67	3.80	8.20	6.79
379	TSH 358	III	I	III	II	4.67	2.80	8.25	4.85
380	RB 1910	II	I	III	II	3.00	2.93	2.60	4.03
381	AKH 2016-1	II	II	III	II	4.00	3.07	8.75	4.76
382	RAH 1083	II	I	IV	II	4.33	2.47	7.30	4.06

BA- Banswara; NA- Nanded; DW- Dharwad; CN- Chamarajanagara; JIG- Jassid Injury Grade(I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant + marginal yellowing, III- curling of leaves almost all over the plant, IV- extreme curling, bronzing and drying of leaves);

Table: 21. Ent 1a. Br 02b (IET) : Preliminary screening of breeding materials for their reaction to key pests (Sucking pests) of cotton at Central and South Zones during 2020-21

Entry code	Name of entry	Whitefly/3 leaves			Thrips/3 leaves		Aphids/ 3 leaves	TSV infected plants (%)
		BA	ND	CN	ND	CN	CN	CN
351	CNH 18298	17.33	0.53	0.66	0.00	1.88	11.28	0.00
352	CPD 2052	20.67	0.73	0.84	0.00	1.68	12.35	0.00
353	BS 10-20	20.00	0.47	0.74	0.20	2.02	10.48	0.00
354	Quality Check (Suraj)	9.00	0.40	0.95	0.00	2.21	11.75	0.00
355	NDLH 2061-4	6.33	0.27	0.88	0.00	1.04	12.25	0.00
356	CNH 119	5.33	0.80	0.61	0.73	2.00	11.14	0.00
357	TKH 1225	-	0.40	0.44	0.00	0.90	8.55	0.00
358	TSH 337	7.00	0.53	0.56	0.00	0.60	7.38	0.00
359	CNDTS 287	16.67	0.87	1.02	0.00	1.42	13.26	0.00
360	WGCV 192	16.00	0.40	1.38	0.27	1.49	13.65	0.00
361	TVH 003	10.67	0.67	0.60	0.00	0.70	7.13	0.00
362	ZC (NH 615/ NDLH 1938)	18.67	0.33	1.36	0.00	1.59	13.40	0.00
363	NDLH 2071-2	11.33	0.47	0.97	0.00	1.20	12.54	0.00
364	RAH 1082	18.00	0.87	2.13	0.00	4.91	34.44	0.00
365	CNH 18173	12.33	0.40	2.28	0.00	5.18	33.80	0.00
366	NH 723	7.67	0.73	0.97	0.67	1.10	11.40	0.00
367	RB 1908	10.00	0.73	2.02	0.27	5.76	34.61	0.00
368	GBHV 202	14.00	0.47	1.07	0.00	1.28	13.24	0.00
369	RAH 1081	5.33	0.73	2.07	0.00	4.08	32.26	0.00
370	ADB 728	22.00	0.80	1.21	0.00	1.33	11.68	0.00
371	TKH 1197	15.00	0.53	0.77	0.00	0.72	7.09	0.00
372	CPD 2053	19.00	0.53	2.29	0.00	5.88	33.86	0.00
373	AKH 2013-3	6.00	0.73	0.51	0.00	0.79	7.77	0.00
374	CNDTS 2131	22.00	0.73	1.46	0.00	1.52	11.86	0.00
375	LC	5.67	0.47	1.48	0.00	2.00	12.29	0.00
376	CNH 1137	8.00	0.67	1.33	0.00	1.38	9.91	0.00
377	CPD 2051	19.67	0.67	2.29	0.00	6.01	31.30	0.00
378	GBHV 217	9.67	0.60	2.56	0.00	5.64	32.69	0.00
379	TSH 358	10.33	0.20	1.15	0.00	1.27	12.75	0.00
380	RB 1910	5.00	0.33	1.41	0.00	1.51	11.81	0.00
381	AKH 2016-1	6.33	0.67	1.91	0.20	1.91	11.56	0.00
382	RAH 1083	8.67	0.40	1.15	0.00	1.23	11.30	0.00

Table: 22. Ent 1a. Br 02b (IET) : Preliminary screening of breeding materials for their reaction to key pests (Boll damage) of cotton at Central and South Zones during 20-21

Entry code	Name of entry	Natural Enemies/ Plant		Green boll damage (%)					Open boll damage (%)			
				H.a		ABW/SBW	PBW (%)		ABW/SBW/TC		PBW	*H.a*
		ND	CN	CN	DW*	ND	DW	CN	DW	ND	CN	CN
351	CNH 18298	0.00	0.58	0.00	10.02	86.67	9.81	2.51	30.77	34.96	4.26	0.00
352	CPD 2052	0.07	0.74	0.00	7.71	65.00	9.23	2.51	34.77	49.21	4.50	0.00
353	BS 10-20	0.07	0.62	0.00	9.02	60.00	10.35	2.75	35.98	55.77	4.13	0.00
354	Quality Check (Suraj)	0.07	0.99	0.00	11.62	55.00	9.74	2.62	44.2	52.07	4.74	0.00
355	NDLH 2061-4	0.07	0.77	0.00	6.65	65.00	9.6	2.99	48.85	43.52	4.52	0.00
356	CNH 119	0.00	0.53	0.00	9.71	66.67	8.15	2.77	39.15	19.32	4.20	0.00
357	TKH 1225	0.00	0.49	0.00	7.655	78.33	10.16	2.45	46.1	40.97	4.25	0.00
358	TSH 337	0.07	0.60	0.00	8.44	48.33	10.34	2.50	44.66	63.36	4.35	0.00
359	CNDTS 287	0.00	0.57	0.00	9.38	53.33	10.23	2.60	40.62	51.87	4.36	0.00
360	WGCV 192	0.20	1.20	0.00	7.65	60.00	10.41	2.61	35.66	68.82	4.96	0.00
361	TVH 003	0.00	0.68	0.00	6.555	70.00	10.74	3.21	42.03	59.27	4.50	0.00
362	ZC (NH 615/ NDLH 1938)	0.00	1.43	0.00	9.34	53.33	10.84	2.75	51.68	60.99	5.09	0.00
363	NDLH 2071-2	0.00	0.89	0.00	8.68	65.00	10.75	3.44	37.61	66.41	4.63	0.00
364	RAH 1082	0.07	1.82	0.00	7.85	45.00	8.23	2.88	39.04	68.61	5.59	0.00
365	CNH 18173	0.00	1.92	0.00	8.92	53.33	10.06	3.84	27.43	31.37	5.68	0.00
366	NH 723	0.00	0.89	0.00	9.6	60.00	10.12	3.93	29.17	45.70	4.63	0.00
367	RB 1908	0.07	1.93	0.00	10.8	63.33	10.75	2.88	29.21	66.23	5.74	0.00
368	GBHV 202	0.00	1.16	0.00	6.42	71.67	10.12	3.99	27.77	48.62	4.81	0.00
369	RAH 1081	0.07	1.80	0.00	6.91	70.00	8.635	3.16	39.62	53.04	5.55	0.00
370	ADB 728	0.00	1.23	0.00	5.985	55.00	10.25	3.80	29.09	46.23	5.00	0.00
371	TKH 1197	0.07	0.71	0.00	6.1	48.33	8.71	3.25	39.83	70.52	4.45	0.00
372	CPD 2053	0.00	1.85	0.00	6.37	53.33	8.835	2.70	41.73	65.47	5.62	0.00
373	AKH 2013-3	0.00	0.56	0.00	5.67	56.67	10.04	3.87	27.07	64.02	4.31	0.00
374	CNDTS 2131	0.07	1.26	0.00	6.46	58.33	10.13	2.56	38.72	75.23	5.03	0.00
375	LC	0.00	1.27	0.00	10.7	45.00	10.26	3.28	32.3	68.52	5.06	0.00
376	CNH 1137	0.00	1.23	0.00	10.41	56.67	9.315	3.31	41.64	64.36	4.99	0.00
377	CPD 2051	0.00	2.14	0.00	5.455	53.33	8.74	3.24	52.75	65.02	5.87	0.00
378	GBHV 217	0.00	2.08	0.00	5.53	55.00	10.06	4.12	30.05	70.70	5.85	0.00
379	TSH 358	0.00	1.01	0.00	5.825	53.33	10.03	4.10	44.84	59.77	4.75	0.00
380	RB 1910	0.07	1.30	0.00	6.445	56.67	10.28	3.01	53.35	72.48	5.13	0.00
381	AKH 2016-1	0.00	1.27	0.00	6.58	58.33	10.17	3.38	33.75	65.14	5.10	0.00
382	RAH 1083	0.13	1.27	0.00	10.825	50.00	10.14	3.35	26.68	41.69	5.05	0.00

*At Dharwad, fruiting bodies damage (%)

Entry code	Name of entry	Open boll Locule damage (%)			Good open bolls (No./ Plant)	No. BOB/ plant	Rosette flower (%) by PBW
			BW				
		ND	DW	CN	DW	DW	CN
351	CNH 18298	33.05	12.74	6.25	5.85	2.60	**0.00**
352	CPD 2052	31.84	10.15	7.75	6.38	3.40	0.00
353	BS 10-20	43.75	10.05	5.96	6.41	3.60	0.00
354	Quality Check (Suraj)	41.62	11.61	7.99	5.43	4.30	0.00
355	NDLH 2061-4	44.57	10.64	7.77	4.82	4.60	0.00
356	CNH 119	42.36	11.21	7.45	7.00	4.50	0.00
357	TKH 1225	38.44	10.24	7.63	4.44	3.80	0.00
358	TSH 337	52.81	10.72	7.50	4.21	3.40	0.00
359	CNDTS 287	32.26	11.71	7.61	6.72	4.60	0.00
360	WGCV 192	27.08	12.13	8.21	6.86	3.80	0.00
361	TVH 003	48.14	12.08	7.75	7.72	5.60	0.00
362	ZC (NH 615/ NDLH 1938)	42.19	11.65	8.34	4.40	4.70	0.00
363	NDLH 2071-2	53.96	11.05	7.13	6.97	4.20	0.00
364	RAH 1082	36.73	10.45	8.84	6.71	4.30	0.00
365	CNH 18173	36.83	10.05	8.93	6.35	2.40	0.00
366	NH 723	36.56	11.21	6.76	6.80	2.80	0.00
367	RB 1908	58.96	12.15	8.99	6.30	2.60	0.00
368	GBHV 202	48.35	12.55	8.06	6.50	2.50	0.00
369	RAH 1081	42.34	11.61	8.80	6.86	4.50	0.00
370	ADB 728	41.12	12.71	8.25	5.85	2.40	0.00
371	TKH 1197	38.57	13.11	7.70	5.89	3.90	0.00
372	CPD 2053	57.67	11.12	8.87	7.54	5.40	0.00
373	AKH 2013-3	47.55	11.75	7.56	4.85	1.80	0.00
374	CNDTS 2131	50.11	5.24	7.00	6.96	4.40	0.00
375	LC	33.72	5.75	8.31	6.71	3.20	0.00
376	CNH 1137	33.02	6.74	8.05	4.20	3.00	0.00
377	CPD 2051	46.84	7.12	9.35	4.84	5.40	0.00
378	GBHV 217	51.37	7.61	9.55	7.45	3.20	0.00
379	TSH 358	51.46	6.71	8.00	7.38	6.00	0.00
380	RB 1910	60.53	7.31	8.75	4.02	4.60	0.00
381	AKH 2016-1	44.54	7.25	8.40	7.26	3.70	0.00
382	RAH 1083	29.72	7.81	8.23	5.77	2.10	0.00

Table: 23. Ent 1a. Br 02a/b CC (IET) : Preliminary screening of breeding materials for their reaction to key pests (Sucking pests) of cotton at Central and South Zones during 2020-21

Entry Code	Name of Entry	JIG		Jassid/3 leaves			Whitefly/3 leaves			Thrips/3 leaves		Aphids/ 3 leaves			NE/ Plant	Mealybug (grade/plant)
		SU	LG	SU	LG	KH	SU	KH	LG	SU	LG	SU	KH	LG	SU	SU
391	CNH 19325	I	II	1.87	4.23	4.60	3.20	15.25	0.85	25.73	1.70	23.80	11.30	4.00	1.13	0.07
392	DHCC 2002	II	IV	6.40	6.68	4.00	4.73	19.05	1.43	16.53	1.90	36.87	9.75	5.20	1.27	0.27
393	ZC (Phule Yamuna/Suraj)	I	III	3.67	6.13	2.40	4.13	18.30	1.18	17.40	2.50	24.07	16.80	6.30	1.47	0.00
394	CNH 19480	I	II	1.40	3.25	2.30	2.60	19.10	1.90	22.87	3.70	21.53	17.90	6.20	1.27	0.00
395	DHCC 2001	II	III	7.53	5.18	1.10	4.93	6.90	0.68	22.60	1.90	18.00	2.70	6.50	1.40	0.13
396	Local Check	I	II	3.07	3.43	4.50	2.93	16.65	2.45	22.40	2.10	25.80	16.35	6.20	1.33	0.13
397	SHSCC 5	I	II	7.67	4.58	3.30	5.53	20.25	1.63	36.40	2.80	32.40	18.15	4.60	1.13	0.27

JIG- Jassid Injury Grade(I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant + marginal yellowing, III- curling of leaves almost all over the plant, IV- extreme curling, bronzing and drying of leaves) SU - Surat; LG- Lam, Guntur; KH- Khandwa

Table: 24 Ent 1a. Br 02a/b CC (IET) : Preliminary screening of breeding materials for their reaction to key pests (Boll damage) of cotton at Central and South Zones during 2020-21

Entry Code	Name of Entry	Green boll damage (%)			Open boll damage (%)			Open boll Locule damage (%)		Rosette Flower by PBW (%)
		H.a	PBW		ABW/SBW/TC		PBW			
		SU	SU	LG	SU	LG	KH	SU	LG	SU
391	CNH 19325	4.09	6.67	60.0	7.71	32.24	80.0	2.34	21.29	0.00
392	DHCC 2002	6.18	16.67	85.0	11.55	23.38	55.0	3.83	17.20	2.22
393	ZC (Phule Yamuna/Suraj)	2.33	0.00	85.0	5.93	32.56	45.0	1.81	19.22	0.00
394	CNH 19480	3.63	0.00	70.0	5.87	25.68	45.0	1.74	16.60	0.00
395	DHCC 2001	10.12	16.67	70.0	17.24	28.31	65.0	5.38	15.10	1.45
396	Local Check	7.00	0.00	90.0	10.06	42.56	35.0	2.73	26.84	1.33
397	SHSCC 5	9.11	13.33	85.0	14.67	26.72	50.0	5.13	18.56	3.36

SU - Surat; LG- Lam, Guntur; KH- Khandwa

Table: 25 Ent 1a. Br 06 a (IET): Preliminary screening of breeding materials for their reaction to key pests of cotton at Central and South Zones

Entry Code	Name of Entry	JIG							Jassid/3 leaves							
		JU	RA	BW	BA	LG	RC	CBE	JU	RA	KH	BW	LG	RC	BA	CBE
401	RB 1918	II	II	III	II	II	III	III	13.3	3.59	4.90	6.83	4.48	7.67	4.33	6.75
402	CNH 20-31	II	II	II	III	II	III	III	11.2	3.22	3.40	6.66	4.43	8.65	6.67	5.92
403	RHC 1651	II	I	I	III	II	III	II	15.2	3.06	5.85	3.83	6.20	7.21	7.00	6.25
404	BS 11-20	II	I	III	III	II	II	III	14.2	3.28	4.80	7.67	4.60	5.65	5.00	6.58
405	Local Check	II	I	II	II	I	II	III	14.9	3.11	3.80	5.16	3.13	6.16	4.00	6.50
406	TCH 1895	II	II	II	III	II	II	III	10.8	3.44	5.00	6.33	4.35	4.55	6.33	5.58
407	RHC 1639	II	II	IV	III	III	III	II	12	3.06	6.30	8.00	4.55	8.16	6.33	6.08
408	RB 1901	II	II	II	II	II	II	III	12.5	3.11	0.70	6.67	4.65	5.65	3.67	6.00
409	RAHC 1032	II	II	I	III	II	III	II	15.8	3.00	4.00	5.00	4.28	9.98	5.67	3.42
410	Common Check (Suraj)	II	III	II	III	II	III	III	11.8	3.39	5.60	6.00	4.35	7.89	5.67	6.00
411	RAHC 1031	II	II	IV	III	I	III	III	10.3	3.22	6.90	8.00	2.95	7.45	6.00	3.33

Entry Code	Name of Entry	Whitely/3 leaves								Stem weevil (%)	Leaf folder (%)
		JU	RA	KH	BW	LG	RC	BA	CBE	CBE	CBE
401	RB 1918	14.4	2.61	5.75	4.17	2.65	1.32	9.00	2.03	11.18	8.21
402	CNH 20-31	15.1	2.61	24.00	3.83	2.68	2.85	14.33	3.47	15.38	7.63
403	RHC 1651	18.9	2.28	26.14	3.33	0.43	3.44	15.00	2.65	15.29	9.09
404	BS 11-20	19.7	2.61	23.35	3.67	3.10	4.26	11.33	1.84	36.12	6.28
405	Local Check	18	2.50	21.10	3.33	1.73	1.32	9.67	2.45	21.18	8.55
406	TCH 1895	16.3	2.28	5.95	4.33	1.08	1.78	13.33	2.86	23.15	8.70
407	RHC 1639	20	2.06	25.35	4.17	0.53	3.66	14.00	2.95	35.01	9.02
408	RB 1901	20.8	2.39	6.10	4.00	1.93	7.54	9.33	2.56	21.61	9.64
409	RAHC 1032	17.8	2.44	17.15	3.83	1.50	6.45	12.00	5.71	14.98	7.33
410	Common Check (Suraj)	17.3	2.33	21.64	4.33	1.65	5.64	12.33	2.43	31.13	7.86
411	RAHC 1031	22	2.06	22.05	3.83	1.08	8.94	14.67	2.33	13.99	7.09

JU- Junagadh; RA- Rahuri; KH- Khandwa; BW- Bhawanipatna; LG- Lam, Guntur; RC- Raichur; CBE- Coimbatore;

JIG- Jassid Injury Grade(I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant + marginal yellowing, III- curling of leaves almost all over the plant, IV- extreme curling, bronzing and drying of leaves);

Table: 26. Ent 1a. Br 06 a (IET) : Preliminary screening of breeding materials for their reaction to key pests (Thrips and Aphids) of cotton at Central and South Zones during 2020-21

Entry Code	Name of Entry	Thrips/3 leaves						Aphids/3 leaves							Natural Enemies/Plant				
		JU	RA	BW	LG	RC	CBE	JU	RA	KH	BW	LG	RC	CBE	RA			BW	RC
															LBB	Chr	Spi		
401	RB 1918	15.9	6.94	8.67	3.70	9.65	3.32	13.5	8.06	19.10	43.33	5.30	2.56	13.50	0.56	0.11	0.17	0.33	1.58
402	CNH 20-31	14.3	6.33	9.00	3.50	10.41	3.44	15.9	9.28	13.90	25.50	5.40	3.09	12.51	0.33	0.11	0.22	0.50	1.48
403	RHC 1651	15.2	6.72	5.67	4.33	14.51	3.28	17.1	9.56	17.90	18.00	4.15	6.45	14.09	0.56	0.11	0.33	0.83	1.34
404	BS 11-20	13.2	6.28	11.17	3.93	13.84	3.28	16.5	8.78	6.30	23.67	6.90	7.03	14.34	0.44	0.11	0.22	0.66	2.15
405	Local Check	17	6.67	6.83	6.28	11.50	3.32	18.6	10.17	17.40	55.00	7.15	5.46	15.88	0.39	0.11	0.06	0.67	0.34
406	TCH 1895	14.9	6.72	8.00	3.75	7.83	3.24	19.1	7.28	7.00	30.17	5.50	3.09	15.26	0.56	0.28	0.22	1.00	1.22
407	RHC 1639	12.9	5.61	11.67	4.23	12.69	3.36	14.5	8.72	20.10	53.17	3.85	5.02	18.00	0.44	0.22	0.17	1.17	2.16
408	RB 1901	18.1	5.83	11.00	2.78	17.85	3.77	17.9	7.33	5.50	38.50	7.28	6.74	15.76	0.33	0.17	0.22	0.50	1.05
409	RAHC 1032	13.9	6.00	6.17	2.85	11.74	3.78	12	8.44	20.95	23.17	5.50	3.31	15.69	0.56	0.17	0.39	0.50	1.14
410	Common Check (Suraj)	18.8	5.94	9.16	3.08	13.64	4.25	12.6	9.11	21.55	19.83	5.38	6.12	16.50	0.50	0.11	0.17	0.33	4.23
411	RAHC 1031	12.8	5.89	11.67	3.20	17.86	4.13	15.3	8.00	22.20	23.50	4.45	7.02	17.58	0.33	0.06	0.22	0.50	3.82

JU- Junagadh; RA- Rahuri; KH- Khandwa; BW- Bhawanipatna; LG- Lam, Guntur; RC- Raichur; CBE- Coimbatore;

Table: 27 Ent 1a. Br 06 a (IET) : Preliminary screening of breeding materials for their reaction to key pests (Boll damage) of cotton at Central and South Zones during 2020-21

Entry Code	Name of Entry	Green boll damage (%)			Green boll damage (%)			Open boll damage (%)					Open boll damage (%)		CLCV infected plants (%)
					H.a	PBW							*H.a*	PBW	
		JU	LG	RC	BW	BW	RC	JU	KH	LG	RC	CBE	BW	BW	BW
401	RB 1918	27.58	70	1.58	4.07	0.00	22.12	30.73	45.00	31.67	25.00	1.47	3.73	0.00	0.00
402	CNH 20-31	26.26	60	1.48	6.92	0.00	25.13	28.92	55.00	34.56	31.23	0.10	5.40	0.00	0.00
403	RHC 1651	32.84	70	1.34	5.78	0.00	27.12	35.56	60.00	28.77	35.02	1.79	5.00	0.00	0.00
404	BS 11-20	28.36	65	2.15	6.52	0.00	35.02	30.55	50.00	46.91	41.08	0.12	5.92	0.00	0.00
405	Local Check	21.92	70	0.34	6.88	0.00	10.12	24.55	75.00	42.14	21.05	2.02	5.67	0.00	0.00
406	TCH 1895	24.29	75	1.22	6.33	0.00	20.96	27.66	70.00	25.48	22.22	0.36	5.33	0.00	0.00
407	RHC 1639	32.17	80	2.16	5.43	0.00	37.08	36.06	75.00	37.74	42.08	1.70	4.07	0.00	0.00
408	RB 1901	23.47	70	1.05	5.07	0.00	21.09	25.38	65.00	30.26	24.56	0.27	3.74	0.00	0.00
409	RAHC 1032	33.72	60	1.14	6.62	0.00	22.58	38.26	45.00	40.30	22.05	2.85	5.62	0.00	0.00
410	Common Check (Suraj)	25.25	70	4.23	5.28	0.00	41.09	27.87	55.00	32.84	47.23	1.63	4.28	0.00	0.00
411	RAHC 1031	29.48	70	3.82	4.42	0.00	43.87	32.49	60.00	31.72	50.12	1.16	2.89	0.00	0.00

JU- Junagadh; RA- Rahuri; KH- Khandwa; BW- Bhawanipatna; LG- Lam, Guntur; RC- Raichur; CBE- Coimbatore;

Table: 28 Ent 1a. Br 06 a (IET) : Preliminary screening of breeding materials for their reaction to key pests (Open boll locule damage) of cotton at Central and South Zones during 2020-21

Entry Code	Name of Entry	Open boll Locule damage (%)					Rosette flower by PBW (%)	
		JU	BW	RC	CBE	LG	BW	RC
401	RB 1918	26.18	1.38	30.41	4.14	22.57	0.00	22.12
402	CNH 20-31	25.2	3.60	38.56	3.02	21.64	0.00	25.13
403	RHC 1651	31.03	2.61	41.03	3.19	20.59	0.00	27.12
404	BS 11-20	27	2.84	43.12	4.51	27.24	0.00	35.02
405	Local Check	21.56	2.80	25.64	6.85	30.91	0.00	10.12
406	TCH 1895	22.39	2.83	33.89	4.90	15.88	0.00	20.96
407	RHC 1639	31.56	2.06	46.12	7.88	24.94	0.00	37.08
408	RB 1901	22.61	1.90	32.05	3.52	18.30	0.00	21.09
409	RAHC 1032	32.24	3.64	35.26	3.12	26.38	0.00	22.58
410	Common Check (Suraj)	23.71	2.16	51.32	5.96	17.37	0.00	41.09
411	RAHC 1031	28.4	1.31	54.06	3.94	19.21	0.00	43.87

JU- Junagadh; RA- Rahuri; KH- Khandwa; BW- Bhawanipatna; LG- Lam, Guntur; RC- Raichur; CBE- Coimbatore;

Table: 29. Ent 1a. Br 06 b (IET) : Preliminary screening of breeding materials for their reaction to key pests (Boll damage) of cotton at Central and South Zones during 2020-21

Entry Code	Name of Entry	Green boll damage (%)					Open boll damage (%)				Open boll Locule damage due to PBW (%)	Locule damage (%)	No. GOB/ plant	
		H.a	PBW		ABW/SBW/TC		*H.a*	ABW/SBW/TC						
		DW*	ND	DW*	ND	DW	ND	DW	CN	ND	DW	ND	DW	DW
421	CNH 1139	5.91		8.73	65.00		61.97	36.59			7.41	40.19	6.93	4.00
422	CNH 20-32	10.25		9.66	71.67		42.88	34.98			12.82	33.83	6.51	3.50
423	CNDTS 5114	10.43		9.73	76.67		57.70	33.54			12.81	47.41	6.34	3.20
424	DSC 2051	10.705		10.24	73.33		53.26	29.07			12.75	33.46	6.83	2.80
425	Local Check	6.405		10.06	63.33		57.71	29.42			14.41	43.60	5.76	2.40
426	CNH 20-33	7.25		9.71	75.00		54.14	29.77			18.05	41.90	6.13	2.60
427	CNH 1140	7.595		10.15	81.67		46.95	25			13.14	35.93	4.50	1.50
428	CNH 121	7.11		9.71	73.33		58.81	26.89			8.8	44.76	4.35	1.60
429	CNDTS 5170	10.705		10.73	56.67		57.86	19.36			11.12	44.46	6.25	1.50
430	CNH 20-31	10.41		10.06	63.33		35.88	23.51			9.14	28.26	7.16	2.20
431	CNH 120	6.2		10.21	86.67		49.10	28.22			11.85	40.26	6.61	2.60
432	RAHC 1032	5.725		15.04	73.33		45.34	32.63			8.24	35.85	6.81	3.30
433	Common Check (Suraj)	10.63		11.72	65.00		56.08	20.01			17.41	39.23	6.00	1.50
434	RAHC 1031	6.74		11.09	60.00		54.40	28.57			14.12	49.00	7.00	2.80
435	GTHV 19/18	11.14		9.63	71.67		22.92	20.82			12.27	21.40	2.66	0.70

ND- Nandyal; DW- Dharwad; CN- Chamarajanagara;

*At Dharwad, fruiting bodies damage **(%)**

Table: 30 Ent 1a. Br 15a (CHT) : Preliminary screening of breeding materials for their reaction to key pests (Sucking pests) of cotton at Central and South Zones during 2020-21

Entry Code	Name of Entry	Jassid injury grade				Jassid/3 leaves				Whitefly/3 leaves			Thrips/3 leaves			Aphids/3 leaves		Stem weevil (%)	Leaf folder (%)
		CN	LG	DW	CBE	CN	LG	DW	CBE	LG	CN	CBE	CN	LG	CBE	CBE	LG	CBE	CBE
2591	RHB 1623	II	III	IV	III	1.68	8.40	6.80	6.08	2.03	1.13	3.09	1.29	3.93	5.18	13.83	3.68	23.46	6.14
2592	Local Check	III	III	III	III	3.05	7.88	6.30	5.83	0.53	2.64	2.62	2.96	2.00	5.12	11.60	4.13	23.34	7.60
2593	DHB 2002	III	III	III	III	2.98	7.75	6.55	6.17	0.95	2.07	3.04	2.37	4.28	4.97	13.16	6.00	19.71	7.61
2594	Phule Dhara (CC)	II	III	III	III	2.56	8.15	9.20	6.00	0.60	1.12	2.63	1.24	2.43	5.18	11.63	6.73	20.42	6.84
2595	DHB 1901	II	III	IV	III	1.57	8.50	6.90	5.83	0.83	1.02	2.51	1.03	2.83	3.53	13.27	3.03	17.04	9.18
2596	LAHB 2	II	III	III	III	1.65	6.60	6.80	6.25	0.75	1.15	3.46	1.36	2.65	5.18	13.67	2.78	18.04	8.75
2597	DHB 1902	II	III	III	III	1.75	8.00	6.90	6.17	1.25	0.88	1.96	1.13	3.35	4.97	14.04	4.70	33.22	6.28
2598	RHB 1624	II	III	III	III	2.10	7.50	7.10	6.00	0.38	1.19	1.71	1.45	3.00	5.28	8.26	3.95	18.55	6.78
2599	DHB 2003	I	III	III	III	0.68	8.63	7.60	6.08	0.43	0.66	2.28	0.74	1.75	5.10	8.86	4.20	17.32	8.13
2600	RHB 1401	II	III	III	III	2.00	9.60	6.30	6.33	0.53	1.40	2.11	1.52	4.05	5.18	10.18	2.55	15.11	8.95
2601	DHB 2001	I	III	III	III	0.63	5.90	6.50	6.08	1.28	0.50	2.88	0.63	2.88	5.35	10.35	3.38	31.22	9.89

RA- Rahuri; LG- Lam, Guntur; DW- Dharwad; CBE- Coimbatore;

Table : 31. Ent 1a. Br 15a (CHT) : Preliminary screening of breeding materials for their reaction to key pests (Open boll locule damage) of cotton at Central and South Zones during 2020-21

Entry Code	Name of Entry	Open boll locule damage (%)				Good open bolls (No./ Plant)	Green boll damage			No. BOB/ plant	Open boll damage at harvest (%)	
		PBW		ABW/SBW/TC			H.a	PBW				
		CN	DW	CBE	LG	DW	DW*		LG	DW	CBE	LG
2591	RHB 1623	8.13	7.21	8.75	14.99	5.87	10.78	3.23	65.0	4.60	1.26	22.97
2592	Local Check	11.87	5.61	3.84	14.09	5.39	7.75	5.64	45.0	5.30	1.90	24.33
2593	DHB 2002	10.01	6.41	5.84	28.93	5.66	11.89	10.21	65.0	6.40	1.16	36.98
2594	Phule Dhara (CC)	9.92	4.82	4.25	19.56	7.28	11.91	10.56	80.0	6.20	0.47	25.66
2595	DHB 1901	7.81	5.81	8.39	27.81	5.60	6.41	10.8	80.0	6.00	2.24	38.85
2596	LAHB 2	7.50	6.78	5.83	21.35	6.05	12.12	10.52	65.0	5.30	2.19	30.96
2597	DHB 1902	8.01	9.62	3.78	22.01	6.10	8.1	11.2	75.0	5.95	2.33	34.73
2598	RHB 1624	9.91	10.21	7.07	24.98	6.38	8.64	11.41	80.0	6.20	1.03	35.45
2599	DHB 2003	7.16	10.95	4.77	28.53	5.90	11.58	11.08	75.0	5.25	2.14	40.38
2600	RHB 1401	8.90	13.85	3.93	28.16	5.52	9.11	10.71	85.0	4.90	0.37	37.29
2601	DHB 2001	7.89	12.21	5.87	35.39	5.54	12.1	11.34	80.0	5.60	1.96	44.62

BW- Bhawanipatna; RA- Rahuri; LG- Lam, Guntur; DW- Dharwad; CBE- Coimbatore;

*At Dharwad, fruiting bodies damage **(%)**

Table: 32. Ent 1a. Br 22a/b (IET): Preliminary screening of breeding materials for their reaction to key pests of cotton at Central and South Zones during 2020-21

Entry Code	Name of Entry	JIG	Jassid/3 leaves		Whitefly/3 leaves	Aphids/3 leaves	Green boll damage (%)			No. GOB/ plant	No. BOB/ plant
		DW	KH	DW	KH	KH	*H.a*	PBW			
							DW*	DW*	CN	DW	DW
441	NDLA 3140	I	0.90	1.70	7.14	6.95	5.11	4.73		3.07	0.70
442	CNA 18392	I	0.30	3.00	5.50	6.10	3.62	4.95		3.21	0.50
443	CNA 2034	I	3.90	2.60	22.05	18.45	6.47	4.38		3.15	0.80
444	CNA 1071	I	3.00	2.40	25.40	15.75	5.65	5.14		3.04	0.60
445	JLA-1512	I	4.10	2.10	21.10	20.75	4.02	4.59		2.47	0.60
446	PA 885	I	1.55	1.80	22.45	17.75	5.08	5.16		2.31	0.40
447	DWDa 2051	I	3.00	2.80	20.75	17.60	5.12	4.96		3.28	0.50
448	CNA 18408	I	4.80	2.00	16.70	20.45	4.15	4.52		2.66	0.90
449	CNA 1072	I	1.80	2.30	20.35	20.30	5.24	5.92		2.92	0.90
450	JLA-1430	I	1.90	1.90	26.25	16.25	5.21	5.65		2.62	1.00
451	NDLA 3151	I	2.20	1.10	25.25	21.85	4.51	5.55		2.54	1.10
452	PA 881	I	1.20	1.50	25.90	16.00	6.35	4		1.79	0.20
453	GAM 266	I	3.70	2.10	25.30	18.80	5.22	4.025		3.26	1.20
454	MDL 2674	I	1.80	1.70	25.35	17.25	6.05	5.54		3.14	1.00
455	GAM 269	I	1.90	2.00	22.79	19.75	3.56	4.635		2.76	1.00
456	ZC (AKA 7/DLSa 17)	I	4.20	1.50	15.80	19.65	6.2	4.84		3.05	1.30
457	LC	I	2.10	1.50	24.00	17.80	6.75	5.125		1.92	1.00
458	MDL ABB1	I	0.95	1.70	26.14	14.90	3.81	4.84		1.99	0.30
459	AKA 2015-8	I	2.80	1.20	22.70	21.25	5.12	5.55		2.64	1.40

KH- Khandwa; DW- Dharwad; CN- Chamarajanagara JIG- Jassid Injury Grade(I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant + marginal yellowing, III- curling of leaves almost all over the plant, IV- extreme curling, bronzing and drying of leaves)

*At Dharwad, fruiting bodies damage **(%)**

Table: 33 Ent 1a. Br 22a/b (IET): Preliminary screening of breeding materials for their reaction to key pests (Open boll damage) of cotton at Central and South Zone during 2020-21.

Entry code	Name of entry	Open boll damage %				Locule damage by PBW (%)	
		ABW/TC		PBW			
		KH	DW	KH	DW	KH	DW
441	NDLA 3140	60.00	35.67	60.0	-	12.50	10.4
442	CNA 18392	60.00	31.88	45.0	-	16.25	17.05
443	CNA 2034	80.00	24.11	45.0	-	18.75	19.15
444	CNA 1071	45.00	28.3	60.0	-	12.50	11.54
445	JLA-1512	45.00	32.66	80.0	-	21.25	11.47
446	PA 885	45.00	37.73	45.0	-	22.50	13.75
447	DWDa 2051	65.00	31.41	65.0	-	23.75	9.74
448	CNA 18408	70.00	27.31	70.0	-	12.50	10.12
449	CNA 1072	65.00	29.15	45.0	-	26.25	10.21
450	JLA-1430	80.00	27.61	75.0	-	26.25	10.35
451	NDLA 3151	65.00	30.25	40.0	-	12.50	10.18
452	PA 881	55.00	30.83	50.0	-	16.25	11.18
453	GAM 266	45.00	26.93	65.0	-	18.75	10.67
454	MDL 2674	75.00	24.17	65.0	-	12.50	10.05
455	GAM 269	40.00	26.62	80.0	-	21.25	11.14
456	ZC (AKA 7/DLSa 17)	50.00	29.91	65.0	-	22.50	10.71
457	LC	65.00	34.3	55.0	-	23.75	10.52
458	MDL ABB1	55.00	13.11	55.0	-	12.50	10.35
459	AKA 2015-8	85.00	34.65	85.0	-	26.25	5.21

KH – Khandwa; DW – Dharwad;

Table: 34. Ent 1a. Br 32b (IET): Preliminary screening of breeding materials for their reaction to key pests of cotton at Central and South Zone

Entry code	Name of entry	JIG		Jassid		Whitefly / 3 leaves	Thrips / 3 leaves	Aphids / 3 leaves	Natural enemies / plant	Green boll damage (%)				Mealybug (grade/plant)
										H. a		PBW		
		SU	DW	SU	DW	SU	SU	SU	SU	SU	DW*	SU	DW*	SU
481	GShv 833/16	I	I	0.87	2.30	4.73	12.13	20.27	1.13	2.47	4.82	3.33	5.36	0.00
482	ZC (G Cot 23/DDhc 11)	I	I	1.07	2.30	6.07	10.33	19.00	1.07	2.12	4.15	3.33	5.24	0.00
483	GShv 789/16	I	I	2.20	2.20	7.13	11.80	14.80	1.13	3.01	5.05	0.00	5.07	0.07
484	GBhv 316	I	I	2.13	2.30	7.60	20.27	16.80	1.40	4.68	5.82	6.67	4.77	0.20
485	LC	I	I	2.60	2.30	5.00	11.40	19.33	1.33	5.06	4.05	0.00	4.86	0.20
486	GShv 219/16	I	I	1.53	1.40	3.53	15.20	20.47	1.27	5.49	6.15	3.33	4.49	0.13
487	GBhv 324	I	I	1.40	1.40	2.80	10.67	15.33	1.13	6.43	4.4	6.67	5.05	0.13
488	GVhv 996	I	I	2.67	2.20	4.33	15.27	21.00	1.47	5.44	4.15	3.33	4.90	0.13

*At Dharwad, fruiting bodies damage **(%)**

Table: 35 Ent 1a. Br 32b (IET) : Preliminary screening of breeding materials for their reaction to key pests (Open boll damage) at CZ&SZ.

Entry code	Name of entry	Open boll damage (%)		Open boll locule damage (%)		Rosette flower by PBW %	No. GOB/plant	No. BOB/plant
		ABW/SBW/TC		ABW/SBW/TC	PBW			
		SU	DW	SU	DW	SU	DW	DW
481	GShv 833/16	5.69	19.37	1.93	5.05	0.00	2.50	0.60
482	ZC (G Cot 23/DDhc 11)	6.91	0.00	2.38	4.51	0.00	1.50	0.00
483	GShv 789/16	6.48	0.00	2.18	6.28	1.28	1.45	0.00
484	GBhv 316	9.02	0.00	3.12	5.21	0.00	1.50	0.00
485	LC	8.54	12.24	2.91	5.12	0.00	2.15	0.30
486	GShv 219/16	9.67	19.25	3.58	5.81	1.39	1.68	0.40
487	GBhv 324	11.26	0	3.87	4.35	3.90	1.05	0.00
488	GVhv 996	10.50	0	3.87	5.25	1.28	1.45	0.00

SU – Surat; KH—Khandwa

JIG- Jassid Injury Grade (I- entire foliage free of curling and yellowing, II- Curling of few leaves in lower portion of plant + marginal yellowing, III- curling of leaves almost all over the plants, IV- extreme curling, bronzing and drying of leaves)

Table : 36. Ent 1a. Br 04a (CVT): Preliminary screening of breeding materials for their reaction to key pests (Sucking pests) of cotton at Central Zone.

Entry code	Name of entry	Jassid Injury grade			Jassid / 3 leaves			Whitefly / 3 leaves			Thrips / 3 leaves			Aphids/ 3 leaves			CLCV infected plants (%)
		JU	SU	BW	JU	SU	BW	JU	SU	BW	JU	SU	BW	BW	JU	SU	BW
2031	TSH 367	I	I	II	9.10	2.80	6.17	19.20	5.50	3.67	16.60	20.20	9.17	28.50	20.60	22.00	0.00
2032	ZC (Phule Yamuna)	II	I	II	14.00	5.60	5.83	14.70	8.60	3.00	13.70	26.50	9.17	23.33	19.60	24.50	0.00
2033	SHS 113	II	I	III	11.80	5.20	7.00	13.70	8.40	3.83	17.80	28.70	10.00	28.17	18.30	35.60	0.00
2034	LC	II	I	III	15.50	1.90	7.83	17.70	3.80	3.33	12.80	11.30	11.00	29.33	17.40	20.00	0.00
2035	GJHV-554	II	I	III	14.90	5.60	7.16	21.50	4.50	4.16	11.40	18.20	11.16	15.00	14.20	24.00	0.00
2036	Quality Check (Suraj)	II	II	II	13.00	7.80	6.00	22.10	6.70	4.50	16.10	16.80	8.17	23.83	13.20	36.70	0.00
2037	GJHV-522	II	I	II	10.30	5.70	5.67	18.50	4.20	2.83	18.80	24.80	9.00	25.17	18.90	29.60	0.00

Table:37Ent 1a. Br 04a (CVT): Preliminary screening of breeding materials for their reaction to key pests (Boll damage and Rosette flowers) – CZ.

Entry code	Name of entry	Green boll damage (%)					Open boll damage (%)				Open boll locule damage(%)			Rosette flower by PBW (%)		Natural Enemies/plant	Mealybug (grade/plant)
		H.a		PBW		ABW/SBW/TC	*H.a*	ABW/SBW/TC		PBW	ABW/SBW/TC						
		SU	BW	SU	BW	JU	BW	SU	JU	BW	JU	SU	BW	SU	BW	SU	SU
2031	TSH 367	2.77	6.53	5.00	0.0	26.92	3.90	3.77	30.66	0.00	24.16	0.94	2.54	0.00	0.00	1.50	0.00
2032	ZC (Phule Yamuna)	5.27	6.97	10.00	0.0	32.96	4.86	8.21	35.88	0.00	29.50	2.96	3.24	5.12	0.00	1.10	0.30
2033	SHS 113	5.84	6.46	10.00	0.0	28.81	4.30	9.30	31.01	0.00	25.40	3.78	2.31	2.00	0.00	1.10	0.20
2034	LC	1.04	5.03	0.00	0.0	21.11	3.22	2.52	23.19	0.00	18.70	0.79	1.79	0.00	0.00	1.20	0.00
2035	GJHV-554	3.54	6.34	5.00	0.0	31.26	3.80	6.86	33.82	0.00	28.60	2.53	2.43	0.00	0.00	1.20	0.10
2036	Quality Check (Suraj)	8.40	7.82	10.00	0.0	23.92	5.20	13.31	26.30	0.00	21.26	5.03	4.08	6.90	0.00	1.00	0.40
2037	GJHV-522	4.27	7.00	10.00	0.0	28.35	4.43	7.37	30.82	0.00	24.40	2.45	3.63	5.57	0.00	1.40	0.30

JU – Junagadh; SU – Surat; RA—Rahuri;; BW—Bhawanipatna

Table: 38 Ent 1a. Br 05a CHT (ZT): Preliminary screening of breeding materials for their reaction to key (Sucking pests) at Central Zone (2020-21).

Entry	Name of entry	Jassid Injury grade				Jassid / 3 leaves				Whitefly / 3 leaves				Thrips / 3 leaves			Aphids / 3 leaves			Mealybug (grade/ plant)
		BA	JU	SU	RA	BA	JU	SU	RA	BA	JU	SU	RA	JU	SU	RA	JU	SU	RA	SU
2041	GTHH 17/01	III	II	I	I	6.67	11.30	2.90	3.17	16.33	12.80	5.20	2.28	16.00	34.70	10.56	16.80	30.40	12.83	0.00
2042	ZC (Phule Asmita)	II	I	I	I	5.00	7.30	3.70	3.44	13.00	13.80	4.20	2.67	16.60	37.00	10.17	15.10	31.90	12.00	0.20
2043	GJHH 19	II	I	I	I	4.33	7.70	2.50	3.44	11.67	18.30	6.20	2.56	13.70	40.10	9.44	20.80	20.90	10.67	0.20
2044	GTHH 1203	II	II	I	II	6.00	10.90	7.50	3.61	15.67	17.50	10.00	2.56	17.30	22.00	8.11	19.80	21.20	10.06	1.10
2045	LC	II	II	I	--	5.67	12.60	2.00	0.00	14.33	19.50	4.00	0.00	19.80	21.00	0.00	21.30	19.90	0.00	0.10
2046	GSHH 15035	III	II	I	I	6.33	10.40	1.60	3.89	16.00	16.00	5.60	2.22	18.60	19.30	11.94	20.10	14.00	10.83	0.00

BA—Banswara; JU—Junagadh; SU—Surat; RA—Rahuri

JIG- Jassid Injury Grade (I- entire foliage free of curling and yellowing, II- Curling of few leaves in lower portion of plant + marginal yellowing, III- curling of leaves almost all over the plants, IV- extreme curling, bronzing and drying of leaves

Table: 39 Ent 1a. Br 05a CHT (ZT): Preliminary screening of breeding materials for their reaction to key pests (Boll damage and rosette flowers) of cotton at Central Zone during 2020-21.

Entry code	Name of entry	Natural enemies / plant				Green boll damage %			Open boll damage		Open boll locule damage		Rosette flower by PBW	Good open boll (No. / plant	Natural Enemies/ plant
		SU	LBB	Chry	SPI	JU	H.a	PBW	JU	SU	JU	SU	SU	BA	SU
			RA	RA	RA		SU	SU							
2041	GTHH 17/01	1.10	0.61	0.17	0.39	19.63	3.35	10.00	20.96	5.67	17.14	1.70	1.92	71	1.10
2042	ZC (Phule Asmita)	1.30	0.72	0.11	0.22	24.92	3.18	15.00	25.93	9.55	21.63	3.81	4.90	85	1.30
2043	GJHH 19	1.40	1.11	0.28	0.28	22.32	4.72	25.00	24.29	7.00	18.97	2.12	1.52	92	1.40
2044	GTHH 1203	1.50	0.61	0.06	0.33	20.22	6.97	25.00	28.42	12.96	17.17	4.76	7.87	74	1.50
2045	LC	0.90	0.00	0.00	0.00	28.34	1.72	10.00	30.83	2.75	24.64	0.84	0.00	**93**	0.90
2046	GSHH 15035	1.70	0.78	0.11	0.33	25.51	1.38	0.00	27.30	2.16	22.99	0.62	0.00	62	1.70

Table: 40 Ent 1a. Br 05a CHT(ZT): Preliminary screening of breeding materials for their reaction to key (Sucking pests) of cotton at South Zone during 2020-21.

Entry code	Name of entry	Jassid Injury grade	Jassid / 3 leaves	Whitefly / 3 leaves	Thrips / 3 leaves	Aphids / 3 leaves
		RC	RC	RC	RC	RC
2541	BGDHH 2013	III	6.79	4.30	7.02	5.11
2542	DHH 2001	III	7.12	6.50	8.56	6.10
2543	LC	II	4.22	6.56	10.20	7.56
2544	RAHH 2012	II	5.13	7.35	11.89	7.98
2545	RAHH 2011	II	4.57	8.10	12.19	8.10

Table: 41 Ent 1a. Br 05a CHT(ZT) Preliminary screening of breeding materials for their reaction to key (Boll damage and rosette flowers) of cotton at South Zone during 2020-21.

Entry code	Name of entry	Natural enemies / plant				Green boll damage (%)			Open boll damage(%)			Open boll locule damage(%)		Rosette flower by PBW	Good open boll (No. / plant
		RC	LBB	Chry	SPI	ABW/SBW/TC	H.a	PBW	RC	SU	PBW	RC	SU	RC	BW
			RA	RA	RA	RC	RC	RC			SU				
2541	BGDHH 2013	0.91	-	-	-	1.82	-	20.14	29.63	-	-	37.12	-	9.97	-
2542	DHH 2001	1.02	-	-	-	1.14	-	19.78	27.14	-	-	36.45	-	9.05	-
2543	LC	0.84	-	-	-	2.48	-	32.56	44.13	-	-	51.23	-	13.21	-
2544	RAHH 2012	0.65	-	-	-	2.64	-	37.89	46.89	-	-	57.23	-	14.22	-
2545	RAHH 2011	1.09	-	-	-	1.12	-	8.91	11.45	-	-	22.10	-	4.56	-

Table: 42 Ent 1a. Br 06a (IET): Preliminary screening of breeding materials for their reaction to key pests (Sucking pests) of cotton at Central and South zone during 2020-21.

Entry code	Name of entry	Jassid Injury grade				Jassid / 3 leaves				Whitefly / 3 leaves				Thrips / 3 leaves				CLCV infected plants (%)	Stem weevil (%)	Leaf folder (%)
		JU	BW	RC	CBE	CBE	JU	RC	BW	CBE	JU	RC	BW	BW	JU	RC	CBE	BW	CBE	CBE
401	RB 1918	II	III	III	III	6.75	13.3	7.67	6.83	2.03	14.4	1.32	4.17	8.67	15.9	9.65	3.32	0.00	11.18	8.21
402	CNH 20-31	II	II	III	III	5.92	11.2	8.65	6.66	3.47	15.1	2.85	3.83	9.00	14.3	10.41	3.44	0.00	15.38	7.63
403	RHC 1651	II	I	III	II	6.25	15.2	7.21	3.83	2.65	18.9	3.44	3.33	5.67	15.2	14.51	3.28	0.00	15.29	9.09
404	BS 11-20	II	III	II	III	6.58	14.2	5.65	7.67	1.84	19.7	4.26	3.67	11.17	13.2	13.84	3.28	0.00	36.12	6.28
405	Local Check	II	II	II	III	6.50	14.9	6.16	5.16	2.45	18	1.32	3.33	6.83	17	11.50	3.32	0.00	21.18	8.55
406	TCH 1895	II	II	II	III	5.58	10.8	4.55	6.33	2.86	16.3	1.78	4.33	8.00	14.9	7.83	3.24	0.00	23.15	8.70
407	RHC 1639	II	IV	III	II	6.08	12	8.16	8.00	2.95	20	3.66	4.17	11.67	12.9	12.69	3.36	0.00	35.01	9.02
408	RB 1901	II	II	II	III	6.00	12.5	5.65	6.67	2.56	20.8	7.54	4.00	11.00	18.1	17.85	3.77	0.00	21.61	9.64
409	RAHC 1032	II	I	III	II	3.42	15.8	9.98	5.00	5.71	17.8	6.45	3.83	6.17	13.9	11.74	3.78	0.00	14.98	7.33
410	Common Check (Suraj)	II	II	III	III	6.00	11.8	7.89	6.00	2.43	17.3	5.64	4.33	9.16	18.8	13.64	4.25	0.00	31.13	7.86
411	RAHC 1031	II	III	III	IV	3.33	10.3	7.45	8.00	2.33	22	8.94	3.83	11.67	12.8	17.86	4.13	0.00	13.99	7.09

JIG- Jassid Injury Grade (I- entire foliage free of curling and yellowing, II- Curling of few leaves in lower portion of plant + marginal yellowing, III- curling of leaves almost all over the plants, IV- extreme curling, bronzing and drying of leaves

JU—Junagadh; BW—Bhawanipatna; RC—Raichur, CBE—Coimbatore

Table: 43 Ent 1a. Br 06a (IET): Preliminary screening of breeding materials for their reaction to key pests (Boll damage) of cotton at Central and South Zone during 2020-21.

Entry code	Name of entry	Aphids / 3 leaves				Natural enemies / plant		Green boll damage (%)					Open boll damage					Open boll locule damage (%)					Rosette flower by PBW (%)
		JU	RC	CBE	BW	RC	BW	JU	ABW /SBW/TC	PBW		H.a				H.a	PBW	JU	RC	BW	CBE	RC	BW
									RC	RC	BW	BW	JU	CBE	RC	BW	BW						
401	RB 1918	13.5	2.56	13.50	43.33	1.58	0.33	27.58	1.58	22.12	0.00	4.07	30.73	1.47	25.00	3.73	0.00	26.18	30.41	1.38	4.14	22.12	0.00
402	CNH 20-31	15.9	3.09	12.51	25.50	1.48	0.50	26.26	1.48	25.13	0.00	6.92	28.92	0.10	31.23	5.40	0.00	25.2	38.56	3.60	3.02	25.13	0.00
403	RHC 1651	17.1	6.45	14.09	18.00	1.34	0.83	32.84	1.34	27.12	0.00	5.78	35.56	1.79	35.02	5.00	0.00	31.03	41.03	2.61	3.19	27.12	0.00
404	BS 11-20	16.5	7.03	14.34	23.67	2.15	0.66	28.36	2.15	35.02	0.00	6.52	30.55	0.12	41.08	5.92	0.00	27	43.12	2.84	4.51	35.02	0.00
405	Local Check	18.6	5.46	15.88	55.00	0.34	0.67	21.92	0.34	10.12	0.00	6.88	24.55	2.02	21.05	5.67	0.00	21.56	25.64	2.80	6.85	10.12	0.00
406	TCH 1895	19.1	3.09	15.26	30.17	1.22	1.00	24.29	1.22	20.96	0.00	6.33	27.66	0.36	22.22	5.33	0.00	22.39	33.89	2.83	4.90	20.96	0.00
407	RHC 1639	14.5	5.02	18.00	53.17	2.16	1.17	32.17	2.16	37.08	0.00	5.43	36.06	1.70	42.08	4.07	0.00	31.56	46.12	2.06	7.88	37.08	0.00
408	RB 1901	17.9	6.74	15.76	38.50	1.05	0.50	23.47	1.05	21.09	0.00	5.07	25.38	0.27	24.56	3.74	0.00	22.61	32.05	1.90	3.52	21.09	0.00
409	RAHC 1032	12	3.31	15.69	23.17	1.14	0.50	33.72	1.14	22.58	0.00	6.62	38.26	2.85	22.05	5.62	0.00	32.24	35.26	3.64	3.12	22.58	0.00
410	Common Check (Suraj)	12.6	6.12	16.50	19.83	4.23	0.33	25.25	4.23	41.09	0.00	5.28	27.87	1.63	47.23	4.28	0.00	23.71	51.32	2.16	5.96	41.09	0.00
411	RAHC 1031	15.3	7.02	17.58	23.50	3.82	0.50	29.48	3.82	43.87	0.00	4.42	32.49	1.16	50.12	2.89	0.00	28.4	54.06	1.31	3.94	43.87	0.00

BA—Banswara; JU—Junagadh ; SU—Surat ; RA—Rahuri ; BW—Bhawanipatna

Table :44. Ent 1a. Br 15a CHT(ZT-): Preliminary screening of breeding materials for their reaction to key pests of cotton at Central Zone (2020-21)

Entry code	Name of entry	Jassid Injury grade		Jassid / 3 leaves		Whitefly / 3 leaves		Thrips / 3 leaves	Aphids / 3leaves	Natural enemies / plant			Good open bolls (no. / plant	Green boll damage (%)		Open boll damage (%)	Locule damage (%)
										LBB	Chry	Spi			PBW		
		BA	RA	BA	RA	BA	RA	RA	RA	RA	RA	RA	BA	RA		RA	RA
2081	RHB 1401	III	II	6.00	7.22	16.00	3.83	6.11	11.22	0.78	0.06	0.56	76	9.12	35.00	44.27	18.76
2082	DHB 1902	II	I	4.00	8.94	9.33	3.72	5.72	11.56	0.78	0.28	0.44	102	8.18	30.00	42.03	17.81
2083	DHB 2002	II	II	5.00	9.61	12.00	4.50	5.39	10.89	0.67	0.06	0.44	91	8.00	35.00	45.81	19.41
2084	DHB 2001	III	III	6.67	8.17	17.33	3.83	6.22	8.94	0.67	0.11	0.28	70	8.07	45.00	55.79	23.64
2085	Phule Dhara (ZC)	II	II	5.67	7.56	13.67	3.89	5.28	9.56	0.89	0.22	0.39	85	8.11	30.00	39.20	16.61
2086	RHB 1623	III	II	6.33	8.06	16.67	3.94	5.22	9.89	1.06	0.22	0.39	76	7.10	45.00	54.00	22.88
2087	LAHB 2	II	II	5.33	6.83	13.00	3.72	5.11	10.00	0.89	0.06	0.33	93	11.04	30.00	43.24	18.32
2088	DHB 2003	II	II	4.33	7.06	10.67	3.83	5.28	8.56	0.67	0.28	0.22	94	8.78	40.00	50.24	21.29
2089	RHB 1624	III	II	7.00	7.00	18.33	3.39	6.00	10.89	0.89	0.22	0.28	70	9.08	40.00	52.30	22.16

Table: 45. Ent 1a. Br 03B CHT(ZT-): Preliminary screening of breeding materials for their reaction to key pests of cotton at Central Zone (2020-21)

Entry code	Name of entry	Jassid Injury grade				Jassid / 3 leaves				Whitefly / 3 leaves				Thrips / 3 leaves		Aphids / 3leaves		Mealy bug (grade/plant)
		BA		AK	NA	BA	BH	AK	NA	BA	BH	AK	NA	BH	NA	BH	NA	BH
2091	Quality Check (Suraj)	IV		II	I	7.67	2.60	2.80	1.6	17.00	1.10	5.07	4.6	1.90	4.5	15.40	10.8	0.30
2092	CNH 1134	IV		I	II	7.00	3.70	1.73	1.5	15.67	1.30	4.13	4.8	5.10	4.9	18.70	14.1	1.40
2093	LC	III		II	I	6.33	3.60	2.87	1.5	14.33	0.70	3.87	4.7	2.60	5.5	16.10	11.5	0.30
2094	NDLH – 2057-1	II		II	II	4.67	2.70	1.67	1.68	12.67	0.20	4.13	3.3	2.10	4.8	17.40	11	0.50
2095	TVH 007	II		II	II	4.33	3.40	1.93	1.6	11.33	1.60	4.47	4.4	2.10	4.2	17.20	11	0.40
2096	ZC (NH 615)	III		I	II	5.67	2.80	0.60	1.6	14.00	0.20	6.07	6.1	2.70	5.5	14.00	9.2	0.60
2097	AKH 2013-2	II		I	III	5.00	3.00	1.67	1.9	13.33	1.10	5.00	5.3	2.20	4.3	14.70	10	0.90

Table: 46. Ent 1a. Br 03b PVT(ZT): Preliminary screening of breeding materials for their reaction to key pest (Boll damage) at Central zone (2020-21)

Entry Code	Name of Entry	Natural Enemies/ Plant		Green boll Damage (%)		Open boll damage (%)						Open boll locule damage (%)				Avg. no. of bolls retained/ plant	Good open Bolls (Av No./ Plant)		
		LBB	Chr	H. a	PBW	BH	AK	H.a	PBW			BH	AK	PBW					
		NA	NA	NA	NA			NA	BH	AK	NA			AK	BH	AK	BA	AK	NA
2091	Quality Check (Suraj)	1.5	0.65	5.83	13.83	4.00	68.19	1.43	2.35		28.92	2.04	37.54	36.83	1.39	7.47	76	7.47	30.5
2092	CNH 1134	1.65	0.85	6.57	14.84	5.88	75.78	2.8	3.53		52.14	3.00	39.31	38.71	1.45	7.13	78	7.13	12.5
2093	LC	2.75	0.5	6.9	15.22	4.75	79.91	1.33	2.35		23.18	1.79	40.76	38.16	1.69	6.67	87	6.67	26
2094	NDLH – 2057-1	2.55	0.55	8.33	16.69	3.04	83.01	1.49	2.08		30.8	1.70	42.39	41.71	1.39	7.67	94	7.67	17.5
2095	TVH 007	2.7	0.45	7.32	15.58	5.67	58.42	1.43	3.17		25.31	2.54	26.20	24.03	1.75	13.60	116	13.60	20.5
2096	ZC (NH 615)	2.55	1.1	7.32	15.58	4.92	76.53	0.83	2.51		27.49	2.00	43.33	41.78	1.64	14.87	**120**	14.87	22
2097	AKH 2013-2	1.95	0.7	5.05	12.88	4.00	78.69	1.2	2.08		35.28	1.64	43.52	43.13	1.39	13.40	90	13.40	17.25

BA - Banswara; BH - Bharuch; AK- Akola; NA - Nanded;

Table:-47. Ent 1a. Br 04b CVT(ZT): Preliminary screening of breeding materials for their reaction to Key pests (Sucking pests) at Central zone (20-21)

Entry Code	Name of Entry	Jassid injury grade			Jassid / 3 leaves				Whitefly / 3 leaves				Thrips/ 3 leaves		Aphids / 3leaves		Mealy bug (grade/plant)
		BA	AK	NA	BA	BH	AK	NA	BA	BH	AK	NA	BH	NA	BH	NA	BH
2101	NDLH – 2035-5	II	II	**II**	4.33	3.30	1.27	3.15	10.67	2.50	3.73	3.2	1.30	4.8	16.30	4.95	0.70
2102	Local Check	II	II	**II**	5.33	3.70	1.87	2.5	14.33	2.00	4.07	3.7	0.60	4.8	17.70	4.4	1.60
2103	ZC (NH 615)	III	I	**II**	6.00	3.50	1.07	2	15.00	0.70	3.40	4.5	1.40	3.8	12.40	5.1	0.60
2104	BS 3-17	III	II	**II**	6.67	4.20	3.60	2.2	16.67	1.50	3.27	2.5	2.10	3.6	13.80	5.7	0.40
2105	Quality Check (Suraj)	II	II	**II**	5.00	2.90	3.87	2.15	13.00	2.40	2.47	3.55	1.50	3.6	15.80	3.6	1.60

JIG- Jassid Injury Grade (I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant+ marginal yellowing, III- curling of leaves almost all over the plant , IV- extreme curling, bronzing and drying of leaves;
BA - Banswara; BH - Bharuch; AK- Akola; NA - Nanded;

Table: 48. Ent 1a . Br 04b CVT (ZT): Preliminary screening of breeding materials for their reaction to key pests (Boll damage) at CZ 2020-21

Entry Code	Name of Entry	Natural Enemies / Plant		Green boll Damage (%)		Open boll damage (%)					Open Boll Locule damage (%)				Avg. no. of bolls retained/plant	Good open Bolls (No./ Plant)		
		LBB	Chr.	H. a	PBW	BH	AK	H. a	PBW		BH	AK	PBW		AK	BA/ 5plant	AK	NA
		NA	NA	NA	NA			NA	BH	NA			BH	AK				
2101	NDLH – 2035-5	0.8	0.65	6.19	13.84	3.04	57.89	1.77	3.47	22.75	1.70	26.50	1.50	26.50	14.40	**83**	14.40	24.3
2102	Local Check	1.00	0.95	5.36	13.37	4.79	56.57	1.33	3.32	25.84	2.31	30.65	1.00	30.33	9.00	80	9.00	32.2
2103	ZC (NH 615)	1.08	1.1	11.86	19.93	5.51	69.65	1.19	2.89	28.47	3.00	39.80	1.00	38.71	11.33	82	11.33	27
2104	BS 3-17	1.2	0.9	15	22.49	7.15	64.24	1.05	3.10	17.34	3.76	32.40	1.25	32.24	10.53	45	10.53	26.4
2105	Quality Check (Suraj)	1.05	0.85	10.82	18.78	5.70	74.29	1.33	3.27	22.55	2.81	39.73	1.25	38.20	7.40	68	7.40	24

BA - Banswara; BH - Bharuch; AK- Akola; NA - Nanded

Table: 49. Ent 1a. Br 06a (CVT): Preliminary screening of breeding materials for their reaction to key pests of cotton at Junagarh, CZ - 2020-21

Entry Code	Name of Entry	Jassid injury Grade	Jassid / 3 leaves	Whitefly / 3 leaves	Thrips/3 leaves	Aphid/3 leaves	Green boll damage (%)	Open boll damage	Open boll locule damage
		JU	JU	JU	JU	JU	JU	JU	JU
2051	RHC-HD 1312	II	14	19.7	16.8	12.6	22.91	25.73	20.63
2052	Zonal check (Suraj)	II	15.5	15	14.6	15.8	21.93	23.3	19.81
2053	CCH 19-2	II	11.6	17.1	19.4	13.5	34.39	37.18	31.47
2054	RHC-HD 1438	II	17.9	20.1	20.5	18.2	29.32	31.84	27.05
2055	Local Check	II	17.3	21.9	17.7	16.2	26.27	28.58	23.32
5056	RHC-HD 1405	II	18.8	15.9	18.6	17.7	31.74	34.14	29.28
2057	SHC 374	II	15.3	20.4	13.8	14.9	24.7	26.79	20.92
2058	GTHV 18/17	II	16.2	14.2	15.9	14.4	25.59	26.71	22.12
2059	CCH 19-4	II	12.4	18.6	21.1	19.7	27.38	30.57	25.59
2060	RAHC 1902	II	13.2	17.7	13.3	16.8	30.07	33.65	27.8

JIG- Jassid Injury Grade (I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant+ marginal yellowing, III- curling of leaves almost all over the plant , IV- extreme curling, bronzing and drying of leaves;

Table: 50 Ent 1a. Br 06b (CVT): Preliminary screening of breeding materials for their reaction to key pests of cotton at Central zone during 2020-21

Entry Code	Name of Entry	JIG		Jassid /3 leaves		Whitefly / 3 Leaves		Aphids / 3 leaves	Thrips/3 leaves	Av. % open Boll damage At harvest		Open boll locule damage (%) PBW	Natural enemies/plant	Open boll Locule Damage (%)		Avg. no of bolls retained/ Plant	Mealybug grade/ plant	Rosette flower (%) by PBW	Green boll damage (%) by HA	Green boll damage by PBW (%)
		AK	SU	AK	SU	AK	SU	SU	SU	AK	SU	AK	SU	AK	SU	AK	SU	SU	SU	SU
2111	GISV 312	II	II	1.80	8.40	3.50	9.60	31.10	31.50	54.30	10.26	28.34	1.30	28.34	3.26	6.00	0.20	2.08	8.44	15.00
2112	Local Check	II	I	3.30	2.70	4.10	3.40	38.50	23.60	68.41	3.67	23.46	1.10	28.64	1.30	5.40	0.00	0.00	2.12	10.00
2113	CNH 09-77	II	I	2.10	4.90	3.60	5.40	25.90	26.80	53.05	9.72	27.97	1.30	28.88	3.30	6.30	0.00	4.55	6.57	10.00
2114	DSC 1851	II	I	2.50	5.50	4.00	6.10	24.40	29.80	61.88	9.19	41.02	1.50	41.02	2.96	8.40	0.20	0.00	7.94	15.00
2115	ZC (Suraj)	II	I	3.20	5.20	4.10	6.70	38.50	23.00	67.70	9.80	32.57	0.90	33.02	3.17	5.10	0.00	0.00	6.99	10.00
2116	AKH 1302	I	I	1.70	3.00	4.90	3.00	21.70	15.00	63.15	3.44	32.91	1.00	33.93	1.04	5.10	0.00	4.55	1.94	5.00
2117	RHC-HD 1405	II	I	2.20	5.70	4.30	5.40	20.40	22.60	41.71	11.37	16.49	1.10	16.49	3.99	8.40	0.00	1.79	9.96	5.00
2118	CNH 1133	I	I	2.00	2.00	4.30	3.10	20.80	21.40	60.39	4.33	27.48	0.90	27.48	1.33	5.00	0.10	4.17	1.92	5.00
2119	TVH 002	II	I	4.50	5.00	3.70	4.50	21.90	27.80	55.88	12.21	31.25	1.20	31.74	4.48	8.50	0.80	0.00	9.04	5.00
2120	RHC-HD 1312	II	I	3.60	2.70	5.60	2.80	17.30	18.30	71.99	4.12	41.27	1.20	42.19	1.40	4.30	0.00	0.00	1.86	15.00
2121	RAHC 1901	II	I	3.90	8.60	4.50	6.60	36.40	36.20	87.69	14.10	58.56	1.30	58.56	5.23	4.90	0.70	0.00	11.20	5.00
2122	RAHC 1029	I	I	1.80	3.60	4.60	5.50	27.10	35.80	63.24	5.63	29.41	1.10	29.41	1.56	5.10	0.30	3.03	5.23	5.00

Table: 51. Ent 1a. Br 24b CVT (ZT) : Preliminary screening of breeding materials for their reaction to key pests of cotton at Central zone (2020-21)

Entry Code	Name of Entry	JIG	Jassid / 3 leaves		Whitefly / 3 Leaves		Aphids / 3 leaves	Av. open Boll damage (%) At harvest		Open boll locule Damage (%) PBW		Open boll Locule Damage (%)		Avg. no of bolls retained/ Plant
		AK	AK	KH	AK	KH	KH	AK	KH	AK	KH	AK	KH	AK
2131	CNA 2036	I	0.60	0.90	4.5	5.25	6.90	41.40	45.00	19.98	45.00	20.60	13.50	9.70
2132	NDLA 3104-4	I	0.50	3.80	4.4	24.50	22.65	43.18	65.00	16.78	65.00	19.48	16.25	2.50
2133	MDL 2667	I	0.60	2.20	3.6	26.14	17.90	26.11	75.00	12.13	75.00	13.69	18.75	9.40
2134	AKA 2013-8	I	0.30	3.80	4.6	25.00	21.55	35.52	50.00	19.14	50.00	21.38	13.75	3.90
2135	ZC (AKA 7)	I	0.70	4.00	4.8	21.10	16.30	42.50	55.00	18.33	55.00	18.33	20.00	2.50
2136	JLA-1207	I	0.30	4.05	3.8	17.15	17.90	34.39	55.00	15.44	45.00	16.99	25.35	5.30
2137	CNA 2035	I	0.40	4.20	3.8	21.64	16.93	42.15	55.00	18.22	55.00	19.65	16.25	5.10
2138	LC	I	0.40	1.50	5.5	22.05	18.30	52.78	65.00	21.30	65.00	23.15	13.60	1.10
2139	DWDa 1802	I	0.25	3.70	5	5.95	19.53	43.78	80.00	14.59	75.00	16.89	21.25	5.20
2140	NDLA 3116-3	I	0.20	4.10	3.7	25.35	18.10	38.58	55.00	17.55	55.00	18.29	18.75	7.70
2141	MDL 2663	I	0.70	4.00	3.3	6.10	21.60	62.28	45.00	29.24	45.00	33.73	23.75	5.40

Table: 52. Ent 1a. Br 24b-LL CVT (ZT): Preliminary screening of breeding materials for their reaction to key pests of cotton at Central zone (2020-21)

Entry Code	Name of entry	JIG	Jassid / 3 leaves		Whitefly / 3 Leaves		Aphids/ 3 leaves	Av. % open Boll damage At harvest		Open boll locule Damage (%) PBW		Open boll Locule Damage (%)		Avg. no of bolls Retained/Plant
		AK	AK	KH	AK	KH	KH	AK	KH	AK	KH	AK	KH	AK
2151	CNA 1065	I	0.53	3.80	2.20	5.75	6.75	26.08	35.00	11.34	30.00	11.70	8.75	16.07
2152	PA 873	I	0.60	3.70	2.20	24.00	14.40	39.94	45.00	19.43	30.00	20.18	16.25	9.60
2153	PAIG 379	I	0.73	0.80	2.87	7.00	3.85	38.18	60.00	18.40	55.00	19.88	18.75	9.00
2154	PA 869	I	0.67	4.80	2.73	23.35	13.50	45.24	20.00	15.60	20.00	17.92	11.25	7.33
2155	QC (PA 255)	I	1.07	5.30	2.93	21.10	19.80	59.42	45.00	33.19	35.00	35.05	17.50	6.67
2156	CINA 1068	I	0.60	4.70	2.20	25.70	25.20	42.37	45.00	16.66	55.00	19.96	18.75	17.60
2157	CINA 1069	I	0.47	6.30	2.27	25.35	23.15	44.35	75.00	21.67	65.00	23.17	20.00	16.27
2158	CINA 1067	I	0.73	1.40	2.47	22.70	16.70	42.78	35.00	19.61	60.00	21.40	22.50	13.33

JIG- Jassid Injury Grade (I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant+ marginal yellowing, III- curling of leaves almost all over the plant , IV- extreme curling, bronzing and drying of leaves; AK – Akola; KH – Khandwa;

Table:53. Ent 1a. Br 24 b CC: CVT: Preliminary screening of breeding materials for their reaction to Key pests (Sucking pests) of cotton at Central zone during 2020-21

Entry Code	Name of Entry	Jassid injury grade		Jassid / 3 leaves		Whitefly / 3 leaves		Thrips/ 3 leaves		Aphids / 3leaves		Mealy bug (grade/plant)	
		SU	KH	SU	KH	SU	KH	SU	KH	SU	KH	SU	KH
2161	CNA 18562	I		1.20	1.30	4.50	13.75	24.60		17.40	4.00		
2162	DDCC 1902	I		2.20	0.65	2.70	17.00	20.20		21.60	3.60		
2163	DDCC 1801	I		2.40	2.20	4.70	17.80	14.10		15.30	17.90		
2164	CNA 1092	I		1.40	3.80	6.30	18.30	19.40		18.90	17.90		
2165	AKA 7 (Zonal Check)	I		2.00	2.05	6.80	21.10	27.10		14.20	19.70		
2166	CNA 1091	I		2.20	4.20	5.40	17.15	28.70		18.60	16.35		
2167	CNA 17522	I		1.70	4.10	3.60	20.25	25.60		15.20	19.60		
2168	CNA 19475	I		1.80	3.70	6.00	22.05	23.80		13.70	16.80		
2169	Local Check	I		2.80	4.00	2.30	13.40	23.40		15.50	16.65		
2170	CNA 18563	I		3.40	4.05	4.40	18.80	21.00		12.40	17.70		
2171	DDCC 1802	I		2.80	3.80	3.50	11.80	22.90		19.90	19.00		
2172	DDCC 2001	I		1.80	4.10	5.80	16.65	25.80		19.50	19.10		
2173	DDCC 1901	I		2.60	4.00	3.20	15.25	27.80		14.20	19.85		

Table: 54. Ent 1a . Br 24 b CC: CVT : Preliminary screening of breeding materials for their reaction to key pests (Boll damage) of cotton at Central zone during 2020-21

Entry Code	Name of Entry	Natural Enemies /PLANT	Green boll Damage (%)			Open boll damage (%)					Open Boll Locule damage(%)				Rosette flower by PBW (%)
		SU	*H.a*		PBW	KH	SU	H. a	PBW		KH	SU	PBW		SU
			SU		SU					NA					
2161	CNA 18562	1.10	6.69		10.00	95.00	10.36				25.00	3.43			2.63
2162	DDCC 1902	1.60	3.20		10.00	85.00	4.42				21.25	1.36			0.00
2163	DDCC 1801	1.10	2.73		5.00	85.00	9.05				18.75	2.81			5.00
2164	CNA 1092	1.10	3.75		0.00	65.00	6.30				13.75	2.68			0.00
2165	AKA 7 (Zonal Check)	1.70	4.16		5.00	85.00	5.41				20.00	2.23			4.35
2166	CNA 1091	0.70	4.88		5.00	60.00	7.46				25.35	2.80			0.00
2167	CNA 17522	1.00	3.17		0.00	60.00	6.02				22.25	2.34			0.00
2168	CNA 19475	1.00	3.19		0.00	65.00	7.41				13.60	2.96			4.55
2169	Local Check	1.00	2.23		10.00	90.00	6.59				21.25	2.67			0.00
2170	CNA 18563	1.40	3.53		10.00	55.00	6.54				18.75	2.78			1.79
2171	DDCC 1802	1.30	3.07		5.00	45.00	5.20				23.75	2.11			0.00
2172	DDCC 2001	0.80	3.47		5.00	90.00	3.66				25.35	0.91			4.17
2173	DDCC 1901	0.80	4.56		0.00	60.00	11.79				16.25	4.20			3.85

Table: 55. Ent 1a. Br 03a-PVT (ZT): Preliminary screening of breeding materials for their reaction to key pests (Sucking pests) of cotton at central zone during 2020-21

Entry code	Name of Entry	Jassid injury Grade			Jassid / 3 Leaves			Whitefly / 3 Leaves			Thrips / 3 Leaves			Aphids / 3 leaves			Natural Enemies /plant		Green boll damage (%)					Mealybug (Grade/plant)
																			PBW		*H.a*			
		BW	JU	SU	BW	JU	SU	BW	JU	SU	BW	JU	SU	BW	JU	SU	BW	SU	BW	SU	BW	SU	JU	SU
2001	GISV319	III	II	I	6.83	12.4	2.80	4.17	14.5	2.60	9.67	16.5	20.20	30.16	14.9	35.30	0.33	0.70	0.00	0.00	4.07	1.10	25.41	0.00
2002	ZC (Phule Yamuna)	III	I	I	6.67	9.5	2.60	3.83	16.6	2.80	9.83	12.7	23.40	31.83	20.1	27.00	0.50	0.60	0.00	5.00	6.92	1.54	23.73	0.00
2003	GJHV 566	I	II	I	4.83	10.2	4.70	3.34	18.3	7.20	6.83	19.2	28.50	24.67	17.7	21.70	0.83	0.60	0.00	5.00	5.78	7.13	27.46	0.20
2004	LC	IV	I	I	8.16	9.1	5.50	3.67	23.3	6.00	11.67	18.7	24.00	34.67	18.8	17.60	0.66	0.30	0.00	10.00	6.52	4.13	32.79	0.30
2005	CPD 1902	IV	I	II	8.00	9.5	7.00	3.33	19	8.30	11.50	16.6	35.30	46.33	15.9	32.50	0.67	0.90	0.00	15.00	6.88	8.79	28.9	0.80
2006	RHC 1409	I	I	I	4.50	9.4	3.80	4.33	20.8	3.80	6.67	14.4	17.00	10.67	21.7	16.90	1.00	1.00	0.00	0.00	6.33	2.24	20.82	0.00
2007	Quality Check (Suraj)	I	II	III	5.00	11.2	9.80	4.00	13.8	6.80	6.67	17.9	31.80	13.66	19.6	33.00	0.50	1.00	0.00	5.00	5.07	10.84	19.75	0.00
2008	CCH 19-2	IV	I	II	8.67	9.4	6.70	3.83	21.8	6.20	13.00	16.7	32.80	17.67	20.9	26.00	0.50	0.50	0.00	15.00	6.62	8.82	28.14	0.50
2009	GISV 323	II	I	I	6.16	8.7	2.50	4.33	20.4	3.40	8.67	12	26.20	19.17	22.5	20.20	0.33	0.90	0.00	5.00	5.28	1.47	29.85	0.10
2010	RAH 1076	II	I	II	6.17	9	8.00	3.83	19.6	9.10	9.67	17.5	39.70	24.50	16.8	26.30	0.50	0.70	0.00	15.00	4.42	7.70	31.53	0.40

Table: 56. Ent 1a. Br 03a- PVT (ZT): Preliminary screening of breeding materials for their reaction to key pests (Boll damage) at CZ during 2020-21

Entry Code	Name of Entry	Open boll damage (%)				Open boll Locule damage (%)			Rosette flower by PBW (%)		CLCV infected plant (%)
		PBW	H.a								
		BW	BW	JU	SU	JU	BW	SU	BW	SU	BW
2001	GISV319	0.00	3.73	27.04	2.32	23.94	1.38	0.58	0.00	0.00	0.00
2002	ZC (Phule Yamuna)	0.00	5.40	25.69	3.02	21.72	3.60	0.84	0.00	0.00	0.00
2003	GJHV 566	0.00	5.00	30.23	11.02	24.86	2.61	3.77	0.00	2.00	0.00
2004	LC	0.00	5.92	34.2	8.86	30.12	2.84	2.99	0.00	5.15	0.00
2005	CPD 1902	0.00	5.67	30.13	14.92	25.94	2.80	5.94	0.00	4.78	0.00
2006	RHC 1409	0.00	5.33	23.33	3.92	18.27	2.83	1.30	0.00	1.72	0.00
2007	Quality Check (Suraj)	0.00	3.74	21.06	12.85	17.2	1.90	4.37	0.00	5.06	0.00
2008	CCH 19-2	0.00	5.62	30.16	15.72	26.26	3.64	5.93	0.00	5.06	0.00
2009	GISV 323	0.00	4.28	31.17	3.57	27.12	2.16	1.14	0.00	0.00	0.00
2010	RAH 1076	0.00	2.89	33.21	15.34	28.85	1.31	6.19	0.00	1.72	0.00

LG- Lam Guntur; RC –Raichur;

Table: 57 Ent 1a. Br 03a/b: CC- PVT (ZT) : Preliminary screening of breeding materials for their reaction to key pests at Central zone during 2020-21

Entry Code	Name of Entry	JIG		Jassid / 3 leaves		Whitefly / 3 Leaves		Aphids / 3 leaves	Thrips/3 leaves	Av. % open Boll damage At harvest		Open boll locule damage (%)	Natural enemies/plant	Open boll Locule Damage (%)		Mealybug grade/ plant	Rosette flower (%) by PBW	Green boll damage (%) by HA	Green boll damage by PBW (%)
			SU		SU	AK	SU	SU	SU		SU		SU		SU	SU	SU	SU	SU
2011	DHCC 1901		I		6.70		7.40	39.00	43.30		7.92		0.50		2.94	0.60	4.17	6.54	15.00
2012	LHCC 4		I		9.30		6.00	41.40	26.80		10.74		0.90		3.76	0.60	1.92	8.45	15.00
2013	Phule Yamuna (Zonal Check)		I		5.90		4.70	27.40	31.20		8.18		0.70		3.46	0.30	2.00	6.30	10.00
2014	CNH 18528		I		5.70		4.30	23.60	25.60		9.09		0.70		3.72	0.00	0.00	6.11	10.00
2015	DHCC 1801		I		8.60		6.70	28.10	35.80		11.82		0.80		4.61	0.30	1.79	9.59	15.00
2016	CNH 18529		I		5.60		4.00	21.70	28.00		7.40		0.50		2.57	0.20	0.00	5.25	10.00
2017	CNH 17395		I		2.60		1.90	18.30	20.30		3.57		0.90		1.15	0.00	1.92	2.23	5.00
2018	Local Check		I		3.00		3.00	24.70	25.10		4.05		0.70		0.93	0.00	0.00	3.94	5.00
2019	DHCC 1902		III		9.70		7.80	29.30	44.80		13.39		1.00		5.50	0.20	5.37	7.37	10.00

Table: 58. Ent 1a. Br 03a- PVT (ZT): Preliminary screening of breeding materials for their reaction to key pests (Sucking pests and Boll damage) of Cotton at south zone during 2020-21

Entry Code	Name of Entry	JIG	Jassid / 3 leaves	Whitefly / 3 leaves	Thrips/3 leaves	Aphid/3 leaves	NE/plant	Rosette flower by PBW (%)	Green boll damage (%)		Open boll damage (%)	Open boll locule damage
									ABW/SBW/TC	PBW		
		RC	RC	RC	RC	RC	RC	RC	RC	RC	RC	RC
2501	TSH 383	III	7.91	2.65	10.67	3.78	1.03	22.7	5.28	40.12	46.15	50.12
2502	ZC (Suraj)	III	8.16	4.56	12.05	4.32	1.15	6.5	1.16	15.23	16.67	30.56
2503	CCH 19-2	III	9.65	4.23	17.49	8.42	0.91	1.23	0.52	0.00	0.00	0.00
2504	RHC 1409	II	6.23	6.78	15.23	5.65	1.25	6.89	1.28	18.19	20.00	33.45
2505	LC	III	9.01	5.12	16.89	6.62	1.34	15.22	2.16	21.32	25.00	39.65
2506	CPD 1902	III	8.24	4.26	19.23	7.43	1.25	17.72	3.27	30.33	33.33	43.12
2507	RAH 1046	III	10.89	6.12	12.23	7.61	1.09	18.71	3.26	34.89	39.14	49.36

Table: 59. Ent 1a. Br 03a- PVT (ZT): Preliminary screening of breeding materials for their reaction to key pests (Sucking pests and Boll damage) of Cotton at south zone during 2020-21

Entry Code	Name of Entry	JIG	Jassid / 3 leaves	Whitefly / 3 leaves	Thrips/3 leaves	Aphid/3 leaves	NE/plant	Rosette flower by PBW (%)	Green boll damage (%)		Open boll damage (%)	Open boll locule damage
									ABW/SBW/TC	PBW		
		RC	RC	RC	RC	RC	RC	RC	RC	RC	RC	RC
2501	TSH 383	III	7.91	2.65	10.67	3.78	1.03	22.7	5.28	40.12	46.15	50.12
2502	ZC (Suraj)	III	8.16	4.56	12.05	4.32	1.15	6.5	1.16	15.23	16.67	30.56
2503	CCH 19-2	III	9.65	4.23	17.49	8.42	0.91	1.23	0.52	0.00	0.00	0.00
2504	RHC 1409	II	6.23	6.78	15.23	5.65	1.25	6.89	1.28	18.19	20.00	33.45
2505	LC	III	9.01	5.12	16.89	6.62	1.34	15.22	2.16	21.32	25.00	39.65
2506	CPD 1902	III	8.24	4.26	19.23	7.43	1.25	17.72	3.27	30.33	33.33	43.12
2507	RAH 1046	III	10.89	6.12	12.23	7.61	1.09	18.71	3.26	34.89	39.14	49.36

Table :60. Ent 1a. Br 03bPVT (ZT): Preliminary screening of breeding materials for their reaction to key pests (Sucking pests) at South Zone (2020-21)

Entry Code	Name of Entry	Jassid injury grade		Jassid/3 leaves		Whitefly/3 leaves	Thrips/3 leaves	Natural Enemies/ Plant
		ND	DW	ND	DW	ND	ND	ND
2611	CNH 09-119	I	III	2.07	3.30	0.13	0.87	0.00
2612	NDLH 2051-3	I	II	2.87	6.50	0.40	0.60	0.20
2613	CNH 1134	I	III	2.73	2.90	0.33	0.40	0.00
2614	ZC (Sahana)	II	III	5.00	9.00	0.20	0.33	0.00
2615	CCH 19-2	II	I	3.27	3.60	0.73	0.73	0.07
2616	QC (Suraj)	II	II	3.07	6.40	0.47	0.07	0.07
2617	TSH 375	I	III	2.67	6.90	0.40	0.87	0.33
2618	TVH 007	II	III	3.33	8.50	0.27	0.40	0.07
2619	LC	II	IV	3.67	6.60	0.20	0.40	0.07
2620	NDLH 2056-4	I	III	2.80	7.10	0.73	1.33	0.00
2621	BGDS 1033	II	III	3.67	7.20	0.40	0.40	0.07

JIG-Jassid Injury Grade (I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant + marginal yellowing, III- curling of leaves almost all over the plant, IV- extreme curling, bronzing and drying of leaves);

Table: 61. Ent 1a. Br 03b PVT (ZT) : Preliminary screening of breeding materials for their reaction to key pests (Boll damage) at South Zone - 2020-21

Entry Code	Name of Entry	Green boll damage (%)			Open boll damage (%)		Open boll Locule damage (%)		No. of good open bolls/plant	No. BOB/ plant
		H.a		PBW				PBW		
		DW*	ND	DW*	DW	ND	ND	DW	DW	DW
2611	CNH 09-119	11.85	76.67	12.41	42.49	52.22	46.64	14.25	4.74	3.50
2612	NDLH 2051-3	11.72	46.67	12.35	36.89	52.19	45.74	12.18	5.99	3.50
2613	CNH 1134	8.81	60.00	11.21	27.59	50.33	48.61	13.54	6.51	2.48
2614	ZC (Sahana)	7.45	48.33	9.65	34.89	31.34	36.64	11.81	7.47	4.00
2615	CCH 19-2	7.61	60.00	9.57	28.65	39.80	41.43	11.2	6.10	2.45
2616	QC (Suraj)	8.08	53.33	10.12	38.86	44.14	29.81	12.12	6.14	3.90
2617	TSH 375	7.94	51.67	9.65	26.24	47.32	27.86	11.45	6.47	2.30
2618	TVH 007	11.08	63.33	9.71	23.3	40.41	32.36	11.38	6.58	2.00
2619	LC	12.15	58.33	10.12	30.72	48.20	32.25	9.48	5.86	2.60
2620	NDLH 2056-4	8.04	73.33	10.45	33.31	47.99	46.48	9.34	6.21	3.10
2621	BGDS 1033	7.45	55.00	10.57	30.83	36.45	34.97	11.92	6.06	2.70

ND- Nandyal; DW- Dharwad; CN- Chamarajanagara

*At Dharwad, fruiting bodies damage **(%)**

Table: 62. Ent 1a. Br 04a (ZT) : Preliminary screening of breeding materials for their reaction to key pests of cotton at South Zone during 2020-21

Entry Code	Name of Entry	Jassid injury grade			Jassid/3 leaves			Whitefly/3 leaves		Thrips/3 leaves		Aphids/3 leaves		TSV infected plants (%)	Natural Enemies/ Plant	
		ND	DW	CN	ND	DW	CN	ND	CN	ND	CN	ND	CN	CN	ND	CN
2631	NDLH – 2035-5	II	I	I	3.60	2.50	1.57	0.87	1.01	0.27	1.05		7.34	0.00	0.13	0.57
2632	ZC (Sahana)	II	III	II	5.07	7.50	3.03	0.47	1.18	0.40	2.28		13.34	0.00	0.07	2.03
2633	GBHV-193	I	III	I	3.13	4.70	1.35	0.47	0.86	0.20	0.88		6.79	0.00	0.07	0.35
2634	QC (Suraj)	II	II	II	3.40	6.80	3.00	0.53	1.35	0.33	2.11		11.55	0.00	0.00	2.00
2635	RAH 1075	II	III	II	4.47	8.05	2.84	0.33	1.45	0.20	2.18		13.46	0.00	0.00	1.84
2636	LC	I	III	I	3.13	8.80	1.49	0.40	0.88	0.87	0.88		8.41	0.00	0.00	0.49

Table: 63. Ent 1a. Br 04b CVT(ZT): Preliminary screening of breeding materials for their reaction to key pests (Boll damage) at South Zone (2020-21)

Entry Code	Name of Entry	Green boll damage (%)					Open boll damage (%)				Open boll Locule damage (%)			Good open bolls/ plant	No. BOB/ plant	Rosette flower by PBW (%)
		H.a			PBW				*H.a*	PBW		PBW				
		DW*	CN	ND	DW*	CN	DW	ND	CN	CN	ND	DW	CN	DW	DW	CN
2631	NDLH – 2035-5	7.81	0.00	60.00	10.21	0.00	26.55	43.17	0.00	0.00	37.80	11.31	0.00	5.81	2.10	0.00
2632	ZC (Sahana)	7.11	0.00	48.33	10.62	0.00	34.34	48.06	0.00	0.00	34.96	6.67	0.00	6.12	3.20	0.00
2633	GBHV-193	7.22	0.00	71.67	10.45	0.00	26.75	28.72	0.00	0.00	25.67	7.55	0.00	5.75	2.10	0.00
2634	QC (Suraj)	11.12	0.00	65.00	11.21	0.00	42.28	52.49	0.00	0.00	25.50	8.05	0.00	6.01	4.40	0.00
2635	RAH 1075	7.24	0.00	66.67	5.12	0.00	47.9	37.25	0.00	0.00	38.76	7.48	0.00	3.92	3.60	0.00
2636	LC	7.32	0.00	50.00	5.05	0.00	34.21	40.31	0.00	0.00	32.76	6.71	0.00	6.35	3.30	0.00

JIG-Jassid Injury Grade (I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant + marginal yellowing, III- curling of leaves almost all over the plant, IV- extreme curling, bronzing and drying of leaves); ND- Nandyal; DW- Dharwad; CN- Chamarajanagara;

*At Dharwad, fruiting bodies damage **(%)**

Table: 64. Ent 1a. Br 05 a CHT: Preliminary screening of breeding materials for their reaction to key pests of cotton at South Zone during 2020-21

Entry Code	Name of Entry	Jassid injury grade			Jassid/3 leaves			Whitefly/3 leaves		Thrips/3 leaves		Aphids/3 leaves		TSV infected plants (%)	Natural Enemies/ Plant	
		RC	CN	ND	RC	CN	ND	RC	ND	RC	CN	RC	CN	CN	RC	CN
2541	BGDHH 2013	III	-	-	6.79	-	-	4.30	-	7.02	-	5.11	-	-	0.91	-
2542	DHH 2001	III	-	-	7.12	-	-	6.50	-	8.56	-	6.10	-	--	1.02	-
2543	LC	II	-	-	4.22	-	-	6.56	-	10.20	-	7.56	-	-	0.84	-
2544	RAHH 2012	II	-	-	5.13	-	-	7.35	-	11.89	-	7.98	-	-	0.65	-
2545	RAHH 2011	II	-	-	4.57	-	-	8.10	-	12.19	-	8.10	-	-	1.09	-

Table: 65. Ent 1a. Br 05a (CHT): Preliminary screening of breeding materials for their reaction to key pests (Boll damage) at South Zone (2020-21)

Entry Code	Name of Entry	Green boll damage (%)		Open boll damage (%)	Open boll Locule damage (%)	Rosette flower by PBW (%)
		ABW/SBW/TC	PBW		PBW	
		RC	RC	RC	RC	RC
2541	BGDHH 2013	1.82	20.14	29.63	37.12	9.97
2542	DHH 2001	1.14	19.78	27.14	36.45	9.05
2543	LC	2.48	32.56	44.13	51.23	13.21
2544	RAHH 2012	2.64	37.89	46.89	57.23	14.22
2545	RAHH 2011	1.12	8.91	11.45	22.10	4.56

Table: 66. Ent 1a. Br 05b CHT(ZT) : Preliminary screening of breeding materials for their reaction to key pests (Sucking pests) at South Zone (20-21)

Entry Code	Name of Entry	Jassid injury grade			Jassid/3 leaves			Whitefly/3 leaves		Thrips/3 leaves		Aphids/3 leaves	TSV infected plants (%)	Natural Enemies/ Plant	
		ND	DW	CN	ND	DW	CN	ND	CN	ND	CN	CN	CN	ND	CN
2641	RAHH 2012	II	III	I	4.30	8.83	0.57	0.40	0.40	0.27	0.68	7.48	0.00	0.07	0.96
2642	LC	I	I	II	2.13	2.50	0.58	0.33	0.99	0.73	1.26	15.24	0.00	0.07	0.80
2643	BGDHH 2013	II	IV	III	3.80	3.50	2.55	0.33	2.12	0.33	2.50	23.88	0.00	0.07	1.63
2644	DHH 2051	II	II	II	3.73	3.80	3.10	0.27	1.49	0.00	1.63	14.46	0.00	0.07	1.67
2645	RAHH 2011	I	II	I	2.60	2.50	0.48	0.47	0.54	0.00	0.66	8.19	0.00	0.13	1.09

Table: 67. Ent 1a. Br 05b CHT(ZT) : Preliminary screening of breeding materials for their reaction to key pests (Boll damage) at South Zone (2020-21)

Entry Code	Name of Entry	Green boll damage (%)					Open boll damage (%)				Open boll Locule damage (%)			No. GOB/plant	No. BOB/ plant	Rosette Flower (%) by PBW
			H.a		PBW				H.a	PBW		PBW				
		ND	DW*	CN	DW*	CN	ND	DW	CN	CN	ND	DW	CN	DW	DW	CN
2641	RAHH 2012	56.67	7.41	0.00	5.21	1.75	38.05	59.83	0.00	3.75	18.54	8.25	6.88	4.77	7.10	0.00
2642	LC	46.67	4.12	0.00	5.31	2.48	57.68	21.98	0.00	4.53	38.97	8.45	8.65	6.39	1.80	0.00
2643	BGDHH 2013	51.67	7.21	0.00	5.45	3.20	29.54	30.54	0.00	5.25	20.67	7.41	9.83	6.14	2.70	0.00
2644	DHH 2051	53.33	3.78	0.00	6.15	2.13	39.87	24.83	0.00	4.15	21.66	9.12	9.03	6.66	2.20	0.00
2645	RAHH 2011	51.67	3.85	0.00	5.31	1.35	41.41	25.95	0.00	3.38	25.85	6.51	6.78	6.85	2.40	0.00

JIG-Jassid Injury Grade (I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant + marginal yellowing, III- curling of leaves almost all over the plant, IV- extreme curling, bronzing and drying of leaves); ND- Nandyal; DW- Dharwad; CN- Chamarajanagara *At Dharwad, fruiting bodies damage**(%)**

Table: 68. Ent 1a. Br 06a (CVT): Preliminary screening of breeding materials for their reaction to key pests of cotton at SOUTH zone during 2020-21

Entry Code	Name of Entry	JIG	Jassid/3 leaves	Whitefly/3 leaves	Thrips/3 leaves	Aphids/3 leaves	NE/plant	Rosette flower by PBW	Green boll damage (%)		Open boll damage (%)	Open boll Locule damage (%)
									ABW/SBW/TC	PBW	RC	RC
		RC	RC	RC	RC	RC	RC	RC	RC	RC		
2551	CCH 19-2	III	7.56	3.87	6.68	5.81	1.58	7.02	0.24	8.56	10.00	21.19
2552	Zonal Check (Suraj)	II	5.69	4.56	7.45	5.05	1.48	25.58	3.18	34.89	46.67	57.62
2553	RHC-HD 1312	II	4.99	6.51	7.96	6.79	1.34	10.12	0.57	12.65	17.65	35.62
2554	CCH 19-4	III	8.26	6.89	10.75	6.47	2.15	14.56	1.04	20.90	27.59	43.06
2555	Local Check	II	5.89	6.05	12.45	7.2	0.34	20.78	1.15	33.45	39.29	51.05
2556	RHC-HD 1438	III	8.35	7.01	13.80	7.71	1.22	8.17	0.22	10.09	13.79	26.69
2557	RAHC 1028	III	10.35	5.05	15.42	7.76	2.16	0.00	0.00	0.00	0.00	0.00
2558	LHDP 5	III	12.89	6.74	16.20	4.8	1.05	18.56	2.16	27.09	30.00	46.32

Table: 69. Ent 1a. Br 06b- CVT: Preliminary screening of breeding materials for their reaction to key pests (Sucking pests) at South Zone (2020-21)

Entry Code	Name of Entry	Jassid injury grade			Jassid/3 leaves			Whitefly/3 leaves		Thrips/3 leaves		Aphids/3 leaves	TSV infected plants (%)	Natural Enemies/ Plant	
		ND	DW	CN	ND	DW	CN	ND	CN	ND	CN	CN	CN	ND	CN
2651	CCH 19-4	I	IV	I	4.60	9.10	0.36	0.33	0.38	1.27	0.48	7.20	0.00	0.07	0.56
2652	TVH 002	II	II	II	5.27	7.10	1.81	0.33	1.25	0.93	1.54	14.15	0.00	0.07	1.31
2653	Zonal Check (Suraj)	II	III	II	5.73	7.30	2.05	0.13	1.11	0.53	1.23	12.99	0.00	0.13	1.41
2654	DSC 1951	II	III	II	5.60	8.65	1.74	0.13	1.24	1.00	1.64	11.74	0.00	0.13	1.22
2655	CNH 09-77	II	III	I	4.80	6.30	0.59	0.27	0.54	1.00	0.70	7.40	0.00	0.07	0.73
2656	RAHC 1029	I	II	I	4.40	6.50	0.58	0.20	0.44	0.33	0.64	7.78	0.00	0.07	0.94
2657	Local Check	III	III	II	6.00	8.65	1.51	0.13	1.51	1.07	1.63	11.35	0.00	0.00	1.37
2658	RAHC 1901	I	IV	II	4.27	6.30	2.00	0.27	1.39	0.27	1.75	11.80	0.00	0.07	1.40
2659	AKH 1302	II	II	II	3.80	6.20	1.98	0.27	1.45	0.40	1.70	13.41	0.00	0.13	1.53
2660	DSC 1851	I	II	II	3.27	6.70	1.83	0.13	1.20	0.47	2.08	11.10	0.00	0.07	1.46
2661	CNH 2046	II	III	I	4.47	6.50	0.49	0.07	0.44	0.40	0.54	8.51	0.00	0.00	0.90

JIG-Jassid Injury Grade (I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant + marginal yellowing, III- curling of leaves almost all over the plant, IV- extreme curling, bronzing and drying of leaves ND- Nandyal; DW- Dharwad; CN- Chamarajanagara;

Table: 70. Ent 1a. Br 06b CVT(ZT) : Preliminary screening of breeding materials for their reaction to key pests (Boll damage) at South Zone (2020-21)

Entry Code	Name of Entry	Green boll damage (%)					Open boll damage (%)				Open boll Locule damage (%)			No. GOB/ plant	No. BOB/ plant	Rosette flower by PBW
		H.a		PBW					*H.a*	PBW		PBW				
		DW*	CN	ND	DW*	CN	DW	ND	CN	CN	ND	DW	CN	DW	DW	CN
2651	CCH 19-4	4.21	0.00	58.33	5.41	2.85	39.69	50.03	0.00	4.88	23.27	7.48	8.08	3.95	2.60	0.00
2652	TVH 002	4.15	0.00	75.00	5.85	4.75	23.15	60.73	0.00	6.75	23.60	8.25	8.65	6.97	2.10	0.00
2653	Zonal Check (Suraj)	4.31	0.00	75.00	5.71	4.90	34.26	60.11	0.00	6.95	31.25	9.12	10.50	6.14	3.20	0.00
2654	DSC 1951	3.61	0.00	65.00	5.75	4.25	25.14	53.76	0.00	6.25	18.81	7.68	9.13	6.85	2.30	0.00
2655	CNH 09-77	3.55	0.00	78.33	5.42	1.80	48.12	62.51	0.00	3.80	19.43	9.78	6.81	3.77	3.50	0.00
2656	RAHC 1029	4.21	0.00	76.67	5.71	1.50	24	61.18	0.00	3.50	35.00	10.18	6.38	6.65	2.10	0.00
2657	Local Check	6.56	0.00	71.67	5.41	3.35	17.91	57.89	0.00	5.35	29.17	10.68	8.38	6.87	1.50	0.00
2658	RAHC 1901	5.54	0.00	56.67	5.64	3.63	38.46	48.86	0.00	5.60	22.74	11.21	7.78	5.28	3.30	0.00
2659	AKH 1302	6.08	0.00	81.67	6.1	3.38	25.23	64.73	0.00	5.38	29.86	12.14	8.71	6.52	2.20	0.00
2660	DSC 1851	6.1	0.00	78.33	6.24	2.75	23.91	62.44	0.00	4.75	18.29	13.12	7.15	5.73	1.80	0.00
2661	CNH 2046	4.35	0.00	66.67	6.35	1.40	19.61	55.10	0.00	3.40	29.51	13.68	6.50	6.15	1.50	0.00

*At Dharwad, fruiting bodies damage **(%)**

Table: 71. Ent 1a. Br 13aPVT (ZT): Preliminary screening of breeding materials for their reaction to key pests of cotton at South Zone during 2020-21

Entry Code	Name of Entry	JIG		Jassid/3 leaves		Whitefly/3 leaves	Thrips/3 leaves	Aphids/3 leaves	Stem weevil (%)	Leaf folder (%)	Fruiting bodies damage (%)		Open boll damage (%)			Open boll Locule damage (%)	
											H.a	PBW	CBE	PBW	DW	PBW	CBE
		DW	CBE	DW	CBE	CBE	CBE	CBE	CBE	CBE	DW	DW		DW		DW	
2561	DB 1901	III	IV	7.80	5.83	2.86	3.76	6.73	26.97	6.44	11.67	10.95	3.00	-	30.55	6.15	4.39
2562	CCB 29	III	IV	8.10	5.92	1.99	3.79	7.66	18.45	6.54	12.61	10.7	1.52	-	27.67	6.85	5.18
2563	CCB 64B	IV	IV	8.40	6.33	1.85	3.90	7.06	23.22	8.21	12.15	10.35	2.07	-	31.45	5.69	3.24
2564	CCB 15	III	III	7.55	6.17	1.76	3.90	7.40	17.42	9.59	11.05	10.74	1.12	-	25.07	6.12	3.59
2565	CCB 26	III	III	8.80	6.17	2.30	3.90	10.28	16.68	6.61	10.72	12.33	2.49	-	23.53	5.45	4.59
2566	ZC (Suvin)	IV	IV	8.23	6.25	2.00	7.68	7.24	23.69	7.39	14.15	11.14	0.78	-	28.9	5.12	5.77
2567	CCB 142	IV	IV	8.90	6.00	2.72	4.89	9.61	5.57	8.88	11.08	11.67	2.41	-	31.68	3.91	4.91
2568	SBSD 5-6	IV	IV	8.60	5.83	1.93	6.00	13.30	23.78	6.97	11.27	11.91	2.65	-	27.42	3.78	3.70
2569	CCB 6	IV	IV	7.60	6.17	2.08	3.79	8.48	25.91	8.30	10.76	6.17	1.65	-	26.88	6.12	3.90
2570	CCB 141	IV	IV	8.00	6.00	2.11	5.54	13.35	21.88	6.19	10.54	5.785	0.86	-	29.75	4.48	4.88
2571	CCB 51	IV	IV	8.75	6.33	2.91	3.53	12.85	26.66	9.88	7.12	4.63	2.30	-	26.97	5.04	4.54
2572	CCB 64	IV	IV	9.00	6.25	2.46	5.30	9.03	18.06	9.73	12.31	4.82	0.34	-	23.18	5.75	4.26

JIG-Jassid Injury Grade (I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant + marginal yellowing, III- curling of leaves almost all over the plant, IV- extreme curling, bronzing and drying of leaves); DW- Dharwad; CBE- Coimbatore

Table: 72. Ent 1a. Br 14a-CVT (ZT): Preliminary screening of breeding materials for their reaction to key pests of cotton at South Zone during 2020-21

Entry Code	Name of Entry	Jassid injury grade			Jassid/ 3 leaves			Whitefly/3 leaves		Thrips/3 leaves		Aphids/ 3 leaves		Stem weevil (%)	Leaf folder (%)	Fruiting bodies damage (%)	
		DW	CBE		DW	CBE		CBE		CBE		CBE		CBE	CBE	*H.a*	PBW
																DW	DW
2581	CCB 51-2	IV	IV		8.85	6.17		2.94		4.44		11.65		17.90	9.78	13.78	5.82
2582	ZC (Suvin)	IV	IV		8.30	6.00		2.48		4.89		17.51		25.40	7.34	7.08	4.785
2583	DB 1801	IV	IV		9.10	6.25		2.19		5.10		12.18		19.57	6.46	7.11	5.64

JIG-Jassid Injury Grade (I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant + marginal yellowing, III- curling of leaves almost all over the plant, IV- extreme curling, bronzing and drying of leaves) LG- Lam Guntur; DW- Dharwad; CBE- Coimbatore;

Table: 73. Ent 1a. Br 14aCVT (ZT) : Preliminary screening of breeding materials for their reaction to key pests (Boll damage) at South Zone (2020-21)

Entry Code	Name of Entry	Open boll damage (%)				Open boll locule damage (%)			Good open bolls (No./ plant)	No. BOB/ plant
			PBW		CBE	PBW				
		DW		DW			DW	CBE	DW	DW
2581	CCB 51-2	30.59			0.16		6.51	4.88	7.49	3.30
2582	ZC (Suvin)	27.17			1.63		5.05	6.29	7.24	2.70
2583	DB 1801	28.01			0.43		6.38	3.01	7.45	2.90

LG- Lam Guntur; DW- Dharwad; CBE- Coimbatore

Table: 74. Ent 1a. Br 15a CHT(ZT) : Preliminary screening of breeding materials for their reaction to key pests (Sucking pests) at South Zone (2020-21)

Entry Code	Name of Entry	Jassid injury grade				Jassid/3 leaves				Whitefly/3 leaves			Thrips/3 leaves			Aphids/3 leaves			Stem weevil (%)	Leaf folder (%)
		LG	DW	CN	CBE	LG	DW	CN	CBE	LG	CN	CBE	LG	CN	CBE	LG	CN	CBE	CBE	CBE
2591	RHB 1623	III	IV	II	III	8.40	6.80	1.68	6.08	2.03	1.13	3.09	3.93	1.29	5.18	3.68	13.44	13.83	23.46	6.14
2592	Local Check	III	III	III	III	7.88	6.30	3.05	5.83	0.53	2.64	2.62	2.00	2.96	5.12	4.13	20.55	11.60	23.34	7.60
2593	DHB 2002	III	III	III	III	7.75	6.55	2.98	6.17	0.95	2.07	3.04	4.28	2.37	4.97	6.00	18.77	13.16	19.71	7.61
2594	Phule Dhara (CC)	III	III	II	III	8.15	9.20	2.56	6.00	0.60	1.12	2.63	2.43	1.24	5.18	6.73	12.00	11.63	20.42	6.84
2595	DHB 1901	III	IV	II	III	8.50	6.90	1.57	5.83	0.83	1.02	2.51	2.83	1.03	3.53	3.03	13.08	13.27	17.04	9.18
2596	LAHB 2	III	III	II	III	6.60	6.80	1.65	6.25	0.75	1.15	3.46	2.65	1.36	5.18	2.78	14.05	13.67	18.04	8.75
2597	DHB 1902	III	III	II	III	8.00	6.90	1.75	6.17	1.25	0.88	1.96	3.35	1.13	4.97	4.70	14.89	14.04	33.22	6.28
2598	RHB 1624	III	III	II	III	7.50	7.10	2.10	6.00	0.38	1.19	1.71	3.00	1.45	5.28	3.95	13.43	8.26	18.55	6.78
2599	DHB 2003	III	III	I	III	8.63	7.60	0.68	6.08	0.43	0.66	2.28	1.75	0.74	5.10	4.20	9.11	8.86	17.32	8.13
2600	RHB 1401	III	III	II	III	9.60	6.30	2.00	6.33	0.53	1.40	2.11	4.05	1.52	5.18	2.55	13.43	10.18	15.11	8.95
2601	DHB 2001	III	III	I	III	5.90	6.50	0.63	6.08	1.28	0.50	2.88	2.88	0.63	5.35	3.38	8.88	10.35	31.22	9.89

JIG-Jassid Injury Grade (I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant + marginal yellowing, III- curling of leaves almost all over the plant, IV- extreme curling, bronzing and drying of leaves)

LG- Lam Guntur; DW- Dharwad; CN- Chamarajanagara; CBE- Coimbatore;

Table: 75. Ent 1a. Br 15a CHT(ZT) : Preliminary screening of breeding materials for their reaction to key pests (Boll damage) at South Zone (2020-21)

Entry Code	Name of Entry	TSV infected plants (%)	Natural Enemies/ Plant		Green boll damage (%)				Open boll damage (%)						
		CN	CN	CBE	*H.a*		PBW		DW	CBE	LG	H.a	PBW		
					DW*	CN	DW*	CN				CN	DW	CN	
2591	RHB 1623	0.00	1.33		10.78	0.00	3.23	2.81	43.94	1.26	22.97	0.00		4.86	
2592	Local Check	4.50	2.38		7.75	0.00	5.64	5.00	49.57	1.90	24.33	0.00		7.05	
2593	DHB 2002	0.00	1.87		11.89	0.00	10.21	4.88	53.09	1.16	36.98	0.00		6.88	
2594	Phule Dhara (CC)	0.00	1.23		11.91	0.00	10.56	3.88	45.99	0.47	25.66	0.00		5.88	
2595	DHB 1901	0.00	1.12		6.41	0.00	10.8	2.65	51.72	2.24	38.85	0.00		4.75	
2596	LAHB 2	0.00	1.38		12.12	0.00	10.52	2.28	46.7	2.19	30.96	0.00		4.28	
2597	DHB 1902	0.00	1.18		8.1	0.00	11.2	3.75	49.38	2.33	34.73	0.00		5.80	
2598	RHB 1624	0.00	1.28		8.64	0.00	11.41	3.88	49.3	1.03	35.45	0.00		5.88	
2599	DHB 2003	0.00	0.95		11.58	0.00	11.08	2.81	47.09	2.14	40.38	0.00		4.81	
2600	RHB 1401	3.50	1.59		9.11	0.00	10.71	3.13	47.02	0.37	37.29	0.00		5.15	
2601	DHB 2001	0.00	0.74		12.1	0.00	11.34	2.68	50.27	1.96	44.62	0.00		4.70	

*At Dharwad, fruiting bodies damage **(%)**

Entry Code	Name of Entry	Open boll locule damage (%)				Good open bolls (No./ plant)	Rosette flower by PBW (%)
		PBW			CBE		CN
		LG	DW	CN		DW	
2591	RHB 1623	14.99	7.21	8.13	8.75	5.87	0.00
2592	Local Check	14.09	5.61	11.87	3.84	5.39	0.00
2593	DHB 2002	28.93	6.41	10.01	5.84	5.66	0.00
2594	Phule Dhara (CC)	19.56	4.82	9.92	4.25	7.28	0.00
2595	DHB 1901	27.81	5.81	7.81	8.39	5.60	0.00
2596	LAHB 2	21.35	6.78	7.50	5.83	6.05	0.00
2597	DHB 1902	22.01	9.62	8.01	3.78	6.10	0.00
2598	RHB 1624	24.98	10.21	9.91	7.07	6.38	0.00
2599	DHB 2003	28.53	10.95	7.16	4.77	5.90	0.00
2600	RHB 1401	28.16	13.85	8.90	3.93	5.52	0.00
2601	DHB 2001	35.39	12.21	7.89	5.87	5.54	0.00

LG- Lam Guntur; DW- Dharwad; CN- Chamarajanagara; CBE- Coimbatore;

Table: 76. Ent 1a. Br. 24b: CVT: Preliminary screening of breeding materials for their reaction to key pests (Sucking pests) at South Zone (2020-21)

Entry Code	Name of Entry	Jassid injury grade		Jassid/3 leaves		Whitefly/3 leaves	Thrips/3 leaves	Aphids/3 leaves	TSV infected plants (%)	Natural Enemies/ Plant
		DW	CN	DW	CN	CN	CN	CN	CN	CN
2671	CNA 2035	I	I	2.80	1.68	0.98	1.10	7.50	0.00	0.67
2672	NDLA 3116-3	I	I	2.20	2.00	0.81	1.05	7.79	0.00	1.01
2673	ZC (DLSa 17)	I	I	2.10	1.60	1.02	1.01	7.55	0.00	0.58
2674	JLA 1102	I	I	2.40	1.86	0.99	0.99	6.67	0.00	0.86
2675	DWDa 1802	I	I	2.00	1.53	0.90	1.01	8.29	0.00	0.53
2676	CNA 1031	I	I	1.20	0.96	0.93	0.98	7.63	0.00	0.25
2677	LC	I	I	2.30	1.53	0.97	1.08	8.12	0.00	0.53
2678	CNA 1054	I	I	2.30	1.35	1.12	1.18	6.74	0.00	0.42
2679	NDLA 3104-4	I	I	2.80	1.46	1.06	1.06	7.72	0.00	0.46
2680	JLA-1227	I	I	2.10	1.29	0.95	1.15	8.33	0.00	0.36

Entry Code	Name of Entry	Green boll damage (%)						Open boll damage (%)		Open boll Locule damage (%)		No. GOB/ plant	No. BOB/ plant	Rosette flower by PBW
		H. armigera		PBW			*H.a*	PBW		PBW				
		DW*	CN	DW*	CN	DW	CN		CN	DW	CN	DW	DW	CN
2671	CNA 2035	4.72	0.00	6.45	0.00	50.56	0.00		0.00	14.37	0.00	2.74	2.80	0.00
2672	NDLA 3116-3	6.89	0.00	5.71	0.00	62.49	0.00		0.00	11.59	0.00	1.74	2.90	0.00
2673	ZC (DLSa 17)	7.28	0.00	5.24	0.00	48.37	0.00		0.00	11.61	0.00	3.63	3.40	0.00
2674	JLA 1102	4.11	0.00	5.58	0.00	50.12	0.00		0.00	11.12	0.00	3.09	3.10	0.00
2675	DWDa 1802	7.12	0.00	5.76	0.00	59.35	0.00		0.00	13.85	0.00	2.40	3.50	0.00
2676	CNA 1031	3.54	0.00	6.34	0.00	36.22	0.00		0.00	13.65	0.00	1.94	1.10	0.00
2677	LC	3.82	0.00	5.38	0.00	4.52	0.00		0.00	13.89	0.00	2.11	0.10	0.00
2678	CNA 1054	4.15	0.00	5.24	0.00	37.76	0.00		0.00	12.14	0.00	2.80	1.70	0.00
2679	NDLA 3104-4	6.85	0.00	5.48	0.00	29.85	0.00		0.00	10.05	0.00	2.82	1.20	0.00
2680	JLA-1227	6.15	0.00	6.37	0.00	19.08	0.00		0.00	10.62	0.00	2.97	0.70	0.00

JIG-Jassid Injury Grade (I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant + marginal yellowing, III- curling of leaves almost all over the plant, IV- extreme curling, bronzing and drying of leaves);

DW- Dharwad; CN- Chamarajanagara;

*At Dharwad, fruiting bodies damage **(%)**

Table: 77. Ent 1a. Br. 24b LLCVT (ZT) : Preliminary screening of breeding materials for their reaction to key pests at South Zone during 2020-21

Entry Code	Name of Entry	Jassid injury grade		Jassid/3 leaves		Whitefly/3 leaves	No. GOB/ plant	No. BOB/ plant	Green boll damage (%)			Open boll damage (%)			Open boll locule damage (%)	
									H.a	PBW			PBW		PBW	
		DW		DW			DW	DW	DW*	DW*		DW	DW		DW	
2681	CINA 1068	I		2.30			2.41	0.40	4.12	5.24		14.22			11.52	
2682	PA 807	I		2.00			2.34	0.30	4.05	5.34		11.35			11.68	
2683	PA 806	I		1.90			2.64	0.70	3.95	5.71		20.98			4.62	
2684	ZC (DLSa 17)	I		1.30			2.27	0.50	4.21	6.12		18.02			5.12	
2685	CINA 1069	I		1.50			2.18	1.00	4.31	5.72		31.44			5.78	
2686	PAIG 396	I		2.20			3.47	0.40	4.82	5.61		10.34			6.52	
2687	PAIG 384	I		1.30			2.49	1.00	4.78	6		28.68			4.48	
2688	PA 833	I		2.20			2.55	1.10	3.97	5.81		30.1			5.27	
2689	PA 880	I		1.90			2.77	1.00	3.67	5.24		26.56			12.13	
2690	CINA 1067	I		3.20			3.62	0.90	4.25	5.64		19.91			12.08	
2691	CNA 1065	I		1.80			3.00	1.20	4.45	5.85		28.6			11.65	

JIG-Jassid Injury Grade (I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant + marginal yellowing, III- curling of leaves almost all over the plant, IV- extreme curling, bronzing and drying of leaves);

DW- Dharwad; CN- Chamarajanagara;

*At Dharwad, fruiting bodies damage **(%)**

Table: 78. Ent 1 b. Advanced screening of promising entries for development of repository for sucking pests at North Zone during 2020-21

Entry code	Entry Name	Mean Jassid grade				Leaf hopper / 3 leaves				Whitefly / 3 leaves					Thrips /3 leaves				CLCV infected plants (%)		
		BT	FA	HI	SG	BT	FA	HI	SG	BT	FA	HI	SR	SG	BT	FA	HI	SG	BT	FR	SR
1	HS-297	II	II	I	I	2.75	2.3	3.20	0.93	8.55	11.6	39.27	9.92	24.30	34.75	19.9	41.03	46.90	4.44	23.9	42.28
2	PBH-139	II	I	I	I	2.90	1.6	2.53	0.73	9.65	10.6	35.17	10.74	15.50	40.75	22.3	34.10	36.20	8.89	19.8	38.14
3	F-2596	I	II	I	I	2.80	2.4	3.07	0.10	10.25	13.4	42.57	11.08	24.20	36.10	24.9	38.23	30.70	2.22	15.1	32.77
4	H-1519	II	II	I	I	2.25	2.1	2.17	0.20	9.95	12.8	29.97	11.00	19.00	39.45	23.5	29.43	48.70	2.22	18.6	36.88
5	PBH-42	I	II	I	I	2.45	2.0	2.47	0.23	9.35	10.3	33.10	11.49	22.10	38.70	22.1	35.40	40.20	8.89	18.9	34.57
6	HS-304	III	II	III	I	2.20	2.1	2.67	0.50	9.15	9.6	34.17	10.69	24.20	36.90	23.5	32.80	45.50	2.22	27.1	35.33
7	PBH-39	I	II	II	I	2.80	3.1	2.87	0.87	10.15	11.3	26.33	11.38	24.97	37.30	20.9	32.80	37.70	2.22	23.2	18.36
8	GSHV 199	I	II	I	I	2.40	2.1	2.70	0.77	11.05	11.9	37.20	11.26	26.60	42.55	23.0	38.93	40.80	4.44	19.0	43.57
9	F-2462	II	II	I	I	2.35	2.0	2.67	0.67	8.45	10.9	38.97	10.92	17.83	35.05	19.5	38.17	43.40	4.44	15.0	43.91
10	PBH-116	I	II	II	I	2.95	2.1	2.53	0.50	11.35	10.0	39.63	10.82	21.27	44.10	22.7	37.57	52.40	4.45	20.3	32.29
11	RS-2909	II	II	I	I	2.30	2.4	2.40	0.77	10.70	12.1	32.03	10.74	39.83	39.70	22.3	37.87	39.90	2.22	11.2	39.96
12	RAH 1070	II	II	I	I	2.70	1.8	2.97	0.67	17.75	12.5	37.23	11.28	31.47	36.90	18.9	34.97	41.50	4.44	18.9	35.56
13	F-2662	II	I	I	I	2.65	2.3	3.03	0.40	9.90	9.9	36.00	12.41	14.17	36.00	19.6	37.50	37.50	4.45	21.8	40.91
14	H-1528	II	I	I	I	2.65	1.8	2.60	0.77	8.85	11.1	31.07	10.28	26.57	35.45	20.7	34.43	36.50	8.89	17.9	34.15
15	PBH-86	II	II	II	I	2.55	2.4	1.87	0.30	10.45	11.1	19.30	10.13	21.87	36.85	20.7	25.53	46.50	6.67	22.3	36.04
16	L-1534	II	I	I	I	2.85	2.1	2.03	1.03	8.45	11.8	35.87	9.72	19.63	42.80	22.4	33.83	34.50	4.44	25.7	43.70
17	HS-298												10.77								37.72
18	F-2720		II	I	I		3.1	2.83	0.47		11.9	38.73	10.74	24.17		22.1	38.70	41.50		14.0	37.70
19	RS-2013	II	I	I		2.35	2.2	2.37		8.75	11.7	37.87	11.97		39.40	24.3	35.33		4.44	18.4	36.44
20	GA	II	II	II		2.45	3.6	2.90		11.30	11.7	43.00	12.10		39.80	23.9	37.57		2.22	18.9	25.00
21	HS-6												12.71								38.17
22	TCH 1199	I	II		I	3.05	2.4		0.37	9.45	13.2			22.27	41.85	21.7		30.50	4.44	19.6	
23	F 2770	I				2.70				9.25					36.20				4.44		

BT- Bathinda; FA- Faridkot; HI – Hisar; SR- Sirsa; SG- Sriganganagar;

JIG- Jassid injury grade (I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant+ marginal yellowing , III- curling of leaves almost all over the plant, IV- extreme curling, bronzing and drying of leaves

Table:79(a) . Ent 1 b. Advanced screening of promising entries for development of repository for sucking pests at Central Zone during 2020-21

S.No	Entry code	Mean Jassid grade				Leaf hopper / 3 leaves				Whitefly / 3 leaves				Thrips /3 leave	Aphids population / 3 peak infestation
		JU	SU	NA	RA	JU	SU	NA	RA	JU	SU	RA	NA	SU	SU
1	**AKH 09-5**	II	I	II	I	7.52	3.33	1.0	2.61	7.10	8.70	1.5	2.43	36.70	25.10
2	**AKH 2006-2**	II	II	II	I	6.76	3.86	1.2	2.44	6.70	11.00	1.94	2.37	38.70	32.30
3	**DCH-32**	III	IV	III	IV	11.68	11.54	1.1	3.44	5.23	6.70	1.58	2.03	33.90	42.70
4	**GJHV 497**	II	I	II	II	6.62	3.96	1.37	3.17	5.43	4.50	1.64	1.53	32.20	30.90
5	**GJHV 516**	II	II	II	II	4.94	5.33	1.57	2.33	3.87	5.30	1.75	1.37	21.60	37.50
6	**GSHV 173**	II	I	II	I	5.28	2.73	1.1	2.5	4.77	3.80	1.22	1.53	20.20	25.70
7	**GISV-310**	II	I	II	I	6.12	4.11	1.27	3.22	7.77	2.80	1.58	2.47	28.90	23.50
8	**GISV-319**	II	I	II	II	8.58	3.17	1.5	3.22	7.53	4.40	1.64	1.9	23.70	26.10
9	**JK-4**	II	II	II	I	6.02	4.84	1.03	2.5	3.73	5.50	1.44	2.5	32.90	36.50
10	**JK-5**	II	I	II	I	5.08	2.41	1.73	2.33	4.07	3.50	1.25	1.3	12.80	22.00
11	**KHANDWA 2**	II	-	II	I	5.38	---	0.93	3.06	6.33	----	1.45	2.23	------	-------
12	**LHDP 1**	II	II	II	II	7.22	5.07	1.1	3.5	6.30	5.20	1.45	1.97	20.70	33.20
13	**NDLH 1938**	II	I	II	II	7.04	4.11	0.87	3.5	7.07	4.80	1.61	2.03	25.90	26.70
14	**NDLH 2010**	II	II	II	II	6.52	4.57	0.9	3.78	6.60	3.80	1.45	3.27	23.40	37.00
15	**TSH 0499**	III	II	III	II	5.16	7.79	0.97	2.89	5.63	6.30	1.64	1.17	37.70	33.60
16	**BGDS 1063**	II	II	II	III	7.46	7.20	1.4	5.72	3.77	7.00	1.72	2.17	25.40	34.40
17	**GISV 267**	III	I	III	I	6.14	3.20	1	3.61	6.40	3.60	1.58	2.03	21.30	27.80
18	**GISV 272**	II	I	II	I	5.46	2.93	1	4	5.03	2.40	1.58	1.6	24.00	23.20
19	**Phule 388**	II	II	II	III	7.6	5.66	0.93	3.83	4.53	6.00	1.5	1.43	34.60	35.40
20	**Phule 492**	II	II	II	III	7.92	5.66	0.83	4	4.77	5.10	1.58	1.83	30.40	43.00
21	**Phule 688**	II	II	II	II	5.78	5.57	1.43	3.94	4.23	6.50	1.36	2.67	35.70	34.40
22	**Phule Yamuna**	II	I	II	II	8.26	4.77	1.57	2.83	5.80	5.30	1.45	3.73	25.50	31.30

Table: 79(b). Ent 1 b. advanced screening of promising entries for development of repository for sucking pests under mosquito Net house at Central Zone during 2020-21

S.No	Entry code	Mean Jassid grade			Leaf hopper / 3 leaves			Whitefly population / 3 leaves during peak infestation
		NA	SU	RA	NA	SU	RA	RA
1	AKH 09-5	II	I	I	1.6	3.50	2.33	1.61
2	AKH 2006-2	II	II	I	1.73	4.72	2.28	1.53
3	DCH-32	III	IV	IV	1.9	16.09	3.06	2.11
4	GJHV 497	II	I	II	1.6	4.16	2.39	1.75
5	GJHV 516	II	II	II	1.87	4.59	2.08	1.44
6	GSHV 173	II	I	I	1.93	3.31	2.89	1.44
7	GISV-310	II	II	I	2.07	4.53	3.06	1.72
8	GISV-319	II	I	II	2.13	2.78	2.75	1.5
9	JK-4	II	II	I	1.67	5.19	2.33	1.56
10	JK-5	II	I	I	1.37	3.16	2.58	1.19
11	KHANDWA 2	II	-	I	1.6	-	2.08	1.44
12	LHDP 1	II	II	II	1.63	4.94	2.33	1.36
13	NDLH 1938	II	II	II	1.93	4.16	2.78	1.72
14	NDLH 2010	II	II	II	1.57	4.97	3.67	1.39
15	TSH 0499	III	II	II	1.9	11.75	2.33	1.67
16	BGDS 1063	II	II	III	1.7	10.56	3.61	1.58
17	GISV 267	III	I	I	1.87	3.47	3.5	1.5
18	GISV 272	II	I	I	2.17	3.38	3.06	1.72
19	Phule 388	II	II	III	1.52	7.72	3.5	1.5
20	Phule 492	II	II	III	2.1	6.84	3.11	1.61
21	Phule 688	II	II	II	1.53	8.56	2.5	1.36
22	Phule Yamuna	II	II	II	1.6	4.38	2.61	1.39

JIG- Jassid injury grade (I-entire foliage free of curling and yellowing, II- curling of few leaves in lower portion of plant + marginal yellowing , III- curling of leaves almost all over the plant, IV- extreme curling, bronzing and drying of leaves

JU—Junagadh; SU—Surat; NA—Nanded, RA—Rahuri.

Table 80. Ent 1 b. Advanced screening of promising entries for development of repository for sucking pests at South Zone during 2020-21

S.No	Entry code	Mean Jassid grade		Leaf hopper / 3 leaves		Whitefly population / 3 leaves during peak infestation
		DW	RC	DW	RC	RC
1	GJHV 523	II	II	3.40	6.31	4.63
2	GISV 319	III	II	7.20	6.35	5.22
3	GISV 272	III	III	7.40	7.14	5.87
4	GSHV 185	III	II	7.20	7.09	5.05
5	GBHV 195	IV	II	7.90	6.69	5.33
6	DCH 32 (Dharwad)	IV	III	7.70	6.21	4.26
7	AKH 09-5	**III**	II	7.60	6.12	4.16
8	NDLH 1938	III	II	6.50	8.18	6.22
9	KC 3	III	II	7.30	6.87	4.47
10	BGDS 1033	III	II	6.40	7.39	4.86
11	RAHC 1039	II	I	3.00	5.75	4.03
12	RAHC1040	III	II	6.60	6.03	4.81

Table: 81.Ent 2. Seasonal dynamics of key pests of cotton (Sucking Pests) under unprotected condition to develop suitable forecasting model in North Zone in RCH 650 BT BG- II

Standard Week	Sucking Pests																				
	Jassid / 3 leaves					Whitefly / 3 leaves					Thrips / 3 leaves					Aphids / 3 leaves				Natural Enemies/ plant	
	BT	FA	HI	SR	SG	BT	FA	HI	SR	SG	BT	FA	HI	SR	SG	BT	FA	HI	SG	HI	SR
22	0.00	0.1	-	0.00	0.00	-	0.7	6.33	0.70	14.78	-	18.9	2.73	1.50	15.66	-					0.22
23	-	0.1	0.67	0.00	0.20	-	0.7	6.33	0.00	11.67	-	18.9	2.73	1.50	24.67	-		0.00	0.00	0.67	0.18
24	0.00	0.9	8.87	0.50	0.33	1.20	1.0	5.87	0.70	7.83	2.00	14.0	9.07	9.90	19.27	0.00	0.0	0.00	0.00	8.87	0.36
25	0.60	0.7	4.00	1.10	0.60	3.20	2.7	18.00	3.10	8.33	6.60	16.7	10.60	9.60	26.45	0.00	0.0	0.00	0.00	4.00	0.26
26	0.60	1.0	3.33	2.40	0.66	6.10	7.5	18.67	6.60	11.00	13.00	17.0	14.93	28.20	44.20	0.00	0.0	0.00	0.00	3.33	0.44
27	0.10	2.9	5.33	3.20	0.55	1.00	5.6	20.73	18.70	26.60	8.10	25.8	58.90	49.60	78.87	0.00	0.0	0.00	0.00	5.33	0.64
28	0.80	2.8	5.53	4.20	1.00	12.30	11.0	67.47	9.30	21.78	18.60	28.8	88.00	24.10	64.88	0.00	0.0	0.00	0.00	5.53	0.12
29	2.30	4.6	5.40	3.20	1.77	7.50	8.9	42.60	18.70	32.78	40.90	25.6	84.03	50.30	42.33	0.00	0.0	0.00	0.00	5.40	0.06
30	5.00	6.0	15.00	4.50	0.87	7.10	10.7	91.00	11.10	43.11	47.50	22.6	148.0	53.30	31.11	0.00	0.0	0.00	0.00	15.00	1.42
31	2.90	8.1	15.53	7.60	1.67	41.80	15.7	193.87	11.30	54.77	45.10	52.1	143.8	72.50	42.67	0.00	0.0	0.00	0.00	15.53	0.88
32	3.30	2.5	6.67	8.20	2.44	17.20	7.8	215.60	14.00	51.43	43.40	18.5	137.3	23.80	33.22	0.00	0.0	0.00	0.00	6.67	0.22
33	4.90	1.3	1.40	6.80	2.67	12.70	7.3	118.93	11.10	79.33	17.30	7.4	7.40	13.70	26.11	0.00	0.0	0.00	0.00	1.40	0.22
34	3.00	1.4	3.60	3.60	3.27	11.80	7.4	177.73	5.70	52.80	7.10	8.6	7.20	6.50	9.33	0.00	0.0	0.00	0.00	3.60	0.30
35	7.40	0.9	2.00	4.10	4.63	12.70	4.6	196.47	15.20	25.40	5.40	5.0	1.80	0.20	7.60	0.00	0.0	0.00	0.00	2.00	0.24
36	1.20	0.9	2.20	0.70	3.33	9.90	7.6	178.73	19.50	34.67	0.00	1.7	1.93	0.00	2.78	0.00	0.0	0.00	0.00	2.20	0.68
37	0.40	1.1	0.33	1.20	1.67	21.30	10.4	318.67	16.50	53.78	0.00	0.0	0.60	0.00	1.57	0.00	0.0	0.00	0.00	0.33	0.68
38	1.00	0.3	0.53	0.30	1.27	16.60	7.9	278.93	35.80	98.40	0.00	0.0	1.20	0.00	2.57	0.00	0.0	0.00	0.00	0.53	0.44
39	1.30	0.0	0.27	0.10	0.67	16.00	6.1	168.00	33.40	50.87	0.00	0.0	0.87	0.00	2.33	0.00	0.0	0.00	0.00	0.27	0.42
40	2.40	0.2	0.07	0.10	1.20	11.50	7.6	157.53	10.60	21.57	0.00	0.0	0.93	0.00	3.20	0.00	0.0	0.00	0.00	0.07	0.40
41	1.80	0.0	0.47	0.00	0.67	8.50	6.8	102.80	8.30	17.60	0.00	0.0	1.13	0.00	7.80	0.00	0.0	0.00	0.00	0.47	0.40
42	0.90		0.53	0.00	0.66	4.40		40.07	6.40	14.76	0.00		1.33	0.00	3.33	0.00		0.00	0.00	0.53	0.22
43	0.00		0.67	0.00	0.83	1.60		29.00	5.20	9.43	0.00		1.20	0.00	2.67	0.00		0.00	0.00	0.67	0.30
44					0.00					4.67					0.00				0.00		
45					0.00					0.00					0.00				0.00		
46					0.00					0.00					0.00				0.00		

BT—Bathinda; FA—Faridkot; HI—Hisar; SR—Sirsa; SG—Sriganganagar

Table: 82 Ent 2. Seasonal dynamics of key pests of cotton (Bollworms) under unprotected condition to develop suitable forecasting model in North Zone IN RCH 650 BT BG- II

Standard week	Predators/ plant*			H. armigera						Earias spp larvae/ 5 plants			S. litura larvae/ 5 plants		Parasitism on bollworms (%)	Fruiting body damage (%)			
				Eggs / 5 plants		Larvae/5 plants		Eggs / 5plants	Larvae / 5 plants	HI	SR	SG	SR	SG	SG	H. armigera	E. vittella		
																SG	SG	HI	SR
	BT	FA	SG	HI	SR	HI	SR	SG											
22			0.0		0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
23	-	0.0	1.2	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00
24	0.00	0.0	0.8	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00
25	0.00	0.0	0.6	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00
26	1.00	0.0	1.2	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00
27	1.60	1.5	2.4	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00
28	2.80	2.8	2.8	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
29	3.00	3.6	2.2	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
30	4.20	6.0	3.2	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
31	5.00	8.2	3.6	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
32	4.30	9.7	1.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
33	3.10	10.4	1.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
34	2.30	8.6	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
35	2.20	8.1	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
36	2.50	6.2	1.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
37	2.10	7.2	1.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
38	1.60	4.8	1.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
39	1.00	6.1	1.2	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.0	0.00
40	0.60	2.0	1.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.0	0.00
41	0.60	2.1	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.0	0.00
42	0.20		0.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.0	0.00
43	0.00		0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.0	0.00
44			0.0					0.00	0.00			0.00		0.00	0.00	0.00	0.00		
45			0.0					0.00	0.00			0.00		0.00	0.00	0.00	0.00		
46			0.0					0.00	0.00			0.00		0.00	0.00	0.00	0.00		

Table: 83. Ent 2. Seasonal dynamics of key pests of cotton (Boll damage) under Unprotected condition to develop suitable forecasting model in North Zone during 2020-21 in RCH 650 BT BG- II

Standard week	Flower damage/ 50 flowers (%)	Pink bollworm larvae/ 20 green bolls			Boll damage on boll basis		Boll damage on locule basis	
					Green boll damage/20 bolls(%)	Open boll Damage/ 20 bolls (%)	Locule damage in 20 green bolls (%)	Open boll Loculedamage in 20 bolls(%)
	SG	BT	HI	SG	SG	SG	SG	SG
23	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
27	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
28	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
29	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
31	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
32	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
33	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
34	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
35	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
36	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
37	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
38	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
39	0.00	-	2.00	0.00	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
42	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
43	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
44	0.00			0.00	0.00	0.00	0.00	0.00
45	0.00			0.00	0.00	0.00	0.00	0.00
46	0.00			0.00	0.00	0.00	0.00	0.00

BT –Bathinda; FA- Faridkot; HI- Hisar; SR- Sirsa; SG – Sriganganagar;

Table: 84. Ent 2. Seasonal dynamics of key pests of cotton (Trap catches) under Unprotected condition to develop suitable forecasting model in North Zone – RCH 650 BG-II during 2020-21

Standard week	Trap catches / week															
	H. armigera				PBW				SBW				S. litura			TC
	FA	HI	SR	SG	FA	HI	SR	SG	FA	HI	SR	SG	FA	HI	SG	SR
22			3.2	0.00			1.23	0.00			10.00	0.00			9.00	2.1
23	0.0	-	2.1	0.00	0.0	-	3.21	0.00	0.0	-	5.4	0.00	26.0	-	7.00	3.65
24	7.0	-	2.27	0.00	0.0	-	4.25	0.00	0.0	-	3	0.00	33.0	-	13.00	4.42
25	12.0	-	3.12	0.00	0.0	-	1.68	0.00	0.0	-	2.06	0.00	35.0	-	24.00	6.86
26	18.0	0.00	1.98	8.00	0.0	0.00	3.00	0.00	0.0	0.00	1.28	4.00	40.0	5.00	39.00	9.02
27	8.0	0.00	0.52	0.00	0.0	0.00	1.22	0.00	0.0	1.00	0	3.00	38.0	11.00	293.00	3.86
28	13.0	0.00	0.84	0.00	0.0	0.00	3.10	0.00	0.0	2.00	0	6.00	40.0	68.00	43.00	2.68
29	8.0	0.00	1.14	6.00	0.0	0.00	2.43	0.00	0.0	0.00	0.5	2.00	22.0	14.00	27.00	6.92
30	5.0	2.00	0.5	0.00	0.0	0.00	25.24	1.00	0.0	1.00	0	4.00	10.0	55.00	35.00	3.4
31	0.0	2.00	1.26	0.00	0.0	2.00	34.32	0.00	0.0	0.00	0.58	6.00	0.0	85.00	152.00	5.54
32	0.0	0.00	1.96	2.00	0.0	0.00	22.4	3.00	0.0	0.00	0	14.00	32.0	55.00	37.00	4.2
33	2.0	4.00	3.00	0.00	0.0	0.00	16.45	1.00	0.0	0.00	1.6	7.00	28.0	15.00	89.00	5.68
34	0.0	2.00	1.48	0.00	0.0	0.00	14.2	0.00	6.0	0.00	0	12.00	11.0	25.00	203.00	3.4
35	0.0	0.00	0.93	0.00	0.0	0.00	10.11	4.00	0.0	0.00	3.86	8.00	28.0	35.00	126.00	3.54
36	0.0	0.00	0.78	0.00	0.0	0.00	14.2	8.00	0.0	0.00	1.56	26.00	22.0	31.00	93.00	2
37	1.0	1.00	1.45	4.00	0.0	0.00	9.22	5.00	20.0	0.00	2	32.00	18.0	15.00	137.00	2.8
38	0.0	0.00	2.8	0.00	4.0	3.00	15.11	3.00	15.0	0.00	2.66	14.00	35.0	30.00	259.00	3.5
39	1.0	2.00	2	1.00	10.0	0.00	18.22	1.00	29.0	1.00	1.23	9.00	18.0	55.00	102.00	4.22
40	3.0	2.00	0.72	2.00	9.0	0.00	24.202	12.00	26.0	1.00	1.98	174.00	12.0	80.00	86.00	3.3
41	2.0	4.00	1.65	0.00	8.0	8.00	20.22	8.00	11.0	4.00	2.4	95.00	14.0	66.00	39.00	2.08
42			0.78	0.00			10.22	21.00			3.2	83.00			343.00	2.58
43			2.1	0.00			9.44	23.00			5.39	57.00			207.00	4.48
44				0.00				15.00				48.00			184.00	
45				0.00				24.00				92.00			401.00	
46				0.00				32.00				116.00			29.00	

BT –Bathinda; FA- Faridkot; HI- Hisar; SR- Sirsa; SG – Sriganganagar

Table: 85. Ent 2. Seasonal dynamics of key pests of cotton (Abiotic factors) under Unprotected condition to develop suitable forecasting model in North Zone during 2020-21 in RCH 650 BT BG- II

SMW	Temperature (^{0}C)									
	BT		FA		HI		SR		SG	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
22							36.9	24.7	37.20	24.07
23	43.80	26.17	36.3	24.5	36.6	24.6	38.4	26.4	40.07	25.11
24	42.74	25.80	41.2	28.1	41.5	27.3	42.9	30.1	43.87	26.97
25	36.90	25.16	40.0	29.3	39.7	27.0	40.6	29.9	43.27	30.54
26	39.99	27.49	35.8	28.3	37.4	28.3	38.6	29.8	39.89	28.50
27	37.29	26.10	36.7	28.4	38.7	27.9	38.8	29.3	41.16	28.86
28	37.27	27.07	34.7	26.0	36.0	26.5	37.0	26.7	39.73	27.61
29	34.61	25.21	32.8	25.8	34.6	25.9	34.8	26.2	36.79	26.40
30	34.63	25.57	35.6	27.9	34.5	26.8	36.4	27.0	37.76	27.31
31	34.32	25.45	35.9	28.1	36.4	27.0	36.5	26.9	37.40	27.37
32	35.78	26.30	35.9	28.1	35.3	27.5	36.5	26.8	37.23	27.93
33	33.32	25.07	34.7	27.8	35.3	26.9	36.1	26.5	37.69	27.46
34	36.87	26.27	32.7	25.6	32.6	25.4	33.4	26.1	33.84	25.51
35	36.30	27.22	31.8	26.0	33.9	25.6	33.9	25.8	32.70	25.21
36	35.97	27.12	32.3	25.1	34.2	25.1	34.8	25.7	34.81	24.84
37	37.03	26.52	36.2	26.4	36.3	24.9	37.0	27.1	39.19	25.30
38	34.50	24.43	36.0	24.7	37.6	24.7	36.6	26.9	38.97	24.37
39	32.17	23.37	35.0	23.3	36.9	22.3	36.3	25.8	38.56	22.77
40	30.74	19.76	34.9	18.4	36.6	18.2	36.2	25.1	37.71	18.01
41	33.03	19.07	35.4	16.6	35.6	16.3	35.6	23.0	37.27	15.81
42	31.55	18.17	36.3	24.5	34.2	13.7	34.0	18.4	35.11	13.09
43	32.23	14.93	41.2	28.1	33.0	12.8	32.1	16.8	32.26	11.70
44									31.37	9.66
45									31.44	9.04
46									26.44	10.21

SMW	Relative Humidity(%)									
	BT		FA		HI		SR		SG	
	Morning	Evening	Morning	Evening	Morning	Evening	Morning	Evening	Morning	Evening
22							67.3	38.6	71.14	42.57
23	46.86	23.86	68.4	43.0	72	41	67.1	39	66.57	48.57
24	52.43	36.86	58.0	30.1	66	32	56.1	28.4	58.43	33.43
25	66.86	46.43	64.7	42.1	73	40	61	40	54.29	38.57
26	57.57	42.29	73.1	57.1	74	54	73.9	47.7	59.29	50.71
27	69.43	65.00	75.1	52.6	80	55	74.6	48.3	68.14	38.57
28	78.57	61.57	83.3	62.9	89	64	78.9	51.6	75.86	53.57
29	81.71	71.43	89.6	67.9	92	75	87.3	61.1	82.29	66.00
30	86.14	69.14	81.0	59.3	87	60	74.9	55.6	77.57	70.71
31	87.83	67.83	79.6	59.1	84	66	72.1	60.1	78.14	70.00
32	80.50	57.33	81.6	66.7	88	62	78.4	60.3	80.00	70.57
33	84.83	73.33	85.4	68.1	90	77	84.1	60.4	82.71	75.29
34	88.33	58.67	87.3	72.1	91	76	85.3	73.1	84.14	69.43
35	84.00	62.67	87.7	72.1	90	64	86.3	61.9	89.29	71.86
36	83.50	61.50	90.1	74.6	94	67	87.7	61	90.14	72.00
37	83.50	59.33	86.0	56.1	88	49	80	51.7	76.43	45.00
38	81.33	66.00	86.0	52.7	87	48	71.7	54.4	81.29	42.14
39	87.17	68.17	81.0	43.7	85	39	67.1	42.9	73.43	38.43
40	86.60	57.20	86.0	34.1	79	29	83.7	50.7	77.71	27.43
41	83.50	51.50	89.4	28.4	86	28	66.1	30.3	82.71	40.57
42	79.50	52.67	68.4	43.0	76	22	59.1	25.7	80.86	38.57
43	83.17	42.67	58.0	30.1	80	26	63.3	29.3	81.14	40.57
44									84.71	33.14
45									82.00	44.86
46									79.86	57.71

BT –Bathinda; FA- Faridkot; HI- Hisar; SR- Sirsa; SG – Sriganganagar

Table: 86.Ent 2. Seasonal dynamics of key pests of cotton (Abiotic factors- Rainfall) under Unprotected condition to develop suitable forecasting model in North Zone during 2020-21 in RCH 650 BT BG- II

Standard week	Abiotic factors				
	Rainfall in mm				
	BT	FA	HI	SR	SG
22				42.1	16.20
23	0.00	10.4	2.20	5.6	0.00
24	0.00	0.0	0.00	0.00	19.20
25	32.00	0.0	29.20	0.00	0.00
26	0.00	5.6	14.00	10.2	0.00
27	52.00	11.4	8.70	22.0	1.80
28	18.00	91.1	38.40	24.0	50.00
29	288.00	120.6	111.10	89.3	34.60
30	39.40	0.00	14.70	0.00	4.20
31	5.20	2.8	0.00	0.00	40.60
32	0.00	37.4	32.80	16.2	28.60
33	27.40	17.0	17.50	0.00	46.80
34	0.00	25.8	11.70	18.3	38.00
35	9.80	84.6	0.00	2.00	29.20
36	1.00	118.5	32.50	40.8	5.20
37	0.00	0.0	0.00	0.00	0.00
38	42.00	0.0	7.00	0.00	0.00
39	3.00	0.0	0.00	0.00	0.00
40	5.00	0.0	0.00	0.00	0.00
41	0.00	0.0	0.00	0.00	0.00
42	7.20	-	0.00	0.00	0.00
43	0.00	-	0.00	0.00	0.00
44	-	-	-	-	0.00
45	-	-	-	-	0.00
46	-	-	-	-	1.00

BT –Bathinda; FA- Faridkot; HI- Hisar; SR- Sirsa; SG – Sriganganagar

Table: 87. Ent 2. Seasonal dynamics of key pests of cotton (Sucking Pests) under unprotected condition to develop suitable forecasting model in North Zone in GA

Standard week	Jassid / 3 leaves					Whitefly / 3 leaves					Thrips / 3 leaves				
	BT	FA	HI	SR	SG	BT	FA	HI	SR	SG	BT	FA	HI	SR	SG
22				0.70	0.00				0.40	11.20				0.80	9.63
23	-	0.1	1.07	0.00	0.33	-	0.8	5.87	0.00	12.33	-	6.5	3.67	1.10	15.20
24	0.00	0.4	4.20	0.70	0.57	1.20	0.9	8.27	0.40	10.67	0.00	10.9	10.53	8.90	13.67
25	0.40	2.4	3.20	0.80	0.67	3.40	3.6	18.27	3.40	9.47	3.60	10.7	10.27	9.70	16.23
26	0.40	1.8	2.33	2.10	0.93	8.70	7.8	19.33	5.20	12.47	9.30	17.8	15.43	29.50	32.47
27	0.50	11.2	5.93	3.60	2.11	1.30	4.1	22.73	19.10	19.67	9.10	14.1	62.60	41.20	50.43
28	1.80	14.9	4.93	5.70	3.27	14.70	8.5	56.47	8.90	22.70	20.30	14.0	82.73	26.10	34.57
29	1.30	9.7	5.00	3.50	4.22	9.00	6.2	42.33	19.10	29.87	43.00	11.5	77.77	41.10	29.36
30	4.00	12.0	11.40	4.30	2.87	9.10	9.1	103.40	11.00	44.23	39.30	10.7	162.0	67.60	26.27
31	3.90	13.3	14.67	10.3	3.11	37.50	10.1	188.27	12.90	46.8	60.8	8.6	133.2	63.00	31.53
32	6.10	6.6	6.33	8.00	4.20	15.50	5.3	260.80	13.20	39.67	41.20	8.8	161.7	25.80	23.67
33	8.40	4.2	2.67	8.50	4.33	7.30	6.6	153.53	10.10	56.73	24.90	8.5	8.87	14.30	16.47
34	3.60	4.1	3.47	1.50	3.57	10.50	5.0	192.87	7.10	41.33	6.80	9.0	7.00	5.10	6.87
35	6.40	3.3	1.73	4.50	5.67	11.60	4.7	222.93	16.80	28.40	4.70	0.2	1.40	0.20	5.00
36	2.10	2.8	1.93	0.60	4.33	9.40	4.8	175.47	36.60	12.76	0.00	0.1	1.87	0.40	2.27
37	0.60	1.6	0.47	0.60	2.22	23.50	9.6	358.60	25.10	36.67	0.00	0.0	0.33	0.00	2.47
38	0.80	1.8	0.33	0.30	2.10	12.10	8.7	256.13	43.10	62.53	0.00	0.0	0.93	0.00	3.22
39	1.50	0.7	0.47	0.30	0.80	17.10	5.8	150.60	31.70	34.67	0.00	0.0	0.93	0.00	6.53
40	3.10	2.3	0.07	0.00	1.33	13.80	6.2	127.20	10.80	21.11	0.00	0.0	0.67	0.00	1.33
41	1.90	2.1	0.47	0.00	0.87	9.60	5.4	81.53	9.20	22.53	0.00	0.0	0.93	0.00	4.00
42	0.80		0.47	0.00	1.03	6.40		43.80	6.40	10.67	0.00		1.27	0.00	5.73
43	0.00		0.53	0.00	0.97	3.60		28.73	5.20	7.13	0.00		1.33	0.00	2.43
44					0.00					0.00					0.00
45					0.00					0.00					0.00
46					0.00					0.00					0.00

Standard week	Aphids / 3 leaves				Natural Enemies/ plant	
	BT	FA	HI	SG	HI	SR
22				0.00		0.23
23	-	0.0	0.00	0.00	0.20	0.33
24	0.00	0.0	0.00	0.00	0.07	0.30
25	0.00	0.0	0.00	0.00	0.40	0.24
26	0.00	0.0	0.00	0.00	0.47	0.42
27	0.00	0.0	0.00	0.00	0.47	0.54
28	0.00	0.0	0.00	0.00	0.53	0.16
29	0.00	0.0	0.00	0.00	0.40	0.08
30	0.00	0.0	0.00	0.00	0.53	1.34
31	0.00	0.0	0.00	0.00	0.73	0.58
32	0.00	0.0	0.00	0.00	0.67	0.22
33	0.00	0.0	0.00	0.00	0.40	0.22
34	0.00	0.0	0.00	0.00	1.00	0.32
35	0.00	0.0	0.00	0.00	1.40	0.12
36	0.00	0.0	0.00	0.00	1.20	0.58
37	0.00	0.0	0.00	0.00	3.73	0.36
38	0.00	0.0	0.00	0.00	1.73	0.40
39	0.00	0.0	0.00	0.00	1.40	0.44
40	0.00	0.0	0.00	0.00	0.27	0.34
41	0.00	0.0	0.00	0.00	0.40	0.18
42	0.00		0.00	0.00	0.07	0.20
43	0.00		0.00	0.00	0.07	0.24
44				0.00		
45				0.00		
46				0.00		

BT –Bathinda; FA- Faridkot; HI- Hisar; SR- Sirsa; SG – Sriganganagar

Table: 88. Ent 2. Seasonal dynamics of key pests of cotton (Bollworms) under unprotected condition to develop suitable forecasting model in North Zone in GA

Standard week	Predators/ plant*			*H. armigera* (Eggs/Larva per 5 plants)						*Earias* spp larvae/ 5 plants		
				Eggs		Larvae		Eggs	Larvae	HI	SR	SG
	BT	FA	SG									
22			0.00		0.00		0.00	0.00	0.00		0.00	0.00
23	-	0.0	0.20	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00
24	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00
25	0.00	0.0	0.40	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00
26	1.30	0.0	0.80	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00
27	2.80	1.7	1.40	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00
28	3.20	3.3	1.80	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00
29	4.00	2.4	2.40	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00
30	1.40	3.7	2.60	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00
31	2.00	4.9	3.40	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	1.00
32	3.20	3.1	3.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
33	3.00	7.9	4.20	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	1.00
34	2.40	6.7	1.20	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	2.00
35	2.00	7.4	2.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
36	3.20	5.4	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	1.00
37	2.10	5.6	2.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.24	2.00
38	2.20	6.4	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.89	4.00
39	1.60	5.3	0.60	0.00	0.00	0.00	0.00	0.00	0.00	2.00	1.23	3.00
40	0.80	2.5	0.80	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.71	1.00
41	0.30	1.9	0.40	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.48	2.00
42	0.20	-	0.60	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.20	1.00
43	0.10	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	3.00
44	-	--	0.00	-	-	-	-	0.00	0.00	-	-	1.00
45	-	-	0.00	-	-	-	-	0.00	0.00	-	-	0.00
46	-	-	0.00	-	-	-	-	0.00	0.00	-	-	0.00

Standardweek	S. litura larvae/ 5 plants		Parasitism (%) on bollworms	Fruiting body damage (%)			
	SR	SG	SG	*H.armigera*	*E. vittella*		
				SG	SG	HI	SR
22	0.00	0.00	0.00	0.00	0.00		0.00
23	0.00	0.00	0.00	0.00	0.00	-	0.00
24	0.00	0.00	0.00	0.00	0.00	-	0.00
25	0.00	0.00	0.00	0.00	0.00	-	0.00
26	0.00	0.00	0.00	0.00	0.00	-	0.00
27	0.00	0.00	0.00	0.00	0.00	-	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
32	0.00	0.00	0.00	0.00	5.00	4.00	0.00
33	0.00	0.00	0.00	0.00	10.0	6.00	0.00
34	0.00	0.00	0.00	0.00	5.00	8.00	0.00
35	0.00	0.00	0.00	0.00	15.0	10.0	0.92
36	0.00	0.00	0.00	0.00	10.0	4.00	1.68
37	0.00	0.00	0.00	0.00	20.0	2.00	12.40
38	0.00	0.00	0.00	0.00	15.0	2.00	22.78
39	0.00	0.00	0.00	0.00	20.0	6.00	14.22
40	0.00	0.00	0.00	0.00	15.0	6.00	11.28
41	0.00	0.00	0.00	0.00	25.0	8.00	8.90
42	0.00	0.00	0.00	0.00	20.0	8.00	7.44
43	0.00	0.00	0.00	0.00	30.0	4.00	6.23
44	-	0.00	0.00	0.00	15.0	-	-
45	-	0.00	0.00	0.00	0.00	-	-
46	-	0.00	0.00	0.00	0.00	-	-

Table: 89. Ent 2. Seasonal dynamics of key pests of cotton (Boll damage) under Unprotected condition to develop suitable forecasting model in North Zone during 2020-21 in GA

Standard week	Flower damage/ 50 flowers (%)	Pink bollworm larvae/ 20 green bolls			Boll damage on boll basis		Boll damage on locule basis	
					Green boll damage/20 bolls (%)	Open boll Damage/ 20 bolls (%)	Locule damage in 20 green bolls (%)	Open boll Locule damage in 20 bolls (%)
	SG	BT	HI	SG	SG	SG	SG	SG
23		-	0.00					
24		-	0.00					
25		-	0.00					
26		-	0.00					
27		-	0.00					
28	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
29	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
31	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
32	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
33	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
34	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
35	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
36	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
37	0.00	-	0.00	2.00	10.00	0.00	5.67	0.00
38	0.00	-	0.00	1.00	5.00	0.00	2.67	0.00
39	0.00	-	1.00	2.00	15.00	0.00	9.33	0.00
40	0.00	1.00	1.00	2.00	20.00	0.00	13.17	0.00
41	0.00	1.00	2.00	1.00	10.00	0.00	6.33	0.00
42	0.00	0.00	1.00	2.00	15.00	0.00	10.67	0.00
43	0.00	1.00	1.00	4.00	25.00	0.00	18.23	0.00
44	0.00			2.00	10.00	0.00	6.57	0.00
45	0.00			2.00	0.00	30.00	0.00	21.07
46	0.00			0.00	0.00	0.00	0.00	0.00

BT –Bathinda; FA- Faridkot; HI- Hisar; SR- Sirsa; SG – Sriganganagar;

Table: 90.Ent 2. Seasonal dynamics of key pests of cotton (Trap catches) under Unprotected condition to develop suitable forecasting model in North Zone – GA

Standard week	Trap catches / week												
	H. armigera			PBW				SBW			S. litura		TC
	HI	SR	SG	BT	HI	SR	SG	HI	SR	SG	HI	SG	S R
22		3.2	0.00			1.23	0.00		10.0	0.00		9.00	2.1
23	-	2.1	0.00	-	-	3.21	0.00	-	5.4	0.00	-	7.00	3.65
24	-	2.27	0.00	-	-	4.25	0.00	-	3.00	0.00	-	13.00	4.42
25	-	3.12	0.00	-	-	1.68	0.00	-	2.06	0.00	-	24.00	6.86
26	3.00	1.98	8.00	-	0.00	3.00	0.00	2.00	1.28	4.00	97.00	39.00	9.02
27	0.00	0.52	0.00	-	0.00	1.22	0.00	1.00	0.00	3.00	130.00	293.00	3.86
28	7.00	0.84	0.00	-	0.00	3.10	0.00	0.00	0.00	6.00	112.00	43.00	2.68
29	7.00	1.14	6.00	-	0.00	2.43	0.00	4.00	0.50	2.00	56.00	27.00	6.92
30	2.00	0.5	0.00	-	0.00	25.24	1.00	1.00	0.00	4.00	30.00	35.00	3.4
31	1.00	1.26	0.00	-	0.00	34.32	0.00	5.00	0.58	6.00	115.00	152.00	5.54
32	1.00	1.96	2.00	-	0.00	22.40	3.00	1.00	0.00	14.00	110.00	37.00	4.2
33	0.00	3.00	0.00	-	0.00	16.45	1.00	0.00	1.6.	7.00	28.00	89.00	5.68
34	0.00	1.48	0.00	0.00	1.00	14.20	0.00	0.00	0.00	12.00	35.00	203.00	3.4
35	1.00	0.93	0.00	2.00	2.00	10.11	4.00	0.00	3.86	8.00	15.00	126.00	3.54
36	1.00	0.78	0.00	2.00	1.00	14.20	8.00	0.00	1.56	26.00	20.00	93.00	2
37	1.00	1.45	4.00	2.00	2.00	9.22	5.00	0.00	2.00	32.00	75.00	137.00	2.8
38	4.00	2.8	0.00	1.00	2.00	15.11	3.00	2.00	2.66	14.00	32.00	259.00	3.5
39	4.00	2	1.00	3.00	2.00	18.22	1.00	2.00	1.23	9.00	18.00	102.00	4.22
40	2.00	0.72	2.00	4.00	3.00	24.20	12.00	2.00	1.98	174.00	28.00	86.00	3.3
41	8.00	1.65	0.00	4.00	3.00	20.22	8.00	3.00	2.40	95.00	64.00	39.00	2.08
42	3.00	0.78	0.00	5.00	2.00	10.22	21.00	1.00	3.20	83.00	50.00	343.00	2.58
43	4.00	2.1	0.00	4.00	2.00	9.44	23.00	2.00	5.39	57.00	34.00	207.00	4.48
44			0.00				15.00			48.00		184.00	
45			0.00				24.00			92.00		401.00	
46			0.00				32.00			116.00		138.00	

BT –Bathinda; FA- Faridkot; HI- Hisar; SR- Sirsa; SG – Sriganganagar

Table: 91. Ent 2. Seasonal dynamics of key pests of cotton (Abiotic factors) under Unprotected condition to develop suitable forecasting model in North Zone during 2020-21 in GA

SMW	Temperature (^{0}C)									
	BT		FA		HI		SR		SG	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
22							36.9	24.7	37.20	24.07
23	43.80	26.17	36.3	24.5	36.6	24.6	38.4	26.4	40.07	25.11
24	42.74	25.80	41.2	28.1	41.5	27.3	42.9	30.1	43.87	26.97
25	36.90	25.16	40.0	29.3	39.7	27.0	40.6	29.9	43.27	30.54
26	39.99	27.49	35.8	28.3	37.4	28.3	38.6	29.8	39.89	28.50
27	37.29	26.10	36.7	28.4	38.7	27.9	38.8	29.3	41.16	28.86
28	37.27	27.07	34.7	26.0	36.0	26.5	37.0	26.7	39.73	27.61
29	34.61	25.21	32.8	25.8	34.6	25.9	34.8	26.2	36.79	26.40
30	34.63	25.57	35.6	27.9	34.5	26.8	36.4	27.0	37.76	27.31
31	34.32	25.45	35.9	28.1	36.4	27.0	36.5	26.9	37.40	27.37
32	35.78	26.30	35.9	28.1	35.3	27.5	36.5	26.8	37.23	27.93
33	33.32	25.07	34.7	27.8	35.3	26.9	36.1	26.5	37.69	27.46
34	36.87	26.27	32.7	25.6	32.6	25.4	33.4	26.1	33.84	25.51
35	36.30	27.22	31.8	26.0	33.9	25.6	33.9	25.8	32.70	25.21
36	35.97	27.12	32.3	25.1	34.2	25.1	34.8	25.7	34.81	24.84
37	37.03	26.52	36.2	26.4	36.3	24.9	37.0	27.1	39.19	25.30
38	34.50	24.43	36.0	24.7	37.6	24.7	36.6	26.9	38.97	24.37
39	32.17	23.37	35.0	23.3	36.9	22.3	36.3	25.8	38.56	22.77
40	30.74	19.76	34.9	18.4	36.6	18.2	36.2	25.1	37.71	18.01
41	33.03	19.07	35.4	16.6	35.6	16.3	35.6	23.0	37.27	15.81
42	31.55	18.17			34.2	13.7	34.0	18.4	35.11	13.09
43	32.23	14.93			33.0	12.8	32.1	16.8	32.26	11.70
44									31.37	9.66
45									31.44	9.04
46									26.44	10.21

SMW	Relative Humidity(%)									
	BT		FA		HI		SR		SG	
	Morning	Evening	Morning	Evening	Morning	Evening	Morning	Evening	Morning	Evening
22	46.86	23.86					67.3	38.6	71.14	42.57
23	52.43	36.86	68.4	43.0	72	41	67.1	39	66.57	48.57
24	66.86	46.43	58.0	30.1	66	32	56.1	28.4	58.43	33.43
25	57.57	42.29	64.7	42.1	73	40	61	40	54.29	38.57
26	69.43	65.00	73.1	57.1	74	54	73.9	47.7	59.29	50.71
27	78.57	61.57	75.1	52.6	80	55	74.6	48.3	68.14	38.57
28	81.71	71.43	83.3	62.9	89	64	78.9	51.6	75.86	53.57
29	86.14	69.14	89.6	67.9	92	75	87.3	61.1	82.29	66.00
30	87.83	67.83	81.0	59.3	87	60	74.9	55.6	77.57	70.71
31	80.50	57.33	79.6	59.1	84	66	72.1	60.1	78.14	70.00
32	84.83	73.33	81.6	66.7	88	62	78.4	60.3	80.00	70.57
33	88.33	58.67	85.4	68.1	90	77	84.1	60.4	82.71	75.29
34	84.00	62.67	87.3	72.1	91	76	85.3	73.1	84.14	69.43
35	83.50	61.50	87.7	72.1	90	64	86.3	61.9	89.29	71.86
36	83.50	59.33	90.1	74.6	94	67	87.7	61	90.14	72.00
37	81.33	66.00	86.0	56.1	88	49	80	51.7	76.43	45.00
38	87.17	68.17	86.0	52.7	87	48	71.7	54.4	81.29	42.14
39	86.60	57.20	81.0	43.7	85	39	67.1	42.9	73.43	38.43
40	83.50	51.50	86.0	34.1	79	29	83.7	50.7	77.71	27.43
41	79.50	52.67	89.4	28.4	86	28	66.1	30.3	82.71	40.57
42	83.17	42.67			76	22	59.1	25.7	80.86	38.57
43	46.86	23.86			80	26	63.3	29.3	81.14	40.57
44									84.71	33.14
45									82.00	44.86
46									79.86	57.71

BT –Bathinda; FA- Faridkot; HI- Hisar; SR- Sirsa; SG – Sriganganagar

Table: 92. Ent 2. Seasonal dynamics of key pests of cotton (Abiotic factors- Rainfall) under Unprotected condition to develop suitable forecasting model in North Zone during 2020-21

Standard week	Abiotic factors				
	Rainfall in mm				
	BT	FA	HI	SR	SG
22				42.1	16.20
23	0.00	10.4	2.20	5.6	0.00
24	0.00	0.0	0.00	0	19.20
25	32.00	0.0	29.20	0	0.00
26	0.00	5.6	14.00	10.2	0.00
27	52.00	11.4	8.70	22	1.80
28	18.00	91.1	38.40	24	50.00
29	288.00	120.6	111.10	89.3	34.60
30	39.40	0.00	14.70	0	4.20
31	5.20	2.8	0.00	0	40.60
32	0.00	37.4	32.80	16.2	28.60
33	27.40	17.0	17.50	0	46.80
34	0.00	25.8	11.70	18.3	38.00
35	9.80	84.6	0.00	2	29.20
36	1.00	118.5	32.50	40.8	5.20
37	0.00	0.0	0.00	0	0.00
38	42.00	0.0	7.00	0	0.00
39	3.00	0.0	0.00	0	0.00
40	5.00	0.0	0.00	0	0.00
41	0.00	0.0	0.00	0	0.00
42	7.20	-	0.00	0	0.00
43	0.00	-	0.00	0	0.00
44	-	-	-	-	0.00
45	-	-	-	-	0.00
46	-	-	-	-	1.00

BT –Bathinda; FA- Faridkot; HI- Hisar; SR- Sirsa; SG – Sriganganagar

Table: 93. Ent 2. Seasonal dynamics of key pests of cotton (Sucking Pests) under unprotected condition to develop suitable forecasting model in North Zone in RS 2013

SMW	Sucking Pests									
	Jassid / 3 leaves					Whitefly / 3 leaves				
	BT	FA	HI	SR	SG	BT	FA	HI	SR	SG
22				0.00	0.00				0.20	8.20
23	-	0.1	1.27	0.00	0.00	-	0.5	6.80	0.00	6.33
24	0.00	0.6	5.33	0.50	0.20	0.80	1.4	6.07	0.40	4.27
25	0.30	0.9	2.20	1.30	0.67	2.80	5.3	16.07	4.30	6.57
26	0.50	1.7	4.53	2.50	0.53	4.80	10.5	20.27	6.00	10.67
27	0.40	4.0	6.27	3.10	0.27	1.20	7.6	21.87	20.10	19.20
28	2.00	3.7	5.60	5.90	1.11	18.80	12.6	59.27	9.90	25.57
29	1.20	3.3	5.07	3.10	1.00	9.90	8.7	70.13	20.10	36.67
30	5.80	5.7	10.00	4.50	1.20	7.70	13.6	114.20	10.90	39.78
31	1.80	6.4	8.87	8.10	1.80	43.70	14.5	165.93	11.90	42.80
32	3.10	2.0	8.60	8.20	1.67	17.90	5.7	246.33	13.00	39.87
33	6.50	2.1	1.27	8.00	2.11	15.90	7.6	112.27	10.00	58.87
34	3.10	1.3	2.87	2.90	2.00	8.90	7.8	156.93	6.40	32.80
35	7.80	1.2	1.87	4.90	2.80	11.50	6.1	189.27	14.90	18.80
36	1.40	1.1	1.73	0.40	1.43	10.20	7.1	171.53	23.70	26.67
37	0.50	0.9	0.20	0.60	1.11	23.30	11.4	266.20	21.20	42.43
38	1.00	0.8	0.33	0.40	0.40	16.60	10.3	235.53	40.10	71.57
39	2.10	0.0	0.33	0.20	0.00	23.40	6.0	142.93	31.90	44.57
40	2.80	0.0	0.07	0.10	0.33	13.80	7.7	110.87	10.40	24.67
41	1.20	0.0	0.27	0.00	0.20	10.20	7.6	74.93	8.90	16.67
42	0.00		0.67	0.00	0.53	8.40		27.33	6.00	12.60
43	0.00		0.33	0.00	0.67	3.60		23.40	5.00	9.00
44					0.00					2.67
45					0.00					0.00
46					0.00					0.00

SMW	Sucking Pests									Natural Enemies/ plant	
	Thrips / 3 leaves					Aphids / 3 leaves					
	BT	FA	HI	SR	SG	BT	FA	HI	SG	HI	SR
22				0.90	7.53				0.00		0.22
23	-	7.7	5.27	1.40	13.20	-	0.0	0.00	0.00	1.27	0.25
24	4.10	11.2	11.00	9.70	9.67	0.00	0.0	0.00	0.00	5.33	0.44
25	6.30	12.3	6.53	9.90	11.55	0.00	0.0	0.00	0.00	2.20	0.18
26	12.20	15.4	15.53	30.70	28.78	0.00	0.0	0.00	0.00	4.53	0.40
27	10.70	23.3	54.17	43.40	58.27	0.00	0.0	0.00	0.00	6.27	0.62
28	15.00	27.0	69.00	23.90	48.00	0.00	0.0	0.00	0.00	5.60	0.22
29	49.90	21.0	74.43	43.40	30.34	0.00	0.0	0.00	0.00	5.07	0.04
30	43.60	21.1	152.4	67.40	29.27	0.00	0.0	0.00	0.00	10.00	1.18
31	62.10	40.3	81.20	74.20	34.67	0.00	0.0	0.00	0.00	8.87	0.56
32	40.50	13.0	147.5	24.10	24.88	0.00	0.0	0.00	0.00	8.60	0.26
33	22.20	11.0	10.60	15.00	19.78	0.00	0.0	0.00	0.00	1.27	0.22
34	6.10	12.0	6.20	5.70	7.67	0.00	0.0	0.00	0.00	2.87	0.28
35	4.60	2.6	2.60	0.40	6.20	0.00	0.0	0.00	0.00	1.87	0.16
36	0.00	0.4	2.07	0.30	2.27	0.00	0.0	0.00	0.00	1.73	0.72
37	0.00	0.0	0.33	0.00	4.11	0.00	0.0	0.00	0.00	0.20	0.84
38	0.00	0.0	1.00	0.00	2.67	0.00	0.0	0.00	0.00	0.33	0.38
39	0.00	0.0	0.87	0.00	6.11	0.00	0.0	0.00	0.00	0.33	0.26
40	0.00	0.0	0.47	0.00	2.87	0.00	0.0	0.00	0.00	0.07	0.34
41	0.00	0.0	2.20	0.00	4.22	0.00	0.0	0.00	0.00	0.27	0.14
42	0.00		2.20	0.00	4.67	0.00		0.00	0.00	0.67	0.20
43	0.00		1.40	0.00	3.20	0.00		0.00	0.00	0.33	0.24
44					0.00				0.00		
45					0.00				0.00		
46					0.00				0.00		

Table: 94.Ent 2. Seasonal dynamics of key pests of cotton (Bollworms) under unprotected condition to develop suitable forecasting model in North Zone in RS 2013

Standard week	Predators/ plant*			H. armigera						Eariasspp larvae/ 5 plants			S. litura larvae/ 5 plants		Parasitism on bollworms (%)	Fruiting body damage (%)			
				Eggs / 5 plants		Larvae/5 plants		Eggs / 5plants	Larvae / 5 plants	HI	SR	SG	SR	SG	SG	H. Armigera	E. vittella		
																SG	SG	HI	SR
	BT	FA	SG	HI	SR	HI	SR	SG											
22			0.20		0.00		0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
23	-	0.1	0.40	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00
24	0.00	0.0	0.20	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00
25	0.00	0.0	0.80	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00
26	2.00	0.0	1.80	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00
27	2.50	3.4	2.20	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00
28	2.20	3.1	3.40	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	3.90	4.4	3.20	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	3.50	6.2	2.20	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	4.20	9.9	1.60	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
32	2.80	8.8	1.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00
33	2.40	9.6	2.20	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	2.00	0.00	0.00	0.00	0.00	15.0	4.00	0.00
34	2.10	9.1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	10.0	8.00	0.00
35	2.60	11.1	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00	0.00	10.0	14.0	1.28
36	1.20	6.6	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	20.0	8.00	1.31
37	1.40	7.1	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	15.0	0.00	9.76
38	1.00	8.4	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	2.00	0.00	0.00	0.00	0.00	10.0	8.00	14.26
39	1.20	6.5	0.40	0.00	0.00	0.00	0.00	0.00	0.00	3.00	**0.80**	5.00	0.00	0.00	0.00	0.00	25.0	6.00	9.42
40	0.60	4.5	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	2.00	0.00	0.00	0.00	0.00	15.0	8.00	8.23
41	0.30	4.1	0.20	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.45	4.00	0.00	0.00	0.00	0.00	20.0	6.00	3.78
42	0.00		0.40	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	3.00	0.00	0.00	0.00	0.00	10.0	10.0	4.22
43	0.00		0.20	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.20	2.00	0.00	0.00	0.00	0.00	15.0	6.00	6.00
44			0.00					0.00	0.00			1.00		0.00	0.00	0.00	10.0		
45			0.00					0.00	0.00			0.00		0.00	0.00	0.00	0.00		
46			0.00					0.00	0.00			0.00		0.00	0.00	0.00	0.00		

Table: 95. Ent 2. Seasonal dynamics of key pests of cotton (Boll damage) under Unprotected condition to develop suitable forecasting model in North Zone during 2020-21 in RS2013

Standard week	Flower damage/ 50 flowers (%)	Pink bollworm larvae/ 20 green bolls			Boll damage on boll basis		Boll damage on locule basis	
					Green boll damage/20 bolls (%)	Open boll Damage/ 20 bolls (%)	Locule damage in 20 green bolls (%)	Open boll Locule damage in 20 bolls (%)
	SG	BT	HI	SG	SG	SG	SG	SG
23		-	0.00					
24		-	0.00					
25		-	0.00					
26		-	0.00					
27		-	0.00					
28	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
29	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
31	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
32	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
33	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
34	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
35	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
36	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
37	0.00	-	0.00	1.00	5.00	0.00	1.67	0.00
38	0.00	-	2.00	1.00	5.00	0.00	2.33	0.00
39	0.00	-	1.00	1.00	10.00	0.00	6.67	0.00
40	0.00	1.00	2.00	2.00	15.00	0.00	10.33	0.00
41	0.00	1.00	1.00	1.00	10.00	0.00	7.33	0.00
42	0.00	0.00	2.00	2.00	20.00	0.00	12.67	0.00
43	0.00	1.00	1.00	3.00	15.00	0.00	8.33	0.00
44	0.00			1.00	5.00	0.00	2.67	0.00
45	0.00			2.00	0.00	25.00	0.00	17.33
46	0.00			0.00	0.00	0.00	0.00	0.00

BT –Bathinda; FA- Faridkot; HI- Hisar; SR- Sirsa; SG – Sriganganagar;

Table: 96. Ent 2. Seasonal dynamics of key pests of cotton (Trap catches) under Unprotected condition to develop suitable forecasting model in North Zone – RS2013

Standard week	Trap catches												
	H. armigera			PBW				SBW			S. litura		TC
	HI	SR	SG	BT	HI	SR	SG	HI	SR	SG	HI	SG	SR
22		3.2	0.00			1.23	0.00		10	0.00		9.00	2.1
23	-	2.1	0.00	-	-	3.21	0.00	-	5.4	0.00	-	7.00	3.65
24	-	2.27	0.00	-	-	4.25	0.00	-	3	0.00	-	13.00	4.42
25	-	3.12	0.00	-	-	1.68	0.00	-	2.06	0.00	-	24.00	6.86
26	0.00	1.98	8.00	-	0.00	3.00	0.00	0.00	1.28	4.00	55.00	39.00	9.02
27	0.00	0.52	0.00	-	0.00	1.22	0.00	2.00	0	3.00	110.00	293.00	3.86
28	0.00	0.84	0.00	-	0.00	3.10	0.00	1.00	0	6.00	85.00	43.00	2.68
29	2.00	1.14	6.00	-	0.00	2.43	0.00	3.00	0.5	2.00	50.00	27.00	6.92
30	0.00	0.5	0.00	-	0.00	25.24	1.00	1.00	0	4.00	20.00	35.00	3.4
31	2.00	1.26	0.00	-	1.00	34.32	0.00	4.00	0.58	6.00	95.00	152.00	5.54
32	0.00	1.96	2.00	-	0.00	22.40	3.00	1.00	0	14.00	75.00	37.00	4.2
33	1.00	3.00	0.00	-	0.00	16.45	1.00	0.00	1.6	7.00	12.00	89.00	5.68
34	2.00	1.48	0.00	0.00	0.00	14.20	0.00	0.00	0	12.00	15.00	203.00	3.4
35	2.00	0.93	0.00	2.00	0.00	10.11	4.00	0.00	3.86	8.00	25.00	126.00	3.54
36	1.00	0.78	0.00	1.00	0.00	14.20	8.00	0.00	1.56	26.00	30.00	93.00	2
37	1.00	1.45	4.00	1.00	0.00	9.22	5.00	1.00	2	32.00	42.00	137.00	2.8
38	2.00	2.8	0.00	3.00	2.00	15.11	3.00	0.00	2.66	14.00	15.00	259.00	3.5
39	4.00	2	1.00	4.00	0.00	18.22	1.00	1.00	1.23	9.00	10.00	102.00	4.22
40	2.00	0.72	2.00	5.00	0.00	24.20	12.00	1.00	1.98	174.00	15.00	86.00	3.3
41	6.00	1.65	0.00	7.00	9.00	20.22	8.00	2.00	2.4	95.00	110.00	39.00	2.08
42	1.00	0.78	0.00	5.00	3.00	10.22	21.00	3.00	3.2	83.00	66.00	343.00	2.58
43	6.00	2.1	0.00	5.00	3.00	9.44	23.00	1.00	5.39	57.00	60.00	207.00	4.48
44			0.00				15.00			48.00		184.00	
45			0.00				24.00			92.00		401.00	
46			0.00				32.00			116.00		138.00	

BT –Bathinda; FA- Faridkot; HI- Hisar; SR- Sirsa; SG – Sriganganagar;

Table:97. Ent 2. Seasonal dynamics of key pests of cotton (Abiotic factors) under Unprotected condition to develop suitable forecasting model in North Zone during 2020-21 in RS 2013

Standard week	Temperature (^{0}C)										Relative Humidity(%)									
	BT		FA		HI		SR		SG		BT		FA		HI		SR		SG	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Morning	Evening	Morning	Evening	Morning	Evening	Morning	Evening	Morning	Evening
22							36.9	24.7	37.20	24.07							67.3	38.6	71.14	42.57
23	43.80	26.17	36.3	24.5	36.6	24.6	38.4	26.4	40.07	25.11	46.86	23.86	68.4	43.0	72	41	67.1	39	66.57	48.57
24	42.74	25.80	41.2	28.1	41.5	27.3	42.9	30.1	43.87	26.97	52.43	36.86	58.0	30.1	66	32	56.1	28.4	58.43	33.43
25	36.90	25.16	40.0	29.3	39.7	27.0	40.6	29.9	43.27	30.54	66.86	46.43	64.7	42.1	73	40	61	40	54.29	38.57
26	39.99	27.49	35.8	28.3	37.4	28.3	38.6	29.8	39.89	28.50	57.57	42.29	73.1	57.1	74	54	73.9	47.7	59.29	50.71
27	37.29	26.10	36.7	28.4	38.7	27.9	38.8	29.3	41.16	28.86	69.43	65.00	75.1	52.6	80	55	74.6	48.3	68.14	38.57
28	37.27	27.07	34.7	26.0	36.0	26.5	37.0	26.7	39.73	27.61	78.57	61.57	83.3	62.9	89	64	78.9	51.6	75.86	53.57
29	34.61	25.21	32.8	25.8	34.6	25.9	34.8	26.2	36.79	26.40	81.71	71.43	89.6	67.9	92	75	87.3	61.1	82.29	66.00
30	34.63	25.57	35.6	27.9	34.5	26.8	36.4	27.0	37.76	27.31	86.14	69.14	81.0	59.3	87	60	74.9	55.6	77.57	70.71
31	34.32	25.45	35.9	28.1	36.4	27.0	36.5	26.9	37.40	27.37	87.83	67.83	79.6	59.1	84	66	72.1	60.1	78.14	70.00
32	35.78	26.30	35.9	28.1	35.3	27.5	36.5	26.8	37.23	27.93	80.50	57.33	81.6	66.7	88	62	78.4	60.3	80.00	70.57
33	33.32	25.07	34.7	27.8	35.3	26.9	36.1	26.5	37.69	27.46	84.83	73.33	85.4	68.1	90	77	84.1	60.4	82.71	75.29
34	36.87	26.27	32.7	25.6	32.6	25.4	33.4	26.1	33.84	25.51	88.33	58.67	87.3	72.1	91	76	85.3	73.1	84.14	69.43
35	36.30	27.22	31.8	26.0	33.9	25.6	33.9	25.8	32.70	25.21	84.00	62.67	87.7	72.1	90	64	86.3	61.9	89.29	71.86
36	35.97	27.12	32.3	25.1	34.2	25.1	34.8	25.7	34.81	24.84	83.50	61.50	90.1	74.6	94	67	87.7	61	90.14	72.00
37	37.03	26.52	36.2	26.4	36.3	24.9	37.0	27.1	39.19	25.30	83.50	59.33	86.0	56.1	88	49	80	51.7	76.43	45.00
38	34.50	24.43	36.0	24.7	37.6	24.7	36.6	26.9	38.97	24.37	81.33	66.00	86.0	52.7	87	48	71.7	54.4	81.29	42.14
39	32.17	23.37	35.0	23.3	36.9	22.3	36.3	25.8	38.56	22.77	87.17	68.17	81.0	43.7	85	39	67.1	42.9	73.43	38.43
40	30.74	19.76	34.9	18.4	36.6	18.2	36.2	25.1	37.71	18.01	86.60	57.20	86.0	34.1	79	29	83.7	50.7	77.71	27.43
41	33.03	19.07	35.4	16.6	35.6	16.3	35.6	23.0	37.27	15.81	83.50	51.50	89.4	28.4	86	28	66.1	30.3	82.71	40.57
42	31.55	18.17			34.2	13.7	34.0	18.4	35.11	13.09	79.50	52.67			76	22	59.1	25.7	80.86	38.57
43	32.23	14.93			33.0	12.8	32.1	16.8	32.26	11.70	83.17	42.67			80	26	63.3	29.3	81.14	40.57
44									31.37	9.66									84.71	33.14
45									31.44	9.04									82.00	44.86
46									26.44	10.21									79.86	57.71

BT –Bathinda; FA- Faridkot; HI- Hisar; SR- Sirsa; SG – Sriganganagar

Table: 98.Ent 2. Seasonal dynamics of key pests of cotton (Abiotic factors- Rainfall) under Unprotected condition to develop suitable forecasting model in North Zone during 2020-21 RS 2013

Standard week	Abiotic factors				
	Rainfall in mm				
	BT	FA	HI	SR	SG
22				42.1	16.20
23	0.00	10.4	2.20	5.6	0.00
24	0.00	0.0	0.00	0	19.20
25	32.00	0.0	29.20	0	0.00
26	0.00	5.6	14.00	10.2	0.00
27	52.00	11.4	8.70	22	1.80
28	18.00	91.1	38.40	24	50.00
29	288.00	120.6	111.10	89.3	34.60
30	39.40	0.00	14.70	0	4.20
31	5.20	2.8	0.00	0	40.60
32	0.00	37.4	32.80	16.2	28.60
33	27.40	17.0	17.50	0	46.80
34	0.00	25.8	11.70	18.3	38.00
35	9.80	84.6	0.00	2	29.20
36	1.00	118.5	32.50	40.8	5.20
37	0.00	0.0	0.00	0	0.00
38	42.00	0.0	7.00	0	0.00
39	3.00	0.0	0.00	0	0.00
40	5.00	0.0	0.00	0	0.00
41	0.00	0.0	0.00	0	0.00
42	7.20		0.00	0	0.00
43	0.00		0.00	0	0.00
44					0.00
45					0.00
46					1.00

BT –Bathinda; FA- Faridkot; HI- Hisar; SR- Sirsa; SG – Sriganganagar

Table: 99. Ent 2. Seasonal dynamics of key pests of cotton (Sucking Pests) under unprotected condition to develop suitable forecasting model in North Zone in HS

Standard week	Sucking Pests																				
	Jassid / 3 leaves					Whitefly / 3 leaves					Thrips / 3 leaves					Aphids / 3 leaves				Natural Enemies/ plant	
	BT	FA	HI	SR	SG	BT	FA	HI	SR	SG	BT	FA	HI	SR	SG	BT	FA	HI	SG	HI	SR
22				0.40	0.00				0.10	8.20				1.20	11.87				0.00		0.24
23	-	0.3	1.00	0.00	0.67	-	1.1	5.60	0.00	10.66	-	6.9	4.13	1.10	15.33	-	0.0	0.00	0.00	1.00	0.28
24	0.00	1.0	3.00	0.40	1.03	1.30	0.5	5.67	0.50	7.33	4.20	10.9	8.47	9.40	9.67	0.00	0.0	0.00	0.00	3.00	0.36
25	0.30	0.4	1.67	1.00	1.27	3.20	5.3	19.53	3.30	9.13	10.40	12.7	9.00	8.40	21.47	0.00	0.0	0.00	0.00	1.67	0.20
26	0.70	1.2	4.47	2.80	1.53	7.00	7.8	20.07	6.20	12.87	13.00	21.1	18.10	28.80	39.33	0.00	0.0	0.00	0.00	4.47	0.38
27	0.20	3.9	6.73	3.20	1.60	1.50	6.8	24.13	17.90	22.11	9.80	30.7	63.10	41.10	58.67	0.00	0.0	0.00	0.00	6.73	0.64
28	2.80	4.1	7.40	5.20	0.80	19.40	12.2	63.60	9.20	26.00	18.50	26.4	90.97	26.40	47.33	0.00	0.0	0.00	0.00	7.40	0.14
29	3.90	4.6	7.13	3.20	0.78	8.50	9.3	71.20	18.50	27.79	46.70	25.5	92.27	41.10	38.73	0.00	0.0	0.00	0.00	7.13	0.04
30	4.50	5.7	13.27	4.50	1.78	11.30	12.0	104.20	10.90	52.53	37.60	21.8	175.5	66.10	32.57	0.00	0.0	0.00	0.00	13.27	1.28
31	2.30	6.6	12.60	8.30	0.76	46.50	18.2	180.60	11.40	56.43	54.60	44.5	111.0	69.30	41.36	0.00	0.0	0.00	0.00	12.60	0.62
32	3.10	1.2	6.33	7.70	1.93	19.10	5.9	247.00	11.50	42.87	40.40	14.3	142.6	29.40	27.47	0.00	0.0	0.00	0.00	6.33	0.22
33	4.90	1.4	2.87	9.00	2.43	15.50	8.9	161.20	10.60	68.33	19.80	13.3	12.13	16.50	15.87	0.00	0.0	0.00	0.00	2.87	0.22
34	4.30	1.7	6.40	3.67	2.22	9.90	8.2	177.00	5.00	44.77	6.20	11.2	8.13	4.80	7.57	0.00	0.0	0.00	0.00	6.40	0.24
35	4.90	1.1	2.27	4.30	3.10	12.80	5.8	204.27	16.90	31.40	5.40	6.2	2.40	0.50	6.40	0.00	0.0	0.00	0.00	2.27	0.02
36	1.10	0.7	2.07	1.30	2.00	10.00	7.1	170.20	47.90	28.11	0.00	0.3	2.27	0.30	1.77	0.00	0.0	0.00	0.00	2.07	0.48
37	0.50	0.5	0.40	1.40	1.67	23.10	9.9	287.40	30.70	37.20	0.00	0.0	0.60	0.00	3.11	0.00	0.0	0.00	0.00	0.40	0.38
38	1.70	0.7	0.40	0.40	0.47	26.60	9.6	278.93	48.10	80.67	0.00	0.0	0.67	0.00	2.11	0.00	0.0	0.00	0.00	0.40	0.40
39	1.50	0.0	0.33	0.20	0.20	18.30	7.1	187.13	38.10	49.87	0.00	0.0	1.33	0.00	9.00	0.00	0.0	0.00	0.00	0.33	0.40
40	3.10	0.0	0.07	0.30	1.11	16.20	7.8	149.53	11.00	21.67	0.00	0.0	0.87	0.00	2.67	0.00	0.0	0.00	0.00	0.07	0.34
41	2.40	0.0	0.40	0.00	0.47	12.20	7.2	89.73	9.90	17.43	0.00	0.0	1.67	0.00	7.00	0.00	0.0	0.00	0.00	0.40	0.22
42	1.00		0.53	0.20	0.22	8.60		43.33	6.20	12.33	0.00		1.67	0.00	3.00	0.00		0.00	0.00	0.53	0.22
43	0.00		0.67	0.00	0.33	2.40		34.47	5.30	8.76	0.00		1.93	0.00	3.33	0.00		0.00	0.00	0.67	0.32
44					0.00					0.00					0.00				0.00		
45					0.00					0.00					0.00				0.00		
46					0.00					0.00					0.00				0.00		

Table: 100. Ent 2. Seasonal dynamics of key pests of cotton (Bollworms) under unprotected condition to develop suitable forecasting model in North Zone during 2020-21 in HS 6

Standard week	Predators/ plant*			H. armigera									Eariasspp larvae/ 5 plants				S. litura larvae/ 5 plants				Parasitism on bollworms (%)	Fruiting body damage (%)				
				Eggs / 5 plants				Larvae/5 plants			Eggs / 5plants	Larvae / 5 plants	HI	SR	SG	BT	FA	SR	SG	BT	SG	H. armigera SG	E. vittella SG			
	BT	FA	SG	HI	SR	BT	FA	HI	SR	BT	SG													HI	SR	FA
22			0.2		0.0				0.0		0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0	0.00		0.0	
23	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	0.0	-	0.0	0.0	-	-	0.0	0.0	-	0.0	0.0	0.00	-	0.0	-
24	0.0	0.0	0.4	0.0	0.0	-	-	0.0	0.0	-	0.0	0.0	-	0.0	0.0	-	-	0.0	0.0	-	0.0	0.0	0.00	-	0.0	-
25	0.0	0.0	0.4	0.0	0.0	-	-	0.0	0.0	-	0.0	0.0	-	0.0	0.0	-	-	0.0	0.0	-	0.0	0.0	0.00	-	0.0	-
26	2.4	0.0	1.2	0.0	0.0	-	-	0.0	0.0	-	0.0	0.0	-	0.0	0.0	-	-	0.0	0.0	-	0.0	0.0	0.00	-	0.0	-
27	2.9	3.3	1.6	0.0	0.0	-	-	0.0	0.0	-	0.0	0.0	-	0.0	0.0	-	-	0.0	0.0	-	0.0	0.0	0.00	-	0.0	-
28	3.6	3.3	1.8	0.0	0.0	-	-	0.0	0.0	-	0.0	0.0	-	0.0	0.0	-	-	0.0	0.0	-	0.0	0.0	0.00	0.00	0.0	-
29	2.0	3.2	2.2	0.0	0.0	-	-	0.0	0.0	-	0.0	0.0	-	0.0	0.0	-	-	0.0	0.0	-	0.0	0.0	0.00	0.00	0.0	-
30	2.2	5.2	2.6	0.0	0.0	-	-	0.0	0.0	-	0.0	0.0	-	0.0	1.0	-	-	0.0	0.0	-	0.0	0.0	0.00	0.00	0.0	-
31	3.0	8.4	3.2	0.0	0.0	0.0	-	0.0	0.0	-	0.0	0.0	-	0.0	0.0	0.2	-	0.0	0.0	-	0.0	0.0	0.00	0.00	0.0	-
32	3.6	9.2	2.8	0.0	0.0	0.0	-	0.0	0.0	0.4	0.0	0.0	1.0	0.0	0.0	0.0	-	0.0	0.0	-	0.0	0.0	0.00	2.00	0.0	-
33	1.9	7.8	4.6	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.2	-	0.0	0.0	-	0.0	0.0	10.0	4.00	0.0	-
34	1.1	8.6	3.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.2	-	0.0	0.0	0.20	0.0	0.0	5.00	6.00	0.0	-
35	1.5	9.3	2.4	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	0	0.0	1.0	0.0	-	0.0	0.0	0.00	0.0	0.0	20.0	4.00	0.3	-
36	1.0	7.1	1.6	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0	0.0	3.0	0.0	1.0	0.0	0.0	0.20	0.0	0.0	15.0	6.00	3.2	1.5
37	0.9	7.0	2.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0	0.1	2.0	0.0	1.4	0.0	0.0	0.20	0.0	0.0	25.0	2.00	11.7	2.8
38	0.8	9.2	2.2	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	1.0	0.0	2.0	0.0	0.0	0.20	0.0	0.0	15.0	8.00	18.1	3.6
39	0.6	6.0	1.8	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	3.0	1.4	2.0	0.2	1.6	0.0	0.0	0.20	0.0	0.0	25.0	6.00	6.17	4.9
40	0.6	2.8	0.8	0.0	0.0	-	-	0.0	0.0	-	0.0	0.0	0.0	1.2	3.0	-	1.8	0.0	0.0	0.00	0.0	0.0	30.0	6.00	4.15	4.4
41	0.2	2.4	0.4	0.0	0.0	-	-	0.0	0.0	-	0.0	0.0	1.0	0.8	4.0	-	1.0	0.0	0.0	0.00	0.0	0.0	25.0	10.00	3.45	3.9
42	0.0		0.2	0.0	0.0	-		0.0	0.0	-	0.0	0.0	4.0	0.7	2.0	-		0.0	0.0	-	0.0	0.0	25.0	12.00	4.22	
43	0.0		0.4	0.0	0.0	-		0.0	0.0	-	0.0	0.0	1	0.8	3.0	-		0.0	0.0	-	0.0	0.0	20.0	6.00	5.26	
44			0.0								0.0	0.0			2.0				0.0		0.0	0.0	15.0			
45			0.0								0.0	0.0			0.0				0.0		0.0	0.0	0.00			
46			0.0								0.0	0.0			0.0				0.0		0.0	0.0	0.00			

Table: 101.Ent 2. Seasonal dynamics of key pests of cotton (Boll damage) under Unprotected condition to develop suitable forecasting model in North Zone during 2020-21 in HS-6

Standard week	Flower damage/ 50 flowers (%)	Pink bollworm larvae/ 20 green bolls				Boll damage on boll basis		Boll damage on locule basis	
						Green boll damage/20 bolls (%)	Open boll Damage/ 20 bolls (%)	Locule damage in 20 green bolls (%)	Open boll Loculedamage in 20 bolls (%)
	SG	BT	HI	SG	FA	SG	SG	SG	SG
23		-	0.00		-				
24		-	0.00		-				
25		-	0.00		-				
26		-	0.00		-				
27		-	0.00		-				
28	0.00	-	0.00	0.00	-	0.00	0.00	0.00	0.00
29	0.00	-	0.00	0.00	-	0.00	0.00	0.00	0.00
30	0.00	-	0.00	0.00	-	0.00	0.00	0.00	0.00
31	0.00	-	0.00	0.00	-	0.00	0.00	0.00	0.00
32	0.00	-	0.00	0.00	-	0.00	0.00	0.00	0.00
33	0.00	-	0.00	0.00	-	0.00	0.00	0.00	0.00
34	0.00	-	0.00	0.00	-	0.00	0.00	0.00	0.00
35	0.00	-	0.00	0.00	-	0.00	0.00	0.00	0.00
36	0.00	-	0.00	0.00	-	0.00	0.00	0.00	0.00
37	0.00	-	0.00	0.00	-	0.00	0.00	0.00	0.00
38	0.00	-	1.00	1.00	-	5.00	0.00	2.43	0.00
39	0.00	0.00	1.00	2.00	3.00	15.00	0.00	8.87	0.00
40	0.00	1.00	3.00	1.00	-	10.00	0.00	6.26	0.00
41	0.00	1.00	2.00	2.00	4.00	5.00	0.00	3.27	0.00
42	0.00	0.00	2.00	3.00		20.00	0.00	13.63	0.00
43	0.00	0.00	2.00	1.00		10.00	0.00	5.83	0.00
44	0.00			1.00		15.00	0.00	8.76	0.00
45	0.00			2.00		0.00	25.00	0.00	17.67
46	0.00			0.00		0.00	0.00	0.00	0.00

BT –Bathinda; FA- Faridkot; HI- Hisar; SR- Sirsa; SG – Sriganganagar;

Table: 102. Ent 2. Seasonal dynamics of key pests of cotton (Trap catches) under Unprotected condition to develop suitable forecasting model in North Zone – HS 6

Standard week	Trap catches / week																			
	H. armigera					PBW					SBW					S. litura				TC
	FA	HI	SR	SG	BT	BT	HI	SR	SG	FA	FA	HI	SR	SG	BT	FA	HI	SG	BT	SR
22			3.2	0.00				1.23	0.00				10	0.00				9.00		2.1
23	0.0	-	2.1	0.00	-	-	-	3.21	0.00	0.0	0.0	-	5.4	0.00	-	26.0	-	7.00	-	3.65
24	7.0	-	2.27	0.00	-	-	-	4.25	0.00	0.0	0.0	-	3	0.00	-	33.0	-	13.00	-	4.42
25	12.0	-	3.12	0.00	2.00	-	-	1.68	0.00	0.0	0.0	-	2.06	0.00	1.00	35.0	-	24.00	0.00	6.86
26	18.0	0.00	1.98	8.00	2.00	-	0.00	3.00	0.00	0.0	0.0	1.00	1.28	4.00	2.00	40.0	85.00	39.00	0.00	9.02
27	8.0	0.00	0.52	0.00	0.00	-	0.00	1.22	0.00	0.0	0.0	0.00	0	3.00	0.00	38.0	110.00	293.00	0.00	3.86
28	13.0	1.00	0.84	0.00	0.00	-	0.00	3.10	0.00	0.0	0.0	0.00	0	6.00	3.00	40.0	50.00	43.00	2.00	2.68
29	8.0	3.00	1.14	6.00	0.00	-	2.00	2.43	0.00	0.0	0.0	4.00	0.5	2.00	4.00	22.0	104.00	27.00	2.00	6.92
30	5.0	0.00	0.5	0.00	3.00	-	1.00	25.24	1.00	0.0	0.0	5.00	0	4.00	0.00	10.0	15.00	35.00	0.00	3.4
31	0.0	0.00	1.26	0.00	1.00	-	1.00	34.32	0.00	0.0	0.0	0.00	0.58	6.00	2.00	0.0	110.00	152.00	2.00	5.54
32	0.0	0.00	1.96	2.00	0.00	-	0.00	22.40	3.00	0.0	0.0	0.00	0	14.00	6.00	32.0	85.00	37.00	3.00	4.2
33	2.0	5.00	3.00	0.00	4.00	-	0.00	16.45	1.00	0.0	0.0	5.00	1.6	7.00	5.00	28.0	20.00	89.00	6.00	5.68
34	0.0	4.00	1.48	0.00	0.00	-	0.00	14.20	0.00	0.0	6.0	3.00	0	12.00	6.00	11.0	20.00	203.00	12.00	3.4
35	0.0	0.00	0.93	0.00	0.00	0.00	0.00	10.11	4.00	0.0	0.0	0.00	3.86	8.00	4.00	28.0	15.00	126.00	7.00	3.54
36	0.0	0.00	0.78	0.00	3.00	1.00	0.00	14.20	8.00	0.0	0.0	0.00	1.56	26.00	16.00	22.0	20.00	93.00	6.00	2
37	1.0	1.00	1.45	4.00	1.00	1.00	1.00	9.22	5.00	0.0	20.0	0.00	2	32.00	6.00	18.0	30.00	137.00	10.00	2.8
38	0.0	2.00	2.8	0.00	3.00	1.00	5.00	15.11	3.00	4.0	15.0	1.00	2.66	14.00	14.00	35.0	65.00	259.00	12.00	3.5
39	1.0	4.00	2	1.00	1.00	4.00	2.00	18.22	1.00	10.0	29.0	2.00	1.23	9.00	12.00	18.0	35.00	102.00	6.00	4.22
40	3.0	2.00	0.72	2.00	0.00	2.00	3.00	24.20	12.00	9.0	26.0	1.00	1.98	174.00	19.00	12.0	55.00	86.00	6.00	3.3
41	2.0	4.00	1.65	0.00	-	2.00	4.00	20.22	8.00	8.0	11.0	4.00	2.4	95.00	13.00	14.0	78.00	39.00	12.00	2.08
42		4.00	0.78	0.00	-	4.00	3.00	10.22	21.00			1.00	3.2	83.00	11.00		38.00	343.00	6.00	2.58
43		2.00	2.1	0.00	-	-	4.00	9.44	23.00			2.00	5.39	57.00	-		66.00	207.00	0.00	4.48
44				0.00					15.00					48.00				184.00		
45				0.00					24.00					92.00				401.00		
46				0.00					32.00					116.00				138.00		

BT –Bathinda; FA- Faridkot; HI- Hisar; SR- Sirsa; SG – Sriganganagar

Table: 103. Ent 2. Seasonal dynamics of key pests of cotton (Abiotic factors) under Unprotected condition to develop suitable forecasting model in North Zone during 2020-21 in HS 6

Standard week	Abiotic factors																			
	Temperature (^{0}C)										Relative Humidity(%)									
	BT		FA		HI		SR		SG		BT		FA		HI		SR		SG	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Morning	Evening	Morning	Evening	Morning	Evening	Morning	Evening	Morning	Evening
22							36.9	24.7	37.20	24.07							67.3	38.6	71.14	42.57
23	43.80	26.17	36.3	24.5	36.6	24.6	38.4	26.4	40.07	25.11	46.86	23.86	68.4	43.0	72	41	67.1	39	66.57	48.57
24	42.74	25.80	41.2	28.1	41.5	27.3	42.9	30.1	43.87	26.97	52.43	36.86	58.0	30.1	66	32	56.1	28.4	58.43	33.43
25	36.90	25.16	40.0	29.3	39.7	27.0	40.6	29.9	43.27	30.54	66.86	46.43	64.7	42.1	73	40	61	40	54.29	38.57
26	39.99	27.49	35.8	28.3	37.4	28.3	38.6	29.8	39.89	28.50	57.57	42.29	73.1	57.1	74	54	73.9	47.7	59.29	50.71
27	37.29	26.10	36.7	28.4	38.7	27.9	38.8	29.3	41.16	28.86	69.43	65.00	75.1	52.6	80	55	74.6	48.3	68.14	38.57
28	37.27	27.07	34.7	26.0	36.0	26.5	37.0	26.7	39.73	27.61	78.57	61.57	83.3	62.9	89	64	78.9	51.6	75.86	53.57
29	34.61	25.21	32.8	25.8	34.6	25.9	34.8	26.2	36.79	26.40	81.71	71.43	89.6	67.9	92	75	87.3	61.1	82.29	66.00
30	34.63	25.57	35.6	27.9	34.5	26.8	36.4	27.0	37.76	27.31	86.14	69.14	81.0	59.3	87	60	74.9	55.6	77.57	70.71
31	34.32	25.45	35.9	28.1	36.4	27.0	36.5	26.9	37.40	27.37	87.83	67.83	79.6	59.1	84	66	72.1	60.1	78.14	70.00
32	35.78	26.30	35.9	28.1	35.3	27.5	36.5	26.8	37.23	27.93	80.50	57.33	81.6	66.7	88	62	78.4	60.3	80.00	70.57
33	33.32	25.07	34.7	27.8	35.3	26.9	36.1	26.5	37.69	27.46	84.83	73.33	85.4	68.1	90	77	84.1	60.4	82.71	75.29
34	36.87	26.27	32.7	25.6	32.6	25.4	33.4	26.1	33.84	25.51	88.33	58.67	87.3	72.1	91	76	85.3	73.1	84.14	69.43
35	36.30	27.22	31.8	26.0	33.9	25.6	33.9	25.8	32.70	25.21	84.00	62.67	87.7	72.1	90	64	86.3	61.9	89.29	71.86
36	35.97	27.12	32.3	25.1	34.2	25.1	34.8	25.7	34.81	24.84	83.50	61.50	90.1	74.6	94	67	87.7	61	90.14	72.00
37	37.03	26.52	36.2	26.4	36.3	24.9	37.0	27.1	39.19	25.30	83.50	59.33	86.0	56.1	88	49	80	51.7	76.43	45.00
38	34.50	24.43	36.0	24.7	37.6	24.7	36.6	26.9	38.97	24.37	81.33	66.00	86.0	52.7	87	48	71.7	54.4	81.29	42.14
39	32.17	23.37	35.0	23.3	36.9	22.3	36.3	25.8	38.56	22.77	87.17	68.17	81.0	43.7	85	39	67.1	42.9	73.43	38.43
40	30.74	19.76	34.9	18.4	36.6	18.2	36.2	25.1	37.71	18.01	86.60	57.20	86.0	34.1	79	29	83.7	50.7	77.71	27.43
41	33.03	19.07	35.4	16.6	35.6	16.3	35.6	23.0	37.27	15.81	83.50	51.50	89.4	28.4	86	28	66.1	30.3	82.71	40.57
42	31.55	18.17			34.2	13.7	34.0	18.4	35.11	13.09	79.50	52.67			76	22	59.1	25.7	80.86	38.57
43	32.23	14.93			33.0	12.8	32.1	16.8	32.26	11.70	83.17	42.67			80	26	63.3	29.3	81.14	40.57
44									31.37	9.66									84.71	33.14
45									31.44	9.04									82.00	44.86
46									26.44	10.21									79.86	57.71

BT –Bathinda; FA- Faridkot; HI- Hisar; SR- Sirsa; SG – Sriganganagar

Table: 104. Ent 2. Seasonal dynamics of key pests of cotton (Abiotic factors- Rainfall) under Unprotected condition to develop suitable forecasting model in North Zone during 2020-21 HS 6

Standard week	Abiotic factors				
	Rainfall in mm				
	BT	FA	HI	SR	SG
22				42.1	16.20
23	0.00	10.4	2.20	5.6	0.00
24	0.00	0.0	0.00	0	19.20
25	32.00	0.0	29.20	0	0.00
26	0.00	5.6	14.00	10.2	0.00
27	52.00	11.4	8.70	22	1.80
28	18.00	91.1	38.40	24	50.00
29	288.00	120.6	111.10	89.3	34.60
30	39.40	0.00	14.70	0	4.20
31	5.20	2.8	0.00	0	40.60
32	0.00	37.4	32.80	16.2	28.60
33	27.40	17.0	17.50	0	46.80
34	0.00	25.8	11.70	18.3	38.00
35	9.80	84.6	0.00	2	29.20
36	1.00	118.5	32.50	40.8	5.20
37	0.00	0.0	0.00	0	0.00
38	42.00	0.0	7.00	0	0.00
39	3.00	0.0	0.00	0	0.00
40	5.00	0.0	0.00	0	0.00
41	0.00	0.0	0.00	0	0.00
42	7.20		0.00	0	0.00
43	0.00		0.00	0	0.00
44					0.00
45					0.00
46					1.00

BT –Bathinda; FA- Faridkot; HI- Hisar; SR- Sirsa; SG – Sriganganagar

Table: 105 Ent 2. Seasonal dynamics of key pests of cotton (Thrips & Aphids) under Unprotected condition to develop suitable forecasting model in Central Zone – NBt DCH 32 during 2020-21

SMW	Sucking pests															
	Thrips / 3 leaves								Aphids / 3 leaves							
	JU	SU	BH	AK	NA	RA	BA	BW	JU	SU	BH	AK	NA	RA	KH	BW
27	-	-	0.00	-	-	-	-	-	-	-	0.00	-	-	-	-	-
28	-	-	0.00	-	-	25.36	-	-	-	-	0.00	-	-	9.00	-	-
29	-	-	0.00	-	0	16.96	-	-	-	-	0.00	-	30	**6.52**	-	-
30	1.4	2.35	0.00	-	0	1.66	-		0.0	0.00	0.00	-	**55.4**	20.96	-	-
31	1.8	3.85	0.00	-	0	16.96	-	0	0.0	0.00	0.00	-	44.5	26.04	22.40	45.20
32	4.2	5.45	0.00	-	7.2	11.42	-	0	0.0	0.85	0.00	-	20.8	18.06	23.40	23.40
33	6.6	8.85	0.00	-	**10.6**	10.20	-	2	0.2	2.40	0.00	-	16.8	19.80	18.20	33.60
34	12.0	6.55	0.00	4.90	1.6	4.03	-	1.08	3.4	1.40	0.00	0.90	7.8	20.90	21.20	4.08
35	10.5	4.65	0.20	2.90	3.4	**125.36**	-	4.42	1.7	2.80	0.00	0.30	4	24.26	29.20	10.00
36	6.7	11.75	0.80	3.20	5.6	3.81	-	5.02	0.9	3.65	0.00	1.70	14.2	23.52	7.80	6.06
37	3.9	16.80	2.10	5.70	4.6	4.72	-	9.68	0.1	4.65	0.35	0.20	3.8	22.62	27.60	7.20
38	3.9	21.45	4.25	3.00	3.5	1.48	-	6.10	1.2	8.85	0.60	0.30	4	18.06	22.80	0.02
39	3.8	32.60	4.60	0.00	0.6	1.00	-	10.04	5.8	13.65	2.10	0.00	4.4	14.80	23.10	2.00
40	4.8	24.60	6.15	1.00	0.4	0.80	-	5.38	0.2	15.55	5.25	0.00	2.4	12.62	16.40	0.96
41	6.1	28.00	8.40	0.40	1.6	0.74	-	4.00	1.1	23.65	6.40	0.00	0.8	28.64	21.20	0.60
42	1.0	35.70	11.15	0.80	1.8	0.48	-	3.06	4.2	28.80	9.15	0.00	1.2	50.76	24.00	1.00
43	6.0	32.40	17.60	0.20	2.4	0.42	-	2.80	1.8	30.35	7.90	0.00	2.1	70.90	19.20	1.28
44	7.2	26.40	30.20	0.80	1.2	1.08	-	1.08	1.8	35.45	9.55	0.70	1.9	53.98	26.60	1.52
45	6.7	18.40	26.75	1.30	0.9	0.58	-	2.00	7.8	38.65	16.35	0.90	1.5	**104.50**	28.80	1.00
46	3.6	11.90	7.35	1.60	0.9	**1.54**	-	2.10	5.0	41.55	22.15	0.30	1.4	83.46	15.60	1.02
47	7.5	7.65	2.20	0.70	0.6	1.08	-	1.12	11.3	46.45	25.60	0.60	1.8	94.86	15.10	0
48	2.9	8.45	1.15	0.40	0.4	1.04	-	0.96	8.1	48.65	28.25	13.30	0.9	46.00	11.20	0
49	2.9	4.00	1.35	0.60	0	-	-	0.40	17.5	54.75	33.65	13.90	0.7	-	4.20	0
50	4.0	6.00	0.60	0.90	0	-	-	0	8.1	59.95	30.40	9.00	7	-	1.60	0
51	3.5	1.60	0.25	0.60	0	-	-	0	33.0	45.65	27.95	11.20	6.1	-	-	0
52	4.2	2.00	0.30	0.50	0	-	-	0	29.1	38.25	31.50	14.40	-	-	-	0
01	-	-	-	0.60	-	-	-	-	-	-	-	14.30	-	-	-	-
02	-	-	-	0.70	-	-	-	-	-	-	-	13.80	-	-	-	-
03	-	-	-	1.20	-	-	-	-	-	-	-	12.60	-	-	-	-

Table: 106. Ent 2. Seasonal dynamics of key pests of cotton (Leafhopper, whitefly) under Unprotected condition to develop suitable forecasting model in Central Zone – NBt DCH 32 during 2020-21

Standard week	Sucking pests																	
	Jassid / 3 leaves									Whitefly/ 3 leaves								
	KH	RA	BW	JU	SU	BH	AK	NA	BA	KH	RA	BW	JU	SU	BH	AK	NA	BA
27	-	-	-	-	-	0.00	-	-	-	-	-	-	-	-	0.00	-	-	-
28	-	3.00	-	-	-	0.00	-	-	-	-	1.56	-	-	-	0.00	-	-	-
29	-	**7.40**	-	-	-	0.00	-	1	-	-	5.34	-	-	-	0.00	-	10	-
30	-	15.78	-	1.3	2.20	0.00	-	1.8	0.33	-	**1.26**	-	0.9	0.10	0.00	-	**17.6**	-
31	0	**19.16**	0	1.6	2.80	0.00	-	1.6	0.67	0.00	1.23	0	2.7	0.20	0.00	-	1.8	-
32	2.6	9.82	0	3.0	4.55	2.15	-	2	1.33	9.20	2.62	0	3.2	0.80	0.00	-	0.2	-
33	1.6	9.44	1.00	4.2	5.50	5.10	-	1	1.33	12.20	1.74	0	2.4	1.20	0.10	-	0.8	-
34	2.4	10.08	0.08	10.2	5.40	9.45	16.90	0.8	2	14.00	2.86	0.12	2.7	2.40	0.20	3.20	1	-
35	3.1	10.46	3.90	11.0	3.45	8.85	8.30	4.2	2.67	22.60	3.72	0.46	2.3	2.00	0.20	2.90	1.6	-
36	3.6	11.52	4.62	13.9	3.00	10.70	2.90	**5.6**	3.67	7.20	3.80	0.38	5.1	1.60	0.40	7.40	6.2	2.33
37	5.8	7.02	8.02	4.3	3.85	5.80	6.60	1.8	4.33	26.40	5.64	0.40	4.8	3.20	0.65	5.70	4.2	4.67
38	3.4	5.20	5.48	6.4	6.85	8.65	15.00	1	5.33	24.20	3.26	0.16	3.7	3.65	0.85	6.60	3.2	7
39	2.4	7.90	14.08	7.1	9.55	13.80	12.20	0.8	5	18.30	3.10	1.36	5.5	4.50	0.70	2.90	0.8	8.33
40	4.8	8.04	12.96	6.9	13.90	15.20	6.20	0.4	5.67	23.80	3.20	1.00	5.1	4.00	1.45	3.60	0.4	10.67
41	6.2	7.58	19.12	9.2	18.75	10.60	3.90	2.2	6	25.97	**9.18**	1.38	7.5	6.20	1.90	1.70	0.6	13.67
42	6.8	6.88	18.08	8.5	22.45	12.45	3.60	2.4	5.67	17.20	6.46	1.40	3.7	5.75	1.60	2.50	0.8	15.33
43	4.2	5.18	8.20	10.7	25.85	21.30	4.20	1.9	5.67	13.60	4.40	2.10	4.7	3.50	1.85	2.30	1.1	16
44	5.4	5.50	5.04	10.5	26.35	12.90	3.30	1.4	5	12.20	4.90	2.48	6.0	4.85	3.25	2.70	2.5	18.67
45	6.6	7.08	3.10	10.2	28.20	9.65	3.40	1.1	4.67	30.40	4.56	4.68	4.5	7.45	2.70	4.00	3.1	20.33
46	2	4.06	1.08	5.3	24.30	12.25	5.10	1.9	6	14.30	3.58	5.12	4.0	8.00	6.15	3.10	2.5	22.33
47	2.2	5.34	1.16	8.8	26.40	7.40	2.40	1.4	7.67	16.20	4.24	3.20	4.0	3.25	6.90	2.00	1.5	23
48	1.8	5.60	0.60	4.9	23.40	6.15	3.60	1	5.33	8.20	4.70	1.52	4.9	3.00	9.55	2.60	1.2	23.33
49	0.6	-	0	6.0	18.00	6.45	3.20	0.5	5	7.60	-	1.00	3.8	1.65	6.30	2.80	1	20
50	1.2	-	0	11.3	11.40	4.90	1.80	0	3.67	4.30	-	0.06	5.5	0.95	7.15	1.00	0	18.33
51	-	-	0	7.7	8.60	2.65	1.30	0	3	-	-	0	4.4	0.20	4.75	0.60	0	14.67
52	-	-	0	5.3	5.50	1.25	0.30	0	2.33	-	-	0	2.8	0.00	3.20	1.50	0	10.33
01	-	-	-	-	-	-	0.90	-	-	-	-	-	-	-	-	1.80	-	-
02	-	-	-	-	-	-	0.80	-	-	-	-	-	-	-	-	2.00	-	-
03	-	-	-	-	-	-	0.70	-	-	-	-	-	-	-	-	0.60	-	-

BA- Banswara, JU- Junagadh, SU- Surat, BH- Bharuch, AK- Akola, NA- Nanded, RA- Rahuri, KH- Khandwa, BW- Bhawanipatna

Table:107. Ent 2. Seasonal dynamics of key pests of cotton (H. armigera) under Unprotected condition to develop suitable forecasting model in Central Zone – NBt DCH 32 during 2020-21

SMW	Predators/ Plants*									H.armigera													
										Eggs/5 plants	Larvae /5 plants	Larvae /5 plants	Larvae /5 plants	Eggs/5 plants	Larvae /5 plants	Eggs/5 plants	Larvae /5 plants	Eggs/5 plants	Larvae /5 plants	Eggs/5 plants	Larvae /5 plants	Eggs/5 plants	Larvae /5 plants
	BA	**JU**	**SU**	**BH**	**AK**	**NA**	**RA**	**BW**	**KH**	**JU**	**JU**	**SU**	**BH**	**AK**	**AK**	**NA**	**NA**	**RA**	**RA**	**KH**	**KH**	**BW**	**BW**
27	-	-	-	0.10	-	-		-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-
28	-	-	-	0.15	-	-	1.95	-	-	-	-	-	0	-	-	-	-	0.00	0.00	-	-	-	-
29	-	-	-	0.25	-	0.6	1.17	-	-			-	0	-	-	0	0	0.00	0.00	-	-	-	-
30	-	0.2	0.00	0.50	-	0.8	2.48	-	-	0.00	0.00	0.00	0	-	-	0	0	0.53	0.00	-	-	-	-
31	-	0.1	0.10	0.60	-	0.6	3.41	0.10	0	0.00	0.00	0.00	0	-	-	0	0	0.72	0.56	0	0	0.0	0.0
32	-	0.7	0.20	0.60	-	1.8	5.25	1.02	1.2	0.00	0.00	0.00	0	-	-	2	1	0.88	0.72	0	0	0.0	0.0
33	-	0.2	0.30	0.40	-	2.7	4	4.20	0.8	0.00	0.00	0.00	0	-	-	3	1	0.95	1.00	0.2	0	0.0	0.0
34	-	0.5	0.25	0.70	1.60	1.7	2.48	3.44	1	0.00	0.00	0.00	0	0.00	0.00	4	**2**	0.97	**1.23**	0.4	0	0.0	0.0
35		0.2	0.25	0.85	1.60	0.6	4.03	1.12	1.8	0.00	0.25	0.00	0	0.00	0.00	4	1	1.08	0.77	0.6	0	0.0	0.0
36	0.1	0.3	0.45	1.20	1.10	2.6	9.97	1.00	1.6	0.00	0.25	0.20	0.25	0.00	0.00	5	1	1.15	0.65	0.2	0	0.0	0.0
37	0.1	0.2	0.70	1.05	0.80	1	4.53	0.98	1.2	0.00	0.50	0.20	0.75	0.00	0.40	**7**	**2**	1.10	0.50	0.2	0	0.0	0.0
38	0.2	0.3	0.80	1.35	1.00	1.5	3.01	1.48	1.4	0.00	0.75	0.40	0.5	0.00	0.20	4	**2**	1.30	0.33	0	0	0.33	0.0
39	0.2	0.4	0.95	1.65	0.60	1.7	4.19	1.00	1.7	0.00	0.50	1.00	0.5	0.00	0.10	4	**2**	**1.42**	0.40	0.6	0.4	0.66	0.0
40	0.3	0.3	1.30	2.10	0.90	1.8	3.81	2.22	1	0.00	0.75	1.20	1	0.00	1.00	**7**	**2**	1.35	1.03	0.4	0.4	1.66	0.0
41	0.5	0.1	1.35	2.35	1.20	1.9	2.88	1.96	1.3	0.00	0.75	1.60	1	0.00	1.00	4	1	1.38	**1.30**	0.4	0.4	2.00	0.66
42	0.4	0.5	1.45	2.85	0.00	3.1	2.96	1.52	0.8	0.00	0.50	2.00	0	0.00	0.00	2	1	0.82	0.83	0.6	0.2	0.66	1.00
43	0.4	0.3	2.00	2.75	1.00	2.8	6.99	1.12	0.7	0.00	0.25	2.40	0	0.00	0.30	3	0	0.20	0.00	0.6	0.5	0.0	1.00
44	0.3	0.3	2.35	2.30	0.70	2.4	2.27	0.78	1.6	0.00	0.00	2.40	0	0.00	0.00	0	0	0.14	0.00	0	0.2	0.0	1.33
45	0.4	0.3	2.10	1.95	0.70	1.6	3.15	0.52	0.8	0.00	0.00	1.60	0.25	0.00	0.00	1	0	0.00	0.00	0.2	0.4	0.0	0.66
46	0.4	0.2	3.20	1.70	1.00	1.2	2.67	0.20	0.5	0.00	0.25	1.40	0.25	0.00	0.00	0	1	0.00	0.00	0.2	0.2	0.0	0.0
47	0.4	0.7	3.25	1.30	1.10	1.5	2.67	0.26	1.6	0.00	0.75	0.80	0.5	0.00	0.00	1	0	0.00	0.00	0	0	0.0	0.0
48	0.5	0.3	3.30	1.15	0.90	0.8	11.55	0.60	0.4	0.00	0.50	0.60	0.5	0.00	0.00	0	1	0.00	0.00	0.2	0.6	0.0	0.0
49	0.4	0.1	4.00	0.10	1.10	0	-	0.20	0	0.00	0.00	0.40	0.25	0.00	0.00	0	0	-	-	0	0	0.0	0.0
50	0.4	0.3	4.00	0.15	0.90	0	-	0.10	**0**	0.00	0.00	0.00	0.25	0.00	0.00	0	0	-	-	0	0	0.0	0.0
51	0.3	0.4	3.15	0.25	0.10	0	-	0	-	0.00	0.00	0.00	0	0.00	0.00	0	0	-	-	-	-	0.0	0.0
52	0.2	0.4	2.80	0.50	0.90	0	-	0	-	0.00	0.00	0.00	0	0.00	0.00	0	0	-	-	-	-	0.0	0.0
01	-	-	-	-	1.00	-	-	-	-	-	-	-	-	0.00	0.00	-	-	-	-	-	-	-	-
02	-	-	-	-	0.60	-	-	-	-	-	-	-	-	0.00	0.00	-	-	-	-	-	-	-	-
03	-	-	-	-	0.60	-	-	-	-	-	-	-	-	0.00	0.00	-	-	-	-	-	-	-	-

BA- Banswara, JU- Junagadh, SU- Surat, BH- Bharuch, AK- Akola, NA- Nanded, RA- Rahuri, KH- Khandwa, BW- Bhawanipatna

Table:108. Ent 2. Seasonal dynamics of key pests of cotton (Boll worms) under Unprotected condition to develop suitable forecasting model in Central Zone – NBt DCH 32 during 2020-21

Standard week	Earias spp. Larvae / 5 plants								S. litura larvae / 5 plants						parasitism on bollworms(%)
	JU	SU	BH	AK	NA	RA	KH	BW	JU	SU	BH	NA	RA	BW	NA
27	-	-	0	-	-		-	-	-	-	0	-	-	-	-
28	-	-	0	-	-	0.00	-	-	-	-	0	-	0.00	-	-
29	-	-	0	-	0	0.00	-	-	-	-	0	0	0.00	-	0
30	0.00	0.00	0	-	0	0.46	-	-	0.00	0.00	0	0	0.00	-	0
31	0.00	0.00	0	-	0	0.84	0	0.0	0.00	0.00	0	0	0.00	0.0	0
32	0.00	0.00	0	-	0	1.00	0	0.0	0.00	0.00	0	0	0.63	0.0	0
33	0.00	0.00	0	-	1	1.56	0.2	0.0	0.00	0.00	0	1	1.08	0.0	0
34	0.00	0.00	0	0.00	**2**	**1.74**	0.4	0.0	0.00	0.20	0	1	1.44	0.0	0
35	0.00	0.20	0	0.00	1	1.05	0.6	0.0	0.00	0.20	0	0	1.37	0.0	0
36	0.25	0.40	0.75	0.20	1	0.98	0.8	0.0	0.00	0.40	0.5	**2**	1.22	0.0	0.2
37	0.00	0.60	0.25	0.00	1	**1.20**	0.6	0.0	0.00	0.60	1	**2**	1.37	0.0	0.4
38	0.00	0.60	0.5	0.00	0	0.80	0.8	0.0	0.00	0.60	1	1	1.47	0.0	2
39	0.00	1.00	0.5	0.00	1	0.84	0.2	0.0	0.00	0.80	1.5	0	0.90	0.33	4
40	0.00	0.80	1	0.00	0	0.67	0.4	0.66	0.00	1.00	1.75	1	0.70	0.66	2
41	0.00	0.40	0.5	0.00	0	0.00	0.4	1.00	0.00	1.60	1.5	0	1.34	2.00	4
42	0.25	0.40	1	0.00	1	0.00	0.8	1.66	0.00	1.80	1.25	0	0.70	3.66	4
43	0.00	0.00	1	0.00	0	0.00	0.6	1.00	0.00	2.00	0.75	1	0.24	4.33	2
44	0.00	0.00	1	0.00	1	0.00	0.2	0.66	0.00	2.20	1	0	0.00	3.00	**6**
45	0.00	0.00	0.5	0.00	1	0.00	0.6	0.33	0.00	1.60	0.5	0	0.00	2.33	4
46	0.00	0.00	1	0.00	0	0.00	0.2	0.0	0.00	1.00	1	0	0.00	0.66	4
47	0.25	0.00	1	0.00	0	0.00	0	0.0	0.00	0.40	1	0	0.00	0.0	2
48	0.50	0.00	1	0.20	0	0.00	0	0.0	0.00	0.00	0	0	0.00	0.0	**6**
49	0.00	0.00	2	0.00	-	-	-	0.0	0.00	0.00	0	0	-	0	2
50	0.00	0.00	0.25	0.10	-	-	-	0.0	0.00	0.00	0	0	-	0	0
51	0.00	0.00	0.75	0.00	-	-	-	0.0	0.00	0.00	0	0	-	0	0
52	0.00	0.00	0	0.10	-	-	-	0.0	0.00	0.00	0	0	-	0	0
01	-	-	-	0.00	-	-	-	-	-	-	-	-	-	-	-
02	-	-	-	0.00	-	-	-	-	-	-	-	-	-	-	-
03	-	-	-	0.00	-	-	-	-	-	-	-	-	-	-	-

Table: 109. Ent 2. Seasonal dynamics of key pests of cotton (Fruiting body damage) under Unprotected condition to develop suitable forecasting model in Central Zone – NBt DCH 32 during 2020-21

Standard week	**Fruiting body damage (%)											Mean Flower damage/ 50 flowers (%)
	H. armigera			Fruiting Body Damage (%)			H. armigera & E. vittella	E. vittella			PBW	
	SU	AK	NA	RA	KH	BW	SU	SU	AK	NA	NA	NA
28	-	-		0.00	-	-	-	-	-	-	-	-
29	-	-	0.00	0.00	-	-	-	-	-	0.00	0.00	-
30	-	-	0.00	0.00	-	-	0.00	-	-	0.00	0.00	-
31	-	-	0.00	0.00	0	0.0	0.00	-	-	15.00	0.00	-
32	-	-	0.00	0.00	0	0.0	0.00	-	-	18.00	0.00	-
33	-	-	4.20	1.10	0	0.0	0.00	-	-	20.00	0.00	-
34	-	0.00	6.20	1.73	0	0.0	0.00	-	0.00	**22.00**	0.00	-
35	-	0.00	8.20	3.72	0	0.0	0.00	-	0.00	18.00	5.00	-
36	-	0.00	10.40	4.68	0	0.0	1.46	-	0.00	16.00	4.00	-
37	-	0.70	12.80	4.97	0	0.0	2.00	-	0.00	10.00	0.00	-
38	-	2.61	16.40	4.18	0	1.12	4.50	-	0.00	6.00	2.00	-
39	-	0.94	**16.80**	5.20	50	2.26	4.00	-	0.00	2.00	2.00	-
40	-	4.42	4.40	16.40	40	4.40	6.44	-	0.00	0.00	6.00	-
41	-	6.28	2.20	20.10	45	8.62	8.35	-	0.00	0.00	8.00	-
42	-	0.00	2.40	33.20	45	9.00	19.26	-	0.00	2.00	12.00	-
43	-	1.86	0.00	58.67	55	6.72	25.35	-	0.00	0.00	14.00	-
44	-	0.48	0.00	63.10	70	6.00	28.36	-	0.00	0.00	18.00	-
45	-	0.00	0.00	66.77	80	5.12	17.36	-	0.00	4.00	22.00	-
46	-	0.00	2.40	71.14	75	5.04	12.44	-	0.00	0.00	24.00	-
47	-	0.00	2.00	70.44	80	2.96	8.35	-	0.00	0.00	26.00	-
48	-	0.00	2.60	**73.97**	85	3.00	6.45	-	0.47	0.00	28.00	-
49	-	0.00	0.00	-	95	1.84	3.20	-	0.00	0.00	32.00	-
50	-	0.00	0.00	-	90	0.0	0.00	-	3.45	0.00	36.00	-
51	-	0.00	0.00	-	-	0.0	0.00	-	0.00	0.00	**42.00**	-
52	-	0.00	0.00	-	-	0.0	0.00	-	3.28	0.00	**42.00**	-
01	-	0.00	0.00	-	-	-	-	-	0.00			-
02	-	0.00	0.00	-	-	-	-	-	0.00			-
03	-	0.00	0.00	-	-	-	-	-	0.00			-

BA- Banswara, JU- Junagadh, SU- Surat, BH- Bharuch, AK- Akola, NA- Nanded, RA- Rahuri, KH- Khandwa, BW- Bhawanipatna

Table:110. Ent 2. Seasonal dynamics of key pests of cotton (Fruiting body damage) under Unprotected condition to develop suitable forecasting model in Central Zone – NBt DCH 32 during 2020-21

Standard week	Mean Pink bollworm larvae/ 20 green bolls								Boll damage				SCY (Q/ha)
									Green boll damage/ 20 bolls (%)		Locule damage in 20 green bolls (%)		
	JU	SU	BH	AK	NA	RA	KH	BW	AK	NA	AK	NA	NA
27	-	-	0	-	-	-	-	-	-	-	-	-	-
28	-	-	0	-	-	-	-	-	-	-	-	-	-
29	-	-	0	-	0.00	-	-	-	-	0.00	-	0.00	-
30	0.00	0.00	0	-	0.00	-	-	-	-	**0.00**	-	**0.00**	-
31	0.00	0.00	0	-	0.00	-	0	0.0	-	0.00	-	0.00	-
32	0.00	0.00	0	-	0.00	-	0	0.0	-	0.00	-	**0.00**	-
33	0.00	0.00	0	-	0.00	-	0	0.0	-	**0.00**	-	0.00	-
34	0.00	0.00	0	0.00	0.00	-	0	0.0	0.00	0.00	0.00	0.00	-
35	0.00	0.00	0	0.00	1.00	-	0	0.0	0.00	6.25	0.00	3.40	-
36	0.00	0.00	0	0.00	0.00	-	0	0.0	0.00	6.25	0.00	4.00	-
37	0.00	0.00	0	0.00	0.00	-	0	0.0	0.00	7.00	0.00	4.00	-
38	0.00	0.00	0	0.00	0.00	-	0	0.0	0.00	0.00	0.00	0.00	-
39	3.00	1.00	0	2.00	0.00	-	0.5	0.0	10.00	0.00	0.00	0.00	-
40	2.00	2.00	0	4.00	1.00	2.56	0.4	0.0	20.00	**0.00**	3.67	**0.00**	-
41	4.00	2.00	0	8.00	1.00	6.38	0.4	0.0	45.00	0.00	13.43	0.00	-
42	6.00	2.00	1	10.00	2.00	7.24	0.45	0.0	50.00	**5.55**	14.29	**4.00**	-
43	6.00	2.00	3	13.00	2.00	7.98	0.55	0.0	45.00	5.12	15.15	4.00	-
44	9.00	3.00	4	9.00	1.00	14.46	0.7	0.0	45.00	16.38	13.43	8.00	-
45	10.00	4.00	3	17.00	2.00	16.30	0.8	0.0	55.00	**52.81**	21.54	**16.00**	-
46	8.00	5.00	4	21.00	2.00	29.82	0.75	0.0	70.00	54.00	21.74	18.00	-
47	11.00	5.00	3	23.00	**3.00**	29.88	0.8	0.0	55.00	**54.20**	24.62	**20.00**	-
48	9.00	5.00	3	17.00	**3.00**	39.30	0.85	0.0	70.00	56.00	20.59	22.00	-
49	12.00	7.00	2	11.00	0.00	-	0.95	0.0	45.00	56.00	21.95	22.00	-
50	10.00	8.00	2	26.00	0.00	-	0.9	0.0	70.00	58.00	29.17	24.00	-
51	14.00	5.00	2	16.00	0.00	-	-	0.0	55.00	60.00	17.57	24.00	-
52	16.00	5.00	2	19.00	0.00	-	-	0.0	75.00	60.00	26.03	26.00	-
01	-	-	-	32.00	-	-	-	-	85.00		44.78	-	-
02	-	-	-	26.00	-	-	-	-	80.00	-	31.43	-	-
03	-	-	-	21.00	-	-	-	-	75.00	-	27.14	-	-

BA- Banswara, JU- Junagadh, SU- Surat, BH- Bharuch, AK- Akola, NA- Nanded, RA- Rahuri, KH- Khandwa, BW- Bhawanipatna

Table:111 . Ent 2. Seasonal dynamics of key pests of cotton (Trap catches) under Unprotected condition to develop suitable forecasting model in Central Zone – NBt DCH 32 during 2020-21

Standard week	Trap catches													
		H. armigera						PBW						
	BA	JU	SU	BH	NA	RA	BW	BA	JU	SU	BH	NA	RA	BW
26	-	-	-		-	-	-	-	-	-	-	-	-	-
27	-	-	-	0	-	-	-	-	-	-	0	-	-	-
28	-	-	-	0	-	0	-	-	-	-	0	-	0	-
29	-	-	-	0	2.00	0	-	-	-	-	0	4.00	0	-
30	-	-	-	0	2.00	5	-	-	-	-	0	2.00	0	-
31	-	-	-	0	0.00	8	0.0	-	-	-	0	2.00	0	0.0
32	-	-	-	0	2.00	7	0.0	-	-	-	0	2.00	0	0.0
33	-	-	-	0	1.00	3	0.0	-	-	-	0	4.00	0	0.0
34	-	-	-	0	2.00	325	0.0	-	-	-	0	0.00	1	0.0
35	3	-	-	0	3.00	179	0.0	-	-	-	0	0.00	14	0.0
36	3	-	-	0	**6.00**	143	0.0	-	-	-	0	0.00	04	0.0
37	5	-	-	6	2.00	217	0.0	-	-	-	0	4.00	7	0.0
38	2	-	-	8	4.00	73	0.0	-	-	-	0	3.00	5	0.0
39	-	-	-	9	2.00	123	0.60	-	-	-	0	2.00	08	0.0
40	-	-	-	10	1.00	2	0.0	-	-	-	2	2.00	13	0.0
41	-	-	-	10	1.00	0	1.04	-	-	-	3	4.00	26	0.0
42	-	-	-	12	1.00	0	0.0	-	-	-	3	8.00	67	0.0
43	-	-	-	13	2.00	3	1.00	-	-	-	7	**16.00**	47	0.0
44	-	-	-	13	1.00	5	1.50	1	-	-	12	7.00	117	0.0
45	-	-	-	9	1.00	0	0.0	3	-	-	13	5.00	54	0.0
46	-	-	-	8	1.00	0	0.0	3	-	-	13	5.00	105	0.0
47	-	-	-	6	0.00	0	0.0	1	-	-	12	4.00	116	0.0
48	-	-	-	7	0.00	0	0.0	-	-	-	10	6.00	154	0.0
49	-	-	-	6	2.00	-	0.0	-	-	-	7	5.00	-	0.0
50	-	-	-	7	0.00	-	0.0	-	-	-	8	5.00	-	0.0
51	-	-	-	6	0.00	-	0.0	-	-	-	10	5.00	-	0.0
52	-	-	-	8	0.00	-	0.0	-	-	-	12	4.00	-	0.0

AK- Akola, Na- Nanded

Table:112. Ent 2. Seasonal dynamics of key pests of cotton (Trap catches) under Unprotected condition to develop suitable forecasting model in Central Zone – NBt DCH 32 during 2020-21

Standard week	Trap catches													
	SBW							*S. litura*						
	BA	JU	SU	BH	NA	RA	BW	BA	JU	SU	BH	NA	RA	BW
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	0	-	-	-	-	-	-	0	-	-	-
28	-	-	-	0	-	0	-	-	-	-	0	-	0	-
29	-	-	-	0	1	0	-	-	-	-	0	2	0	-
30	-	-	-	0	2	0	-	11	-	-	0	5	0	-
31	-	-	-	0	0	0	0.0	24	-	-	0	4	0	0.0
32	3	-	-	0	1	0	0.0	32	-	-	0	3	10	0.0
33	2	-	-	0	1	0	0.0	38	-	-	0	4	14	0.0
34	3	-	-	0	2	1	0.0	43	-	-	0	4	17	0.0
35	4	-	-	0	4	5	0.0	47	-	-	0	3	37	0.0
36	-	-	-	0	5	2	0.0	33	-	-	0	4	20	0.0
37	-	-	-	3	7	1	0.0	29	-	-	6	15 00	44	0.0
38	-	-	-	7	0	3	1.00	21	-	-	7	6	15	1.60
39	-	-	-	9	0	7	0.80	25	-	-	13	2	10	2.80
40	-	-	-	10	5	9	2.00	34	-	-	12	4	13	3.00
41	-	-	-	12	0	2	1.50	41	-	-	12	2	30	2.86
42	-	-	-	6	0	0	1.00	42	-	-	10	2	43	1.80
43	-	-	-	7	1	0	0.50	16	-	-	4	3	57	3.00
44	-	-	-	4	2	0	3.00	13	-	-	6	1	18	3.40
45	-	-	-	0	2	0	0.50	7	-	-	8	3	0	2.00
46	-	-	-	2	2	0	0.0	3	-	-	6	6	0	0.0
47	-	-	-	10	1	0	0.0	-	-	-	7	3	0	0.0
48	-	-	-	12	1	0	0.0	-	-	-	6	4	0	0.0
49	-	-	-	0	0		0.0	-	-	-	7	0		0.0
50	-	-	-	2	1		0.0	-	-	-	8	0		0.0
51	-	-	-	4	2		0.0	-	-	-	4	0		0.0
52	-	-	-	6	0		0.0	-	-	-	6	0		0.0

AK- Akola, Na- Nanded

Table:113. Ent 2. Seasonal dynamics of key pests of cotton (Thrips & Aphids) under Unprotected condition to develop suitable forecasting model in Central Zone – Suraj during 2020-21

SMW	Sucking pests															
	Thrips / 3 leaves								Aphids / 3 leaves							
	JU	SU	BH	AK	NA	RA	KH	BW	JU	SU	BH	AK	NA	RA	KH	BW
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	-	2.00	-	-	-	-	-	-	-	0.00	-	-	-	-	-	-
31	-	4.65	-	-	-	-	-	-	-	0.60	-	-	-	-	-	-
32	-	7.80	-	-	-	-	-	-	-	0.80	-	-	-	-	-	-
33	-	8.00	-	-	-	-	-	-	-	1.25	-	-	-	-	-	-
34	-	5.45	-	-	-	-	-	-	-	2.65	-	-	-	-	-	-
35	-	8.65	-	-	-	-	-	-	-	3.45	-	-	-	-	-	-
36	-	13.55	-	-	-	-	-	-	-	4.85	-	-	-	-	-	-
37	-	19.56	-	-	-	-	-	-	-	6.80	-	-	-	-	-	-
38	-	26.30	-	-	-	-	-	-	-	8.10	-	-	-	-	-	-
39	-	36.45	-	-	-	-	-	-	-	11.20	-	-	-	-	-	-
40	-	25.55	-	-	-	-	-	-	-	7.35	-	-	-	-	-	-
41	-	23.25	-	-	-	-	-	-	-	12.35	-	-	-	-	-	-
42	-	33.65	-	-	-	-	-	-	-	19.45	-	-	-	-	-	-
43	-	38.30	-	-	-	-	-	-	-	26.15	-	-	-	-	-	-
44	-	30.40	-	-	-	-	-	-	-	33.10	-	-	-	-	-	-
45	-	26.65	-	-	-	-	-	-	-	36.85	-	-	-	-	-	-
46	-	19.85	-	-	-	-	-	-	-	40.70	-	-	-	-	-	-
47	-	14.75	-	-	-	-	-	-	-	36.85	-	-	-	-	-	-
48	-	9.50	-	-	-	-	-	-	-	42.40	-	-	-	-	-	-
49	-	3.00	-	-	-	-	-	-	-	45.60	-	-	-	-	-	-
50	-	4.00	-	-	-	-	-	-	-	43.40	-	-	-	-	-	-
51	-	2.60	-	-	-	-	-	-	-	43.00	-	-	-	-	-	-
52	-	1.60	-	-	-	-	-	-	-	36.20	-	-	-	-	-	-

BA- Banswara, JU- Junagadh, SU- Surat, BH- Bharuch, AK- Akola, NA- Nanded, RA- Rahuri, KH- Khandwa, BW- Bhawanipatna

Table:114. Ent 2. Seasonal dynamics of key pests of cotton (Leafhopper, whitefly) under Unprotected condition to develop suitable forecasting model in Central Zone – Suraj during 2020-21

Standard week	Sucking pests												
		Jassid / 3 leaves							Whitefly/ 3 leaves				
	BA	JU	SU	BH	AK	NA	RA	BA	JU	SU	BH	AK	NA
29	-	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	0.55	-	-	-	-	-	-	0.00	-	-	-
31	-	-	0.65	-	-	-	-	-	-	0.00	-	-	-
32	-	-	1.25	-	-	-	-	-	-	0.20	-	-	-
33	-	-	1.55	-	-	-	-	-	-	0.40	-	-	-
34	-	-	2.35	-	-	-	-	-	-	0.20	-	-	-
35	-	-	3.45	-	-	-	-	-	-	0.20	-	-	-
36	-	-	3.00	-	-	-	-	-	-	0.40	-	-	-
37	-	-	4.55	-	-	-	-	-	-	0.60	-	-	-
38	-	-	6.75	-	-	-	-	-	-	0.80	-	-	-
39	-	-	7.55	-	-	-	-	-	-	2.40	-	-	-
40	-	-	6.35	-	-	-	-	-	-	3.60	-	-	-
41	-	-	6.00	-	-	-	-	-	-	4.75	-	-	-
42	-	-	8.55	-	-	-	-	-	-	5.65	-	-	-
43	-	-	6.50	-	-	-	-	-	-	6.45	-	-	-
44	-	-	7.30	-	-	-	-	-	-	8.65	-	-	-
45	-	-	5.90	-	-	-	-	-	-	10.45	-	-	-
46	-	-	5.00	-	-	-	-	-	-	7.65	-	-	-
47	-	-	4.20	-	-	-	-	-	-	6.55	-	-	-
48	-	-	3.80	-	-	-	-	-	-	5.45	-	-	-
49	-	-	2.00	-	-	-	-	-	-	3.20	-	-	-
50	-	-	0.00	-	-	-	-	-	-	2.25	-	-	-
51	-	-	0.00	-	-	-	-	-	-	1.20	-	-	-
52	-	-	0.00	-	-	-	-	-	-	0.00	-	-	-

BA- Banswara, JU- Junagadh, SU- Surat, BH- Bharuch, AK- Akola, NA- Nanded, RA- Rahuri, KH- Khandwa, BW- Bhawanipatna

Table:115.Ent 2. Seasonal dynamics of key pests of cotton (*H. armigera*) under Unprotected condition to develop suitable forecasting model in Central Zone – Suraj during 2020-21

Standard week	Predators/ Plants*						H.armigera												
							Larvae /5 plants	Larvae /5 plants	Larvae /5 plants	Eggs/5 plants	Larvae /5 plants	Eggs/5 plants	Larvae /5 plants	Eggs/5 plants	Larvae /5 plants	Eggs/5 plants	Larvae /5 plants	Eggs/5 plants	Larvae /5 plants
	SU	BH	AK	NA	RA	BW	JU	SU	BH	AK	AK	NA	NA	RA	RA	KH	KH	BW	BW
29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	0.10	-	-	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	-	-
31	0.30	-	-	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	-	-
32	0.30	-	-	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	-	-
33	0.35	-	-	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	-	-
34	0.35	-	-	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	-	-
35	0.30	-	-	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	-	-
36	0.50	-	-	-	-	-	-	0.20	-	-	-	-	-	-	-	-	-	-	-
37	0.50	-	-	-	-	-	-	0.20	-	-	-	-	-	-	-	-	-	-	-
38	0.60	-	-	-	-	-	-	0.60	-	-	-	-	-	-	-	-	-	-	-
39	0.75	-	-	-	-	-	-	0.60	-	-	-	-	-	-	-	-	-	-	-
40	1.09	-	-	-	-	-	-	0.80	-	-	-	-	-	-	-	-	-	-	-
41	1.31	-	-	-	-	-	-	1.00	-	-	-	-	-	-	-	-	-	-	-
42	1.80	-	-	-	-	-	-	1.40	-	-	-	-	-	-	-	-	-	-	-
43	2.30	-	-	-	-	-	-	1.80	-	-	-	-	-	-	-	-	-	-	-
44	3.00	-	-	-	-	-	-	2.20	-	-	-	-	-	-	-	-	-	-	-
45	2.90	-	-	-	-	-	-	1.80	-	-	-	-	-	-	-	-	-	-	-
46	2.90	-	-	-	-	-	-	1.60	-	-	-	-	-	-	-	-	-	-	-
47	3.85	-	-	-	-	-	-	1.00	-	-	-	-	-	-	-	-	-	-	-
48	3.85	-	-	-	-	-	-	0.80	-	-	-	-	-	-	-	-	-	-	-
49	4.65	-	-	-	-	-	-	0.20	-	-	-	-	-	-	-	-	-	-	-
50	4.25	-	-	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	-	-
51	2.65	-	-	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	-	-
52	1.40	-	-	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	-	-

BA- Banswara, JU- Junagadh, SU- Surat, BH- Bharuch, AK- Akola, NA- Nanded, RA- Rahuri, KH- Khandwa, BW- Bhawanipatna

Table:116. Ent 2. Seasonal dynamics of key pests of cotton (Boll worms) under Unprotected condition to develop suitable forecasting model in Central Zone – Suraj during 2020-21

Standard week	Earias spp. Larvae / 5 plants									S. litura larvae / 5 plants						parasitism on bollworms(%)
	JU	SU	BH	AK	NA	RA	KH	BW		JU	SU	BH	NA	RA	BW	NA
29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	-	0.00	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-
31	-	0.00	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-
32	-	0.00	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-
33	-	0.00	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-
34	-	0.00	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-
35	-	0.20	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-
36	-	0.20	-	-	-	-	-	-	-	-	0.20	-	-	-	-	-
37	-	0.40	-	-	-	-	-	-	-	-	0.40	-	-	-	-	-
38	-	0.40	-	-	-	-	-	-	-	-	0.40	-	-	-	-	-
39	-	0.60	-	-	-	-	-	-	-	-	0.60	-	-	-	-	-
40	-	0.40	-	-	-	-	-	-	-	-	0.60	-	-	-	-	-
41	-	0.20	-	-	-	-	-	-	-	-	1.00	-	-	-	-	-
42	-	0.20	-	-	-	-	-	-	-	-	1.20	-	-	-	-	-
43	-	0.00	-	-	-	-	-	-	-	-	1.80	-	-	-	-	-
44	-	0.00	-	-	-	-	-	-	-	-	2.00	-	-	-	-	-
45	-	0.00	-	-	-	-	-	-	-	-	2.20	-	-	-	-	-
46	-	0.00	-	-	-	-	-	-	-	-	1.40	-	-	-	-	-
47	-	0.00	-	-	-	-	-	-	-	-	0.80	-	-	-	-	-
48	-	0.00	-	-	-	-	-	-	-	-	0.40	-	-	-	-	-
49	-	0.00	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-
50	-	0.00	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-
51	-	0.00	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-
52	-	0.00	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-

BA- Banswara, JU- Junagadh, SU- Surat, BH- Bharuch, AK- Akola, NA- Nanded, RA- Rahuri, KH- Khandwa, BW- Bhawanipatna

Table: 117. Ent 2. Seasonal dynamics of key pests of cotton (Fruiting body damage) under Unprotected condition to develop suitable forecasting model in Central Zone – Suraj during 2020-21

Standard week	**Fruiting body damage (%)									Mean Flower damage/ 50 flowers (%)
	H. armigera			Fruiting Body Damage(%)	H. armigera &E.vittella	E. vittella			PBW	
	SU	AK	NA	RA	SU	SU	AK	NA	NA	NA
29	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	0.00	-	-	-	-	-
31	-	-	-	-	0.00	-	-	-	-	-
32	-	-	-	-	0.00	-	-	-	-	-
33	-	-	-	-	0.00	-	-	-	-	-
34	-	-	-	-	0.00	-	-	-	-	-
35	-	-	-	-	0.00	-	-	-	-	-
36	-	-	-	-	0.00	-	-	-	-	-
37	-	-	-	-	1.13	-	-	-	-	-
38	-	-	-	-	2.60	-	-	-	-	-
39	-	-	-	-	3.26	-	-	-	-	-
40	-	-	-	-	4.23	-	-	-	-	-
41	-	-	-	-	6.23	-	-	-	-	-
42	-	-	-	-	12.33	-	-	-	-	-
43	-	-	-	-	16.89	-	-	-	-	-
44	-	-	-	-	19.20	-	-	-	-	-
45	-	-	-	-	22.60	-	-	-	-	-
46	-	-	-	-	16.24	-	-	-	-	-
47	-	-	-	-	10.90	-	-	-	-	-
48	-	-	-	-	8.32	-	-	-	-	-
49	-	-	-	-	4.20	-	-	-	-	-
50	-	-	-	-	0.00	-	-	-	-	-
51	-	-	-	-	0.00	-	-	-	-	-
52	-	-	-	-	0.00	-	-	-	-	-

BA- Banswara, JU- Junagadh, SU- Surat, BH- Bharuch, AK- Akola, NA- Nanded, RA- Rahuri, KH- Khandwa, BW- Bhawanipatna

Table:118. Ent 2. Seasonal dynamics of key pests of cotton (Fruiting body damage) under Unprotected condition to develop suitable forecasting model in Central Zone – Suraj during 2020-21

Standard week	Mean Pink bollworm larvae/ 20 green bolls								Boll damage				SCY (Q/ha)
									Green boll damage/ 20 bolls (%)		Locule damage in 20 green bolls (%)		
	JU	SU	BH	AK	NA	RA	KH	BW	AK	NA	AK	NA	NA
29	-	-	-	-	-	-	-	-	-	-	-	-	-
30	-	0.00	-	-	-	-	-	-	-	-	-	-	-
31	-	0.00	-	-	-	-	-	-	-	-	-	-	-
32	-	0.00	-	-	-	-	-	-	-	-	-	-	-
33	-	0.00	-	-	-	-	-	-	-	-	-	-	-
34	-	0.00	-	-	-	-	-	-	-	-	-	-	-
35	-	0.00	-	-	-	-	-	-	-	-	-	-	-
36	-	0.00	-	-	-	-	-	-	-	-	-	-	-
37	-	0.00	-	-	-	-	-	-	-	-	-	-	-
38	-	0.00	-	-	-	-	-	-	-	-	-	-	-
39	-	0.00	-	-	-	-	-	-	-	-	-	-	-
40	-	1.00	-	-	-	-	-	-	-	-	-	-	-
41	-	1.00	-	-	-	-	-	-	-	-	-	-	-
42	-	3.00	-	-	-	-	-	-	-	-	-	-	-
43	-	3.00	-	-	-	-	-	-	-	-	-	-	-
44	-	2.00	-	-	-	-	-	-	-	-	-	-	-
45	-	3.00	-	-	-	-	-	-	-	-	-	-	-
46	-	4.00	-	-	-	-	-	-	-	-	-	-	-
47	-	4.00	-	-	-	-	-	-	-	-	-	-	-
48	-	3.00	-	-	-	-	-	-	-	-	-	-	-
49	-	4.00	-	-	-	-	-	-	-	-	-	-	-
50	-	7.00	-	-	-	-	-	-	-	-	-	-	-
51	-	6.00	-	-	-	-	-	-	-	-	-	-	-
52	-	5.00	-	-	-	-	-	-	-	-	-	-	-

BA- Banswara, JU- Junagadh, SU- Surat, BH- Bharuch, AK- Akola, NA- Nanded, RA- Rahuri, KH- Khandwa, BW- Bhawanipatna

Table: 119. Ent 2. Seasonal dynamics of key pests of cotton (Trap catches) under Unprotected condition to develop suitable forecasting model in Central Zone – Suraj during 2020-21

Standard week	Trap catches													
		H. armigera						PBW						
	BA	JU	SU	BH	NA	RA	BW	BA	JU	SU	BH	NA	RA	BW
29	-	-	-	-	-	-	-	-		-	-	-	-	-
30	-	-	0.00	-	-	-	-	-		1.00	-	-	-	-
31	-	-	0.00	-	-	-	-	-		1.00	-	-	-	-
32	-	-	3.00	-	-	-	-	-		2.00	-	-	-	-
33	-	-	5.50	-	-	-	-	-		4.00	-	-	-	-
34	-	-	8.00	-	-	-	-	-		6.00	-	-	-	-
35	-	-	13.50	-	-	-	-	-		5.50	-	-	-	-
36	-	-	10.50	-	-	-	-	-		13.50	-	-	-	-
37	-	-	19.50	-	-	-	-	-		22.50	-	-	-	-
38	-	-	22.50	-	-	-	-	-		32.50	-	-	-	-
39	-	-	23.50	-	-	-	-	-		38.00	-	-	-	-
40	-	-	28.50	-	-	-	-	-		54.50	-	-	-	-
41	-	-	21.50	-	-	-	-	-		69.00	-	-	-	-
42	-	-	30.50	-	-	-	-	-		82.50	-	-	-	-
43	-	-	51.00	-	-	-	-	-		134.50	-	-	-	-
44	-	-	65.50	-	-	-	-	-		172.50	-	-	-	-
45	-	-	54.50	-	-	-	-	-		214.00	-	-	-	-
46	-	-	36.50	-	-	-	-	-		254.00	-	-	-	-
47	-	-	18.50	-	-	-	-	-		268.00	-	-	-	-
48	-	-	6.50	-	-	-	-	-		299.00	-	-	-	-
49	-	-	6.00	-	-	-	-	-		313.00	-	-	-	-
50	-	-	3.00	-	-	-	-	-		295.00	-	-	-	-
51	-	-	1.50	-	-	-	-	-		224.00	-	-	-	-
52	-	-	0.00	-	-	-	-	-		202.00	-	-	-	-

AK- Akola, Na- Nanded

Table:120. Ent 2. Seasonal dynamics of key pests of cotton (Trap catches) under Unprotected condition to develop suitable forecasting model in Central Zone – Suraj during 2020-21

Standard week	Trap catches													
		SBW						*S. litura*						
	BA	JU	SU	BH	NA	RA	BW	BA	JU	SU	BH	NA	RA	BW
29	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	0.00	-	-	-	-	-	-	1.50	-	-	-	-
31	-	-	0.00	-	-	-	-	-	-	3.00	-	-	-	-
32	-	-	1.00	-	-	-	-	-	-	4.50	-	-	-	-
33	-	-	3.50	-	-	-	-	-	-	5.50	-	-	-	-
34	-	-	3.00	-	-	-	-	-	-	14.50	-	-	-	-
35	-	-	2.50	-	-	-	-	-	-	27.00	-	-	-	-
36	-	-	4.00	-	-	-	-	-	-	32.50	-	-	-	-
37	-	-	5.00	-	-	-	-	-	-	40.00	-	-	-	-
38	-	-	7.50	-	-	-	-	-	-	115.50	-	-	-	-
39	-	-	13.50	-	-	-	-	-	-	149.50	-	-	-	-
40	-	-	12.00	-	-	-	-	-	-	168.00	-	-	-	-
41	-	-	9.50	-	-	-	-	-	-	197.50	-	-	-	-
42	-	-	8.00	-	-	-	-	-	-	228.00	-	-	-	-
43	-	-	12.50	-	-	-	-	-	-	177.00	-	-	-	-
44	-	-	7.00	-	-	-	-	-	-	164.00	-	-	-	-
45	-	-	5.00	-	-	-	-	-	-	136.00	-	-	-	-
46	-	-	4.00	-	-	-	-	-	-	115.00	-	-	-	-
47	-	-	3.00	-	-	-	-	-	-	92.00	-	-	-	-
48	-	-	1.00	-	-	-	-	-	-	64.20	-	-	-	-
49	-	-	0.00	-	-	-	-	-	-	38.50	-	-	-	-
50	-	-	0.00	-	-	-	-	-	-	27.00	-	-	-	-
51	-	-	0.00	-	-	-	-	-	-	24.00	-	-	-	-
52	-	-	0.00	-	-	-	-	-	-	25.00	-	-	-	-

AK- Akola, Na- Nanded

Table :121.Ent 2. Seasonal dynamics of key pests of cotton (Leafhopper, whitefly) under Unprotected condition to develop suitable forecasting model in Central Zone – Bt RCH 2 BG II during 2020-21

Standard week	Sucking pests												
		Jassid / 3 leaves						Whitefly/ 3 leaves					
	BA	JU	SU	BH	AK	NA	RA	BA	JU	SU	BH	AK	NA
24	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	0.00	-	-	-	-	-	-	0.00	-	-
28	-	-	-	0.00	-	-	-	-	-	-	0.00	-	-
29	-	-	-	0.00	-	-	-	-	-	-	0.00	-	-
30	-	0.8	0.80	0.00	-	-	-	-	0.8	0.00	0.00	-	-
31	0.33	1.9	1.20	0.00	-	-	-	-	0.6	0.40	0.00	-	-
32	0.67	1.5	3.40	0.00	-	-	-	-	2.1	1.60	0.00	-	-
33	0.67	1.8	3.00	0.00	-	-	-	-	1.5	2.10	0.00	-	-
34	1.33	9.9	4.25	0.00	-	-	-	-	2.6	3.20	0.00	-	-
35	1.33	5.2	4.00	0.00	-	-	-	-	3.0	3.60	0.00	-	-
36	2	4.1	3.85	0.00	-	-	-	1.67	2.1	4.35	0.00	-	-
37	3.67	3.4	5.35	1.60	-	-	-	3	4.0	5.65	0.00	-	-
38	4	5.0	7.85	2.20	-	-	-	5.67	4.9	8.45	0.00	-	-
39	4.33	5.3	9.15	3.75	-	-	-	7.33	5.4	10.25	0.00	-	-
40	5	5.7	11.15	7.30	-	-	-	9.33	6.0	13.55	0.00	-	-
41	5.33	6.6	11.60	5.60	-	-	-	11.67	5.3	12.16	0.00	-	-
42	5	7.3	12.00	5.05	-	-	-	13.33	4.8	11.30	0.00	-	-
43	5.33	7.6	13.20	4.55	-	-	-	14.67	5.9	9.45	0.00	-	-
44	4.67	4.9	16.55	8.70	-	-	-	17.33	4.7	13.65	0.10	-	-
45	4	3.9	14.40	6.10	-	-	-	18.67	4.8	10.25	0.15	-	-
46	5.33	6.3	12.65	5.20	-	-	-	21.33	4.5	8.00	0.30	-	-
47	7	4.2	8.00	6.35	-	-	-	22.33	4.6	6.20	0.55	-	-
48	4.33	3.9	6.55	9.00	-	-	-	22.67	4.7	4.35	1.05	-	-
49	4	4.1	5.00	7.20	-	-	-	19.67	3.7	3.00	1.45	-	-
50	3.33	9.9	4.20	5.45	-	-	-	15.33	4.2	3.00	2.30	-	-
51	2.67	4.7	1.20	4.80	-	-	-	11.67	4.2	2.00	1.90	-	-
52	2	3.9	0.60	5.10	-	-	-	8.33	3.0	1.20	2.25	-	-

BA- Banswara, JU- Junagadh, SU- Surat, BH- Bharuch, AK- Akola, NA- Nanded, RA- Rahuri, KH- Khandwa, BW- Bhawanipatna

Table:122. Ent 2. Seasonal dynamics of key pests of cotton (Leafhopper, whitefly) under Unprotected condition to develop suitable forecasting model in Central Zone – Bt RCH 2 BG II during 2020-21

Standard week	Sucking pests												
	Thrips / 3 leaves							Aphids / 3 leaves					
	BA	JU	SU	BH	AK	NA	RA	BA	JU	SU	BH	AK	NA
24	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	0.00	-	-	-	-	-	-	0.00	-	-
28	-	-	-	0.00	-	-	-	-	-	-	0.00	-	-
29	-	-	-	0.00	-	-	-	-	-	-	0.00	-	-
30	-	3.6	0.60	0.00	-	-	-	-	0.0	0.20	0.00	-	-
31	-	4.8	1.20	0.00	-	-	-	-	0.0	0.40	0.00	-	-
32	-	10.0	2.65	0.00	-	-	-	-	0.0	0.60	0.00	-	-
33	-	12.1	8.00	0.00	-	-	-	-	0.7	2.35	0.00	-	-
34	-	12.7	11.25	0.00	-	-	-	-	2.2	1.45	0.00	-	-
35	-	9.8	8.55	0.00	-	-	-	-	2.6	4.35	0.00	-	-
36	-	9.0	7.65	0.00	-	-	-	-	1.5	3.60	0.00	-	-
37	-	4.4	15.50	0.55	-	-	-	-	0.1	5.65	0.25	-	-
38	-	4.4	21.45	2.60	-	-	-	-	0.6	8.75	1.05	-	-
39	-	4.8	26.55	6.15	-	-	-	-	4.7	15.85	1.20	-	-
40	-	6.2	22.00	5.50	-	-	-	-	3.1	22.55	1.85	-	-
41	-	4.2	32.40	8.25	-	-	-	-	5.0	28.45	3.45	-	-
42	-	6.8	33.80	11.20	-	-	-	-	4.0	34.30	3.95	-	-
43	-	10.5	26.50	14.65	-	-	-	-	4.1	28.00	6.30	-	-
44	-	7.1	19.20	13.85	-	-	-	-	3.7	36.80	10.70	-	-
45	-	5.7	16.80	21.70	-	-	-	-	5.7	40.40	15.05	-	-
46	-	5.4	11.20	31.55	-	-	-	-	7.0	43.60	18.25	-	-
47	-	4.3	6.40	42.40	-	-	-	-	9.5	47.70	31.20	-	-
48	-	2.9	3.20	10.60	-	-	-	-	16.9	53.80	33.75	-	-
49	-	3.2	1.20	4.75	-	-	-	-	21.6	56.00	36.35	-	-
50	-	4.1	0.60	1.80	-	-	-	-	7.4	51.20	43.30	-	-
51	-	3.0	1.00	0.65	-	-	-	-	35.7	49.65	48.80	-	-
52	-	2.2	1.40	0.40	-	-	-	-	28.2	38.75	56.20	-	-

BA- Banswara, JU- Junagadh, SU- Surat, BH- Bharuch, AK- Akola, NA- Nanded, RA- Rahuri, KH- Khandwa, BW- Bhawanipatna

Table:123. Ent 2. Seasonal dynamics of key pests of cotton (H. armigera) under Unprotected condition to develop suitable forecasting model in Central Zone – – Bt RCH 2 BG II during 2020-21

SMW	Predators/ Plants*				H.armigera													
					Eggs/5 plants	Larvae /5 plants	Larvae /5 plants	Larvae /5 plants	Eggs/5 plants	Larvae /5 plants	Eggs/5 plants	Larvae /5 plants	Eggs/5 plants	Larvae /5 plants	Eggs/5 plants	Larvae /5 plants	Eggs/5 plants	Larvae /5 plants
	BA	SU	JU	BH	JU	JU	SU	BH	AK	AK	NA	NA	RA	RA	KH	KH	BW	BW
27	-	-	-	0.0	0.00	0.00	-	0	-	-	-	-	-	-	-	-		
28	-	-	-	0.05	0.00	0.00	-	0	-	-	-	-	-	-	-	-		
29	-	-	-	0.1	0.00	0.00	-	0	-	-	-	-	-	-	-	-		
30	-	0.15	0.2	0.30	0.00	0.00	0.00	0	-	-	-	-	-	-	-	-		
31	-	0.10	0.3	0.60	0.00	0.00	0.00	0	-	-	-	-	-	-	0	0		
32	-	0.15	0.2	0.35	0.00	0.00	0.00	0	-	-	-	-	-	-	0	0		
33	-	0.40	0.0	0.50	0.00	0.00	0.00	0	-	-	-	-	-	-	0	0		
34	-	0.35	0.1	1.05	0.00	0.00	0.00	0	-	-	-	-	-	-	0	0		
35		0.35	0.0	1.10	0.00	0.25	0.00	0	-	-	-	-	-	-	0.4	0		
36	0.1	0.40	0.2	1.20	0.00	0.25	0.00	0	-	-	-	-	-	-	0.4	0		
37	0.1	0.40	0.1	1.85	0.00	0.50	0.00	0	-	-	-	-	-	-	0.2	0		
38	0.2	0.50	0.2	2.05	0.00	0.25	0.00	0	-	-	-	-	-	-	0	0		
39	0.2	0.70	0.3	2.00	0.00	0.50	0.00	0	-	-	-	-	-	-	0.6	0		
40	0.3	0.75	0.2	2.25	0.00	0.00	0.00	0	-	-	-	-	-	-	0.4	0		
41	0.5	1.10	0.1	2.05	0.00	0.25	0.00	0	-	-	-	-	-	-	0.4	0.4		
42	0.4	1.45	0.3	2.05	0.00	0.25	0.00	0	-	-	-	-	-	-	0.6	0.2		
43	0.4	1.75	0.1	1.85	0.00	0.00	0.00	0	-	-	-	-	-	-	0.6	0.2		
44	0.3	2.25	0.1	1.65	0.00	0.50	0.00	0	-	-	-	-	-	-	0.2	0.2		
45	0.4	2.80	0.0	1.65	0.00	0.00	0.00	0	-	-	-	-	-	-	0.2	0.4		
46	0.4	3.15	0.2	1.25	0.00	0.00	0.00	0	-	-	-	-	-	-	0	0.2		
47	0.4	3.70	0.1	0.70	0.00	0.00	0.00	0	-	-	-	-	-	-	0	0		
48	0.5	3.60	0.3	0.00	0.00	0.00	0.00	0	-	-	-	-	-	-	0	0.6		
49	0.4	4.05	0.1	0.00	0.00	0.00	0.00	0	-	-	-	-	-	-	0	0		
50	0.4	3.80	0.2	0.05	-	-	0.00	0	-	-	-	-	-	-	0	0		
51	0.3	2.80	0.2	0.15	-	-	0.00	0	-	-	-	-	-	-	0	0		
52	0.2	1.15	0.3	0.30	-	-	0.00	0	-	-	-	-	-	-				

BA- Banswara, JU- Junagadh, SU- Surat, BH- Bharuch, AK- Akola, NA- Nanded, RA- Rahuri, KH- Khandwa, BW- Bhawanipatna

Table:124. Ent 2. Seasonal dynamics of key pests of cotton (Boll worms) under Unprotected condition to develop suitable forecasting model in Central Zone – Bt RCH 2 BG II during 2020-21

Standard week	Earias spp. Larvae / 5 plants								S. litura larvae / 5 plants						parasitism on bollworms (%)
	JU	SU	BH	AK	NA	RA	KH	BW	JU	SU	BH	NA	RA	BW	NA
30	0.00	0.00	0	-	-	-	-	-	0.00	0.00	0	-	-	-	-
31	0.00	0.00	0	-	-	-	0	-	0.00	0.00	0	-	-	-	-
32	0.00	0.00	0	-	-	-	0	-	0.00	0.00	0	-	-	-	-
33	0.00	0.00	0	-	-	-	0.2	-	0.00	0.00	0	-	-	-	-
34	0.00	0.00	0	-	-	-	0	-	0.00	0.00	0	-	-	-	-
35	0.00	0.00	0	-	-	-	0	-	0.00	0.00	0	-	-	-	-
36	0.00	0.00	0	-	-	-	0.2	-	0.00	0.00	0	-	-	-	-
37	0.00	0.00	0	-	-	-	0	-	0.00	0.00	0	-	-	-	-
38	0.00	0.00	0	-	-	-	0	-	0.00	0.00	0	-	-	-	-
39	0.00	0.00	0	-	-	-	0	-	0.00	0.00	0	-	-	-	-
40	0.00	0.00	0	-	-	-	0.2	-	0.00	0.00	1	-	-	-	-
41	0.00	0.00	0	-	-	-	0.2	-	0.00	0.00	0	-	-	-	-
42	0.00	0.00	0	-	-	-	0	-	0.00	0.00	0	-	-	-	-
43	0.00	0.00	0	-	-	-	0	-	0.00	0.00	2	-	-	-	-
44	0.00	0.00	0	-	-	-	0.2	-	0.00	0.00	1	-	-	-	-
45	0.00	0.00	0	-	-	-	0	-	0.00	0.00	1	-	-	-	-
46	0.00	0.00	0	-	-	-	0	-	0.00	0.00	1	-	-	-	-
47	0.00	0.00	0	-	-	-	0	-	0.00	0.00	0	-	-	-	-
48	0.00	0.00	0	-	-	-	0	-	0.00	0.00	0	-	-	-	-
49	0.00	0.00	0	-	-	-	0	-	0.00	0.00	0	-	-	-	-
50	0.00	0.00	0	-	-	-	0	-	0.00	0.00	0	-	-	-	-
51	0.00	0.00	0	-	-	-	0	-	0.00	0.00	0	-	-	-	-
52	0.00	0.00	0	-	-	-	-	-	0.00	0.00	0	-	-	-	-

BA- Banswara, JU- Junagadh, SU- Surat, BH- Bharuch, AK- Akola, NA- Nanded, RA- Rahuri, KH- Khandwa, BW- Bhawanipatna

Table:125. Ent 2. Seasonal dynamics of key pests of cotton (Fruiting body damage) under Unprotected condition to develop suitable forecasting model in Central Zone –RCH 2 BG IIduring 2020-21

Standard week	**Fruiting body damage (%)									Mean Flower damage/ 50 flowers (%)
	H. armigera			Fruiting Body Damage (%)	H. armigera &E.vittella	E. vittella			PBW	
	SU	AK	NA	KH	SU	SU	AK	NA	KH	NA
29	-	-	-			-	-	-	-	-
30	-	-	-		0.00	-	-	-	-	-
31	-	-	-	0	0.00	-	-	-	-	-
32	-	-	-	0	0.00	-	-	-	-	-
33	-	-	-	0	0.00	-	-	-	-	-
34	-	-	-	0	0.00	-	-	-	-	-
35	-	-	-	0	0.00	-	-	-	-	-
36	-	-	-	0	0.00	-	-	-	-	-
37	-	-	-	0	0.00	-	-	-	-	-
38	-	-	-	0	0.00	-	-	-	-	-
39	-	-	-	0	0.00	-	-	-	-	-
40	-	-	-	0	0.00	-	-	-	-	-
41	-	-	-	40	0.00	-	-	-	-	-
42	-	-	-	40	0.00	-	-	-	-	-
43	-	-	-	60	0.00	-	-	-	-	-
44	-	-	-	30	0.00	-	-	-	-	-
45	-	-	-	60	0.00	-	-	-	-	-
46	-	-	-	80	0.00	-	-	-	-	-
47	-	-	-	40	0.00	-	-	-	-	-
48	-	-	-	60	0.00	-	-	-	-	-
49	-	-	-	60	0.00	-	-	-	-	-
50	-	-	-	50	0.00	-	-	-	-	-
51	-	-	-	40	0.00	-	-	-	-	-
52	-	-	-		0.00	-	-	-	-	-

BA- Banswara, JU- Junagadh, SU- Surat, BH- Bharuch, AK- Akola, NA- Nanded, RA- Rahuri, KH- Khandwa, BW- Bhawanipatna

Table:126. Ent 2. Seasonal dynamics of key pests of cotton (Fruiting body damage) under Unprotected condition to develop suitable forecasting model in Central Zone –RCH 2 BG II during 2020-21

Standard week	Mean Pink bollworm larvae/ 20 green bolls								Boll damage				SCY (Q/ha)
									Green boll damage/ 20 bolls (%)		Locule damage in 20 green bolls (%)		
	JU	SU	BH	AK	NA	RA	KH	BW	AK	NA	AK	NA	NA
27	-	-	0	-	-	-	-	-	-	-	-	-	-
28	-	-	0	-	-	-	-	-	-	-	-	-	-
29	-	-	0	-	-	-	-	-	-	-	-	-	-
30	0.00	0.00	0	-	-	-	0	-	-	-	-	-	-
31	0.00	0.00	0	-	-	-	0	-	-	-	-	-	-
32	0.00	0.00	0	-	-	-	0	-	-	-	-	-	-
33	0.00	0.00	0	-	-	-	0	-	-	-	-	-	-
34	0.00	0.00	0	-	-	-	0	-	-	-	-	-	-
35	0.00	0.00	0	-	-	-	0	-	-	-	-	-	-
36	0.00	0.00	0	-	-	-	0	-	-	-	-	-	-
37	0.00	0.00	0	-	-	-	0	-	-	-	-	-	-
38	0.00	0.00	0	-	-	-	0	-	-	-	-	-	-
39	0.00	0.00	0	-	-	-	0	-	-	-	-	-	-
40	3.00	1.00	0	-	-	-	0.4	-	-	-	-	-	-
41	2.00	1.00	0	-	-	-	0.4	-	-	-	-	-	-
42	3.00	2.00	1	-	-	-	0.6	-	-	-	-	-	-
43	1.00	3.00	1	-	-	-	0.3	-	-	-	-	-	-
44	3.00	3.00	2	-	-	-	0.6	-	-	-	-	-	-
45	4.00	2.00	2	-	-	-	0.8	-	-	-	-	-	-
46	3.00	3.00	1	-	-	-	0.4	-	-	-	-	-	-
47	5.00	4.00	0	-	-	-	0.6	-	-	-	-	-	-
48	3.00	4.00	0	-	-	-	0.6	-	-	-	-	-	-
49	7.00	5.00	2	-	-	-	0.5	-	-	-	-	-	-
50	9.00	6.00	1	-	-	-	0.4	-	-	-	-	-	-
51	6.00	6.00	2	-	-	-	-	-	-	-	-	-	-
52	8.00	5.00	0	-	-	-	-	-	-	-	-	-	-

BA- Banswara, JU- Junagadh, SU- Surat, BH- Bharuch, AK- Akola, NA- Nanded, RA- Rahuri, KH- Khandwa, BW- Bhawanipatna

Table:127. Ent 2. Seasonal dynamics of key pests of cotton (Trap catches) under Unprotected condition to develop suitable forecasting model in Central Zone – Bt RCH 2 BG II during 2020-21

Standard week	Trap catches													
		H. armigera						PBW						
	BA	JU	SU	BH	NA	RA	BW	BA	JU	SU	BH	NA	RA	BW
27		-	-	0	-	-	-	-	-	-	0	-	-	-
28		-	-	0	-	-	-	-	-	-	0	-	-	-
29		-	-	0	-	-	-	-	-	-	0	-	-	-
30		0	0.00	0	-	-	-	-	0	1.00	0	-	-	-
31		0	0.00	0	-	-	-	-	0	1.00	0	-	-	-
32		0	3.00	0	-	-	-	-	0	2.00	0	-	-	-
33		0	5.50	0	-	-	-	-	0	4.00	0	-	-	-
34		5	8.00	0	-	-	-	-	7	6.00	0	-	-	-
35		6	13.50	0	-	-	-	-	5	5.50	0	-	-	-
36		3	10.50	0	-	-	-	-	7	13.50	0	-	-	-
37		6	19.50	6	-	-	-	-	6	22.50	0	-	-	-
38		6	22.50	8	-	-	-	-	7	32.50	0	-	-	-
39		4	23.50	9	-	-	-	-	6	38.00	0	-	-	-
40		3	28.50	10	-	-	-	-	24	54.50	2	-	-	-
41		5	21.50	10	-	-	-	-	36	69.00	3	-	-	-
42		4	30.50	12	-	-	-	-	28	82.50	3	-	-	-
43		2	51.00	13	-	-	-	-	30	134.50	7	-	-	-
44		2	65.50	13	-	-	-	-	46	172.50	12	-	-	-
45		4	54.50	9	-	-	-	-	54	214.00	13	-	-	-
46		5	36.50	8	-	-	-	-	90	254.00	13	-	-	-
47		5	18.50	6	-	-	-	-	120	268.00	12	-	-	-
48		3	6.50	7	-	-	-	-	157	299.00	10	-	-	-
49		3	6.00	6	-	-	-	-	179	313.00	7	-	-	-
50		0	3.00	7	-	-	-	-	190	295.00	8	-	-	-
51		0	1.50	6	-	-	-	-	203	224.00	10	-	-	-
52		0	0.00	8	-	-	-	-	221	202.00	12	-	-	-

AK- Akola, Na- Nanded

Table:128. Ent 2. Seasonal dynamics of key pests of cotton (Trap catches) under Unprotected condition to develop suitable forecasting model in Central Zone – Bt RCH 2 BG II during 2020-21

Standard week	Trap catches													
		SBW						*S. litura*						
	BA	JU	SU	BH	NA	RA	BW	BA	JU	SU	BH	NA	RA	BW
27		-	-	0	-	-	-	-	-	-	0	-	-	-
28		-	-	0	-	-	-	-	-	-	0	-	-	-
29		-	-	0	-	-	-	-	-	-	0	-	-	-
30		0	0.00	0	-	-	-	-	0	1.50	0	-	-	-
31		0	0.00	0	-	-	-	-	0	3.00	0	-	-	-
32		0	1.00	0	-	-	-	-	0	4.50	0	-	-	-
33		0	3.50	0	-	-	-	-	0	5.50	0	-	-	-
34		0	3.00	0	-	-	-	-	0	14.50	0	-	-	-
35		0	2.50	0	-	-	-	-	0	27.00	0	-	-	-
36		1	4.00	0	-	-	-	-	3	32.50	0	-	-	-
37		0	5.00	3	-	-	-	-	4	40.00	6	-	-	-
38		0	7.50	7	-	-	-	-	4	115.50	7	-	-	-
39		0	13.50	9	-	-	-	-	3	149.50	13	-	-	-
40		0	12.00	10	-	-	-	-	2	168.00	12	-	-	-
41		0	9.50	12	-	-	-	-	2	197.50	12	-	-	-
42		2	8.00	6	-	-	-	-	4	228.00	10	-	-	-
43		0	12.50	7	-	-	-	-	5	177.00	4	-	-	-
44		0	7.00	4	-	-	-	-	7	164.00	6	-	-	-
45		0	5.00	0	-	-	-	-	3	136.00	8	-	-	-
46		0	4.00	2	-	-	-	-	6	115.00	6	-	-	-
47		1	3.00	10	-	-	-	-	2	92.00	7	-	-	-
48		0	1.00	12	-	-	-	-	2	64.20	6	-	-	-
49		0	0.00	0	-	-	-	-	3	38.50	7	-	-	-
50		0	0.00	2	-	-	-	-	3	27.00	8	-	-	-
51		0	0.00	4	-	-	-	-	0	24.00	4	-	-	-
52		0	0.00	6	-	-	-	-	0	25.00	6	-	-	-

AK- Akola, Na- Nanded

Table:129. Ent 2. Seasonal dynamics of key pests of cotton (Leafhopper, whitefly) under Unprotected condition to develop suitable forecasting model in Central Zone – Bt Ajeet 155 BG II during 2020-21

Standard week	Sucking pests												
	Thrips / 3 leaves						Aphids / 3 leaves						
	RA*	JU	SU	BH	AK	NA	RA*	BA	JU	SU	BH	AK	NA
28	24.24	-	-	-	-		7.60	-	-	-	-	-	
29	23.92	-	-	-	-	2.2	10.50	-	-	-	-	-	28.4
30	13.78	-	-	-	-	1	21.04	-	-	-	-	-	12.8
31	5.22	-	-	-	-	0	25.66	-	-	-	-	-	10
32	2.81	-	-	-	-	7	15.34	-	-	-	-	-	14
33	1.67	-	-	-	-	3	13.64	-	-	-	-	-	7.5
34	3.37	-	-	-	5.00	2.6	16.86	-	-	-	-	0.40	3.6
35	2.12	-	-	-	2.30	7	14.34	-	-	-	-	0.40	8.2
36	2.86	-	-	-	4.10	3	14.32	-	-	-	-	0.50	3.2
37	1.60	-	-	-	6.60	3	12.80	-	-	-	-	1.10	4.4
38	1.36	-	-	-	3.00	1	16.56	-	-	-	-	0.80	5
39	0.38	-	-	-	2.10	1.2	12.38	-	-	-	-	0.00	2.5
40	1.90	-	-	-	1.80	0.4	16.22	-	-	-	-	0.30	2.4
41	0.42	-	-	-	1.30	2	26.30	-	-	-	-	1.00	4
42	0.26	-	-	-	0.20	1.8	42.76	-	-	-	-	0.00	2.5
43	0.26	-	-	-	1.90	2.1	61.42	-	-	-	-	0.50	3
44	0.62	-	-	-	0.70	2	37.92	-	-	-	-	0.70	1.4
45	0.34	-	-	-	2.60	0.9	88.10	-	-	-	-	1.50	1
46	2.04	-	-	-	1.80	0.4	63.14	-	-	-	-	0.60	2.2
47	0.30	-	-	-	0.70	0	69.60	-	-	-	-	0.20	0.9
48	0.52	-	-	-	0.20	0	120.86	-	-	-	-	17.20	0.7
49	-	-	-	-	0.40	0	-	-	-	-	-	14.40	0
50	-	-	-	-	0.10	0	-	-	-	-	-	19.60	0
51	-	-	-	-	0.20	0	-	-	-	-	-	18.70	0
52	-	-	-	-	0.30	0	-	-	-	-	-	21.40	0
01	-	-	-	-	0.40	-	-	-	-	-	-	27.70	-
02	-	-	-	-	0.50	-	-	-	-	-	-	22.10	-
03	-	-	-	-	0.60	-	-	-	-	-	-	21.50	-

BA- Banswara, JU- Junagadh, SU- Surat, BH- Bharuch, AK- Akola, NA- Nanded, RA- Rahuri, KH- Khandwa, BW- Bhawanipatna

Table:130. Ent 2. Seasonal dynamics of key pests of cotton (Leafhopper, whitefly) under Unprotected condition to develop suitable forecasting model in Central Zone – Bt Ajeet 155 BG II during 2020-21

Standard week	Sucking pests												
	Jassids/ 3 leaves						Whitefly / 3 leaves						
	RA*	JU	SU	BH	AK	NA	RA*	BA	JU	SU	BH	AK	NA
28	2.04	-	-	-	-	-	1.41	-	-	-	-	-	-
29	2.84	-	-	-	-	2	2.60	-	-	-	-	-	0.2
30	8.44	-	-	-	-	3.2	1.79	-	-	-	-	-	3
31	11.46	-	-	-	-	2	1.19	-	-	-	-	-	0.6
32	4.44	-	-	-	-	1	1.96	-	-	-	-	-	0.8
33	3.62	-	-	-	-	1	1.59	-	-	-	-	-	1
34	5.88	-	-	-	14.70	3	2.70	-	-	-	-	3.10	3
35	5.86	-	-	-	4.30	5	2.82	-	-	-	-	3.30	6.2
36	3.80	-	-	-	1.50	2	3.28	-	-	-	-	9.50	3.2
37	3.78	-	-	-	3.90	2	3.22	-	-	-	-	6.50	2.8
38	3.46	-	-	-	13.10	2	2.06	-	-	-	-	7.70	2.6
39	6.52	-	-	-	11.20	1.6	2.02	-	-	-	-	4.90	3.4
40	7.04	-	-	-	4.60	0.4	2.52	-	-	-	-	4.70	3
41	6.42	-	-	-	2.50	2	8.06	-	-	-	-	2.50	3.6
42	6.32	-	-	-	2.70	1.6	8.32	-	-	-	-	2.40	1
43	3.88	-	-	-	2.40	1	2.86	-	-	-	-	3.70	2.9
44	3.74	-	-	-	1.50	1.5	3.20	-	-	-	-	2.90	3.2
45	5.28	-	-	-	1.90	1.6	3.36	-	-	-	-	3.10	2.1
46	3.70	-	-	-	3.30	1.4	3.18	-	-	-	-	2.60	1.8
47	4.12	-	-	-	1.80	0	0.72	-	-	-	-	2.40	0
48	6.10	-	-	-	2.70	0.5	1.52	-	-	-	-	2.70	0
49	-	-	-	-	2.90	0	-	-	-	-	-	2.50	0
50	-	-	-	-	1.20	0	-	-	-	-	-	0.80	0
51	-	-	-	-	0.20	0	-	-	-	-	-	0.50	0
52	-	-	-	-	0.30	0	-	-	-	-	-	0.90	0
01	-	-	-	-	0.60	-	-	-	-	-	-	1.30	-
02	-	-	-	-	0.40	-	-	-	-	-	-	1.40	-
03	-	-	-	-	0.30	-	-	-	-	-	-	2.10	-

BA- Banswara, JU- Junagadh, SU- Surat, BH- Bharuch, AK- Akola, NA- Nanded, RA- Rahuri, KH- Khandwa, BW- Bhawanipatna

* Bt Ajeet 199 BG II sown at Rahuri

Table :131. Ent 2. Seasonal dynamics of key pests of cotton (H. armigera) under Unprotected condition to develop suitable forecasting model in Central Zone – – Bt Ajeet 155 BG II during 2020-21

Standard week	Predators/ Plants*						H.armigera												
							Larvae /5 plants	Larvae /5 plants	Larvae /5 plants	Eggs/5 plants	Larvae /5 plants	Eggs/5 plants	Larvae /5 plants	Eggs/5 plants	Larvae /5 plants	Eggs/5 plants	Larvae /5 plants	Eggs/5 plants	Larvae /5 plants
	SU	BH	AK	NA	RA*	BW	JU	SU	BH	AK	AK	NA	NA	RA	RA	KH	KH	BW	BW
28	-	-	-	-	0.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	0.4	0.25	-	-	-	-	-	-	0	0	-	-	-	-	-	-
30	-	-	-	1.2	**1.28**	-	-	-	-	-	-	0	0	-	-	-	-	-	-
31	-	-	-	3.2	0.65	-	-	-	-	-	-	0	0	-	-	-	-	-	-
32	-	-	-	0.8	1.03	-	-	-	-	-	-	2	1	-	-	-	-	-	-
33	-	-	-	0.8	0.97	-	-	-	-	-	-	1	1	-	-	-	-	-	-
34	-	-	2.20	1.1	0.56	-	-	-	-	0.00	0.00	2	0	-	-	-	-	-	-
35	-	-	0.90	1.6	0.62	-	-	-	-	0.00	0.00	2	1	-	-	-	-	-	-
36	-	-	0.60	1.8	0.83	-	-	-	-	0.00	0.00	4	1	-	-	-	-	-	-
37	-	-	0.80	0.6	0.81	-	-	-	-	0.00	0.00	5	1	-	-	-	-	-	-
38	-	-	0.80	1.2	0.43	-	-	-	-	0.00	0.00	4	1	-	-	-	-	-	-
39	-	-	0.80	0.9	1.07	-	-	-	-	0.00	0.00	5	2	-	-	-	-	-	-
40	-	-	1.60	2	0.68	-	-	-	-	0.00	0.00	4	1	-	-	-	-	-	-
41	-	-	0.90	2.4	0.55	-	-	-	-	0.00	0.10	4	1	-	-	-	-	-	-
42	-	-	0.00	2.3	0.45	-	-	-	-	0.00	0.40	1	1	-	-	-	-	-	-
43	-	-	0.50	1.5	1.40	-	-	-	-	0.00	0.00	2	0	-	-	-	-	-	-
44	-	-	0.90	1.1	0.58	-	-	-	-	0.00	0.00	0	0	-	-	-	-	-	-
45	-	-	0.40	1.3	0.88	-	-	-	-	0.00	0.00	2	0	-	-	-	-	-	-
46	-	-	0.50	1	0.80	-	-	-	-	0.00	0.00	0	1	-	-	-	-	-	-
47	-	-	0.80	1.4	1.06	-	-	-	-	0.00	0.00	1	0	-	-	-	-	-	-
48	-	-	0.20	0	**2.09**	-	-	-	-	0.00	0.00	0	1	-	-	-	-	-	-
49	-	-	0.70	0	-	-	-	-	-	0.00	0.00	0	0	-	-	-	-	-	-
50	-	-	0.30	0	-	-	-	-	-	0.00	0.00	0	0	-	-	-	-	-	-
51	-	-	0.50	0	-	-	-	-	-	0.00	0.00	0	0	-	-	-	-	-	-
52	-	-	0.90	0	-	-	-	-	-	0.00	0.00	0	0	-	-	-	-	-	-
01	-	-	0.70	-	-	-	-	-	-	0.00	0.00	-	-	-	-	-	-	-	-
02	-	-	0.40	-	-	-	-	-	-	0.00	0.00	-	-	-	-	-	-	-	-
03	-	-	0.60	-	-	-	-	-	-	0.00	0.00	-	-	-	-	-	-	-	-

BA- Banswara, JU- Junagadh, SU- Surat, BH- Bharuch, AK- Akola, NA- Nanded, RA- Rahuri, KH- Khandwa, BW- Bhawanipatna

Table:132.. Ent 2. Seasonal dynamics of key pests of cotton (Boll worms) under Unprotected condition to develop suitable forecasting model in Central Zone – Bt Ajeet 155 BG II during 2020-21

Standard week	Earias spp. Larvae / 5 plants									S. litura larvae / 5 plants						parasitism on bollworms (%)
	JU	SU	BH	AK	NA	RA	KH	BW		JU	SU	BH	NA	RA	BW	NA
29	-	-	-	-	0	-	-	-	-	-	-	-	0	-	-	0
30	-	-	-	-	0	-	-	-	-	-	-	-	0	-	-	0
31	-	-	-	-	0	-	-	-	-	-	-	-	0	-	-	0
32	-	-	-	-	0	-	-	-	-	-	-	-	0	-	-	0
33	-	-	-	-	1	-	-	-	-	-	-	-	0	-	-	0
34	-	-	-	0.00	1	-	-	-	-	-	-	-	0	-	-	0
35	-	-	-	0.00	1	-	-	-	-	-	-	-	1	-	-	0
36	-	-	-	0.00	0	-	-	-	-	-	-	-	0	-	-	0.2
37	-	-	-	0.00	1	-	-	-	-	-	-	-	1	-	-	0.4
38	-	-	-	0.00	0	-	-	-	-	-	-	-	0	-	-	2
39	-	-	-	0.00	0	-	-	-	-	-	-	-	1	-	-	2
40	-	-	-	0.00	0	-	-	-	-	-	-	-	1	-	-	2
41	-	-	-	0.00	0	-	-	-	-	-	-	-	0	-	-	4
42	-	-	-	0.00	1	-	-	-	-	-	-	-	0	-	-	3
43	-	-	-	0.00	1	-	-	-	-	-	-	-	1	-	-	2
44	-	-	-	0.00	1	-	-	-	-	-	-	-	1	-	-	4
45	-	-	-	0.00	1	-	-	-	-	-	-	-	0	-	-	2
46	-	-	-	0.00	0	-	-	-	-	-	-	-	1	-	-	4
47	-	-	-	0.00	0	-	-	-	-	-	-	-	0	-	-	2
48	-	-	-	0.00	0	-	-	-	-	-	-	-	0	-	-	4
49	-	-	-	0.10	0	-	-	-	-	-	-	-	0	-	-	2
50	-	-	-	0.00	0	-	-	-	-	-	-	-	0	-	-	0
51	-	-	-	0.00	0	-	-	-	-	-	-	-	0	-	-	0
52	-	-	-	0.00	0	-	-	-	-	-	-	-	0	-	-	0
01	-	-	-	0.10	-	-	-	-	-	-	-	-	-	-	-	-
02	-	-	-	0.00	-	-	-	-	-	-	-	-	-	-	-	-
03	-	-	-	0.00	-	-	-	-	-	-	-	-	-	-	-	-

BA- Banswara, JU- Junagadh, SU- Surat, BH- Bharuch, AK- Akola, NA- Nanded, RA- Rahuri, KH- Khandwa, BW- Bhawanipatna

Table:133. Ent 2. Seasonal dynamics of key pests of cotton (Fruiting body damage and PBW) under Unprotected condition to develop suitable forecasting model in Central Zone – Bt Ajeet 155 BG II during 2020-21

Standard week	**Fruiting Body damage (%)							Mean Flower damage/ 50 flowers (%)	Mean Pink bollworm larvae/ 20 green bolls						
	H. armigera				PBW	E. vittella									
	AK	NA	RA*	KH	NA	AK	NA	NA	JU	SU	BH	AK	NA	RA*	KH
28	-		--			-		-	-	-	-	-		--	
29	-	0	--		0	-	0	-	-	-	-	-	0	--	
30	-	0	--		0	-	0	-	-	-	-	-	0	--	
31	-	0	--		0	-	0	-	-	-	-	-	0	--	
32	-	0	--		0	-	0	-	-	-	-	-	0	--	
33	-	0	--		0	-	0	-	-	-	-	-	0	--	
34	0.00	0	--		0	0.00	0	-	-	-	-	0.00	0	--	
35	0.00	0	--		2	0.00	0	-	-	-	-	0.00	1	--	
36	0.00	0	--		6	0.00	0	-	-	-	-	0.00	0	--	
37	0.00	0.8	--		4	0.00	0	-	-	-	-	0.00	1	--	
38	0.43	0.2	--		4	0.00	0	-	-	-	-	0.00	0	--	
39	0.00	0.1	--		2	0.00	0	-	-	-	-	0.00	0	--	
40	0.38	0.8	6.37		4	0.00	0	-	-	-	-	2.00	0	2.16	
41	2.55	0.8	9.30		8	0.00	0	-	-	-	-	6.00	0	3.60	
42	0.00	0	32.47		10	0.00	0	-	-	-	-	4.00	1	**5.85**	
43	0.00	0	42.39		10	0.00	0	-	-	-	-	9.00	1	9.60	
44	0.26	0	56.77		14	0.00	0	-	-	-	-	10.00	1	12.68	
45	0.00	0	58.16		12	0.00	0	-	-	-	-	14.00	2	20.12	
46	0.00	0	67.82		24	0.00	0	-	-	-	-	16.00	1	24.58	
47	0.00	0	69.27		22	0.00	0	-	-	-	-	21.00	1	24.88	
48	0.00	0	**73.26**		24	1.12	0	-	-	-	-	16.00	1	35.18	
49	0.00	0	-		30	1.65	0	-	-	-	-	22.00	1	-	
50	2.27	0	-		32	2.25	0	-	-	-	-	18.00	0	-	
51	0.00	0	-		32	4.12	0	-	-	-	-	18.00	0	-	
52	0.00	0	-		32	4.55	0	-	-	-	-	12.00	0	-	
01	0.00	-	-			0.00	-	-	-	-	-	17.00		-	
02	0.00	-	-			0.00	-	-	-	-	-	21.00		-	
03	0.00	-	-			0.00	-	-	-	-	-	15.00		-	

BA- Banswara, JU- Junagadh, SU- Surat, BH- Bharuch, AK- Akola, NA- Nanded, RA- Rahuri, KH- Khandwa, BW- Bhawanipatna

Table:134. Ent 2. Seasonal dynamics of key pests of cotton (Fruiting body damage and PBW) under Unprotected condition to develop suitable forecasting model in Central Zone – Bt Ajeet 155 BG II during 2020-21

Standard week	Boll damage on boll basis			Boll damage on locule basis			SCY (Q/ha)
	Green boll damage/ 20 bolls (%)		Open boll damage/ 20 bolls (%)	Locule damage in 20 Green bolls (%)		Open boll Locule damage in 20 bolls (%)	
	Mean		At harvest	mean		At harvest	
	AK	NA	NA	AK	NA	NA	NA
29	-	0	-	-	-		-
30	-	0	-	-	-		-
31	-	**0**	-	-	-		-
32	-	0	-	-	-		-
33	-	**0**	-	-	**0**		-
34	0.00	0	-	0.00	0		-
35	0.00	0	-	0.00	5.00		-
36	0.00	0	-	0.00	5.00		-
37	0.00	0	-	0.00	0		-
38	0.00	0	-	0.00	0		-
39	0.00	0	-	0.00	0		-
40	10.00	0	-	2.87	0		-
41	20.00	0	-	5.06	0		-
42	20.00	**0**	-	5.13	**10**		-
43	20.00	9	-	5.00	11.25		-
44	25.00	10.00	-	6.25	15		-
45	35.00	**10**	-	11.90	**20**		-
46	40.00	12.00	-	11.11	21.25		-
47	65.00	**24**	**32**	16.25	**22.5**	**27.5**	-
48	60.00	22	-	16.67	25		-
49	65.00	**24**	-	24.97	**27.5**		-
50	55.00	28.00	-	17.95	27.5		-
51	65.00	30	-	22.37	27.5		-
52	60.00	32	-	19.18	27.5		-
01	65.00	-	-	20.99	-		-
02	70.00	-	-	26.32	-		-
03	60.00	-	-	20.27	-		-

AK- Akola, Na- Nanded

Table:135. Ent 2. Seasonal dynamics of key pests of cotton (Trap catches) under Unprotected condition to develop suitable forecasting model in Central Zone – Bt Ajeet 155 BG II during 2020-21

Standard week	Trap catches													
		H. armigera						PBW						
	BA	JU	SU	BH	NA	RA*	BW	BA	JU	SU	BH	NA	RA*	BW
28	-	-	-	-		0	-	-	-	-	-		0	-
29	-	-	-	-	2	0	-	-	-	-	-	4	0	-
30	-	-	-	-	2	5	-	-	-	-	-	2	0	-
31	-	-	-	-	0	8	-	-	-	-	-	2	0	-
32	-	-	-	-	2	7	-	-	-	-	-	2	0	-
33	-	-	-	-	1	3	-	-	-	-	-	4	0	-
34	-	-	-	-	2	325	-	-	-	-	-	0	1	-
35	-	-	-	-	3	179	-	-	-	-	-	0	14	-
36	-	-	-	-	6	143	-	-	-	-	-	0	04	-
37	-	-	-	-	2	217	-	-	-	-	-	4	7	-
38	-	-	-	-	4	73	-	-	-	-	-	3	5	-
39	-	-	-	-	2	123	-	-	-	-	-	2	08	-
40	-	-	-	-	1	2	-	-	-	-	-	2	13	-
41	-	-	-	-	1	0	-	-	-	-	-	4	26	-
42	-	-	-	-	1	0	-	-	-	-	-	8	67	-
43	-	-	-	-	2	3	-	-	-	-	-	16	47	-
44	-	-	-	-	1	5	-	-	-	-	-	7	117	-
45	-	-	-	-	1	0	-	-	-	-	-	5	54	-
46	-	-	-	-	1	0	-	-	-	-	-	5	105	-
47	-	-	-	-	0	0	-	-	-	-	-	4	116	-
48	-	-	-	-	0	0	-	-	-	-	-	6	154	-
49	-	-	-	-	2	-	-	-	-	-	-	5	-	-
50	-	-	-	-	0	-	-	-	-	-	-	5	-	-
51	-	-	-	-	0	-	-	-	-	-	-	5	-	-
52	-	-	-	-	0	-	-	-	-	-	-	4	-	-
	-	-	-	-			-	-	-	-	-			-
	-	-	-	-			-	-	-	-	-			-

AK- Akola, Na- Nanded

Table:136. Ent 2. Seasonal dynamics of key pests of cotton (Trap catches) under Unprotected condition to develop suitable forecasting model in Central Zone – Bt Ajeet 155 BG II during 2020-21

Standard week	Trap catches													
		SBW						*S. litura*						
	BA	JU	SU	BH	NA	RA*	BW	BA	JU	SU	BH	NA	RA*	BW
28	-	-	-	-		0	-	-	-	-	-		0	-
29	-	-	-	-	1	0	-	-	-	-	-	2	0	-
30	-	-	-	-	2	0	-	-	-	-	-	5	0	-
31	-	-	-	-	0	0	-	-	-	-	-	4	0	-
32	-	-	-	-	1	0	-	-	-	-	-	3	10	-
33	-	-	-	-	1	0	-	-	-	-	-	4	14	-
34	-	-	-	-	2	1	-	-	-	-	-	4	17	-
35	-	-	-	-	4	5	-	-	-	-	-	3	37	-
36	-	-	-	-	5	2	-	-	-	-	-	4	20	-
37	-	-	-	-	7	1	-	-	-	-	-	5	44	-
38	-	-	-	-	0	3	-	-	-	-	-	6	15	-
39	-	-	-	-	0	7	-	-	-	-	-	2	10	-
40	-	-	-	-	5	9	-	-	-	-	-	4	13	-
41	-	-	-	-	0	2	-	-	-	-	-	2	30	-
42	-	-	-	-	0	0	-	-	-	-	-	2	43	-
43	-	-	-	-	1	0	-	-	-	-	-	3	57	-
44	-	-	-	-	2	0	-	-	-	-	-	1	18	-
45	-	-	-	-	2	0	-	-	-	-	-	3	0	-
46	-	-	-	-	2	0	-	-	-	-	-	6	0	-
47	-	-	-	-	1	0	-	-	-	-	-	3	0	-
48	-	-	-	-	1	0	-	-	-	-	-	4	0	-
49	-	-	-	-	0	-	-	-	-	-	-	0	-	-
50	-	-	-	-	1	-	-	-	-	-	-	0	-	-
51	-	-	-	-	2	-	-	-	-	-	-	0	-	-
52	-	-	-	-	0	-	-	-	-	-	-	0	-	-

AK- Akola, Na- Nanded

Table:137. Ent 2. Seasonal dynamics of key pests of cotton (Abiotic factors- Temperature) under Unprotected condition to develop suitable forecasting model in Central Zone during 2020-21

Standard week	Abiotic factors													
	Temperature(^{0}C)													
	JU		SU		BH		AK		NA		RA		BW	
	Min	max	Min	max	min	max	min	max	min	max	min	max	min	max
27	-	-	-	-	25.90	34.30	-	-	-	-	-	-	-	-
28	-	-	-	-	26.80	33.10	-	-	-	-	24.87	31.69	-	-
29	-	-	-	-	26.70	33.60	-	-	18.4	31.1	24.03	31.09	-	-
30	26.3	33.1	25.50	30.60	25.90	34.00	-	-	19	32.4	23.51	30.23	-	-
31	25.9	33.2	26.40	31.90	26.30	33.60	-	-	18.5	32.9	20.36	30.14	24.7	33.5
32	25.5	31.3	26.60	32.70	26.30	31.30	-	-	18.1	29.6	24.16	30.43	24.5	31.3
33	25.3	28.6	25.10	30.40	25.40	29.30	-	-	17.1	27.7	23.20	27.51	23.8	28.0
34	24.9	29.3	24.90	29.10	25.70	29.80	22.3	30.0	17.7	29	23.26	27.49	23.8	31.0
35	24.5	30.2	26.20	30.60	25.70	31.00	22.3	29.7	18.9	30	23.33	29.57	23.7	32.3
36	25.9	33.9	26.50	30.00	27.00	34.00	22.8	33.4	21.1	35.3	23.40	30.59	24.0	34.2
37	25.4	32.9	26.50	31.70	26.20	33.90	22.2	33.3	18.9	30.7	23.67	32.06	23.7	33.6
38	25.6	33.2	26.50	32.00	25.10	32.30	21.8	32.5	18.1	29.9	23.19	29.20	23.7	32.9
39	24.8	32.5	26.40	30.60	25.00	31.90	21.2	32.3	18.4	29.7	23.76	27.94	23.6	32.4
40	24.2	34	25.00	30.50	25.20	34.30	21.3	34.1	18.7	30	22.93	30.66	22.1	30.3
41	25.2	36.7	27.20	31.40	24.10	36.30	21.4	32.2	19.9	30.3	23.61	32.31	23.1	31.0
42	26	35.8	25.80	32.40	26.10	36.20	21.4	32.9	19.7	32.8	23.43	29.80	22.6	31.9
43	21.7	35.6	24.20	29.60	23.60	35.50	17.3	33.4	20.7	32.7	22.76	30.86	18.5	31.6
44	18.3	35.1	24.70	33.60	20.40	35.20	12.6	33.0	19.3	32.6	19.80	30.09	17.5	31.3
45	17.1	34.8	23.90	33.40	17.30	34.30	8.9	31.8	16.3	31.7	16.94	30.51	14.9	29.7
46	17.5	33.9	21.20	29.00	17.80	33.90	14.2	32.8	16.6	33.3	14.33	28.41	16.9	33.1
47	14.9	30.8	22.50	33.50	17.60	31.80	13.8	32.1	17.9	32.9	19.84	31.29	15.9	27.3
48	18.7	32.4	17.40	31.50	18.10	31.90	13.4	30.7	16.3	31.4	17.26	29.00	13.9	27.9
49	15.2	34.1	19.20	32.10	16.10	34.50	10.3	31.8	15	32.3	-	-	10.7	30.1
50	17.8	29.3	16.50	34.10	16.30	26.50	17.8	29.9	16.4	31	-	-	14.2	30.3
51	11.9	29.3	18.30	28.60	14.90	28.80	10.7	29.0	13.6	30.7	-	-	11.3	27.9
52	11	27.9	15.30	29.40	13.00	27.80	11.6	28.8	15	29.8	-	-	10.1	28.4
01	-	-	-	-	-	-	16.1	29.0	-	-	-	-	-	-
02	-	-	-	-	-	-	16.6	31.4	-	-	-	-	-	-
03	-	-	-	-	-	-	15.7	31.7	-	-	-	-	-	-

BA- Banswara, JU- Junagadh, SU- Surat, BH- Bharuch, AK- Akola, NA- Nanded, RA- Rahuri, KH- Khandwa, BW- Bhawanipatna

Table:138. Ent 2. Seasonal dynamics of key pests of cotton (Abiotic factors- Relative Humidity) under Unprotected condition to develop suitable forecasting model in Central Zone during 2020-21

Standard week	Abiotic factors													
	RH %													
	JU		SU		BH		AK		NA		RA		BW	
	Morning	evening	morning	evening	morning	evening	morning	evening	morning	evening	morning	evening	morning	evening
27	-	-	-	-	87.10	68.40	-	-	-	-	-	-	-	-
28	-	-	-	-	90.30	81.40	-	-	-	-	81.43	54.43	-	-
29	-	-	-	-	84.60	67.90	-	-	87.7	77.3	85.57	60.57	-	-
30	94	82	87.00	82.00	86.30	66.00	-	-	80.5	71.7	90.86	65.86	-	-
31	86	76	90.00	60.00	87.30	59.70	-	-	74.7	65.3	91.43	56.43	77.9	76.4
32	93	83	84.00	78.00	92.30	80.30	-	-	83	80.6	83.43	60.71	87.6	82.9
33	96	92	88.00	88.00	91.00	86.10	-	-	86	82.3	89.29	74.86	90.1	85.9
34	93	87	98.00	94.00	91.10	84.90	87	73	86.1	84.6	88.86	71.57	83.1	82.3
35	96	87	99.00	91.00	93.60	80.10	86	69	86.3	77.9	86.14	60.57	80.3	72.6
36	84	59	92.00	95.00	85.10	62.70	86	56	84.9	64.7	87.00	56.43	76.7	75.6
37	90	73	80.00	84.00	85.10	65.30	90	56	89.6	70.9	92.43	59.43	76.9	81.6
38	89	70	84.00	85.00	92.30	84.00	90	63	85.3	79.6	93.00	69.86	79.4	77.3
39	83	56	88.00	94.00	86.30	70.30	86	60	84.3	84.3	90.29	69.71	81.4	82.7
40	84	51	86.00	89.00	83.60	52.30	83	46	87.4	82.9	87.71	56.71	92.4	84.4
41	73	35	88.00	86.00	75.10	40.00	89	61	86.4	82.6	86.00	43.71	85.0	81.3
42	78	55	82.00	83.00	80.60	53.30	89	57	79	68.7	91.71	62.86	83.9	76.4
43	69	36	85.00	89.00	75.70	53.00	84	43	76.1	63.4	93.14	58.57	80.4	68.0
44	68	28	86.00	95.00	55.70	30.10	84	28	77.3	58.4	86.86	52.14	74.3	63.0
45	71	27	66.00	83.00	55.00	21.10	80	29	62	42.9	85.86	35.86	14.9	62.9
46	64	31	71.00	52.00	54.60	16.70	81	30	66	41.4	83.00	35.57	16.9	58.3
47	66	33	81.00	68.00	65.40	41.10	88	34	59.4	50.7	85.71	43.29	15.9	65.0
48	64	32	84.00	60.00	63.30	32.70	79	31	65.7	64.6	84.43	42.00	76.1	58.0
49	74	32	85.00	62.00	54.60	23.40	80	23	66.6	48	-	-	67.4	52.7
50	67	44	84.00	53.00	84.10	62.70	82	36	65.6	58.4	-	-	70.3	54.6
51	74	34	94.00	75.00	74.30	43.10	83	33	65.1	47.7	-	-	70.1	50.0
52	58	25	86.00	61.00	79.30	37.00	81	29	64.6	53.3	-	-	70.1	46.9
01	-	-	-	-	-	-	83	41	-	-	-	-	-	-
02	-	-	-	-	-	-	84	34	-	-	-	-	-	-
03	-	-	-	-	-	-	71	32	-	-	-	-	-	-

BA- Banswara, JU- Junagadh, SU- Surat, BH- Bharuch, AK- Akola, NA- Nanded, RA- Rahuri, KH- Khandwa, BW- Bhawanipatna

Table:139. Ent 2. Seasonal dynamics of key pests of cotton (Abiotic factors- Rainfall) under Unprotected condition to develop suitable forecasting model in Central Zone during 2020-21

Standard week	Abiotic factors						
	Rainfall in mm						
	JU	SU	BH	AK	NA	RA	BW
27	-	-	33.60	-	-	-	-
28	-	-	37.60	-	-	2.00	-
29	-	-	32.00	-	71.6	81.00	-
30	37.6	40.00	46.60	-	40.8	109.30	-
31	53.8	57.00	20.60	-	34.8	107.80	33.0
32	203.4	21.00	23.80	-	53.8	0.00	45.2
33	224.4	59.00	187.90	-	83.6	60.20	18.6
34	133.7	433.00	86.00	42.2	49.8	25.80	87.8
35	250.7	224.00	68.00	20.5	13.4	0.80	41.8
36	0	175.00	24.40	16.6	0	4.70	49.4
37	112.6	3.00	11.20	26.5	182	82.60	13.4
38	23.5	41.00	182.20	47.6	96.8	209.00	106.0
39	0	115.00	66.40	0.0	57	68.20	8.8
40	19.1	113.00	0.00	0.0	18	1.00	84.6
41	0	0.00	0.00	14.2	54.4	8.40	26.8
42	29.8	0.00	9.20	17.8	1.8	49.00	21.6
43	0	0.00	0.00	0.0	0	0.94	0.0
44	0	0.00	0.00	0.0	0	0.59	0.0
45	0	0.00	0.00	0.0	0	0.56	0.0
46	0	0.00	0.00	0.0	0	1.41	0.0
47	0	0.00	0.00	5.5	0	1.29	3.8
48	0	0.00	0.00	0.0	0	0.87	0.0
49	0	0.00	0.00	0.0	0	-	0.0
50	1.2	0.00	17.60	0.5	0	-	0.0
51	0	46.00	0.00	0.0	0	-	0.0
52	0	0.00	0.00	0.0	0	-	0.0
01	-	-	-	2.5	-	-	-
02	-	-	-	0.0	-	-	-
03	-	-	-	0.0	-	-	-

Table: 140. Ent 2. Seasonal dynamics of key pests of cotton (Leafhopper and Whitefly) under unprotected condition to develop suitable forecasting model in South Zone – NBt DCH 32 during 2020 – 21

	Sucking Pests											
	Jassid / 3 leaves						Whitefly / 3 leaves					
	LG	ND	DW	RC	CN	CBE	LG	ND	DW	RC	CN	CBE
31	-	-	0.0	-	-	-		-	0.00	-	-	-
32	-	-	3.00	-	-	-		-	0.10	-	-	-
33	-	-	2.20	4.12	-	-		-	0.20	0.0	-	-
34	1.30	-	1.10	4.66	2.25	-	0.00	0.00	0.20	0.0	-	-
35	2.90	-	2.30	4.72	3.75	-	0.40	0.40	2.00	0.0	-	-
36	2.90	-	7.50	4.35	1.48	-	0.76	0.76	0.90	1.43	-	-
37	6.25	-	7.10	6.52	2.6	9.6	0.42	0.42	0.30	2.25	1.22	1.53
38	6.84	-	9.20	5.32	6.5	9.9	0.32	0.32	1.70	1.42	2.25	1.63
39	5.84	-	10.00	3.14	7.75	10.6	0.28	0.28	0.40	0.54	2.4	2.41
40	31.84	5.00	12.40	2.23	3.8	12.3	0.52	0.52	1.50	0.0	1.5	2.45
41	20.20	3.10	11.00	7.20	2.2	13.6	0.28	0.28	2.50	4.8	0.8	3.12
42	10.92	4.20	12.70	6.00	6.45	14.3	0.28	0.28	1.10	3.6	1.3	3.39
43	11.80	4.60	9.30	4.80	3.4	15.8	0.84	0.84	0.30	2.4	1.25	4.37
44	7.12	3.70	7.50	5.40	3.6	16.4	0.20	0.20	1.50	3.6	1.5	1.49
45	8.52	5.20	5.50	5.40	2.5	2.7	0.00	0.00	1.20	6.0	0.75	1.57
46	6.36	4.60	6.90	12.60	3.75	0.8	1.12	1.12	1.00	7.8	1.15	0.46
47	11.68	3.40	4.80	16.80	2.75	1.4	2.36	2.36	1.40	6.0	0.5	0.0
48	5.26	4.00	4.30	8.40	3.25	0.8	0.80	0.80	1.70	6.6	0.26	0.0
49	7.80	1.20	4.00	5.40	2.5	0.4	0.92	0.92	1.30	5.4	0	0.0
50	6.88	3.20	3.80	4.80	2	0.0	1.84	1.84	1.30	3.6	0	0.0
51	8.20	1.20	3.50	3.60	1.25	0.0	1.96	1.96	1.10	3.0	0	0.0
52	8.84	3.60	4.20	3.00	1.2	0.0	0.56	0.56	1.40	3.0	0	0.0
1	41.40	-	-	-	-	0.0	4.20	4.20	0.00	-		0.0
2	9.25	-	-	-	-	0.0	3.45	3.45	0.00	-		0.0
3	3.40	-	-	-	-	-	1.88	1.88	-	-		-
4	4.24	-	-	-	-	-	1.60	1.60	-	-		-

LG – Lam Guntur; ND – Nandyal; DW – Dharwad; RC – Raichur; CN – Chamarajanagara; CBE – Coimbatore;

Table:141. Ent 2. Seasonal dynamics of key pests of cotton (Leafhopper and Whitefly) under unprotected condition to develop suitable forecasting model in South Zone – Jadoo during 2020 – 21

SMW	Sucking Pests											
	Jassid / 3 leaves						Whitefly / 3 leaves					
	LG	ND	DW	RC	CN	CBE	LG	ND	DW	RC	CN	CBE
31			0.00	-	-			0.00	-	-		-
32			1.20	-	-			0.10	-	-		-
33		-	2.20	-	-			0.40	-	-		-
34	1.80	-	2.60	-	-		0.00	0.30	-	-		-
35	2.84	-	4.00	-	-		0.00	0.80	-	-		-
36	3.48	-	6.40	-	-		1.00	1.00	-	-		-
37	24.04	-	6.70	-	-	3.6	3.64	0.30	-	-	0.46	1.53
38	1.16	-	8.70	-	-	5.9	0.24	1.70	-	-	0.0	1.63
39	1.92	-	9.00	-	-	1.6	0.56	0.20	-	-	0.19	2.41
40	3.52	5.00	10.80	-	-	7.5	0.52	1.50	-	-	1.26	2.45
41	3.28	3.10	7.70	-	-	3.2	0.60	0.80	-	-	0.55	3.12
42	4.80	4.20	6.70	-	-	2.6	4.04	1.00	-	-	2.39	3.39
43	3.12	4.60	4.70	-	-	8.8	2.80	0.80	-	-	3.61	4.37
44	1.72	3.70	6.20	-	-	9.7	0.64	0.60	-	-	0.25	1.49
45	1.48	5.20	6.70	-	-	2.7	1.64	1.10	-	-	1.09	1.57
46	2.12	4.60	3.90	-	-	0.8	4.80	0.90	-	-	0.0	0.46
47	4.08	3.40	4.00	-	-	1.4	4.52	1.30	-	-	0.0	0.0
48	2.30	4.00	5.90	-	-	0.8	1.24	0.70	-	-	0.0	0.0
49	4.76	1.20	4.90	-	-	0.4	3.28	1.20	-	-	0.0	0.0
50	3.80	3.20	5.70	-	-	0.0	4.64	1.80	-	-	0.0	0.0
51	4.32	1.20	4.70	-	-	0.0	4.24	1.10	-	-	0.0	0.0
52	2.16	3.60	6.80	-	-	0.0	2.00	0.90	-	-	0.0	0.0
1	3.96			-	-	0.0	2.44		-	-	0.0	0.0
2	3.35			-	-	0.0	2.28		-	-	0.0	0.0
3	2.60			-	-		2.08		-	-		-
4	4.92			-	-		2.48		-	-		-

LG – Lam Guntur; ND – Nandyal; DW – Dharwad; RC – Raichur; CN – Chamarajanagara; CBE – Coimbatore;

Table:142. Ent 2. Seasonal dynamics of key pests of cotton (Sucking pests) under Unprotected condition to develop suitable forecasting model in South Zone – NBt DCH 32 during 2020 – 21

	Sucking Pest														
	Thrips / 3 leaves						Aphid / 3 leaves					Mirid bug/25 squares			Mealy bug grade
	LG	ND	DW	RC	CN	CBE	LG	DW	RC	CN	CBE	DW	CN	CBE	RC
32			7.00	-	2.80	-	-	0.90	-	-	-	-	-		
33	-		10.90	0.00	4.5	-		-	2.00	0.00	8.25	-			
34	2.60		29.50	0.00	6.25	-	8.10	1.80	0.00	15.25	-	-			
35	3.50		31.25	0.00	5.15	-	5.60	4.40	0.00	16.45	-	-			
36	6.40		36.20	20.42	3.4	-	1.10	7.10	0.00	5.25	-	2.00			
37	9.04		40.00	26.78	4.25	11.02	3.02	9.40	0.00	18.56	0.0	6.00		0.00	0.00
38	2.20		43.90	6.34	4.5	11.48	6.20	12.90	0.00	32.5	12.32	8.00		0.00	0.00
39	3.96		41.25	4.32	5.12	12.31	6.16	15.50	0.00	41.25	15.67	14.00		0.00	0.00
40	0.20		39.75	3.56	3.6	10.44	1.24	18.80	5.40	15.24	16.80	16.00		0.00	0.00
41	0.20		35.50	11.33	1.5	8.47	3.60	23.40	0.00	7.75	18.9	18.00		0.00	0.00
42	0.28		31.00	4.15	2.5	8.72	3.24	26.90	0.60	15.26	26.4	12.00		0.00	0.00
43	0.12		26.50	4.22	2.75	14.94	0.44	31.60	0.00	25.3	28.6	14.00		0.00	0.00
44	0.00		18.50	4.68	3.21	7.69	2.60	34.30	0.60	18.25	16.7	21.00		0.00	0.00
45	0.00		16.75	5.66	1.25	6.31	3.92	40.70	1.80	15.42	12.45	26.00		0.00	0.00
46	0.00		10.50	4.20	0.75	5.57	1.64	43.40	4.80	22.25	9.84	28.00		0.00	0.00
47	0.36		6.25	8.40	0.24	1.35	9.44	46.75	5.40	14.45	3.47	22.00		0.00	1.0
48	0.00		4.50	6.00	0	0.00	2.06	38.75	2.40	13.45	2.58	18.00		0.56	1.2
49	0.00		2.00	7.80	0	0.00	1.44	23.52	1.80	8.45	1.52	12.00		0.68	1.4
50	0.44		1.60	9.60	0	0.00	3.00	18.40	3.00	2.15	0.0	-		1.00	2.0
51	0.36		2.40	14.40	0	0.00	2.76	14.70	4.80	0.75	0.78	-		1.23	2.6
52	0.96		3.30	17.40	0	0.00	2.52	8.00	4.20	0.48	0.86	-		0.00	2.6
1	3.40		-	-	-	0.00	16.20	-	-	8.25	0.0	-		0.00	2.6
2	3.00		-	-	-	0.00	12.75	-	-	15.25	0.0	-		0.00	2.6
3	2.84		-	-	-	-	2.80	-	-	16.45	0.0	-		0.00	-

LG – Lam Guntur; ND – Nandyal; DW – Dharwad; RC – Raichur; CN – Chamarajanagara; CBE – Coimbatore;

Table 143. Ent 2. Seasonal dynamics of key pests of cotton (Sucking pests) under Unprotected condition to develop suitable forecasting model in South Zone – Jadoo during 2020 – 21

	Sucking Pest														
	Thrips / 3 leaves						Aphid / 3 leaves					Mirid bug/25 squares			Mealy bug grade
	LG	ND	DW	RC	CN	CBE	LG	DW	RC	CN	CBE	DW	CN	CBE	RC
32	-		5.10	-	-	-	-	0.60	-	-	-	-			
33	-		18.30	-	-	-	-	2.20	-	-	-	-			
34	5.12		27.50	-	-	-	11.20	1.60	-	-	-	-			
35	13.84		32.90	-	-	-	5.48	3.40	-	-	-	1.00			
36	8.32		36.50	-	-	-	2.80	6.40	-	-	-	4.00			
37	0.32		39.50	-	-	7.3	3.36	8.90	-	-	0.0	5.00		0.00	
38	9.80		41.20	-	-	2.5	5.48	11.30	-	-	1.6	7.00		0.00	
39	6.28		40.00	-	-	3.7	6.12	12.90	-	-	7.6	12.00		0.00	
40	0.92		38.10	-	-	5.9	6.88	16.50	-	-	13.4	14.00		0.00	
41	2.72		34.25	-	-	1.7	5.20	19.10	-	-	8.9	17.00		0.00	
42	0.48		22.62	-	-	0.4	0.80	20.20	-	-	2.5	11.00		0.00	
43	0.04		21.30	-	-	6.3	1.04	26.00	-	-	5.8	13.00		0.00	
44	0.00		17.10	-	-	2.7	1.28	30.40	-	-	2.4	15.00		0.00	
45	0.16		15.78	-	-	1.3	0.84	35.20	-	-	8.8	24.00		0.00	
46	0.48		9.20	-	-	0.0	8.84	38.89	-	-	6.3	26.00		0.00	
47	0.52		5.60	-	-	0.0	11.08	41.50	-	-	0.0	20.00		0.00	
48	0.02		1.30	-	-	0.0	9.06	36.30	-	-	0.0	16.00		0.00	
49	0.04		0.70	-	-	0.0	7.00	22.46	-	-	0.0	10.00		0.00	
50	0.32		1.10	-	-	0.0	12.12	13.60	-	-	0.0			0.00	
51	0.88		1.30	-	-	0.0	5.32	7.80	-	-	2.4			0.00	
52	2.76		1.90	-	-	0.4	8.04	8.80	-	-	1.6			0.00	
1	7.48			-	-	0.0	9.24		-	-	0.0			0.00	
2	6.75			-	-	0.0	6.03		-	-	0.0			0.00	
3	5.00			-	-		4.52		-	-	0.0			0.00	
4	5.12			-	-		4.68		-	-					

LG – Lam Guntur; ND – Nandyal; DW – Dharwad; RC – Raichur; CN – Chamarajanagara; CBE – Coimbatore;

Table 144. Ent 2. Seasonal dynamics of key pests of cotton (Predators) under unprotected condition to develop suitable forecasting model in South Zone – NBt DCH 32 during 2020-21

	Predators					Twisted flower buds due to midge (%)
	DW	LG	RC	CN	CBE	DW
31	0.1	-	-	-	-	-
32	0.3	-	-	-	-	-
33	0.5	-	0.0	-	-	0.00
34	0.5	0.48	0.0	5.25	-	0.00
35	0.3	0.36	0.0	5.3	-	0.00
36	0.5	0.52	0.5	4.25	-	0.00
37	0.3	0.16	0.52	5.3	0	0.00
38	0.4	0.36	0.51	6.15	0	0.20
39	0.4	0.28	0.2	6.23	0.62	1.00
40	0.4	0.48	0.0	3.15	1.83	2.00
41	0.5	0.08	1.12	2.5	1.17	5.80
42	0.4	0.24	0.51	2.2	2.135	6.30
43	0.7	0.32	1.04	1.75	2.28	7.00
44	0.5	0.04	1.12	3.15	0.73	5.00
45	0.8	0.20	2.15	3.3	1.215	4.00
46	0.9	0.20	1.54	3.5	0.68	2.00
47	0.6	0.56	2.16	2.15	0.435	1.00
48	0.4	0.00	1.58	1.25	0	6.00
49	0.5	0.04	2.22	0	0	0.00
50	0.6	0.64	2.34	0	0	-
51	0.7	0.00	2.88	0	0	-
52	0.6	0.52	1.32	-	0	-
1	0.3	0.36	-	-	0	-
2	0.1	0.00	-	-	0	-
3	-	0.12	-	-	-	-
4		0.00				

LG – Lam Guntur; ND – Nandyal; DW – Dharwad; RC – Raichur; CN – Chamarajanagara; CBE – Coimbatore;

Table 145. Ent 2. Seasonal dynamics of key pests of cotton (Predators) under Unprotected condition to develop suitable forecasting model in South Zone – Jadoo during 2020-21

SMW	Predators					Twisted flower buds due to midge (%)
	LG	DW	RC	CN	CBE	DW
31	-	-	-	-	-	-
32	-	-	-	-	-	-
33	-	-	-	-	-	-
34	0.32	-	-	-		-
35	0.20	-	-	-		-
36	0.32	-	-	-		-
37	0.20	-	-	-	0.0	-
38	0.12	-	-	-	0.0	-
39	0.60	-	-	-	0.6	-
40	0.28	-	-	-	1.8	-
41	0.08	-	-	-	1.2	-
42	0.24	-	-	-	2.1	-
43	0.32	-	-	-	2.3	-
44	0.00	-	-	-	0.7	-
45	0.08	-	-	-	1.2	-
46	0.12	-	-	-	0.7	-
47	0.16	-	-	-	0.4	-
48	0.00	-	-	-	0.0	-
49	0.32	-	-	-	0.0	-
50	0.12	-	-	-	0.0	-
51	0.00	-	-	-	0.0	-
52	0.20	-	-	-	0.0	-
1	0.20	-	-	-	0.0	-
2	0.04	-	-	-	0.0	-
3	0.20	-	-	-		-
4	0.12					

LG – Lam Guntur; ND – Nandyal; DW – Dharwad; RC – Raichur; CN – Chamarajanagara; CBE – Coimbatore;

Table 146 Ent 2. Seasonal dynamics of key pests of cotton (Predators) under Unprotected condition to develop suitable forecasting model in South Zone – RCH 2 during 2020-21

SMW	Predators					Twisted flower buds due to midge (%)
	LG	DW	RC	CN	CBE	DW
31	-	0.4	-	-	-	0.00
32	-	0.4	-	-	-	0.00
33	-	0.1	-	-	-	0.00
34	-	0.2	-	-	-	0.00
35	-	0.1	-	-	-	0.00
36	-	0.2	-	-	-	0.00
37	-	0.2	-	-	-	0.00
38	-	0.2	-	-	-	0.00
39	-	0.2	-	-	-	1.00
40	-	0.3	-	-	-	2.00
41	-	0.3	-	-	-	4.00
42	-	0.2	-	-	-	5.00
43	-	0.4	-	-	-	4.00
44	-	0.4	-	-	-	6.00
45	-	0.4	-	-	-	5.00
46	-	0.4	-	-	-	3.00
47	-	0.2	-	-	-	1.00
48	-	0.3	-	-	-	0.00
49	-	0.4	-	-	-	0.00
50	-	0.1	-	-	-	-
51	-	0.1	-	-	-	-
52	-	0.0	-	-	-	-
1	-	0.0	-	-	-	-
2	-	0.0	-	-	-	-
3	-	-	-	-	-	-
4						

LG – Lam Guntur; ND – Nandyal; DW – Dharwad; RC – Raichur; CN – Chamarajanagara; CBE – Coimbatore;

Table 147. Ent 2. Seasonal dynamics of key pests of cotton (Boll Worms) under Unprotected condition to develop suitable forecasting model in South Zone – NBt DCH 32 during 2020-21

SMW	*H. armigera*/ 5 plants												*Earias* spp. larvae / 5 plants			*PBW larvae/ 20 bolls*		*S. litura* larvae / 5 plants			
	LG		CBE		DW		RC		ND		CN										
	Eggs	Larvae	Eggs	Larvae	Eggs	Larvae	Eggs	Larvae	Eggs	Larvae	Eggs	Larvae	ND	CN	DW	RC	DW	CN	LG	RC	CBE
32	-	-	-	-		0.0	-	-	-	-	0.00	0.00	-	0.00	0.0	-	0.0	0.00	-	-	-
33	-	-	-	-		0.2	0.00	0.00	-	-	0.00	0.00	-	0.00	0.0	-	0.0	0.00	-	-	-
34	0.00	0.00	-	-		0.9	0.00	0.00	-	-	0.00	0.00	-	0.00	0.0	0.00	0.0	0.00	0.00	0.00	-
35	0.00	0.00	-	-		1.6	0.00	0.00	-	-	0.00	0.00	-	0.00	0.0	0.00	0.0	0.00	2.28	0.00	-
36	0.00	0.00	-	-		2.7	0.00	0.00	-	-	0.00	0.00	-	0.00	0.0	0.00	0.0	0.00	0.00	0.50	-
37	0.00	0.00	-	0.00		3.8	0.00	0.00	--	-	0.00	0.00	-	0.00	0.0	0.00	0.0	0.00	0.00	0.00	0.00
38	0.00	0.00	-	0.00		4.6	0.00	0.00	-	-	0.00	0.00	-	0.00	0.0	0.00	0.0	0.00	0.00	0.00	0.00
39	0.00	0.00	-	0.00		5.8	0.00	0.00	-	-	0.00	0.00	-	0.00	0.0	0.00	0.00	0.00	0.04	0.00	0.00
40	0.00	0.00	-	0.00		4.1	0.00	0.00	-	-	0.00	0.00	-	0.00	0.0	0.00	8.0	0.00	0.08	0.00	0.00
41	0.00	0.00	-	0.00		3.2	1.12	0.34	-	-	0.00	0.00	-	0.00	0.5	0.00	12.0	0.00	0.00	0.00	0.48
42	0.00	0.00	-	0.00		2.9	3.22	0.42	-	-	0.00	0.00	-	0.00	1.3	0.00	14.0	0.00	3.04	0.00	1.67
43	0.00	0.04	-	0.00		1.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.8	0.00	16.0	0.00	1.12	0.00	2.42
44	0.00	0.00	-	0.00		1.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.0	0.00	18.0	0.00	0.00	0.00	2.84
45	0.00	0.00	-	0.00		2.6	1.23	0.35	0.00	0.00	0.00	0.00	0.00	0.00	1.1	0.00	20.0	0.00	0.00	1.12	1.27
46	0.00	0.00	-	0.00		3.8	4.38	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.8	0.00	21.0	0.00	0.00	4.18	1.68
47	0.00	0.00	-	0.00		0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.6	0.00	22.0	0.00	0.00	3.28	0.78
48	0.00	0.00	-	0.00		0.1	2.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.2	0.00	24.0	0.00	0.00	0.00	0.00
49	0.00	0.00	-	0.00		0.0	3.24	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00	25.0	0.00	0.00	3.33	0.00
50	0.00	0.00	-	0.00		0.0	1.23	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00	15.0	0.00	0.00	0.52	0.00
51	0.00	0.00	-	0.00		0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00	17.0	0.00	0.00	0.00	0.00
52	0.00	0.00	-	0.00		0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00	6.0	0.00	0.00	0.00	0.00
1	0.00	0.00	-	0.00		0.0	-	-	-	-	-	-	-	-	0.0	-	5.0	-	0.00	-	0.00
2	0.00	0.00	-	0.00		0.0	-	-	-	-	-	-	-	-	0.0	-	-	-	0.00	-	0.00

LG – Lam Guntur; ND – Nandyal; DW – Dharwad; RC – Raichur; CN – Chamarajanagara; CBE – Coimbatore;

Table 148. Ent 2. Seasonal dynamics of key pests of cotton (Boll Worms) under Unprotected condition to develop suitable forecasting model in South Zone – Jadoo during 2020-21

SMW	*H. armigera*/ 5 plants												*Earias* spp. larvae / 5 plants			*PBW larvae/ 20 bolls*		*S. litura* larvae / 5 plants			
	LG		CBE		DW		RC		ND		CN										
	Eggs	Larvae	Eggs	Larvae	Eggs	Larvae	Eggs	Larvae	Eggs	Larvae	Eggs	Larvae	CBE	CN	DW	RC	DW	CN	LG	RC	CBE
33	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	0.0	-	0.0	-	-	-	-
34	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	0.0	-	0.0	-	-	-	-
35	0.00	0.00	-	-	-	0.2	-	-	-	-	-	-	-	-	0.0	-	0.0	-	0.00	-	-
36	0.00	0.00	-	-	-	0.1	-	-	-	-	-	-	-	-	0.0	-	0.0	-	0.00	-	-
37	0.00	0.00	-	-	-	0.1	-	-	-	-	-	-	0.00	-	0.0	-	0.0	-	0.00	-	0.00
38	0.00	0.00	-	0.00	-	0.1	-	-	-	-	-	-	0.00	-	0.0	-	0.0	-	0.00	-	0.00
39	0.00	0.00	-	0.00	-	0.2	-	-	-	-	-	-	0.00	-	0.0	-	0.0	-	0.00	-	0.00
40	0.00	0.00	-	0.00	-	0.1	-	-	-	-	-	-	0.00	-	0.0	-	0.0	-	0.00	-	0.00
41	0.00	0.00	-	0.00	-	0.0	-	-	-	-	-	-	0.00	-	0.0	-	0.0	-	0.00	-	0.00
42	0.00	0.00	-	0.00	-	0.0	-	-	-	-	-	-	0.00	-	0.0	-	0.0	-	0.00	-	0.00
43	0.00	0.00	-	0.00	-	0.0	-	-	-	-	-	-	0.00	-	0.1	-	0.1	-	0.96	-	0.00
44	0.00	0.00	-	0.00	-	0.0	-	-	-	-	-	-	0.00	-	0.2	-	0.2	-	0.04	-	1.20
45	0.00	0.00	-	0.00	-	0.0	-	-	-	-	-	-	0.00	-	0.1	-	0.1	-	0.00	-	1.32
46	0.00	0.00	-	0.00	-	0.0	-	-	-	-	-	-	0.00	-	0.1	-	0.1	-	0.00	-	1.52
47	0.00	0.00	-	0.00	-	0.0	-	-	-	-	-	-	0.00	-	0.1	-	0.1	-	0.00	-	0.00
48	0.00	0.00	-	0.00	-	0.0	-	-	-	-	-	-	0.00	-	0.0	-	0.0	-	0.00	-	0.00
49	0.00	0.00	-	0.00	-	0.0	-	-	-	-	-	-	0.00	-	0.0	-	0.0	-	0.00	-	0.00
50	0.00	0.00	-	0.00	-	0.0	-	-	-	-	-	-	0.00	-	0.0	-	0.0	-	0.00	-	0.00
51	0.00	0.00	-	0.00	-	0.0	-	-	-	-	-	-	0.00	-	0.0	-	0.0	-	0.00	-	0.00
52	0.00	0.00	-	0.00	-	0.0	-	-	-	-	-	-	0.00	-	0.0	-	0.0	-	0.00	-	0.00
1	0.00	0.00	-	0.00	-	0.1	-	-	-	-	-	-	0.00	-	0.0	-	0.0	-	0.00	-	0.00
2	0.00	0.00	-	0.00	-	0.1	-	-	-	-	-	-	0.00	-	0.0	-	0.0	-	0.00	-	0.00
3	0.00	0.00	-	0.00	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-	0.00	-	0.00

LG – Lam Guntur; ND – Nandyal; DW – Dharwad; RC – Raichur; CN – Chamarajanagara; CBE – Coimbatore;

Table 149. Ent 2. Seasonal dynamics of key pests of cotton (Boll Worms) under Unprotected condition to develop suitable forecasting model in South Zone – RCH 2 during 2020-21

SMW	*H. armigera*/ 5 plants												*Earias* spp. larvae / 5 plants			*PBW larvae/ 20 bolls*		*S. litura* larvae / 5 plants			
	LG		CBE		DW		RC		ND		CN										
	Eggs	Larvae	Eggs	Larvae	Eggs	Larvae	Eggs	Larvae	Eggs	Larvae	Eggs	Larvae	CBE	CN	DW	RC	DW	CN	LG	RC	CBE
32	-	-	-	-	-		-	-	-	-	-	-	-	-		-		-	-	-	-
33	-	-	-	-	-		-	-	-	-	-	-	-	-		-		-	-	-	-
34	-	-	-	-	-		-	-	-	-	-	-	-	-		-		-	-	-	-
35	-	-	-	-	-		-	-	-	-	-	-	-	-		-		-	-	-	-
36	-	-	-	-	-		-	-	-	-	-	-	-	-		-		-	-	-	-
37	-	-	-	-	-		-	-	-	-	-	-	-	-		-		-	-	-	-
38	-	-	-	-	-		-	-	-	-	-	-	-	-		-		-	-	-	-
39	-	-	-	-	-		-	-	-	-	-	-	-	-		-		-	-	-	-
40	-	-	-	-	-		-	-	-	-	-	-	-	-		-		-	-	-	-
41	-	-	-	-	-		-	-	-	-	-	-	-	-		-		-	-	-	-
42	-	-	-	-	-		-	-	-	-	-	-	-	-		-		-	-	-	-
43	-	-	-	-	-		-	-	-	-	-	-	-	-		-		-	-	-	-
44	-	-	-	-	-		-	-	-	-	-	-	-	-		-		-	-	-	-
45	-	-	-	-	-		-	-	-	-	-	-	-	-		-		-	-	-	-
46	-	-	-	-	-		-	-	-	-	-	-	-	-		-		-	-	-	-
47	-	-	-	-	-		-	-	-	-	-	-	-	-		-		-	-	-	-
48	-	-	-	-	-		-	-	-	-	-	-	-	-		-		-	-	-	-
49	-	-	-	-	-		-	-	-	-	-	-	-	-		-		-	-	-	-
50	-	-	-	-	-		-	-	-	-	-	-	-	-		-		-	-	-	-
51	-	-	-	-	-		-	-	-	-	-	-	-	-		-		-	-	-	-
52	-	-	-	-	-		-	-	-	-	-	-	-	-		-		-	-	-	-
1	-	-	-	-	-		-	-	-	-	-	-	-	-		-		-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-		-	-	-	-

Table 150. Ent 2. Seasonal dynamics of key pests of cotton (Boll Worms) under Unprotected condition to develop suitable forecasting model in South Zone – Bahubali - BG-II during 2020-21

SMW	*H. armigera*/ 5 plants												*Earias* spp. larvae / 5 plants			*PBW larvae/ 20 bolls*		*S. litura* larvae / 5 plants			
	LG		CBE		DW		RC		ND		CN										
	Eggs	Larvae	Eggs	Larvae	Eggs	Larvae	Eggs	Larvae	Eggs	Larvae	Eggs	Larvae	CBE	CN	DW	RC	DW	CN	LG	RC	CBE
33	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	0.0	-	-	-
34	-	-	-	-	-	-	-	-	-	-	0.0	0.0	-	0.0	-	-	-	0.0	-	-	-
35	-	-	-	-	-	-	-	-	-	-	0.0	0.0	-	0.0	-	-	-	0.0	-	-	-
36	-	-	-	-	-	-	-	-	-	-	0.0	0.0	-	0.0	-	-	-	0.0	-	-	-
37	-	-	-	-	-	-	-	-	-	-	0.0	0.0	-	0.0	-	-	-	0.0	-	-	-
38	-	-	-	-	-	-	-	-	-	-	0.0	0.0	-	0.0	-	-	-	0.0	-	-	-
39	-	-	-	-	-	-	-	-	-	-	0.0	0.0	-	0.0	-	-	-	0.0	-	-	-
40	-	-	-	-	-	-	-	-	-	-	0.0	0.0	-	0.0	-	-	-	0.0	-	-	-
41	-	-	-	-	-	-	-	-	-	-	0.0	0.0	-	0.0	-	-	-	0.0	-	-	-
42	-	-	-	-	-	-	-	-	-	-	0.0	0.0	-	0.0	-	-	-	0.0	-	-	-
43	-	-	-	-	-	-	-	-	-	-	0.0	0.0	-	0.0	-	-	-	0.0	-	-	-
44	-	-	-	-	-	-	-	-	-	-	0.0	0.0	-	0.0	-	-	-	0.0	-	-	-
45	-	-	-	-	-	-	-	-	-	-	0.0	0.0	-	0.0	-	-	-	0.0	-	-	-
46	-	-	-	-	-	-	-	-	-	-	0.0	0.0	-	0.0	-	-	-	0.0	-	-	-
47	-	-	-	-	-	-	-	-	-	-	0.0	0.0	-	0.0	-	-	-	0.0	-	-	-
48	-	-	-	-	-	-	-	-	-	-	0.0	0.0	-	0.0	-	-	-	0.0	-	-	-
49	-	-	-	-	-	-	-	-	-	-	0.0	0.0	-	0.0	-	-	-	0.0	-	-	-
50	-	-	-	-	-	-	-	-	-	-	0.0	0.0	-	0.0	-	-	-	0.0	-	-	-
51	-	-	-	-	-	-	-	-	-	-	0.0	0.0	-	0.0	-	-	-	0.0	-	-	-
52	-	-	-	-	-	-	-	-	-	-	0.0	0.0	-	0.0	-	-	-	0.0	-	-	-
1	-	-	-	-	-	-	-	-	-	-	0.0	0.0	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 151 Ent 2. Seasonal dynamics of key pests of cotton (Boll Damage) under Unprotected condition to develop suitable forecasting model in South Zone – NBt DCH 32 during 2020-21

SMW	Leaf Folder Damage (%)	Stem Weevil (%)	Fruiting Body damage (%)			Mean Flower Damage/50 Flowers (%)	Mean Pink bollworm larva/20 green boll					Green boll damage/20 bolls (%)			Locule Damage in 20 green boll (%)			Open Boll Damage (%)			
			ABW															Boll		Locule	
	CBE	CBE	ND	RC	CN	RC	LC	DW	ND	RC	CBE	LG	ND	DW	LG	ND	DW	CBE	DW	CBE	DW
33	-	-	-	-	0.00		-		-	-	-		-	-		-					
34	-	-	-	-	0.00		-	0.00	-	-	-	0.00		0.0	0.00	-			0.0		0.0
35	-	-	-	-	0.00		-	0.00	-	-	-	0.00	-	0.0	0.00	-			0.0		0.0
36	-	-	-	-	0.00		-	0.00	-	-	-	0.00	-	0.0	0.00	-			0.0		0.0
37	0.00	0.00	-	-	0.00		-	0.00	-	-	0.00	0.00	-	0.0	0.00	-		0.00	0.0	0.00	0.0
38	0.00	0.00	-	-	0.00		-	0.00	-	-	0.00	0.00	-	0.0	0.00	-		0.00	0.0	0.00	0.0
39	0.00	0.00	-	-	0.00		-	0.00	-	-	0.00	0.00	-	4.00	0.00	-		0.00	0.00	0.00	0.00
40	0.00	0.00	-	-	0.00		-	0.00	-	-	0.00	0.00	-	10.00	0.00	-		0.00	0.00	0.00	0.00
41	0.00	0.48	-	-	0.00		-	0.00	-	-	0.00	0.00	-	12.10	0.00	-		0.00	0.00	0.00	0.00
42	0.00	1.67	-	-	0.00		-	0.00	-	-	0.00	0.00	-	15.20	0.00	-		0.00	2.00	0.00	0.00
43	0.00	2.42	20.0	-	0.00		1.00	0.00	-	-	0.00	0.00	-	16.90	0.00	-		0.00	4.00	0.00	0.00
44	0.00	2.84	20.0	-	0.00		2.00	1.00	-	-	0.00	10.00	-	17.60	4.76	-		0.00	11.30	0.00	-
45	0.00	1.27	40.0	-	0.00		4.00	1.00	-	-	0.00	20.00	-	17.10	11.9	-		1.27	20.30	0.00	-
46	0.00	1.68	45.0	-	0.00		5.00	2.00	-	-	0.52	40.00	-	18.20	12.5	-		1.94	24.20	0.00	17.30
47	0.00	0.78	50.0	-	0.00		6.00	4.00	-	-	0.67	40.00	-	22.90	10.0	-		3.42	26.10	0.00	-
48	0.00	0.00	55.0	-	0.00		8.00	5.00	-	-	0.89	50.00	-	23.40	20.0	-		5.34	28.20	0.00	26.50
49	0.00	0.00	60.0	-	0.00		8.00	8.00	-	-	1.48	90.00	-	27.10	65.0	-		7.82	17.30	0.00	-
50	1.2	0.00	65.0	-	0.00		10.0	5.00	-	-	1.67	50.00	-	29.20	22.5	-		7.64	16.20	1.2	22.70
51	1.4	0.00	70.0	-	0.00		11.0	8.00	-	-	1.98	60.00	-	24.50	31.57	-		8.62	13.00	1.4	-
52	2.6	0.00	75.0	-	0.00		14.0	6.00	-	-	0.00	90.00	-	15.00	50.00	-		9.76	11.20	2.6	19.40
1	2.6	0.00	-	-	-		-	20.0	-	-	0.00	100.0	-	6.70	77.50	-		9.87	10.00	2.6	-
2	2.6	0.00	-	-	-		-	16.0	-	-	0.00	90.00	-	0.0	70.75	-		9.88		2.6	
3	-	-	-	-	-		-	14.0	-	-	-	100.0	-	-	70.73	-		-		-	
4	-	-	-	-	-		-	16.0	-	-	-	90.00	-	-	80.48	-		-		-	

LG – Lam Guntur; ND – Nandyal; DW – Dharwad; RC – Raichur; CN – Chamarajanagara; CBE – Coimbatore;

Table 152. Ent 2. Seasonal dynamics of key pests of cotton (Boll Damage) under Unprotected condition to develop suitable forecasting model in South Zone – Jaddo during 2020-21

SMW	Leaf Folder Damage (%)	Stem Weevil (%)	Fruiting Body damage (%)			Mean Flower Damage/50 Flowers (%)	Mean Pink bollworm larva/20 green boll					Green boll damage/20 bolls (%)			Locule Damage in 20 green boll (%)			Open Boll Damage (%)	
			ABW															Boll	Locule
	CBE	CBE	ND	RC	CN	RC	LC	DW	ND	RC	CBE	LG	ND	DW	LG	ND	DW	DW	DW
33								0.0	-	-				0.0					
34								0.0	-	-				0.0					
35								0.0	-	-				0.0					
36								0.0	-	-				0.0					
37	0.00	0.00						0.0	-	-	0.00			0.0				0.00	0.00
38	0.00	0.00						0.0	-	-	0.00			0.0				0.00	0.00
39	0.00	0.00						0.0	-	-	0.00			0.00				0.00	0.00
40	0.00	1.30						0.0	-	-	0.00			0.00				0.00	0.00
41	0.00	7.58						0.0	-	-	0.00			0.00				0.00	0.00
42	0.00	15.74						0.2	-	-	0.00			3.10				0.00	0.00
43	0.00	18.62	15.0					1.0	-	-	0.00			3.70				0.00	0.00
44	0.00	23.9	10.0					2.0	-	-	0.00			4.10				0.00	0.00
45	0.00	27.28	30.0					8.0	-	-	0.00			4.60				0.00	0.00
46	0.00	27.28	35.0					10.0	-	-	0.00			5.10				0.00	0.00
47	0.00	27.85	40.0					12.0	-	-	0.00			4.30				1.26	0.00
48	0.00	27.62	45.0					14.0	-	-	0.00			3.10				1.67	0.00
49	0.00	27.67	55.0					18.0	-	-	0.42			2.00				2.43	0.00
50	0.00	27.66	55.0					16.0	-	-	0.58			1.40				3.42	0.00
51	0.00	28.38	60.0					13.0	-	-	0.67			1.10				3.75	1.32
52	0.00	28.40	60.0					9.0	-	-	0.00			0.80				4.20	1.36
1	0.00	28.57						6.0	-	-	0.00			0.40					
2	0.00	28.57						0.0	-	-	0.00			0.0					

Table 153 Ent 2. Seasonal dynamics of key pests of cotton (Boll Damage) under Unprotected condition to develop suitable forecasting model in South Zone – Bahubali - BG-II during 2020-21

SMW	Leaf Folder Damage (%)	Stem Weevil (%)	Fruiting Body damage (%)			Fruiting Body damage (%) due to *E. vittella*	Mean Pink bollworm larva/20 green boll					Green boll damage/20 bolls (%)			Locule Damage in 20 green boll (%)			Open Boll Damage (%)	
			ABW															Boll	Locule
	CBE	CBE	ND	RC	CN	RC	LC	DW	ND	RC	CBE	LG	ND	DW	LG	ND	DW	DW	DW
33	-	-	-	-	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-
34	-	-	-	-	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-
35	-	-	-	-	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-
36	-	-	-	-	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-
37	-	-	-	-	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-
38	-	-	-	-	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-
39	-	-	-	-	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-
40	-	-	-	-	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-
41	-	-	-	-	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-
42	-	-	-	-	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-
43	-	-	-	-	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-
44	-	-	-	-	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-
45	-	-	-	-	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-
46	-	-	-	-	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-
47	-	-	-	-	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-
48	-	-	-	-	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-
49	-	-	-	-	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-
50	-	-	-	-	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-
51	-	-	-	-	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-
52	-	-	-	-	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-
1	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-

Table 154. Ent 2. Seasonal dynamics of key pests of cotton (Trap catches) under Unprotected condition to develop suitable forecasting model in South Zone – DCH 32 during 2020-21

SMW	Trap catch per week																		
	ABW					PBW					SBW					*S. litura*			
	LG	ND	DW	CN	RC	LG	ND	DW	CN	RC	LG	ND	CN	DW	RC	CN	LG	DW	RC
30		-	0.00	0.00			-	0.00			-	-	0.00	0.00		0.00		0.00	
31		-	0.00	0.00			-	0.00			-	-	0.00	0.00		0.00		0.00	
32		-	2.30	0.00			-	0.00			-	-	0.00	0.00	0.00	0.00		0.00	
33		-	4.18	0.00	0.00		-	0.00		3.12	-	-	0.00	0.00	0.00	0.00		0.00	0.00
34	1.00	-	5.40	0.00	0.00	0.00	-	0.00		6.50	-	-	0.00	0.00	0.00	0.00	19.00	2.90	0.00
35	1.00	-	8.60	0.00	0.00	0.00	-	0.00		7.36	-	-	0.00	0.00	0.00	0.00	20.00	8.70	0.00
36	6.00	-	9.40	0.00	0.52	1.00	-	0.00		9.64	-	-	0.00	0.00	0.00	0.00	11.00	10.29	4.60
37	3.00	-	10.20	0.00	0.60	2.00	-	0.00		4.50	-	-	0.00	0.00	0.00	0.00	7.00	13.20	1.30
38	0.00	-	8.10	0.00	0.30	0.00	-	0.00		0.79	-	-	0.00	0.00	0.00	0.00	1.00	16.70	2.30
39	0.00	-	5.20	0.00	0.00	3.00	-	3.10		2.21	-	-	0.00	0.40	0.00	0.00	3.00	19.80	0.00
40	1.00	-	3.10	0.00	1.00	4.00	-	4.20	3.25	1.29	-	-	0.00	0.70	0.00	0.00	1.00	20.17	0.33
41	4.00	-	7.30	0.00	1.00	10.00	-	6.50	6.25	2.32	-	-	0.00	1.20	0.00	0.00	12.00	22.42	0.00
42	4.00	-	10.62	0.00	1.00	15.00	-	9.80	9.5	4.21	-	-	0.00	2.14	0.00	0.00	22.00	15.30	0.00
43	1.00	-	9.34	0.00	0.00	29.00	-	10.80	10.52	7.29	-	-	0.00	3.25	0.00	0.00	22.00	12.70	4.33
44	0.00	-	8.20	0.00	0.00	16.00	-	12.39	14.25	16.36	-	-	0.00	4.70	0.00	0.00	13.00	10.24	0.67
45	7.00	-	5.40	0.00	0.67	111.00	-	16.96	15.23	58.10	-	-	0.00	3.10	0.00	0.00	146.00	9.40	0.67
46	6.00	-	3.20	0.00	5.67	43.00	-	18.33	8.25	108.39	-	-	0.00	2.50	0.00	0.00	189.00	6.45	17.33
47	4.00	-	2.20	0.00	0.67	35.00	-	19.40	7.25	64.67	-	-	0.00	1.80	0.00	0.00	15.00	5.47	16.67
48	0.00	-	1.10	0.00	3.67	80.00	-	20.15	5.5	72.07	-	-	0.00	0.90	0.00	0.00	42.00	3.20	1.67
49	5.00	-	0.00	0.00	2.33	20.00	-	18.60	4.25	40.14	-	-	0.00	0.50	0.00	0.00	13.00	1.88	12.33
50	0.00	-	0.00	0.00	1.67	123.00	-	14.70	0.00	15.14	-	-	0.00	0.00	0.00	0.00	40.00	0.50	2.67
51	1.00	-	0.00	0.00	0.00	115.00	-	11.71	0.00	54.88	-	-	0.00	0.00	0.00	0.00	44.00	0.00	0.00
52	2.00	-	0.00	0.00	0.33	441.00	-	8.45	0.00	12.08	-	-	0.00	0.00		0.00	108.00	0.00	0.00
1	1.00	-	0.00			306.00	-	6.50			-	-	0.00	0.00			98.00	0.00	
2	0.00	-	0.00			82.00	-	0.00			-	-	0.00	0.00			54.00	0.00	
3	3.00	-				160.00	-				-	-	0.00	0.00			39.00		
4	0.00	-				173.00	-				-	-					32.00		

Table 155. Ent 2. Seasonal dynamics of key pests of cotton (Trap catches) under Unprotected condition to develop suitable forecasting model in South Zone – Jadoo during 2020-21

SMW	Trap catch per week																		
	ABW					PBW					SBW					*S. litura*			
	LG	ND	DW	CN	RC	LG	ND	DW	CN	RC	LG	ND	CN	DW	RC	CN	LG	DW	RC
30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	0.00	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	-	16.00	-	-
35	0.00	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	-	11.00	-	-
36	1.00	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	-	8.00	-	-
37	0.00	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	-	5.00	-	-
38	0.00	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	-	0.00	-	-
39	0.00	-	-	-	-	3.00	-	-	-	-	-	-	-	-	-	-	1.00	-	-
40	1.00	-	-	-	-	1.00	-	-	-	-	-	-	-	-	-	-	1.00	-	-
41	4.00	-	-	-	-	2.00	-	-	-	-	-	-	-	-	-	-	5.00	-	-
42	4.00	-	-	-	-	73.00	-	-	-	-	-	-	-	-	-	-	60.00	-	-
43	1.00	-	-	-	-	19.00	-	-	-	-	-	-	-	-	-	-	25.00	-	-
44	0.00	-	-	-	-	9.00	-	-	-	-	-	-	-	-	-	-	28.00	-	-
45	7.00	-	-	-	-	299.00	-	-	-	-	-	-	-	-	-	-	310.00	-	-
46	5.00	-	-	-	-	98.00	-	-	-	-	-	-	-	-	-	-	207.00	-	-
47	4.00	-	-	-	-	83.00	-	-	-	-	-	-	-	-	-	-	11.00	-	-
48	0.00	-	-	-	-	157.00	-	-	-	-	-	-	-	-	-	-	67.00	-	-
49	2.00	-	-	-	-	41.00	-	-	-	-	-	-	-	-	-	-	16.00	-	-
50	2.00	-	-	-	-	115.00	-	-	-	-	-	-	-	-	-	-	19.00	-	-
51	2.00	-	-	-	-	107.00	-	-	-	-	-	-	-	-	-	-	80.00	-	-
52	2.00	-	-	-	-	535.00	-	-	-	-	-	-	-	-	-	-	83.00	-	-
1	0.00	-	-	-	-	379.00	-	-	-	-	-	-	-	-	-	-	85.00	-	-
2	0.00	-	-	-	-	92.00	-	-	-	-	-	-	-	-	-	-	36.00	-	-
3	1.00	-	-	-	-	192.00	-	-	-	-	-	-	-	-	-	-	11.00	-	-
4	0.00	-	-	-	-	155.00	-	-	-	-	-	-	-	-	-	-	30.00	-	-

Table 156. Ent 2. Seasonal dynamics of key pests of cotton (Trap catches) under Unprotected condition to develop suitable forecasting model in South Zone – Bahubali - BG-II during 2020-21

SMW	Trap catch per week																		
	ABW					PBW					SBW					*S. litura*			
	LG	ND	DW	CN	RC	LG	ND	DW	CN	RC	LG	ND	CN	DW	RC	CN	LG	DW	RC
30	-	-	-		-	-	-	-	-	-	-	-		-	-		-	-	-
31	-	-	-		-	-	-	-	-	-	-	-		-	-		-	-	-
32	-	-	-		-	-	-	-	-	-	-	-		-	-		-	-	-
33	-	-	-	0.00	-	-	-	-	-	-	-	-	0.00	-	-	0.00	-	-	-
34	-	-	-	0.00	-	-	-	-	-	-	-	-	0.00	-	-	0.00	-	-	-
35	-	-	-	0.00	-	-	-	-	-	-	-	-	0.00	-	-	0.00	-	-	-
36	-	-	-	0.00	-	-	-	-	-	-	-	-	0.00	-	-	0.00	-	-	-
37	-	-	-	0.00	-	-	-	-	-	-	-	-	0.00	-	-	0.00	-	-	-
38	-	-	-	0.00	-	-	-	-	-	-	-	-	0.00	-	-	0.00	-	-	-
39	-	-	-	0.00	-	-	-	-	-	-	-	-	0.00	-	-	0.00	-	-	-
40	-	-	-	0.00	-	-	-	3.10	-	-	-	-	0.00	-	-	0.00	-	-	-
41	-	-	-	0.00	-	-	-	5.50	-	-	-	-	0.00	-	-	0.00	-	-	-
42	-	-	-	0.00	-	-	-	7.75	-	-	-	-	0.00	-	-	0.00	-	-	-
43	-	-	-	0.00	-	-	-	8.25	-	-	-	-	0.00	-	-	0.00	-	-	-
44	-	-	-	0.00	-	-	-	12.35	-	-	-	-	0.00	-	-	0.00	-	-	-
45	-	-	-	0.00	-	-	-	14.30	-	-	-	-	0.00	-	-	0.00	-	-	-
46	-	-	-	0.00	-	-	-	7.85	-	-	-	-	0.00	-	-	0.00	-	-	-
47	-	-	-	0.00	-	-	-	6.85	-	-	-	-	0.00	-	-	0.00	-	-	-
48	-	-	-	0.00	-	-	-	5.00	-	-	-	-	0.00	-	-	0.00	-	-	-
49	-	-	-	0.00	-	-	-	3.20	-	-	-	-	0.00	-	-	0.00	-	-	-
50	-	-	-	0.00	-	-	-	0.00	-	-	-	-	0.00	-	-	0.00	-	-	-
51	-	-	-	0.00	-	-	-	0.00	-	-	-	-	0.00	-	-	0.00	-	-	-
52	-	-	-	0.00	-	-	-	0.00	-	-	-	-	0.00	-	-	0.00	-	-	-
1	-	-	-		-	-	-		-	-	-	-		-	-		-	-	-
2	-	-	-		-	-	-		-	-	-	-		-	-		-	-	-
3	-	-	-		-	-	-		-	-	-	-		-	-		-	-	-
4	-	-	-		-	-	-		-	-	-	-		-	-		-	-	-

Table 157. Ent 2. Seasonal dynamics of key pests of cotton (Abiotic factors- Temperature) under Unprotected condition to develop suitable forecasting model in South Zone – Bt BG II during 2020-21

SMW	Abiotic Factor											
	Temperature											
	LG		ND		DW		RC		CN		CBE	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
31	-	-			-	-			19.98	29.56		
32	-	-			-	-			21.01	27.27		
33	-	-	-	-	-	-	23.5	31.0	19.91	28.14		
34	-	-	-	-	-	-	22.7	27.4	19.63	29.06		
35	-	-	-	-	-	-	23.0	30.7	19.37	31.49		
36	-	-	-	-	-	-	23.5	32.1	20.76	29.81		
37	-	-	-	-	-	-	24.6	32.7	19.9	28.09	22.9	29
38	-	-	-	-	-	-	22.9	30.2	19.97	28.36	23.2	29.3
39	-	-	-	-	-	-	23.0	29.3	19.67	30.5	23.2	30.9
40	-	-	24.8	31.8	-	-	22.5	29.7	19.63	30.5	22.4	32.2
41	-	-	24.1	30.7	-	-	22.8	31.2	18.3	28.69	23.4	30.8
42	-	-	24.6	30.9	-	-	22.8	30.9	19.27	28.96	22.8	31
43	-	-	23.6	32.2	-	-	22.7	30.3	17.23	30.4	22.5	32.4
44	-	-	24	33.3	-	-	22.0	31.3	19.5	30.46	22.8	33.2
45	-	-	21.6	32.4	-	-	20.6	31.5	17	28.69	22.1	30
46	-	-	23.2	30.6	-	-	17.3	30.7	17.5	28.46	22.9	30
47	-	-	22.4	32.5	-	-	20.7	30.5	16.64	27.57	20.4	29.9
48	-	-	20.4	26.8	-	-	18.6	31.7	18.23	26.31	21.7	29.6
49	-	-	20.9	30.3	-	-	19.4	27.2	15.74	28.69	22.1	27.7
50	-	-	16.9	30.4	-	-	18.5	30.3	15.1	28.1	21.1	28.4
51	-	-	17.8	29.4	-	-	15.5	30.5	14.47	29.24	20.5	27.4
52	-	-	19.6	33.6	-	-	15.4	29.7	16.06	29.67	20.7	28.9
1	-	-			-	-					20.4	27.6
2	-	-			-	-					20.2	28.4

Table 158. Ent 2. Seasonal dynamics of key pests of cotton (Abiotic factors- Relative humidity) under Unprotected condition to develop suitable forecasting model in South Zone – Bt BG II during 2020-21

SMW	Abiotic Factor											
	Relative Humidity (RH %)											
	LG		ND		DW		RC		CN		CBE	
	Morning	Evening	Morning	Evening	Morning	Evening	Morning	Evening	Morning	Evening	Morning	Evening
31	-	-			-	-			99.63	64.94		
32	-	-			-	-			98.91	72.69		
33	-	-	-	-	-	-	91.0	62.7	99.69	67.48		
34	-	-	-	-	-	-	95.3	81.7	99.31	65.49		
35	-	-	-	-	-	-	92.6	66.3	99.61	50.4		
36	-	-	-	-	-	-	87.3	59.6	99.64	65.63		
37	-	-	-	-	-	-	85.9	55.0	99.64	72.56	84	68
38	-	-	-	-	-	-	94.6	73.0	99.49	67.77	80	65
39	-	-	-	-	-	-	95.4	74.9	99.34	54.93	85	59
40	-	-	87	66	-	-	94.6	71.9	99.61	58.87	85	51
41	-	-	89	76	-	-	93.7	63.0	99.64	60.57	80	57
42	-	-	87	77	-	-	94.3	70.1	99.64	63.36	82	64
43	-	-	85	58	-	-	91.1	69.3	99.61	50.9	82	45
44	-	-	88	52	-	-	94.3	56.4	99.66	58.37	85	45
45	-	-	72	58	-	-	87.7	47.3	99.63	59.56	85	56
46	-	-	95	66	-	-	82.0	44.6	99.64	64.6	84	65
47	-	-	79	56	-	-	86.1	56.7	99.7	59.64	87	50
48	-	-	92	78	-	-	84.9	40.6	99.71	70.21	87	58
49	-	-	87	66	-	-	88.7	63.6	99.61	56.53	86	69
50	-	-	84	58	-	-	79.7	43.0	99.6	54.61	85	54
51	-	-	85	57	-	-	80.7	35.0	99.61	51.27	85	58
52	-	-	96	61	-	-	83.3	38.0	99.6	48.93	85	55
1	-	-			-	-					86	54
2	-	-			-	-					87	57

Table 159. Ent 2. Seasonal dynamics of key pests of cotton (Abiotic factors- Rainfall) under Unprotected condition to develop suitable forecasting model in South Zone – Bt BG II during 2020-21

SMW	Abiotic Factor					
	Rainfall (mm)					
	LG	ND	DW	RC	CN	CBE
27	-				64.6	
28	-				34.2	
29	-				9.9	
30	-				52.9	
31	-				81.4	
32	-				17.6	
33	-	-		23	0	
34	-	-		80	0	
35	-	-		43	25.2	
36	-	-		0	111.7	
37	-	-		0	10	7
38	-	-		82	3	32.5
39	-			118	0	23
40	-	44.5/6.3		118	52.2	0
41	-	35.0/5.0		37	137.2	21.5
42	-	33.8/4.8		84	3	14.5
43	-	2.2/0.6		27	6.9	0
44	-	0.0/0.0		32	4.2	14
45	-	0.0/0		0	36.2	5.5
46	-	1.5/0.2		0.0	4.6	62
47	-	00.0/0.0		0.0	31.8	1
48	-	57.5/8.2		**0.0**	0	20.5
49	-	0.0/0.0		12.6	3	29.4
50	-	0/0		0.0	9.4	0.6
51	-	0/0		0.0	0	2
52	-	0/0		0.0	0	0
1	-					7
2						15.6

Table: 160.Ent 3. Survey for key and emerging pests in cotton in Farmers Field for weekly advisory at North Zone during 2020 – 21

Zone	Centers	Duration of survey	Total no. of surveyed village	Total no. of locations surveyed	No. of location crossed ETL												
					Whitefly	Leaf hopper	Thrips	Mealy bug	aphids	Mirid bug	H. armigera	E. vitella	p. gossyipiella	s. litura	Stem weevil	Red cotton bug	Flower bud maggot
North zone	Bathinda	MAY-NOV	134	736	28	56	76	0	0	0	0	0	20	0			0
	Faridkot	MAY-OCT	166	346	67	13	9	0	0	0	0	0	0	0			0
	Hisar	AUG-OCT	77	156	109	4	0	0	0	0	0	0	46	0			0
	Sirsa	JUNE-OCT	97	132	59	5	9	0		0	0	0	3	0			0
	Sriganganagar	MAY-NOV	62	252	117	1	59	0	0	0	0	0	0	0			0
Central zone	Banswara	July20-Dec.20	118	-	-	23	-	-	-	-	-	-	-	-	-	-	-
	Junagarh	July20-Dec20	243	-	60	36	48	-	48	0	-	-	97	-	-	-	-
	Surat & Bharuch	Jun20 – Dec20	983	-	0	55	20	1	55	0	0	0	39	0	-	-	-
	Rahuri	July20-Dec.20	410	-	23	25	35	-	186		2	-	36	4	1	-	-
	Akola	July20-Jan 21	187	--	27	58	22	-	-	-	-	-	51	-	-	-	-
	Nanded	Jun20 – Dec20	900	-	58	22	-	-	-	-	-	51	-	-	-	-	-
	Bhawanipatna	Jan 20- Dec 20	392	-	0	121	39	0	10	0	8	11	0	17	0	0	0
South zone	Lam	July-December	52	103	9	12	0	-	1	-	-	-	48	2	-	-	-
	Nandyal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dharwad	July-December	97	295	6	72	47	-	26	33	0	0	44	0	6	0	0
	Raichur	July-December	68	1335	0	130	38	0	0	0	0	0	249	0	-	-	0
	Chamrajanagara	June-November	103	1004	-	55	0	0	56	0	0	0	33	0	-	-	0
	Coimbatore	August-January	54	137	0	0	0	0	0	0	0	0	0	0	685	0	0
	Srivilliputtur	July-December															

Table: 161. Ent 4a. Determination of nymphal based ETL estimation and yield losses for cotton whitefly *Bemisia tabaci* in North Zone during 2020-21 at Bathinda

Treatment	Insecticides applied	No. of Sprays	Cost of sprays/ha	Average Nymphal Count on 5th Main stem Leaf**	Average Nymph/leaf***	Whitefly adults/3 leaves****	Ant/ plant	Average Yield (Q/ha) Reduction (%) over standard check		Honey Dew
T1	**Pyriproxyfen 10 EC**	3	3750	4.94 (3.00-8.53)	2.68 (1.22-4.29)	6.76 (3.40-10.47)	0.00 (0.00)	17.57	-21.79	-
T2	**Pyriproxyfen 10 EC**	3	3750	5.77 (2.80-9.73)	3.00 (1.93-5.24)	7.48 (4.80-11.20)	0.56 (0-1.12)	17.10	-18.53	-
T3	**Pyriproxyfen 10 EC**	2	2500	6.06 (3.13-10.33)	4.84 (1.67-9.49)	8.19 (6.33-14.00)	0.66 (0-1.40)	14.01	2.92	-
T4	**Pyriproxyfen 10 EC**	2	2500	8.25 (3.80-10.73)	5.92 (2.27-11.78)	9.75 (6.87-16.93)	0.76 (0-1.69)	13.52	6.32	-
T5	**Pyriproxyfen 10 EC**	2	2500	8.55 (4.47-13.13)	4.86 (1.36-7.38)	8.16 (3.93-16.33)	0.68 (0-1.63)	13.27	8.05	-
T6*	**Pyriproxyfen 10 EC**	1	1250	11.14 (4.80-15.40)	5.72 (2.67-9.13)	9.29 (5.33-16.73)	0.78 (0-1.67)	12.49	13.45	-
T7*	**Pyriproxyfen 10 EC**	1	1250	12.17 (5.53-15.80)	6.06 (2.84-9.33)	10.58 (4.73-21.33)	0.92 (0-2.13)	12.15	15.78	-
T8*		0	0	12.69 (6.13-17.80)	8.31 (3.04-13.73)	11.86 (7.73-30.00)	1.09 (0-3.0)	12.08	16.3	-
T9	**Flonicamid 50 WG & Pyriproxyfen 10 EC**	2	2650	7.86 (4.53-12.67)	3.62 (1.51-6.25)	7.12 (3.27-16.67)	0.6 (0-1.67)	14.43	**Standard control**	-
T10	**Control**	0	0	14.62 (4.33-20.27)	8.87 (3.44-15.76)	16.57 (6.10-42.60)	1.00 (0-2.26)	12.14	15.84	-

#Upper/Middle/Lower leaves

^^Record whitefly from upper/middle /lower leaves of all tagged plants

** Apply insecticides when the required number of insects recorded

Rates of Insecticides:-Pyriproxyfen 10 EC @ 1000/litre, Flonicamid 50 WG @ 7000/kg

Treatment Detail :- T1- 30 red eyed nymph/30leaves of 10 tagged plants; T2- 60 red eyed nymph/30leaves of 10 tagged plants; T3 - 120 red eyed nymph/30leaves of 10 tagged plants; T4- 180 red eyed nymph /30 leaves of 10 tagged plants; T5-Honey dew symptoms on 20% of the plant; T6 -Honey dew symptoms on 30% of the plant; T7-Honey dew symptoms on 40% of the plant; T8 -Honey dew symptoms on 50% of the plant; T9-6-8 adult/leaf (Treated control); T10-Untreated control

Table: 162.Ent 4a. Determination of nymphal based ETL estimation and yield losses for cotton whitefly *Bemisia tabaci* in North Zone during 2020-21 at Faridkot

Treatment	Insecticides applied	No. of Sprays	Cost of sprays/ha	Average Nymphal Count on 5th Main stem Leaf**	Average Nymph/leaf***	Whitefly adults/3 leaves****	Ant/ plant	Av. Plot Yield/kg (10 plants yield)	No. of Sprays	Honey Dew
T1	**Pyriproxyfen@ 500ml/acre**	4	455	0.54	0.84	6.77	0.1		12.42	No
T2	-	-	-	0.79	1.36	7.39	0.01	9.63	4.40	No
T3	-	-	-	1.07	1.60	8.28	0.21	10.20	-7.12	No
T4	-	-	-	0.49	1.66	8.91	0.00	10.27	-15.27	No
T5	-	-	-	-	-	-	-	-	-	No
T6*	-	-	-	-	-	-	-	-	-	No
T7*	-	-	-	-	-	-	-	-	-	No
T8*	-	-	-	-	-	-	-	-	-	No
T9	-	-		-	-	7.73	0.07	10.03	-	No
T10	-	-	-	0.79	1.62	7.78		9.83		No

#Upper/Middle/Lower leaves ** Apply insecticides when the required number of insects recorded
^^Record whitefly from upper/middle /lower leaves of all tagged plants
Mean of 14 observations starting from 30 DAS till 140 DAS at weekly intervals from three replications and 10 tagged plants/replication
No honey dew symptoms were observed

Table: 163. Ent 4a. Determination of nymphal based ETL estimation and yield losses for cotton whitefly *Bemisia tabaci* in North Zone during 2020-21 at Hisar

Treatment	Insecticides applied	No. of Sprays	Cost of sprays/ha	Average Nymphal Count on 5th Main stem Leaf**	Average Nymph/leaf***	Whitefly adults/3 leaves****	Ant/ plant	Average Yield (Q/ha)	Reduction (%) over standard check	Honey Dew
T1	**Pyriproxifen and spiromesifen**	8	12950	2.33 (0.33-8.43)	1.99 (0.23-5.37)	7.99 (1.73-20.57)	0.33 (0.00-1.27)	23.93	-5.37	No
T2	**Pyriproxifen and spiromesifen**	7	11800	3.06 (0.73-9.20)	2.69 (0.53-6.57)	8.56 (1.80-21.77)	0.47 (0.00-1.67)	23.47	-3.36	No
T3	**Pyriproxifen and spiromesifen**	5	8250	6.39 (2.70-11.53)	5 (1.93-9.23)	14.99 (4.37-33.77)	0.60 (0.00-1.87)	23.01	-1.34	No
T4	**Pyriproxifen and spiromesifen**	5	8250	8.46 (3.47-16.20)	6.49 (2.47-12.60)	18.69 (4.63-46.73)	0.92 (0.00-2.60)	22.56	0.67	No
T5	**Pyriproxifen**	3	3450	21.49 (7.50-48.40)	19.65 (5.37-48.47)	34.49 (6.60-92.30)	1.55 (0.00-4.20)	20.73	8.73	Yes
T6*	**Pyriproxifen**	3	3450	23.69 (8.73-51.83)	21.55 (6.23-55.50)	40.09 (8.1-102.27)	1.65 (0.00-4.40)	20.27	10.74	Yes
T7*	**Pyriproxifen**	2	2300	35.95 (9.27-71.00)	30.91 (6.63-68.83)	59.03 (6.8-110.30)	1.74 (0.00-4.07)	19.05	16.11	Yes
T8*	**Pyriproxifen**	2	2300	38.12 (8.73-73.67)	32.79 (6.23-72.00)	65.29 (8.1-116.67)	1.99 (0.00-5.00)	18.75	17.45	Yes
T9	**Pyriproxifen, diafenthiuron and flonicamid**	6	7700	10.56 (2.73-22.97)	7.55 (1.97-16.40)	15.89 (1.73-41.43)	0.44 (0.00-1.33)	22.71	**Standard control**	No
T10		-	-	62.76 (8.33-93.47)	53.08 (5.93-84.50)	115.15 (9.60-255.67)	2.38 (0.00-6.13)	16.00	29.53	Yes

#Upper/Middle/Lower leaves ** Apply insecticides when the required number of insects recorded

^^Record whitefly from upper/middle /lower leaves of all tagged plants

Table: 164.Ent 4a. Determination of nymphal based ETL estimation and yield losses for cotton whitefly *Bemisia tabaci* in North Zone during 2020-21 at Sirsa

Treatment	Insecticides applied	No. of Sprays	Cost of sprays/ha	Average Nymphal Count on 5th Main stem Leaf**	Average Nymph/leaf***	Whitefly adults/3 leaves****	Ant/ plant	Average Yield (Q/ha)	Reduction(%) over standard check	Honey Dew
T1	**Pyriproxyfen 10 % EC and Oberon**	7	13400	1.23(0.53-3.90)	1.19(0.71-2.11)	10.36 (7.97-16.47)	0.27(0.00-0.80)	29.52	-5.32	1.16 (0.00-10.00)
T2	**Pyriproxyfen 10 % EC and Oberon**	5	9800	1.64(0.43-4.93)	2.00(1.11-4.57)	11.21(9.90-17.27)	0.66(0.00-1.91)	27.04	3.53	3.93 (0.00-16.66)
T3	**Pyriproxyfen 10 % EC and Oberon**	4	8000	2.16(0.57-7.03)	3.25(1.13-4.36)	12.25(10.10-18.70)	1.15(0.00-2.85)	25.15	10.27	5.28 (0.00-34.00)
T4	**Pyriproxyfen 10 % EC and Oberon**	2	3700	2.45(0.93-6.45)	5.53(1.17-6.62)	12.76(11.23-19.50)	1.22)0.00-2.25)	23.65	15.63	6.70 (0.00-20.00)
T5	**Oberon and propiconozole**	3	4850	2.41(1.67-5.10)	4.15(1.30-7.28)	14.67(9.70-19.30)	2.26(0.00-2.00	24.35	13.13	15.31 (0.00-36.67)
T6*	**Oberon and propiconozole**	3	4850	3.41(0.73-5.07)	4.67(1.86-8.52)	14.15(6.90-20.77)	1.96(0.47-2.20)	24.09	14.06	26.47 (0.00-43.67)
T7*	**Oberon and propiconozole**	1	3050	4.93(1.10-6.40)	5.13(0.89-8.88)	15.03(10.33-20.83)	2.31(0.00-1.92)	23.68	15.52	33.07 (16.66-70.00)
T8*	**Oberon and propiconozole**	2	3050	4.89(0.87-6.33)	5.02(1.82-8.64)	16.62(10.70-21.07)	1.86(0.00-1.75)	23.54	16.02	35.67 (0.00-80.00)
T9	**Diafenthuiuron**	7	11200	1.92(0.83-3.34)	3.98(1.23-4.43)	8.25(6.87-14.48)	1.05(0.00-1.67)	28.03	**Standard control**	13.08 (0.00-26.67)
T10	**Pyriproxyfen 10 % EC and Oberon**	0	0	4.51(1.73-6.87)	5.65(2.02-9.71)	15.35(6.83-21.83)	1.96(0.00-2.33)	22.17	28.04	52.56 (20.00-80.00)

*Labour charges calculated Rs. 300 / ha / spray and Propiconazol 10% EC applied @ 1.250 L/ha, Spiromesifen 240 SC @ 500 ml /ha, Diafenthiuron 50% WP @ 500 gm/ha. Propiconazole 25% EC @ 500 ml/ha.

Propiconazol 10% EC cost Rs. 1200 / Litre, Spiromesifen 240 SC, Rs. 3800 / Litre, Diafenthiuron 50% WP, Rs. 2600 / Litre Propiconazole 25% EC, Rs. 1100 / Litre Data recorded from 3 plants / plot ** Nymph/ leaf based on data recorded from 30 tagged plant /plot *** Data recorded from 3 plants /plot

Table: 165..Ent 4a. Determination of nymphal based ETL estimation and yield losses for cotton whitefly *Bemisia tabaci* in North Zone during 2020-21 at Sriganganagar

Treatment	Insecticides applied	No. of Sprays	Cost of sprays/ha	Average Nymphal Count on 5th Main stem Leaf**	Average Nymph/leaf***	Whitefly adults/3 leaves****	Ant/ plant	Average Yield (Q/ha)	Reduction (%) over standard check	Honey Dew
T1	**Pyriproxyfen**	6	13800	2.67 (0.47-10.33)	1.23 (0.17-4.53)	5.33 (1.27-17.67)	0.00 (0.00)	35.69	-7.22	**NO**
T2	**Pyriproxyfen**	5	11500	3.47 (0.67-12.06)	2.07 (0.43-5.97)	7.23 (1.33-21.57)	0.00 (0.00)	34.96	-5.02	**NO**
T3	**Pyriproxyfen**	4	9200	7.53 (2.43-15.60)	4.33 (1.33-8.76)	11.67 (3.67-28.33)	0.00 (0.00)	34.22	-2.78	**NO**
T4	**Pyriproxyfen**	4	9200	9.03 (3.23-19.87)	5.67 (1.97-11.67)	12.57 (4.93-38.40)	0.00 (0.00)	33.36	-0.20	**NO**
T5	**Pyriproxyfen**	3	6900	24.2 (5.96-47.53)	22.53 (6.67-45.03)	28.27 (5.76-68.23)	2.67 (0.00-9.40)	32.19	3.29	**YES**
T6*	**Pyriproxyfen**	3	6900	27.43 (7.67-53.47)	26.17 (7.33- 59.17)	36.43 (6.60-73.53)	3.03 (0.00-12.27)	30.73	7.68	**YES**
T7*	**Pyriproxyfen**	2	4600	39.67 (7.93-69.36)	37.26 (9.07-67.53)	49.63 (7.33-79.67)	4.47 (0.00-14.56)	29.44	11.55	**YES**
T8*	**Pyriproxyfen**	2	4600	43.6 (8.03-74.73)	45.33 (10.33-73.67)	58.17 (7.84-89.33)	4.93 (0.00-16.07)	28.38	14.76	**YES**
T9	**Pyriproxyfen, Diafenthiuron, Dinotefuron**	5	12050	9.87 (2.27-19.63)	6.27 (2.27-14.63)	12.83 (4.67-41.26)	0.00 (0.00)	33.29	**Standard control**	**NO**
T10	**Control**	0	0	53.72 (8.17-87.40)	52.67 (5.67-79.03)	76.33 (7.76-94.87)	5.43 (0.00-19.24)	26.33	20.91	

#Upper/Middle/Lower leaves ** Apply insecticides when the required number of insects recorded

^^Record whitefly from upper/middle /lower leaves of all tagged plants

Table166: Ent 5a. Management of sucking pest in Cotton at Surat in Central zone during 2020-21

T N.	Treatment Name	Dose (g or ml/ha)	Av. Leafhoppers/3 leaves				Av. Thrips/3 leaves				Av. Whitefly/3 leaves				Av. Aphid/3 leaves				Av. Mealybug/twig			
			Pre Spray		7 DAS		Pre Spray		7 DAS		Pre Spray		7 DAS		Pre Spray		7 DAS		Pre Spray		7 DAS	
			O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.
T1	Spinetoram 11.7 SC	420	7.93	2.89	7.24	2.77	21.37	4.64	4.87	2.25	6.04	2.55	6.67	2.67	25.47	4.87	10.91	3.31	12.00	3.53	9.33	3.13
T2	Pyriproxyfen 10 EC	1000	8.20	2.94	7.76	2.87	22.47	4.77	9.77	3.19	5.42	2.42	2.04	1.58	26.58	5.03	12.11	3.49	6.67	2.66	8.33	2.97
T3	Dinotefuran 20 SG	150	8.11	2.92	2.20	1.63	23.83	4.89	5.23	2.34	5.64	2.47	2.60	1.75	28.04	5.12	5.38	2.40	6.00	2.54	5.00	2.34
T4	Spiromesifen 22.9 SC	600	8.64	3.00	8.20	2.93	24.67	4.98	10.77	3.34	5.16	2.37	1.16	1.24	26.96	5.06	14.22	3.75	10.00	3.18	12.00	3.53
T5	Diafenthiuron 50 WP	600	7.58	2.83	3.09	1.88	25.80	5.08	8.23	2.92	4.76	2.28	1.24	1.29	27.76	5.08	6.04	2.52	7.67	2.85	4.67	2.26
T6	Flonicamid 50 WG	150	6.27	2.58	1.36	1.35	25.27	5.01	4.57	2.18	5.29	2.40	1.38	1.34	28.20	5.17	4.62	2.24	6.67	2.67	3.33	1.95
T7	Imidacloprid 17.8 SL	125	8.33	2.95	5.36	2.41	25.47	5.01	9.43	3.14	6.31	2.59	4.42	2.21	25.62	4.91	9.03	3.06	15.00	3.93	14.33	3.85
T8	Control	-	9.73	3.18	10.51	3.30	26.33	5.09	27.37	5.14	7.82	2.88	8.44	2.98	27.16	5.05	32.00	5.53	17.00	4.18	22.00	4.74
	Mean		8.10	2.91	5.71	2.39	24.40	4.93	10.03	3.06	5.81	2.49	3.49	1.88	26.97	5.04	11.79	3.29	10.13	3.19	9.88	3.10
	S. Em. (T)		-	0.11	-	0.08	-	0.15	-	0.30	-	0.08	-	0.14	-	0.10	-	0.29	-	0.23	-	0.14
	C.D. at 5% (T)		-	NS	-	0.22	-	NS	-	1.00	-	0.22	-	0.43	-	NS	-	0.88	-	0.70	-	0.42
	S. Em. (T X S)		-	0.13	-	0.12	-	0.21	-	0.15	-	0.13	-	0.11	-	0.18	-	0.14	-	-	-	-
	C.D. at 5%		-	0.36	-	NS	-	NS	-	0.44	-	NS	-	0.30	-	NS	-	0.40	-	-	-	-
	CV%		-	7.54	-	8.92	-	7.32	-	8.69	-	8.91	-	9.67	-	6.01	-	7.29	-	12.54	-	7.78

Table 167: Ent 5a. Management of sucking pest in Cotton at Surat in Central zone during 2020-21

T N.	Treatment Name	Dose (g or ml/ha)	Av. Natural enemies/plant				Open boll damage (%) by PBW		Locule damage (%) by PBW	
			Pre Spray				7 DAS		7 DAS	
			O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.
T1	Spinetoram 11.7 SC	420	2.87	1.83	2.53	1.74	4.92	12.64	2.06	8.08
T2	Pyriproxyfen 10 EC	1000	3.00	1.87	2.67	1.78	12.96	21.07	6.38	14.56
T3	Dinotefuran 20 SG	150	2.73	1.80	2.33	1.68	7.84	16.12	3.86	11.21
T4	Spiromesifen 22.9 SC	600	3.00	1.87	2.73	1.80	8.54	16.93	4.44	12.05
T5	Diafenthiuron 50 WP	600	3.40	1.97	2.87	1.84	7.20	15.49	3.74	11.04
T6	Flonicamid 50 WG	150	3.00	1.87	2.73	1.80	7.44	15.82	3.85	11.29
T7	Imidacloprid 17.8 SL	125	2.87	1.83	2.13	1.62	11.24	19.52	5.65	13.73
T8	Control	-	3.07	1.89	3.60	2.02	19.47	26.13	10.26	18.63
	Mean		2.99	1.87	2.70	1.78	9.95	17.97	5.03	12.57
	S.Em. (T)		-	0.05	-	0.06	-	1.17	-	1.06
	C.D. at 5%		-	NS	-	0.19	-	3.55	-	3.20
	CV%		-	5.00	-	6.23	-	11.28	-	14.53

Table 168: Ent 5a. Management of sucking pest in Cotton at Junagarh in Central zone during 2020-21

T N.	Treatment Name	Dose (g or ml/ha)	Av. Leafhoppers/3 leaves				Av. Thrips/3 leaves				Av. Whitefly/3 leaves				Av. Aphid/3 leaves			
			Pre Spray		7 DAS		Pre Spray		7 DAS		Pre Spray		7 DAS		Pre Spray		7 DAS	
			O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.
T1	Spinetoram 11.7 SC	420	4.28	18.35	2.47	6.11	4.54	20.58	1.77	3.14	3.92	15.37	1.68	2.83	4.19	17.56	2.34	5.48
T2	Pyriproxyfen 10 EC	1000	4.24	17.98	2.81	7.89	4.50	20.28	1.97	3.89	4.09	16.76	1.84	3.37	4.55	20.73	2.48	6.15
T3	Dinotefuran 20 SG	150	4.40	19.36	4.59	21.06	4.60	21.19	2.26	5.11	4.52	20.43	2.55	6.52	4.16	17.28	3.18	10.09
T4	Spiromesifen 22.9 SC	600	4.16	17.33	4.21	17.76	4.48	20.04	2.72	7.38	4.11	16.92	2.25	5.06	4.28	18.32	3.43	11.76
T5	Diafenthiuron 50 WP	600	4.10	16.81	5.50	30.26	4.21	17.75	3.11	9.65	4.00	16.00	1.42	2.02	4.06	16.51	4.13	17.08
T6	Flonicamid 50 WG	150	4.29	18.43	4.00	16.04	4.68	21.93	2.48	6.17	4.14	17.14	2.20	4.85	4.19	17.58	2.78	7.75
T7	Imidacloprid 17.8 SL	125	4.33	18.72	4.75	22.54	4.51	20.31	2.83	7.99	4.63	21.44	2.45	5.99	4.28	18.32	3.35	11.22
T8	Control	-	4.26	18.15	7.10	50.34	4.49	20.13	4.21	17.75	4.98	24.77	4.12	16.97	5.04	25.44	5.34	28.52
	S.Em. ±		-	0.19	-	0.11	-	0.22	-	0.13	-	0.22	-	0.11	-	0.2	-	0.17
	CD (P= 0.05)		-	NS	-	0.33	-	NS	-	0.40	-	NS	-	0.35	-	NS	-	0.51
	CV %		-	7.85	-	8.6	-	8.41	-	8.59	-	8.98	-	8.61	-	8.16	-	8.63

Table 169: Ent 5a. Management of sucking pest in Cotton at Junagarh in Central zone during 2020-21

T N.	Treatment Name	Dose (g or ml/ha)	Av. Natural enemies/plant				Open boll damage (%) by PBW		Locule damage (%) by PBW	
			LBB, Spiders, Chrysoperla							
			Pre Spray		Post Spray		Post Spray		Post Spray	
			O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.
T1	Spinetoram 11.7 SC	420	2.63	6.93	2.17	4.72	-	-	-	-
T2	Pyriproxyfen 10 EC	1000	2.76	7.60	2.03	4.12	-	-	-	-
T3	Dinotefuran 20 SG	150	2.63	6.90	1.36	1.84	-	-	-	-
T4	Spiromesifen 22.9 SC	600	2.33	5.44	1.82	3.31	-	-	-	-
T5	Diafenthiuron 50 WP	600	2.62	6.86	1.91	3.66	-	-	-	-
T6	Flonicamid 50 WG	150	2.42	5.87	1.58	2.51	-	-	-	-
T7	Imidacloprid 17.8 SL	125	2.63	6.92	1.26	1.58	-	-	-	-
T8	Control	-	2.57	6.59	2.57	6.59	-	-	-	-
	S.Em. ±		-	0.12	-	0.08	-	-	-	-
	CD (P= 0.05)		-	NS	-	0.25	-	-	-	-
	CV %		-	7.98	-	7.80	-	-	-	-

Table 170: Ent 5a. Management of sucking pest in Cotton at Rahuri in Central zone during 2020-21

T N.	Treatment Name	Dose (g or ml/ha)	Av. Leafhoppers/3 leaves				Av. Thrips/3 leaves				Av. Whitefly/3 leaves				Av. Aphid/3 leaves			
			Pre Spray		14 DAS		Pre Spray		14 DAS		Pre Spray		14 DAS		Pre Spray		14 DAS	
			O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.
T1	Spinetoram 11.7 SC	420	4.40	2.21	7.02	2.74	3.85	2.09	1.16	1.29	4.07	2.14	3.38	1.97	24.53	5.00	2.26	1.66
T2	Pyriproxyfen 10 EC	1000	4.13	2.15	7.20	2.77	5.07	2.36	1.45	1.40	3.93	2.11	3.45	1.99	24.13	4.96	2.40	1.70
T3	Dinotefuran 20 SG	150	3.13	1.91	7.07	2.75	4.72	2.28	1.31	1.35	3.93	2.11	2.50	1.73	22.73	4.82	2.23	1.65
T4	Spiromesifen 22.9 SC	600	3.87	2.09	7.54	2.83	4.41	2.22	2.28	1.67	3.27	1.94	4.15	2.16	23.47	4.90	1.50	1.42
T5	Diafenthiuron 50 WP	600	3.07	1.89	7.35	2.80	5.02	2.35	1.74	1.50	3.87	2.09	3.70	2.05	24.00	4.95	1.62	1.46
T6	Flonicamid 50 WG	150	3.60	2.02	9.00	3.08	4.29	2.19	1.33	1.35	4.40	2.21	3.24	1.93	22.40	4.79	2.13	1.62
T7	Imidacloprid 17.8 SL	125	3.40	1.97	7.00	2.74	4.35	2.20	0.80	1.14	3.93	2.11	4.50	2.24	23.67	4.92	1.26	1.33
T8	Control	-	2.93	1.85	14.47	3.87	4.99	2.34	8.67	3.03	3.73	2.06	7.39	2.81	23.13	4.86	2.66	1.78
	F test	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SE±		-	0.11	-	0.19	-	0.06	-	0.05	-	0.10	-	0.15	-	0.08	-	0.08
	CD (P=0.05)		-	NS	-	0.61	-	NS	-	0.16	-	NS	-	0.46	-	NS	-	0.24
	CV%		-	9.77	-	11.76	-	5.17	-	5.83	-	9.05	-	12.42	-	2.91	-	8.82

Table 171 Ent 5a. Management of sucking pest in Cotton at Rahuri in Central zone during 2020-21

T N.	Treatment Name	Dose (g or ml/ha)	Av. Natural enemies/plant												Open boll damage (%) by PBW		Locule damage (%) by PBW	
			Lady bird beetle				Spiders				Chrysoperla							
			Pre Spray		Post Spray		Pre Spray		Post Spray		Pre Spray		Post Spray		Post Spray		Post Spray	
			O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.
T1	Spinetoram 11.7 SC	420	1.13	1.28	1.05	1.24	-	-	-	-	0.55	1.02	0.29	0.89	-	-	-	-
T2	Pyriproxyfen 10 EC	1000	1.40	1.38	1.15	1.28	-	-	-	-	0.61	1.05	0.36	0.93	-	-	-	-
T3	Dinotefuran 20 SG	150	1.40	1.38	0.82	1.15	-	-	-	-	0.59	1.04	0.38	0.94	-	-	-	-
T4	Spiromesifen 22.9 SC	600	1.60	1.45	1.85	1.53	-	-	-	-	0.63	1.06	0.34	0.91	-	-	-	-
T5	Diafenthiuron 50 WP	600	1.60	1.45	1.83	1.53	-	-	-	-	0.59	1.04	0.36	0.93	-	-	-	-
T6	Flonicamid 50 WG	150	1.07	1.25	1.80	1.52	-	-	-	-	0.50	1.00	0.33	0.91	-	-	-	-
T7	Imidacloprid 17.8 SL	125	1.33	1.35	2.20	1.64	-	-	-	-	0.48	0.99	0.77	1.13	-	-	-	-
T8	Control	-	1.27	1.33	2.67	1.78	-	-	-	-	0.73	1.11	1.03	1.24	-	-	-	-
	F test		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SE±		-	0.11	-	0.04	-	-	-	-	-	0.03	-	0.05	-	-	-	-
	CD (P=0.05)		-	NS	-	0.14	-	-	-	-	-	NS	-	0.15	-	-	-	-
	CV%		-	14.11	-	5.71	-	-	-	-	-	6.24	-	9.01	-	-	-	-

Table172. Ent 5a :Effect of different insecticides and Phytotoxicity in cotton ecosystem at different crop stages at Rahuri 2020-21

Tr. No.	Treatments	Formulation g.a.i /ha.	Dosage in ml,gm /ha	Necrosis		Scorching		Epinasty		Hyponasty	
				Before 15 DAS	After 30 DAS	Before 15 DAS	After 30 DAS	Before 15 DAS	After 30 DAS	Before 15 DAS	After 30 DAS
T1	Spinetoram11.7%	50	420	0	0	0	0	0	0	0	0
T2	Pyriproxyfen 10% EC	100	1000	0	0	0	0	0	0	0	0
T3	Dinotefuran20%SG	30	150	0	0	0	0	0	0	0	0
T4	Spiromesifen 240 SC (22.9%)	144	600	0	0	0	0	0	0	0	0
T5	Diafenthiuron 50WP	300	600	0	0	0	0	0	0	0	0
T6	Flonicamide 50% WG	75	150	0	0	0	0	0	0	0	0
T7	Imidaclopride 200 SL (17.8%)	25	125	0	0	0	0	0	0	0	0
T8	Control	--	----	0	0	0	0	0	0	0	0

Table 173: Ent 5a. Management of sucking pest in Cotton at Akola in Central zone during 2020-21

T N.	Treatment Name	Dose (g or ml/ha)	Av. Leafhoppers/3 leaves				Av. Thrips/3 leaves				Av. Whitefly/3 leaves				Av. Aphid/3 leaves			
			Pre Spray		7 DAS		Pre Spray		7 DAS		Pre Spray		7 DAS		Pre Spray		7 DAS	
			O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.
T1	Spinetoram 11.7 SC	50	2.73	1.65	0.20	0.83	7.07	2.65	0.27	0.86	11.20	3.32	2.53	1.58	0.47	0.98	0.53	1.01
T2	Pyriproxyfen 10 EC	100	1.87	1.35	0.33	0.91	5.80	2.31	0.40	0.93	9.73	3.09	3.13	1.75	0.67	1.07	0.87	1.16
T3	Dinotefuran 20 SG	30	1.33	1.14	0.27	0.86	4.20	2.04	0.53	1.01	10.13	3.18	2.67	1.62	0.53	1.01	0.60	1.05
T4	Spiromesifen 22.9 SC	144	1.93	1.39	0.40	0.94	6.07	2.44	0.33	0.89	10.20	3.18	3.00	1.73	0.40	0.94	0.67	1.06
T5	Diafenthiuron 50 WP	300	1.80	1.34	0.47	0.98	5.27	2.29	0.47	0.96	11.60	3.38	2.60	1.59	0.53	1.02	1.27	1.30
T6	Flonicamid 50 WG	75	1.47	1.20	0.13	0.79	5.53	2.30	0.20	0.82	10.53	3.20	2.33	1.52	0.33	0.91	0.40	0.94
T7	Imidacloprid 17.8 SL	25	1.93	1.39	0.07	0.75	6.53	2.53	0.13	0.79	8.07	2.83	2.20	1.48	0.60	1.03	0.27	0.87
T8	Control	-	2.93	1.69	0.53	1.02	8.00	2.77	0.67	1.05	9.27	3.00	5.07	2.21	1.13	1.27	1.73	1.49
	F test		-	**NS**	-	**SIG**	-	**NS**	-	**SIG**	-	**NS**	-	**SIG**	-	**NS**	-	**SIG**
	SE (M±)		-	0.132	-	0.046	-	0.202	-	0.047	-	0.279	-	0.112	-	0.074	-	0.110
	CD (P=0.05)		-	-	-	0.139	-	-	-	0.144	-	-	-	0.339	-	-	-	0.333
	CV %		-	16.45	-	8.96	-	14.46	-	8.98	-	15.37	-	11.49	-	12.48	-	17.12

Table 174 Ent 5a. Management of sucking pest in Cotton at Akola in Central zone during 2020-21

T N.	Treatment Name	Dose (g or ml/ha)	Av. Natural enemies/plant												Open boll damage (%) by PBW		Locule damage (%) by PBW	
			Lady bird beetle*				Spiders				Chrysoperla							
			Pre Spray		Post Spray		Pre Spray		Post Spray		Pre Spray		Post Spray		Post Spray		Post Spray	
			O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.
T1	Spinetoram 11.7 SC	420	0.00	0.71	0.00	0.71	0.53	1.01	0.47	0.98	0.00	0.71	0.07	0.75	-	-	-	-
T2	Pyriproxyfen 10 EC	1000	0.00	0.71	0.00	0.71	0.33	0.91	0.40	0.94	0.20	0.83	0.00	0.71	-	-	-	-
T3	Dinotefuran 20 SG	150	0.00	0.71	0.00	0.71	0.67	1.08	0.33	0.91	0.00	0.71	0.00	0.71	-	-	-	-
T4	Spiromesifen 22.9 SC	600	0.00	0.71	0.00	0.71	0.60	1.05	0.47	0.98	0.00	0.71	0.00	0.71	-	-	-	-
T5	Diafenthiuron 50 WP	600	0.33	0.88	0.07	0.75	0.47	0.98	0.33	0.91	0.00	0.71	0.00	0.71	-	-	-	-
T6	Flonicamid 50 WG	150	0.00	0.71	0.07	0.75	0.67	1.07	0.40	0.94	0.13	0.79	0.13	0.79	-	-	-	-
T7	Imidacloprid 17.8 SL	125	0.33	0.88	0.13	0.79	0.60	1.05	0.40	0.94	0.07	0.75	0.20	0.83	-	-	-	-
T8	Control	-	0.00	0.71	0.00	0.71	0.60	1.05	0.53	1.01	0.00	0.71	0.07	0.75	-	-	-	-
	F test		-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	-	-	-
	SE(M±)		-	0.080	-	0.028	-	0.053	-	0.053	-	0.034	-	0.038	-	-	-	-
	CD (P=0.05)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	CV %		-	18.44	-	6.58	-	9.04	-	9.57	-	7.92	-	8.88	-	-	-	-

Table 175: Ent 5a. Management of sucking pest in Cotton at Bhawanipatna in Central zone during 2020-21

T N.	Treatment Name	Dose (g or ml/ha)	Av. Leafhoppers/3 leaves				Av. Thrips/3 leaves				Av. Whitefly/3 leaves				Av. Aphid/3 leaves			
			Pre Spray		Post Spray		Pre Spray		Post Spray		Pre Spray		Post Spray		Pre Spray		Post Spray	
			O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.
T1	Spinetoram 11.7 SC	50	7.33	2.80	2.19	1.59	7.67	2.86	3.06	1.86	4.33	2.20	1.86	1.50	22.33	4.77	5.54	2.42
T2	Pyriproxyfen 10 EC	100	6.92	2.72	2.18	1.61	8.25	2.96	2.58	1.74	4.17	2.15	1.40	1.37	22.67	4.80	4.25	2.13
T3	Dinotefuran 20 SG	30	6.75	2.69	2.18	1.59	8.00	2.91	2.64	1.75	4.42	2.22	1.46	1.38	23.00	4.84	7.22	2.73
T4	Spiromesifen 22.9 SC	144	7.08	2.75	1.75	1.44	8.25	2.95	0.78	1.08	4.33	2.20	0.43	0.94	22.17	4.76	2.61	1.65
T5	Diafenthiuron 50 WP	300	7.08	2.75	2.67	1.74	8.25	2.95	3.21	1.90	4.42	2.21	1.83	1.52	23.17	4.86	7.75	2.82
T6	Flonicamid 50 WG	75	6.83	2.70	0.71	1.05	8.58	3.01	0.32	0.88	4.25	2.18	0.52	0.99	23.08	4.85	1.28	1.24
T7	Imidacloprid 17.8 SL	25	6.92	2.72	2.64	1.73	8.58	3.01	1.25	1.26	4.92	2.33	0.33	0.90	22.75	4.81	6.19	2.55
T8	Control	-	6.92	2.72	10.36	3.29	8.08	2.93	10.49	3.31	4.17	2.16	5.88	2.52	22.33	4.78	28.78	5.41
	SE(m)		-	0.09	-	0.09	-	0.13	-	0.12	-	0.13	-	0.10	-	0.27	-	0.15
	CD(0.05)		-	0.19	-	0.19	-	0.29	-	0.26	-	0.27	-	0.21	-	0.57	-	0.32
	CV %		-	3.99	-	6.08	-	5.53	-	8.49	-	7.05	-	8.78	-	6.82	-	7.24

Table176: Ent 5a. Management of sucking pest in Cotton at Bhawanipatna in Central zone during 2020-21

T N.	Treatment Name	Dose (g or ml/ha)	Av. Natural enemies/plant												Open boll damage (%) by PBW		Locule damage (%) by PBW	
			Lady bird beetle				Spiders				Chrysoperla							
			Pre Spray		Post Spray		Pre Spray		Post Spray		Pre Spray		Post Spray		Post Spray		Post Spray	
			O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.
T1	Spinetoram 11.7 SC	420	2.08	1.60	0.08	0.76	1.25	1.32	0.04	0.73	0.17	0.80	0.01	0.72	-	-	-	-
T2	Pyriproxyfen 10 EC	1000	1.58	1.44	0.14	0.79	1.00	1.22	0.13	0.79	0.08	0.76	0.03	0.72	-	-	-	-
T3	Dinotefuran 20 SG	150	1.92	1.55	0.06	0.74	1.42	1.38	0.04	0.73	0.17	0.81	0.00	0.71	-	-	-	-
T4	Spiromesifen 22.9 SC	600	2.00	1.58	0.33	0.90	1.08	1.25	0.28	0.87	0.17	0.81	0.06	0.74	-	-	-	-
T5	Diafenthiuron 50 WP	600	1.92	1.55	0.00	0.71	1.08	1.24	0.01	0.72	0.17	0.80	0.00	0.71	-	-	-	-
T6	Flonicamid 50 WG	150	1.75	1.49	0.54	1.01	1.00	1.22	0.32	0.89	0.33	0.90	0.08	0.76	-	-	-	-
T7	Imidacloprid 17.8 SL	125	2.08	1.60	0.00	0.71	1.08	1.26	0.01	0.72	0.17	0.81	0.00	0.71	-	-	-	-
T8	Control	-	2.00	1.58	3.00	1.87	0.92	1.18	1.96	1.56	0.25	0.86	0.39	0.94	-	-	-	-
	SE(m)		-	**0.12**	-	**0.06**	-	**0.14**	-	**0.06**	-	**0.12**	-	**0.04**	-	-	-	-
	CD(0.05)		-	**0.25**	-	**0.13**	-	**0.30**	-	**0.14**	-	**0.26**	-	**0.09**	-	-	-	-
	CV %		-	**9.37**	-	**8.20**	-	**13.47**	-	**8.94**	-	**18.04**	-	**6.90**	-	-	-	-

Table177: Ent 5a. Management of sucking pest in Cotton at Nanded in Central zone during 2020-21

T N.	Treatment Name	Dose (g or ml/ha)	Av. Leafhoppers/3 leaves				Av. Thrips/3 leaves				Av. Whitefly/3 leaves				Av. Aphid/3 leaves			
			Pre Spray		Post Spray		Pre Spray		Post Spray		Pre Spray		Post Spray		Pre Spray		Post Spray	
			O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.
T1	Spinetoram 11.7 SC	50	1.83	1.52	0.63	1.06	5.07	2.32	0.97	1.14	2.57	1.72	0.73	1.1	32.93	5.77	1.07	1.25
T2	Pyriproxyfen 10 EC	100	2.03	1.59	0.83	1.15	5.1	2.35	1.37	1.33	2.07	1.59	0.63	1.06	31.73	5.64	1.27	1.32
T3	Dinotefuran 20 SG	30	1.93	1.55	0.73	1.1	5.17	2.34	1.07	1.24	1.88	1.54	0.63	1.06	31	5.85	1.27	1.32
T4	Spiromesifen 22.9 SC	144	1.87	1.53	0.67	1.07	5.9	2.52	1.8	1.5	2.83	1.82	0.83	1.14	35.53	5.99	1.23	1.31
T5	Diafenthiuron 50 WP	300	2.03	1.59	0.83	1.15	6.07	2.55	1.97	1.54	2.03	1.98	0.63	1.05	37.33	6.13	1.33	1.35
T6	Flonicamid 50 WG	75	1.87	1.52	0.93	1.19	5.27	2.38	1.17	1.19	2.03	1.58	0.5	0.99	36.67	6.09	1.27	1.32
T7	Imidacloprid 17.8 SL	25	1.77	1.5	0.57	1.02	4.73	2.28	0.63	1.05	2.72	1.78	1.03	1.23	42.67	6.56	1.6	1.44
T8	Control	-	1.2	1.3	2.13	1.61	4.5	2.22	3.27	1.93	2.43	1.7	2.1	1.61	41.13	6.44	2.7	1.78
	F Test		-	Sig.	-	Sig.	-	Sig.	-	Sig.	-	Sig.	-	Sig.	-	Sig	-	Sig.
	SE±		-	0.05	-	0.06	-	0.13	-	0.2	-	0.05	-	0.05	-	0.21	-	0.06
	CD		-	0.15	-	0.2	-	0.52	-	0.61	-	0.15	-	0.17	-	0.66	-	0.2
	(P=0.05)		-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
	CV%		-	5.88	-	9.93	-	10.15	-	25.78	-	5.2	-	0.64	-	6.28	-	8.45

Table 178: Ent 5a. Management of sucking pest in Cotton at Nanded in Central zone during 2020-21

T N.	Treatment Name	Dose (g or ml/ha)	Av. Natural enemies/plant												Open boll damage (%) by PBW		Locule damage (%) by PBW	
			Lady bird beetle				Spiders				Chrysoperla				Post Spray		Post Spray	
			Pre Spray		Post Spray		Pre Spray		Post Spray		Pre Spray		Post Spray					
			O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.
T1	Spinetoram 11.7 SC	420	1.33	1.35	0.43	0.96	-	-	-	-	0.43	0.96	0.1	0.77	-	-	-	-
T2	Pyriproxyfen 10 EC	1000	1.57	1.43	0.67	1.07	-	-	-	-	0.4	0.94	0.2	0.83	-	-	-	-
T3	Dinotefuran 20 SG	150	1.6	1.44	0.7	1.08	-	-	-	-	0.4	0.94	0.2	0.83	-	-	-	-
T4	Spiromesifen 22.9 SC	600	1.73	1.49	0.83	1.15	-	-	-	-	0.63	1.06	0.33	0.91	-	-	-	-
T5	Diafenthiuron 50 WP	600	1.3	1.34	0.4	0.94	-	-	-	-	0.53	1.01	0.17	0.81	-	-	-	-
T6	Flonicamid 50 WG	150	1.23	1.31	0.33	0.9	-	-	-	-	0.33	0.91	0.17	0.81	-	-	-	-
T7	Imidacloprid 17.8 SL	125	1.47	1.49	0.67	1.07	-	-	-	-	0.37	0.93	0.27	0.87	-	-	-	-
T8	Control	-	1.07	1.25	1.13	0.27	-	-	-	-	0.57	1.03	0.6	1.04	-	-	-	-
	F Test		-	Sig.	-	Sig.	-	-	-	-		Sig.	-	Sig.	-	-	-	-
	SE±		-	0.06	-	0.07	-	-	-	-		0.04	-	0.03	-	-	-	-
	CD		-	0.18	-	0.22	-	-	-	-		0.12	-	0.1	-	-	-	-
	(P=0.05)		-	-	-	-	-	-	-	-		-	-	-	-	-	-	-
	CV%		-	7.76	-	12.23	-	-	-	-		7.56	-	6.63	-	-	-	-

Table 179. Ent 5a :Effect of different insecticides and Phytotoxicity in cotton ecosystem at different crop stages at Nanded 2020-21

Tr. No.	Treatments	Formulation g.a.i /ha.	Dosage in ml,gm /ha	Necrosis		Scorching		Epinasty		Hyponasty	
				Before 15 DAS	After 30 DAS	Before 15 DAS	After 30 DAS	Before 15 DAS	After 30 DAS	Before 15 DAS	After 30 DAS
T1	Spinetoram11.7%	50	420	0	0	0	0	0	0	0	0
T2	Pyriproxyfen 10% EC	100	1000	0	0	0	0	0	0	0	0
T3	Dinotefuran20%SG	30	150	0	0	0	0	0	0	0	0
T4	Spiromesifen 240 SC (22.9%)	144	600	0	0	0	0	0	0	0	0
T5	Diafenthiuron 50WP	300	600	0	0	0	0	0	0	0	0
T6	Flonicamide 50% WG	75	150	0	0	0	0	0	0	0	0
T7	Imidaclopride 200 SL (17.8%)	25	125	0	0	0	0	0	0	0	0
T8	Control	--	----	0	0	0	0	0	0	0	0

Table 180: Ent 5a. Management of sucking pest in Cotton at Banswara in Central zone during 2020-21

T N.	Treatment Name	Dose (g or ml/ha)	Av. Leafhoppers/3 leaves				Av. Thrips/3 leaves				Av. Whitefly/3 leaves				Av. Aphid/3 leaves			
			Pre Spray		Post Spray		Pre Spray		Post Spray		Pre Spray		Post Spray		Pre Spray		Post Spray	
			O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.
T1	Spinetoram 11.7 SC	50	6.67	2.58	5	2.24	-	-	-	-	20.33	4.51	12.67	3.56	-	-	-	-
T2	Pyriproxyfen 10 EC	100	7.33	2.7	3	1.72	-	-	-	-	21.67	4.65	5	2.24	-	-	-	-
T3	Dinotefuran 20 SG	30	7	2.64	1.67	1.29	-	-	-	-	21.33	4.62	3.33	1.82	-	-	-	-
T4	Spiromesifen 22.9 SC	144	8.33	2.88	4	2	-	-	-	-	20.67	4.54	4.33	2.07	-	-	-	-
T5	Diafenthiuron 50 WP	300	7.67	2.77	3.67	1.91	-	-	-	-	22.33	4.72	4	2	-	-	-	-
T6	Flonicamid 50 WG	75	8	2.82	1.33	1.15	-	-	-	-	23	4.79	3	1.73	-	-	-	-
T7	Imidacloprid 17.8 SL	25	7.33	2.7	4.33	2.08	-	-	-	-	20.67	4.54	9.33	3.04	-	-	-	-
T8	Control	-	7	2.64	9.67	3.11	-	-	-	-	21.33	4.62	26.67	5.16	-	-	-	-
	F Test	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SE±	-	-	-	-	0.09	-	-	-	-	-	-	-	0.11	-	-	-	-
	CD	-	-	-	-	0.27	-	-	-	-	-	NS	-	0.33	-	-	-	-
	(P=0.05)	-	-	-	-	7.77	-	-	-	-	-	-	-	7.05	-	-	-	-
	CV%	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-

Table 181: Ent 5a. Management of sucking pest in Cotton at Khandwa in Central zone during 2020-21

T N.	Treatment Name	Dose (g or ml/ha)	Rosette flower				Green boll damage (%)				Open boll damage (%)			
			Pre Spray		Post Spray		Pre Spray		Post Spray		Pre Spray		Post Spray	
			O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.	O.V.	T.V.
T1	Spinetoram 11.7 SC	50	-	-	0.50	4.04	-	-	0.57	4.30	-	-	0.60	4.43
T2	Pyriproxyfen 10 EC	100	-	-	0.27	2.86	-	-	0.50	4.04	-	-	0.50	4.04
T3	Dinotefuran 20 SG	30	-	-	0.60	4.36	-	-	0.30	3.11	-	-	0.30	3.11
T4	Spiromesifen 22.9 SC	144	-	-	0.20	2.09	-	-	0.60	4.43	-	-	0.60	4.43
T5	Diafenthiuron 50 WP	300	-	-	0.17	2.31	-	-	0.27	2.95	-	-	0.27	2.95
T6	Flonicamid 50 WG	75	-	-	0.30	3.00	-	-	0.13	1.71	-	-	0.17	2.31
T7	Imidacloprid 17.8 SL	25	-	-	0.63	4.54	-	-	0.30	3.11	-	-	0.30	3.11
T8	Control	-	-	-	0.03	0.60	-	-	0.07	1.21	-	-	0.07	1.21
T9			-	-	0.77	5.00	-	-	0.97	5.64	-	-	0.93	5.53
	CD		-	-	-	0.53	-	-	-	0.40	-	-	-	0.30
	SE±		-	-	-	1.60	-	-	-	1.19	-	-	-	0.92

Table182: Ent 5(a). Management of sucking pest in cotton at Lam in South Zone during 2020-21

T N.	Treatment Name	Dosage ml/litre	Av. Sucking Pest/ 3 Leaves							
			Av. Leafhopper/3 Leaves				Av. Whitefly/3 Leaves			
			BS		14 DAS		BS		14 DAS	
			OV	TV	OV	TV	OV	TV	OV	TV
T1	Spinetoram11.7%	420	6.87	2.804	1.00	1.413	4.33	2.306	1.40	1.47
T2	Pyriproxyfen 10% EC	1000	7.53	2.916	1.73	1.637	6.43	2.715	2.73	1.92
T3	Dinotefuran20%SG	150	6.80	2.788	1.40	1.548	4.73	2.387	2.40	1.84
T4	Spiromesifen 240 SC (22.9%)	600	7.33	2.884	2.40	1.84	4.53	2.352	1.73	1.65
T5	Diafenthiuron 50WP	600	6.40	2.72	0.93	1.376	5.27	2.498	1.00	1.40
T6	Flonicamid 50% WG	150	6.67	2.766	0.67	1.284	4.07	2.212	1.33	1.52
T7	Imidacloprid 200 SL (17.8%)	125	6.93	2.816	0.53	1.234	4.27	2.292	2.60	1.88
T8	Control	420	7.27	2.872	6.00	2.643	6.40	2.72	6.20	2.68
F-test				NS		**Sig**		**NS**		**Sig**
Sem.				0.088		0.10		**0.128**		0.16
CD (0.05%)				NA		0.31		**NS**		0.48
CV				5.423		10.78		**9.1**		15.07

Table 183: Ent 5(a).. Management of sucking pest in cotton at South Zone during 2020-21

Treatment Name	Dosage ml/litre	Natural enemies/ 3 Leaves															
		Lam				Nandyal				Dharwad				Raichur		Chamrajanagara	
		BS		14 DAS		BS		14 DAS		BS		14 DAS		7 DAS		7 DAS	
		OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV
Spinetoram11.7%	420	0.20	1.093	0.07	1.048	0.00	0.71	0.07	0.75	1.67	1.47	0.27	0.86		0.21	0.63	0.63
Pyriproxyfen 10% EC	1000	0.07	1.032	0.13	1.032	0.13	0.79	0.07	0.75	1.67	1.47	0.33	0.90		0.00	0.81	0.81
Dinotefuran20%SG	150	0.07	1.032	0.20	1.093	0.13	0.79	0.13	0.79	1.87	1.54	0.47	0.93		0.11	0.75	0.75
Spiromesifen 22.9 SC	600	0.07	1.032	0.03	1.061	0.13	0.79	0.07	0.75	1.73	1.49	0.47	0.96		0.08	0.54	0.54
Diafenthiuron 50WP	600	0.07	1.032	0.07	1.048	0.13	0.79	0.20	0.82	1.60	1.45	0.40	0.92		0.02	0.67	0.67
Flonicamid 50% WG	150	0.07	1.032	0.13	1.061	0.07	0.75	0.00	0.71	1.93	1.56	0.40	0.92		0.03	0.95	0.95
Imidacloprid 17.8 SL	125	0.13	1.061	0.03	1.077	0.07	0.75	0.07	0.75	1.67	1.47	0.47	0.93		0.04	0.50	0.50
Control	420	0.00	1	0.03	1.016	0.13	0.79	0.20	0.82	1.73	1.49	3.87	2.04		0.64	1.25	1.25
Sem.			0.038		0.047		0.06		0.07		0.24		0.20		0.04		0.05
CD (0.05%)			NA		NA		NS		NS		NS		0.62		0.11		NS
CV			6.294		7.714		13.95		16.58		9.80		11.61		13.12		6.78

Table 184: Ent 5(a).. Management of sucking pest in cotton at Nandyal in South Zone during 2020-21

Treatment Name	Dosage ml/litre	Av. Sucking Pest/ 3 Leaves											
		Av. Leafhopper/3 Leaves				Av. Thrips/3 Leaves				Av. Whitefly/3 Leaves			
		BS		14 DAS		BS		14 DAS		BS		14 DAS	
		OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV
Spinetoram11.7%	**0.9 ml**	11.60	3.47	7.13	2.74	0.60	1.02	0.00	0.71	0.47	0.97	0.33	0.89
Pyriproxyfen 10% EC	**2 ml**	11.27	3.42	6.27	2.59	0.40	0.95	0.47	0.93	0.47	0.96	0.47	0.98
Dinotefuran20%SG	**1.2 gm**	8.47	2.99	5.80	2.51	0.40	0.93	0.00	0.71	0.13	0.79	0.33	0.88
Spiromesifen 22.9 % SC	**2.4 ml**	11.67	3.48	7.73	2.87	0.00	0.71	0.90	1.18	0.13	0.79	0.53	1.01
Diafenthiuron 50WP	**0.3 gm**	10.33	3.29	8.07	2.91	1.10	1.21	0.00	0.71	0.33	0.90	0.87	1.15
Flonicamid 50% WG	**0.3 gm**	9.20	3.11	5.60	2.47	0.60	1.04	0.40	0.93	0.20	0.83	0.40	0.94
Imidacloprid 17.8% SL	**2.5 ml**	12.40	3.59	9.33	3.11	0.00	0.71	0.87	1.12	0.33	0.90	0.47	0.98
Control	--	12.53	3.60	16.13	4.08	1.10	1.26	1.80	1.42	0.53	1.00	0.87	1.17
F-test			**NS**		**S**		**NS**		**NS**		**NS**		**NS**
Sem.			**0.14**		**0.17**		**0.12**		**0.18**		**0.11**		**0.11**
CD (0.05%)			**NS**		**0.51**		**NS**		**NS**		**NS**		**NS**
CV			**6.94**		**10.04**		**21.83**		**31.64**		**20.95**		**19.05**

Table 185: Ent 5(a).. Management of sucking pest in cotton at Dharwad in South Zone during 2020-21

Treatment Name	Dosage ml/Litre	Av. Sucking Pest/ 3 Leaves											
		Av. Leafhopper/3 Leaves				Av. Thrips/3 Leaves				Av. Aphid/3 Leaves			
		BS		14 DAS		BS		14 DAS		BS		14 DAS	
		OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV
Spinetoram11.7%	0.84	6.77	2.70	1.31	1.35	37.50	6.16	4.12	2.15	30.80	5.59	7.15	2.77
Pyriproxyfen 10% EC	2.00	6.61	2.67	4.73	2.29	38.75	6.26	14.80	3.91	29.63	5.42	21.54	4.69
Dinotefuran20%SG	0.30	6.53	2.65	1.85	1.53	40.15	6.38	5.89	2.53	32.20	5.72	8.12	2.94
Spiromesifen 240 SC (22.9%)	1.20	6.61	2.68	4.87	2.32	37.91	5.79	15.20	3.96	30.53	5.57	22.40	4.79
Diafenthiuron 50WP	1.20	6.85	2.71	1.93	1.56	39.05	5.91	6.71	2.69	29.93	5.52	9.60	3.18
Flonicamid 50% WG	0.30	6.44	2.63	1.71	1.49	40.15	6.38	5.68	2.49	31.40	5.65	6.92	2.68
Imidacloprid 200 SL (17.8%)	0.25	6.47	2.64	2.28	1.66	38.70	5.87	12.12	3.55	30.73	5.59	9.10	3.10
Control	--	6.51	2.65	12.91	3.66	39.87	5.99	37.91	6.20	30.47	5.56	53.98	7.38
Sem.			**0.41**		**0.39**		**1.10**		**0.40**		**0.86**		**0.78**
CD (0.05%)			**NS**		**1.18**		**NS**		**1.22**		**2.53**		**2.36**
CV			**9.12**		**10.34**		**10.41**		**10.07**		**9.19**		**9.97**

Table 186: Ent 5(a).. Management of sucking pest in cotton at Raichur in South Zone during 2020-21

T N.	Treatment Name	Dose (g.a.i.)/ ha	Av. Sucking Pest/ 3 Leaves											
			Av. Leafhopper/3 Leaves				Av. Thrips/3 Leaves				Av. Whitefly/3 Leaves			
			BS		7 DAS		BS		7DAS		BS		7 DAS	
			OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV
T1	Spinetoram 11.7 SC	50	6.94	2.20	1.35	1.36	11.54	3.46	0.59	1.04	6.2	2.60	0.47	0.69
T2	Dinotefuran 20 SG	25	7.53	2.33	0.71	1.10	11.69	3.49	2.46	1.72	5.1	2.36	0.42	0.65
T3	Spiromesifin 22.9 SC	600	7.43	2.31	1.96	1.57	11.32	3.44	4.59	2.26	4.0	2.12	0.53	0.73
T4	Diafenthiuron 50 WP	300	7.27	2.28	1.05	1.24	11.73	3.49	2.13	1.60	6.5	2.64	0.25	0.50
T5	Flonicamid 50 WG	75	7.49	2.33	0.32	0.91	12.04	3.54	1.39	1.37	300	5.1	0.96	0.31
T6	Imidacloprid 17.8 SL	20	7.26	2.28	1.21	1.31	11.81	3.50	2.5	1.73	5.9	2.53	0.82	0.91
T7	Pyriproxyfen 5 + diafenthiuron 25 SE	300	7.36	2.30	0.89	1.18	13.52	3.56	1.2	1.30	4.6	2.26	0.20	0.45
T8	Untreated control	--	7.47	2.32	14.85	3.92	12.61	3.62	24.46	5.00	5.4	2.43	3.51	1.87
Sem.						0.05				0.08		0.12		0.18
CD (0.05%)			NS			0.16	**NS**			0.24		0.35		0.50
CV						16.33				17.13		12.32		13.31

Table 187: Ent 5(a).. Management of sucking pest in cotton at Chamrajanagara in South Zone during 2020-21

Treatment Name	Dosage ml/litre	Av. Sucking Pest/ 3 Leaves															
		Av. Leafhopper/3 Leaves				Av. Thrips/3 Leaves				Av. Whitefly/3 Leaves				Av. Aphid/3 Leaves			
		BS		7 DAS		BS		7DAS		BS		7 DAS		BS		7 DAS	
		OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV
Spinetoram11.7%	50	6.28	2.70	1.17	1.47	7.52	2.92	0.37	1.17	6.50	2.74	0.28	1.13	22.51	4.85	2.97	1.99
Pyriproxyfen 10% EC	100	7.15	2.85	0.65	1.28	7.77	2.96	0.73	1.32	5.47	2.54	0.50	1.22	22.72	4.87	0.80	1.34
Dinotefuran20%SG	30	6.50	2.74	0.73	1.32	8.18	3.03	0.84	1.36	4.91	2.43	0.74	1.32	23.22	4.92	1.21	1.49
Spiromesifen 22.9% SC	144	7.82	2.97	1.86	1.69	7.48	2.91	1.41	1.55	5.31	2.51	1.17	1.47	20.88	4.68	3.12	2.03
Diafenthiuron 50WP	300	8.37	3.06	0.89	1.37	8.87	3.14	1.03	1.42	5.20	2.49	0.94	1.39	22.51	4.85	2.05	1.75
Flonicamid 50% WG	75	7.02	2.83	0.48	1.22	7.73	2.95	0.50	1.22	6.57	2.75	0.39	1.18	22.32	4.83	0.71	1.31
Imidacloprid 17.8% SL	25	6.68	2.77	1.04	1.43	8.35	3.06	1.77	1.66	5.53	2.56	1.62	1.62	21.98	4.79	2.28	1.81
Control	--	7.37	2.89	7.08	2.84	7.48	2.91	7.87	2.98	6.49	2.74	5.69	2.59	22.75	4.87	22.16	4.81
Sem.			**0.14**		**0.08**		**0.13**		**0.08**		**0.13**		**0.07**		**0.20**		**0.09**
CD (0.05%)			**NS**		**0.25**		**NS**		**0.24**		**NS**		**0.21**		**NS**		**0.27**
CV			**8.32**		**9.25**		**7.37**		**8.82**		**8.90**		**8.04**		**7.12**		**7.54**

Table188: Ent 5(a).. Management of sucking pest in cotton at Coimbatore in South Zone during 2020-21

T.N.	Treatment Name	Dosage Ml/Litre	Nos. of insect population / 3 leaves							
			Av. Leafhopper/3 leaves		Av. Thrips/3 Leaves		Av. Whitefly/3 Leaves		Av. Aphid/3 Leaves	
			BS	DAS14	BS	DAS14	BS	DAS14	BS	DAS14
1	Spinetoram 11.7% SC	420	9.67a (3.19)	0.94c (1.20)	5.62a (2.47)	0.04a (0.73)	3.68a (2.04)	0.00a (0.71)	22.43a (4.79)	0.02a (0.72)
2	Pyriproxyfen 10% EC (IGR)	1000	8.62a (3.18)	0.82bc (1.15)	5.58a (2.47)	0.20ab (0.84)	3.64a (2.03)	0.01a (0.71)	22.40a (4.79)	0.02a (0.72)
3	Dinotefuran 20% SG	150	9.66a (3.19)	0.05a (0.74)	5.67a (2.48)	0.05a (0.74)	3.66a (2.04)	0.00a (0.71)	22.36a (4.78)	0.00a (0.71)
4	Spiromesifen 240 SC (22.9%)	600	9.64a (3.18)	0.70b (1.10)	5.63a (2.48)	0.30ab (0.89)	3.67a (2.04)	0.00a (0.71)	22.44a (4.79)	0.00a (0.71)
5	Diafenthiuron 50 WP	600	9.68a (3.19)	0.10a (0.77)	5.68a (2.49)	0.10a (0.77)	3.67a (2.04)	0.00a (0.71)	22.42a (4.79)	0.00a (0.71)
6	Flonicamide 50% WG	150	9.63a (3.18)	0.90bc (1.18)	5.62a (2.47)	0.42b (0.96)	3.67a (2.04)	0.00a (0.71)	22.43a (4.79)	0.01a (0.71)
7	Imidaclopride 200 SL (17.8%)	125	9.47a (3.16)	0.09a (0.77)	5.47a (2.44)	0.09a (0.77)	3.68a (2.04)	0.00a (0.71)	22.38a (4.78)	0.00a (0.71)
8	Control	-	9.62a (3.18)	8.49d (3.00)	5.62a (2.47)	4.34c (2.20)	3.68a (2.04)	2.47b (1.72)	22.44a (4.79)	9.56b (3.17)

-Mean of three replications

- Figures in the parentheses are $\sqrt{x + 0.5}$ transformed values

- In a column, means followed by same letter(s) are not significantly different at P=0.05 by DMRT.

Table: 189. Ent 5(b). Management of thrips through biorational approaches in North zone during 2020 – 2021 (Thrips population)

Treatment Details		Dosage ml/litre	No. of thrips/ 3 leaves																			
			BT				FA				HI				SR				SG			
			BS		7 DAS		BS		7 DAS		BS		7 DAS		BS		7 DAS		BS		7 DAS	
			OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV
T1	**Sesame oil**	**10 ml**	33.11	5.84	13.67	3.81	22.77	4.84	27.17	5.27	**68.84**	8.20	46.02	6.69	60.77	7.49	38.20	4.63	55.60	7.46	34.07	5.83
T2	**Pongamia oil**	**10 ml**	32.96	5.82	10.00	3.31	23.42	4.91	18.54	4.37	**71.47**	8.28	52.42	7.13	60.90	7.49	38.07	4.66	51.10	7.17	30.17	5.50
T3	**Castor oil**	**10 ml**	36.73	6.09	15.09	4.01	29.38	5.49	28.08	5.39	**72.69**	8.37	50.67	7.01	60.10	7.45	35.83	4.82	57.23	7.55	33.30	5.78
T4	**Neem oil**	**5 ml**	35.91	6.06	19.13	4.44	28.94	5.46	23.29	4.92	**69.60**	8.21	55.96	7.37	62.60	7.58	48.17	3.76	51.10	7.13	24.20	4.94
T5	**Neem 300ppm**	**5 ml**	34.04	5.89	20.29	4.55	25.63	5.15	22.87	4.88	**75.07**	8.53	56.46	7.41	60.90	7.51	45.20	3.95	56.73	7.51	26.70	5.19
T6	**Neem 1500ppm**	**5 ml**	35.04	5.99	20.64	4.62	24.33	4.96	20.33	4.56	**70.71**	8.27	54.67	7.28	58.30	7.38	40.30	4.23	53.13	7.28	25.07	5.03
T7	**Horticultural Mineral oil**	**5 ml**	35.36	6.00	21.64	4.75	26.81	5.17	31.46	5.64	**72.51**	8.39	62.91	7.80	62.00	7.55	44.97	4.00	57.80	7.60	25.73	5.10
T8	**Spinosad 2.5% EC**	**0.8 ml**	34.58	5.95	8.80	3.13	24.40	4.97	11.25	3.42	**68.51**	8.09	39.04	6.17	63.10	7.64	22.07	6.16	46.40	6.69	10.77	3.30
T9	**Profenophos 50% EC**	**3.3 ml**	34.80	5.95	16.04	4.12	26.40	5.20	13.92	3.78	**71.38**	8.27	44.02	6.54	62.50	7.58	22.63	6.04	57.47	7.55	21.60	4.67
T10	**Diafenthiuron 50% EC**	**1.6 ml**	36.24	6.08	11.60	3.55	24.60	4.99	16.58	4.12	**70.04**	8.23	42.56	6.42	64.87	7.74	25.57	5.98	49.60	7.03	18.27	4.30
T11	**Control**		35.47	6.03	40.47	6.43	32.19	5.73	33.83	5.87	**77.51**	8.68	78.09	8.69	63.97	7.69	59.37	2.24	57.40	7.60	57.30	7.56
CV (%)				**3.68**		**7.65**		_		_		_		_		2.184		5.12				
SE (d)				**0.18**		**0.27**		_		_		_		_		0.141		0.21				
CD (p=0.05)				**NS**		**0.56**		_		_		_		_		NA		0.44				
F test				**0.55**		**23.23**		-		-		-		-								

BT - Bathinda; FA - Faridkot; HI - Hisar; SR - Sirsa; SG –Sriganganagar

Table:190.Ent 5(b).Management of thrips through biorational approaches in North zone during 2020 – 2021 (Reduction (%) over control and Natural enemies)

Treatment Details		Dosage ml/litre	Reduction (%) in thrips population					Natural enemies (No./ plant)						
			BT	FA	HI	SR	SG	BT 7 DAS		FA	HI		SG 7 DAS	
								OV	TV	OV	OV	TV	OV	TV
T1	Sesame oil	10 ml	66.23	19.70	41.07	32.37	40.80	1.60	1.58	5.08	1.20	1.48	2.67	1.78
T2	Pongamia oil	10 ml	75.29	45.20	32.87	32.64	47.55	1.80	1.66	4.50	1.27	1.50	3.33	1.96
T3	Castor oil	10 ml	62.72	17.00	35.12	35.76	42.06	1.20	1.46	4.67	1.13	1.46	3.00	1.87
T4	Neem oil	5 ml	52.72	31.16	28.34	29.14	57.53	1.60	1.61	4.42	1.13	1.46	2.67	1.78
T5	Neem 300ppm	5 ml	49.87	32.39	27.70	27.11	53.24	1.40	1.54	4.92	1.07	1.43	2.33	1.68
T6	Neem 1500ppm	5 ml	48.99	39.90	30.00	31.97	56.06	1.60	1.61	5.00	1.27	1.50	3.67	2.04
T7	Horticultural Mineral oil	5 ml	46.52	7.02	19.44	21.85	54.90	1.40	1.54	5.00	1.07	1.43	3.00	1.87
T8	Spinosad 2.5% EC	0.8 ml	78.26	66.75	50.00	62.31	81.71	1.20	1.46	5.17	1.13	1.45	2.67	1.78
T9	Profenophos 50% EC	3.3 ml	60.35	58.87	43.63	61.50	62.50	1.40	1.54	5.00	1.00	1.41	3.00	1.87
T10	Diafenthiuron 50% EC	1.6 ml	71.34	50.99	45.50	60.02	68.36	1.20	1.46	4.25	1.00	1.41	2.00	1.58
T11	Control				0.00		0.00	2.00	1.72	5.50	1.60	1.61	3.33	1.96
CV (%)									15.20			8.56		NS
SE (d)									0.15			0.10		NS
CD (p=0.05)									NS			N/A		NS
F test									0.64			0.64		NS

Table: 191. Ent 5(b).. Management of thrips through biorational approaches in North zone during 2020 – 2021 (Seed cotton Yield)

Treatment Details		Dosage ml/litre	Seed cotton Yield (q/ha)								
			BT		FA		HI		SR		SG
			OV	TV	OV	TV	OV	TV	OV	TV	OV
T1	Sesame oil	10 ml	20.78	26.98	19.8	4.56	**23.17**	**4.91**	24.65	5.07	28.61
T2	Pongamia oil	10 ml	19.89	26.40	20.4	4.61	**25.15**	**5.11**	22.58	4.85	30.00
T3	Castor oil	10 ml	20.00	26.55	20.9	4.67	**24.08**	**5.00**	24.33	5.03	29.17
T4	Neem oil	5 ml	20.56	26.76	19.9	4.57	**25.00**	**5.09**	23.92	4.97	32.64
T5	Neem 300ppm	5 ml	18.78	25.57	19.4	4.52	**23.78**	**4.97**	23.42	4.95	29.72
T6	Neem 1500ppm	5 ml	17.22	24.43	21.5	4.74	**22.56**	**4.85**	23.75	4.97	32.08
T7	Horticultural Mineral oil	5 ml	19.00	25.68	20.4	4.61	**22.25**	**4.82**	23.92	5.00	30.28
T8	Spinosad 2.5% EC	0.8 ml	21.33	26.46	21.1	4.61	**25.45**	**5.14**	26.92	5.28	35.97
T9	Profenophos 50% EC	3.3 ml	20.00	26.23	22.1	4.80	**24.54**	**5.05**	26.67	5.26	33.47
T10	Diafenthiuron 50% EC	1.6 ml	19.56	27.49	21.5	4.71	**23.77**	**4.97**	25.75	5.17	32.64
T11	Control		13.33	21.39	18.7	4.74	**20.42**	**4.62**	23.25	4.93	27.64
CV (%)				**11.82**		**4.06**		6.43		5.67	
SE (d)				**2.49**		0.15		0.26		0.23	
CD (p=0.05)				**NS**		**NS**		NA		NA	
F test				**0.91**				0.69			
S.Em+-										0.17	

Table: 192.Ent6: Evaluation of new Bt formulation against bollworm complex of cotton in North Zone during 2020-21 (Larval population)

Treatments	Dosage ml/litre	Larval population / plant (Avg. of 5 plants per rep.)																			
		BT				FA				HI				SR				SG			
		BS		14 DAS		BS		14 DAS		BS		14 DAS		BS		14 DAS		BS		14 DAS	
		OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV
T1	2.0	4.13	2.27	3.47	2.11	1.6	1.6	0.6	1.3	1.88	1.69	1.40	1.50	2.18	1.78	1.76	1.66	3.20	1.92	2.53	1.74
T2	3.0	3.73	2.18	3.27	2.06	1.4	1.5	0.3	1.1	1.95	1.71	1.33	1.57	2.20	1.79	1.73	1.65	3.27	1.94	2.33	1.68
T3	4.0	3.87	2.20	2.80	1.95	1.3	1.5	0.3	1.1	1.90	1.70	1.28	1.53	2.20	1.79	1.16	1.47	3.60	2.02	2.40	1.70
T4	2.5	3.67	2.16	2.47	1.86	1.1	1.4	0.5	1.2					2.27	1.81	0.96	1.40	3.67	2.04	3.13	1.91
T5	0.3-0.6	4.67	2.38	2.33	1.82	1.4	1.5	0.0	1.0	1.83	1.67	0.93	1.43	2.40	1.84	1.27	1.51	3.40	1.97	1.40	1.38
T6	1.0-2.0	4.67	2.38	3.47	2.11	1.0	1.4	0.3	1.1					2.29	1.81	1.38	1.54	3.53	2.00	2.73	1.79
T7		4.00	2.24	5.73	2.59	1.1	1.4	2.1	1.7	2.10	1.75	1.63	1.62	2.40	1.84	2.20	1.79	3.33	1.96	4.27	2.18
CD (p=0.05)			0.16		0.18		NA		0.32		0.06		N/A		N/A		0.05		1.05		0.23
S.Em+-			0.05		0.06		0.14		0.10		0.08		0.05		0.051		0.016				
S.E(d)			0.07		0.08		0.20		0.14		9.48		0.06		0.072		0.023		0.09		0.07
CV (%)			3.99		4.81		16.1		14.35		9.26		8.24		4.877		1.776		12.2		5.13
F test			3.41		20.10																

BT - Bathinda; FA - Faridkot; HI - Hisar; SR - Sirsa; SG- Sriganganagar BS - Before spray; DAS - Days after spray
OV – Original Value; TV – Transformed Value

Treatment details:- T1 : Bt-127 SC formulation; T2 : Bt-127SC formulation T3 : Bt-127 SC formulation;
T4: Chlorpyriphos20EC; T5 : Chlorantraniliprole 18.5 SC T6 : Lambda cyhalothrin5%EC;
T7 : Untreated check

Table: 193.Ent.6a Evaluation of new Bt formulation against bollworm complex of cotton in North zone during 2020-21 (Reduction (%) over control in Larval population)

Treatments	Dosage ml/liter	Reduction (%) over control in Larval population						
		BT		FA	HI	SR	SG	
		OV	TV	OV	OV	OV	OV	TV
T1	2.0	43.50	41.24	69.2	25.46	12.57	**50.24**	**45.11**
T2	3.0	54.42	47.56	84.6	30.09	15.41	**56.10**	**48.50**
T3	4.0	65.29	54.07	84.6	34.72	36.45	**54.44**	**47.53**
T4	2.5	60.39	50.99	76.9	-	59.32	**47.60**	**43.60**
T5	0.3-0.6	73.14	59.11	100.0	65.05	52.22	**75.09**	**60.06**
T6	1.0-2.0	65.80	54.81	84.6	_	33.52	**54.25**	**47.44**
T7							**0.00**	**0.00**
CD (p=0.05)			9.45					**6.45**
S.Em+-			3.96					
S.E(d)			2.80					**2.20**
CV (%)			8.93					**6.78**
F test			5.01					

BT - Bathinda; FA - Faridkot; HI - Hisar; SR - Sirsa; SG- Sriganganagar BS - Before spray; DAS - Days after spray

OV – Original Value; TV – Transformed Value

Treatment details :- T1 : Bt-127 SC formulation; T2 : Bt-127SC formulation T3 : Bt-127 SC formulation; T4 :Chlorpyriphos20EC; T5 : Chlorantraniliprole 18.5 SC; T6 : Lambda cyhalothrin5%EC; T7 : Untreated check

Table: 194.Ent.6a Evaluation of new Bt formulation against bollworm complex of cotton in North zone during 2020-21 (Natural enemies/plant)

Treatments	Dosage ml/litre	Natural enemies/ plant (Avg. of 5 plants)																			
		BT				FA				HI				SR				SG			
		BS		14 DAS		BS		14 DAS		BS		14 DAS		BS		14 DAS		BS		14 DAS	
		OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV
T1	2.0	1.20	1.46	1.20	1.46	3.7	2.2	3.5	2.1	1.93	1.70	1.55	1.58	0.96	1.40	0.76	1.33	2.67	1.78	3.47	1.99
T2	3.0	1.40	1.54	1.00	1.40	3.5	2.1	3.3	2.1	1.73	1.64	1.55	1.58	0.80	1.34	0.79	1.34	3.33	1.96	3.83	2.08
T3	4.0	1.60	1.58	1.40	1.52	4.9	2.4	3.6	2.1	1.90	1.70	1.50	1.57	0.78	1.33	0.74	1.32	2.33	1.68	3.33	1.96
T4	2.5	1.80	1.66	1.80	1.66	4.4	2.3	2.0	1.7	_	_	_	_	1.00	1.41	0.72	1.31	3.00	1.87	2.67	1.78
T5	0.3-0.6	1.40	1.49	1.20	1.48	4.5	2.3	2.5	1.9	1.63	1.61	1.38	1.53	1.02	1.42	0.78	1.33	2.67	1.78	3.07	1.89
T6	1.0-2.0	1.60	1.58	1.80	1.66	5.4	2.5	2.2	1.8	_	_	_	_	1.02	1.42	0.71	1.31	2.93	1.85	3.20	1.92
T7	_	1.40	1.51	1.40	1.52	4.4	2.3	4.1	2.3	1.80	1.67	1.70	1.64	1.09	1.45	1.24	1.50	3.27	1.94	4.13	2.15
CD (p=0.05)			26.23		26.13		N/A		N/A		N/A		N/A		0.051		0.12		NS		NS
S.Em+-			0.07		0.08		0.11		0.13		0.06		0.06		0.016		0.038				
S.E(d)			0.22		0.26		0.15		0.18		0.08		0.08		0.023		0.054		NS		NS
CV (%)			NS		NS		6.45		8.86		9.48		9.85		2.046		4.935		NS		NS
F test			1.08		1.15																

BT - Bathinda; FA - Faridkot; HI - Hisar; SR - Sirsa; SG- Sriganganagar BS - Before spray; DAS - Days after spray OV – Original Value; TV – Transformed Value

Treatment details:- T1 : Bt-127 SC formulation; T2 : Bt-127SC formulation; T3 : Bt-127 SC formulation; T4: Chlorpyriphos20EC; T5 : Chlorantraniliprole 18.5 SC; T6 : Lambda cyhalothrin5%EC; T7 : Untreated check

Table: 195.Ent.6a Evaluation of new Bt formulation against bollworm complex of cotton in North zone during 2020-21 (Phytotoxicity and seed cotton yield)

Treatments	Dosage ml/litre	Phytotoxicity		Seed cotton Yield (q/ha)								
				BT		FA		HI		SR		SG
				OV	TV	OV	TV	OV	TV	OV	TV	OV
		SR	SG									
T1	2.0	**Nil**	**Nil**	14.81	22.53	18.6	4.4	20.23	4.59	10.03	3.32	**28.53**
T2	3.0	**Nil**	**Nil**	16.13	23.63	19.3	4.5	21.38	4.71	10.33	3.37	**29.16**
T3	4.0	**Nil**	**Nil**	17.16	24.39	19.8	4.6	21.95	4.77	10.00	3.37	**29.93**
T4	2.5	**Nil**	**Nil**	17.45	24.65	20.1	4.6			10.50	3.49	**30.42**
T5	0.3-0.6	**Nil**	**Nil**	19.80	26.39	20.0	4.6	24.81	5.07	10.00	3.41	**32.89**
T6	1.0-2.0	**Nil**	**Nil**	21.41	27.55	21.1	4.7			10.30	3.43	**31.11**
T7		**Nil**	**Nil**	11.44	19.63	17.3	4.3	18.52	4.40	9.70	3.27	**24.10**
Range												
CD (p=0.05)					**4.33**		N/A		0.41		N/A	
S.Em+-					**1.39**		0.09		0.13		0.041	
S.E(d)					**1.97**		0.13		0.19		0.058	
CV (%)					**9.98**		3.52		5.58		2.117	
F test					3.47							

BT - Bathinda; FA - Faridkot; HI - Hisar; SR - Sirsa; SG - Sriganganagar BS - Before spray; DAS - Days after spray OV – Original Value; TV – Transformed Value

Treatment details:- T1 : Bt-127 SC formulation; T2 : Bt-127SC formulation; T3 : Bt-127 SC formulation; T4:Chlorpyriphos20EC; T5 : Chlorantraniliprole 18.5 SC; T6 : Lambda cyhalothrin5%EC, T7 : Untreated check

Table:196.Ent.6a Evaluation of new Bt formulation against bollworm complex of cotton in North zone during 2020-21 (Boll damage %)

Treatments	Dosage ml/litre	Boll damage (%)											
		Green boll damage (%)		Open boll damage (%)					Locule damage (%)				
		SR	SG	BT	FA	HI	SR	SG	BT	FA	HI	SR	SG
T1	2.0	7.35	12.67	11.67	15.0	8.40	7.35	10.67	7.50	6.6	2.00	3.80	4.84
T2	3.0	6.37	9.33	10.00	17.0	7.33	6.37	8.67	5.07	7.5	1.75	2.56	4.20
T3	4.0	5.21	8.67	8.33	14.1	6.90	5.21	7.33	4.95	5.7	1.58	1.83	3.29
T4	2.5	3.64	6.67	10.00	13.1		3.64	5.33	4.67	5.5		1.31	2.57
T5	0.3-0.6	5.75	4.00	5.00	4.6	3.55	5.75	2.67	2.65	2.1	0.75	2.10	0.96
T6	1.0-2.0	5.18	7.33	8.33	11.1		5.18	6.67	3.97	4.6		1.98	2.97
T7	_	10.92	28.67	18.33	20.7	10.13	10.92	25.33	8.13	9.0	2.25	4.03	15.49

BT - Bathinda; FA - Faridkot; HI - Hisar; SR - Sirsa; SG- Sriganganagar BS - Before spray; DAS - Days after spray
OV – Original Value; TV – Transformed Value

Treatment details: - T1: Bt-127 SC formulation; T2: Bt-127SC formulation; T3: Bt-127 SC formulation; T4:Chlorpyriphos20EC; T5 : Chlorantraniliprole 18.5 SC; T6 : Lambda cyhalothrin5%EC; T7 : Untreated check

Table 197. Ent 6: Evaluation of new microbial formulations against bollworm complex of cotton in Central Zone during 2020-2021 (Larval population of *H. armigera*)

Sr. No.	Mean larval population of *H. armigera*/5 plant																Reduction of pest over control (%)			
	SU				JU				NA				RA				SU	JU	NA	RA
	Pre		Post		Pre		Post		Pre		Post		Pre		Post					
	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV				
T1	3.67	2.04	3.11	1.89	3.44	1.98	2.85	1.83	2	1.55	0.67	1.05	1.37	1.37	0.50	0.82	18.59	24.01	**66.50**	54.55
T2	3.33	1.95	2.67	1.77	3.44	1.98	2.22	1.64	1.67	1.58	0.33	0.87	1.32	1.35	0.45	0.80	30.10	40.78	**83.50**	59.09
T3	3.33	1.95	2.44	1.70	3.56	2.01	2.83	1.82	1.67	1.46	0.33	0.87	1.30	1.34	0.42	0.77	36.13	24.70	**83.50**	61.82
T4	4.00	2.12	2.67	1.77	3.33	1.95	2.44	1.71	2	1.58	0.33	0.87	1.46	1.40	0.67	0.93	30.10	34.87	**83.50**	39.10
T5	3.33	1.95	2.07	1.59	3.22	1.91	1.59	1.42	1.67	1.46	0.67	1.05	1.40	1.38	0.61	0.88	45.81	57.54	**66.50**	44.55
T6	3.67	2.04	1.89	1.52	3.55	2.01	1.86	1.52	1.33	1.34	0.33	0.87	1.35	1.36	0.53	0.81	50.52	50.32	**83.50**	51.82
T7	3.33	1.95	1.37	1.32	3.56	2.01	2.74	1.80	1	1.34	0.33	0.87	0.28	0.88	0.11	0.72	64.14	26.97	**83.50**	90.00
T8	3.67	2.04	3.82	2.07	3.33	1.96	3.75	2.06	4	2.11	2	1.58	2.26	1.66	1.10	1.16	-	-	**0.00**	45.02
F test	-	-	-	-	-	-	-	-	-	Sig	-	N.S.					-	-	-	-
S.Em	-	0.08	-	0.04		0.1		0.03	-	0.09	-	0.17		0.02		0.01	-	-	-	-
C D at 5 %	-	NS	-	0.11	-	NS	-	0.07	-	0.3	-	0.52		0.06		0.05	-	-	-	-
CV %		7.14	-	9.52	-	8.65	-	7.56	-	11.26	-	29.6		2.81		2.92		-	-	-

BA - Banswara, JU - Junagadh, SU - Surat, BH - Bharuch, AK -Akola, NA - Nanded, RA - Rahuri, KH - Khandwa, BW - Bhawanipatna

Treatment details

T1- Bt-127 SC formulation @2.0 ml/litre; T2- Bt-127 SC formulation @3.0 ml/litre; T3- Bt-127 SC formulation @4.0 ml/litre
T4- Brigade-B (WP formulation) @ 3 gm/litre; T5- Brigade-B (WP formulation) @ 5 gm/litre; T6- Brigade-B (WP formulation) @ 7 gm/litre
T7- Chlorantraniliprole 18.5 SC @ 0.3ml/litre; T8- Untreated check

OV – Original Value; TV – TransformedValue;

Table 198. Ent 6: Evaluation of new microbial formulations against bollworm complex of cotton in Central Zone during 2020-2021 (Larval population of *E. vittella*)

Sr. No.	Mean larval population of *E. vittella*/5 plant												Reduction of pest over control (%)		
	SU				JU				NA				SU	JU	NA
	Pre		Post		Pre		Post		Pre		Post				
	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV					
T1	3.00	1.87	1.89	1.53	2.33	1.68	1.89	1.54	1.67	1.46	0.33	0.87	33.68	28.12	**67.00**
T2	2.33	1.68	1.74	1.48	1.78	1.51	1.41	1.37	1.33	1.34	0.33	0.87	38.95	46.46	**67.00**
T3	2.67	1.77	1.48	1.38	2.11	1.62	1.72	1.49	1.33	1.34	0.33	0.87	48.07	34.48	**67.00**
T4	2.67	1.77	1.52	1.40	2.22	1.65	1.50	1.40	1.67	1.46	0.33	0.87	46.67	42.97	**67.00**
T5	2.67	1.77	1.37	1.35	2.22	1.65	1.06	1.23	1.33	134	0.67	1.05	51.93	59.88	**33.00**
T6	2.67	1.77	1.22	1.29	2.00	1.58	1.26	1.31	1.67	1.46	0.67	1.05	57.19	52.06	**33.00**
T7	2.67	1.77	0.96	1.18	2.00	1.58	1.63	1.45	1	1.22	0.33	0.87	66.32	38.03	**67.00**
T8	2.33	1.68	2.85	1.83	2.11	1.62	2.63	1.77	2.33	1.67	1	1.22	-	28.12	0.00
F test	-	-	-	-	-	-	-	-	-	N.S.	-	N.S.	-	-	-
S.Em	-	0.10	-	0.03	-	0.07	-	0.03	-	0.1	-	0.15	-	-	-
C D at 5 %	-	NS	-	0.09	-	NS	-	0.09	-	0.33	-	0.47	-	-	-
CV %	-	9.49	-	12.06	-	7.14	-	10.05	-	13.34	-	28.34		-	-

BA - Banswara, JU - Junagadh, SU - Surat, BH - Bharuch, AK -Akola, NA - Nanded, RA - Rahuri, KH - Khandwa, BW - Bhawanipatna

Treatment details

T1- Bt-127 SC formulation @2.0 ml/litre; T2- Bt-127 SC formulation @3.0 ml/litre; T3- Bt-127 SC formulation @4.0 ml/litre
T4- Brigade-B (WP formulation) @ 3 gm/litre; T5- Brigade-B (WP formulation) @ 5 gm/litre; T6- Brigade-B (WP formulation) @ 7 gm/litre
T7- Chlorantraniliprole 18.5 SC @ 0.3ml/litre; T8- Untreated check
OV – Original Value; TV – TransformedValue;

Table 199. Ent 6: Evaluation of new microbial formulations against bollworm complex of cotton in Central Zone during 2020-2021 (Larval population of PBW)

Sr. No.	Mean larval population of *P. gossypiella* /20 green bolls																Reduction of pest over control (%)			
	JU				SU				NA				RA							
	Pre		Post		Pre		Post		Pre		Post		Pre		Post		JU	SU	NA	RA
	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV				
T1	4.72	2.17	2.20	4.85	2.00	1.58	1.41	1.36	1.33	1.34	0.67	1.05	5.83	2.52	5.39	2.43	19.032	52.36	49.62	**38.54**
T2	4.28	2.07	1.71	2.91	2.33	1.68	1.33	1.34	1.67	1.46	1	1.22	5.49	2.45	5.35	2.42	51.419	55.07	24.81	**39.00**
T3	4.84	2.20	1.75	3.05	2.00	1.58	1.00	1.20	1.33	1.34	1	1.22	5.46	2.44	5.01	2.35	49.082	66.22	24.81	**42.87**
T4	4.37	2.09	1.58	2.51	2.33	1.68	1.15	1.25	1.33	1.34	0.67	1.05	5.86	2.52	5.55	2.46	58.097	61.15	49.62	**36.72**
T5	5.38	2.32	1.28	1.64	2.33	1.68	1.04	1.20	2.33	1.67	0.33	0.87	5.75	2.50	5.15	2.38	72.621	64.86	75.19	**41.28**
T6	4.26	2.06	1.91	3.65	2.00	1.56	0.93	1.17	1	1.22	0.67	1.05	5.73	2.50	4.83	2.31	39.065	68.58	49.62	**44.93**
T7	5.12	2.26	2.03	4.11	2.00	1.58	0.52	0.97	1	1.17	0.33	0.87	3.86	2.09	2.90	1.84	31.386	82.43	75.19	**66.93**
T8	5.92	2.43	2.45	5.99	2.33	1.68	2.96	1.85	2.33	1.67	1.33	1.34	8.46	2.99	8.77	3.04	-	-	0.00	**0.00**
F test		-	-	-	-	-	-	-	-	N.S.	-	N.S.	-	-	-	-	-	-	-	-
S.Em		0.12	-	0.10	-	0.10	-	0.04	-	0.13	-	0.12	-	0.12	-	0.12	-	-	-	-
C D at 5 %		NS	-	0.30	-	NS	-	0.12	-	0.4	-	0.39	-	0.39	-	0.37	-	-	-	-
CV %		9.12	-	9.23		10.37	-	18.00	-	16.66	-	20.65	-	8.93	-	8.93	-	-	-	-
			-				-		-		-		-	-	-	-	-	-	-	-

BA - Banswara, JU - Junagadh, SU - Surat, BH - Bharuch, AK -Akola, NA - Nanded, RA - Rahuri, KH - Khandwa, BW - Bhawanipatna

Treatment details

T1- Bt-127 SC formulation @2.0 ml/litre; T2- Bt-127 SC formulation @3.0 ml/litre; T3- Bt-127 SC formulation @4.0 ml/litre
T4- Brigade-B (WP formulation) @ 3 gm/litre; T5- Brigade-B (WP formulation) @ 5 gm/litre; T6- Brigade-B (WP formulation) @ 7 gm/litre
T7- Chlorantraniliprole 18.5 SC @ 0.3 ml/litre; T8- Untreated check

OV – Original Value; TV – Transformed Value;

Table 200. Ent 6: Evaluation of new microbial formulations against bollworm complex of cotton in Central Zone during 2020-2021 (Larval population of *Spodoptera litura*)

Sr. No.	Mean larval population of *spodoptera litura* /5 Plants																Reduction of pest over control (%)			
	JU				SU				NA				RA							
	Pre		Post		Pre		Post		Pre		Post		Pre		Post		JU	SU	NA	RA
	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV				
T1	-	-	-	-	-	-	-	-	2.33	1.67	1.33	1.34	-	-	-	-	-	-	**33.50**	-
T2	-	-	-	-	-	-	-	-	2	1.55	1.33	1.34	-	-	-	-	-	-	**33.50**	-
T3	-	-	-	-	-	-	-	-	2.33	1.67	1.33	1.34	-	-	-	-	-	-	**33.50**	-
T4	-	-	-	-	-	-	-	-	1.67	1.46	1.33	1.34	-	-	-	-	-	-	**33.50**	-
T5	-	-	-	-	-	-	-	-	2	1.55	1.67	1.46	-	-	-	-	-	-	**16.50**	-
T6	-	-	-	-	-	-	-	-	2.33	1.67	1.33	1.34	-	-	-	-	-	-	**33.50**	-
T7	-	-	-	-	-	-	-	-	1.33	1.34	1	1.17	-	-	-	-	-	-	**50.00**	-
T8	-	-	-	-	-	-	-	-	2.33	1.67	2	1.58	-	-	-	-	-	-	**0.00**	-
F test	-	-	-	-	-	-	-	-	-	N.S	-	N.S.	-	-	-	-	-	-	-	-
S.Em	-	-	-	-	-	-	-	-	-	0.13	-	0.11	-	-	-	-	-	-	-	-
C D at 5 %	-	-	-	-	-	-	-	-	-	0.37	-	0.35	-	-	-	-	-	-	-	-
CV %	-	-	-	-	-	-	-	-	-	15.16	-	14.89	-	-	-	-	-	-	-	-

BA - Banswara, JU - Junagadh, SU - Surat, BH - Bharuch, AK -Akola, NA - Nanded, RA - Rahuri, KH - Khandwa, BW - Bhawanipatna

Treatment details

T1- Bt-127 SC formulation @2.0 ml/litre; T2- Bt-127 SC formulation @3.0 ml/litre; T3- Bt-127 SC formulation @4.0 ml/litre
T4- Brigade-B (WP formulation) @ 3 gm/litre; T5- Brigade-B (WP formulation) @ 5 gm/litre; T6- Brigade-B (WP formulation) @ 7 gm/litre
T7- Chlorantraniliprole 18.5 SC @ 0.3 ml/litre; T8- Untreated check

OV – Original Value; TV – Transformed Value;

Table 201. Ent 6: Evaluation of new microbial formulations against bollworm complex of cotton in Central Zone during 2020-2021 (square damage)

Sr. No.	*H. armigera* - Square damage (%) at different crop stage				Reduction of pest over control (%)	*P. gossypiella* - Square damage (%) at different crop stage				Reduction of pest over control (%)	SBW - Square damage (%) at different crop stage				Reduction of pest over cont RoI (%)
	NA					NA					NA				
	Pre		Post			Pre		Post			Pre		Post		
	OV	TV	OV	TV		OV	TV	OV	TV		OV	TV			
T1	1.67	8.7	2.97	9.83	43.77	18.8	25.63	10.9	18.47	35.07	6.87	15.18	1.77	7.62	75.31
T2	1	4.62	2.6	9.24	64.23	20.2	26.35	11.8	20.07	29.39	7.17	15.51	1.63	7.28	77.27
T3	1.57	7.17	3.58	11.9	19.27	20.3	26.44	9.86	17.87	41.10	6.93	15.42	1.57	7.16	78.10
T4	1.95	8	3.67	10.9	16.35	18.8	25.65	8.5	16.34	49.22	7.13	15.4	1.63	7.23	77.27
T5	1.23	6.35	3.7	11.5	15.41	20.3	26.44	11.9	19.82	28.97	6.9	15.3	2.3	8.69	67.92
T6	1.02	5.78	3.77	11.2	13.26	20.2	26.33	11.4	19.71	31.90	6.91	15.37	0.7	4.51	90.24
T7	1.57	7.17	3.53	10.8	20.96	18.5	25.45	5.94	14.09	64.52	7.14	15.43	0.17	1.9	97.63
T8	1.67	8.7	4.27	11.9	0.00	20.3	26.44	16.7	24.07	0.00	7.17	15.51	7.17	15.51	0.00
F test		N.S.	-	N.S.	-	-	N.S	-	N.S.	-	-	N.S.	-	Sig.	-
S. Em.		0.51	-	0.66	-	-	1.83	-	1.83	-	-	0.23	-	0.06	-
C.D. at 5%		1.56	-	2.02	-	-	5.56	-	5.56	-	-	0.75	-	1.93	-
CV%		7.38	-	10.8	-	-	16.9	-	16.9	-	-	5.47	-	14.96	-

BA - Banswara, JU - Junagadh, SU - Surat, BH - Bharuch, AK -Akola, NA - Nanded, RA - Rahuri, KH - Khandwa, BW - Bhawanipatna

Treatment details

T1- Bt-127 SC formulation @2.0 ml/litre; T2- Bt-127 SC formulation @3.0 ml/litre; T3- Bt-127 SC formulation @4.0 ml/litre
T4- Brigade-B (WP formulation) @ 3gm/litre; T5- Brigade-B (WP formulation) @ 5 gm/litre; T6- Brigade-B (WP formulation) @ 7 gm/litre
T7- Chlorantraniliprole 18.5 SC @ 0.3ml/litre; T8- Untreated check

OV – Original Value; TV – TransformedValue;

Table 202. Ent 6: Evaluation of new microbial formulations against bollworm complex of cotton in Central Zone during 2020-2021 (square and flower damage)

Sr. No.	*H. armigera* - Flower damage (%) at different crop stage				Reduction of pest over control (%)	SBW - Flower damage (%) at different crop stage				Reduction of pest over control (%)	*P. gossypiella* - Flower damage (%) at different crop stage				Reduction of pest over control (%)
	NA					NA					NA				
	Pre		Post			Pre		Post			Pre		Post		
	OV	TV	OV	TV		OV	TV	OV	TV		OV	TV	OV	TV	
T1	2.3	8.84	2	7.9	50.37	0.13	2.06	0.03	0.60	80.00	4	11.47	1.08	5.85	43.16
T2	2.3	8.74	1.3	6.5	**67.00**	0.10	1.81	0.07	1.20	**53.33**	2.67	9.35	0.8	5.1	**57.89**
T3	1.7	7.33	2	8.1	**50.37**	0.11	1.87	0.07	1.20	**53.33**	2	7.67	0.83	5.17	**56.32**
T4	2.3	8.56	1.7	7.3	**58.56**	0.13	2.06	0.03	0.60	**80.00**	4.33	11.99	0.97	5.53	**48.95**
T5	2.7	9.35	1.3	6.5	**67.00**	0.12	1.96	0.03	0.60	**80.00**	2.67	9.35	1.27	6.43	**33.16**
T6	2	8.12	1.3	6.5	**67.00**	0.13	2.06	0.07	1.20	**53.33**	2.33	8.74	0.75	4.93	**60.53**
T7	1	5.73	1.7	7.3	**58.56**	0.10	1.81	0.07	1.20	**53.33**	3	9.87	0.83	5.17	**56.32**
T8	4.3	11.9	4	11	**0.00**	0.12	1.96	0.15	2.19	**0.00**	6.33	14.53	1.9	7.91	**0.00**
F test	-	Sig.	-	N.S.	-	-	N.S.	-	N.S.	-	-	Sig	-	Sig	-
S. Em.	-	0.82	-	1	-	-	0.52	-	0.55	-	-	0.94	-	0.54	-
C.D. at 5%	-	2.48	-	2.9	-	-	1.59	-	1.69	-	-	2.86	-	1.64	-
CV%	-	16.6	-	16.49	-	-	63.06	-	87.7	-	-	15.77	-	16.28	-

BA - Banswara, JU - Junagadh, SU - Surat, BH - Bharuch, AK -Akola, NA - Nanded, RA - Rahuri, KH - Khandwa, BW - Bhawanipatna

Treatment details

T1- Bt-127 SC formulation @2.0 ml/litre; T2- Bt-127 SC formulation @3.0 ml/litre; T3- Bt-127 SC formulation @4.0 ml/litre

T4- Brigade-B (WP formulation) @ 3gm/litre; T5- Brigade-B (WP formulation) @ 5 gm/litre; T6- Brigade-B (WP formulation) @ 7 gm/litre

T7- Chlorantraniliprole 18.5 SC @ 0.3ml/litre; T8- Untreated check

OV – Original Value; TV – TransformedValue;

Table 203. Ent 6: Evaluation of new microbial formulations against bollworm complex of cotton in Central Zone during 2020-2021 (Green Boll damage)

Sr. No.	SBW - Green boll damage (%) at different crop stage				Reduction over control (%)	*H. armigera* - Green boll damage (%) at different crop stage				Reduction over control (%)	Green boll Damage due to PBW/ 20 Bolls										Reduction over control (%)		
	NA					NA					NA				JU		SU						
	Pre		Post			Pre		Post			Pre		Post				Pre		Post				
	OV	TV	OV	TV		OV	TV	OV	TV		OV	TV	OV	TV	OV	TV	OV	TV	TV	TV	JU	SU	NA
T1	2.33	8.73	0.23	2.75	82.71	5.27	13.25	1.37	6.62	64.60	21.1	27.35	11.9	19.88	24.92	29.95	10.00	18.43	15.00	22.78	33.35	30.77	46.56
T2	2.17	8.45	0.5	3.91	62.41	4.73	12.55	1.27	6.44	67.18	20.4	26.84	18.7	25.59	13.11	21.23	11.67	19.88	13.33	21.33	64.94	38.46	15.71
T3	2.05	8.12	0.4	3.54	69.92	3.57	10.86	1.7	7.39	56.07	24.1	29.34	17.5	24.73	26.92	31.26	10.00	18.43	8.33	16.20	28.00	61.54	21.12
T4	2.07	8.26	0.47	3.89	64.66	3.03	10.02	1.43	6.86	63.05	25.7	30.41	12.9	24.9	10.77	19.16	11.67	19.88	13.33	21.33	71.20	38.46	41.78
T5	2.17	8.45	0.3	3.13	77.44	2.83	9.68	1.17	6.18	69.77	26.7	31.11	16	23.24	9.27	17.73	11.67	19.88	6.67	14.75	75.21	69.23	27.83
T6	2.03	8.17	0.43	3.73	67.67	2.13	8.37	1.13	6.08	70.80	24.4	29.59	14.7	22.2	18.05	25.14	10.00	18.04	5.00	10.45	51.73	76.92	33.77
T7	1.78	7.66	0.3	3.1	77.44	1.97	8.05	1.07	5.9	72.35	17.7	24.82	10.5	18.44	15.02	22.81	10.00	18.43	3.33	8.61	59.83	84.62	52.81
T8	3.7	1.1	1.33	6.62	0.00	9.13	17.55	3.87	13.3	0.00	26.5	30.84	22.2	27.84	37.39	37.7	11.67	19.88	21.67	27.70	-	-	0.00
F test	-	Sig.	-	Sig.	-	-	Sig.	-	Sig	-	-	N.S.	-	N.S.	-		-	-	-	-		-	-
S. Em.	-	0.49	-	0.03	-	-	0.41	-	0.36	-	-	1.2	-	2.55	1.43		-	1.47	-	2.84		-	-
C.D. at 5%	-	1.48	-	0.11	-	-	1.26	-	1.11	-	-	3.66	-	7.72	4.33		-	NS	-	8.62		-	-
CV%	-	9.86	-	16.61	-	-	6.4	-	8.99	-	-	7.27	-	19.33	9.64		-	13.36	-	27.52		-	-

BA - Banswara, JU - Junagadh, SU - Surat, BH - Bharuch, AK -Akola, NA - Nanded, RA - Rahuri, KH - Khandwa, BW - Bhawanipatna

Treatment details

T1- Bt-127 SC formulation @ 2.0ml/litre; T2- Bt-127 SC formulation @ 3.0ml/litre; T3- Bt-127 SC formulation @ 4.0ml/litre
T4- Brigade-B (WP formulation) @3gm/litre; T5- Brigade-B (WP formulation) @5gm/litre; T6- Brigade-B (WP formulation) @ 7gm/litre
T7- Chlorantraniliprole 18.5 SC @0.3 ml/litre; T8- Untreatedcheck

OV – Original Value; TV – Transformed Value;

Table 204. Ent 6: Evaluation of new microbial formulations against bollworm complex of cotton in Central Zone during 2020-2021 (Fruiting body damage)

Sr. No.	*H. armigera* - Fruiting body damage (%) at different crop stage												Reduction of pest over control (%)			SBW- Fruiting body damage (%) at different crop stage								Reduction of pest over control (%)	
	NA				SU				RA							NA				SU					
	Pre		Post		Pre		Post		Pre		Post					Pre		Post		Pre		Post			
	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	SU	NA	RA	OV	TV	OV	TV	OV	TV	OV	TV	SU	NA
T1	10.8	19.16	3.57	10.9	13.33	21.40	14.92	22.71	2.27	8.66	1.90	7.92	7.42	62.42	62.08	4.23	11.71	2.03	8.19	3.15	10.15	3.90	11.30	16.32	60.20
T2	10.8	19.1	4.2	11.8	12.60	20.74	12.13	20.32	2.77	9.57	1.70	7.49	24.72	55.79	66.07	3.7	11.02	2.43	8.96	3.77	11.15	3.61	10.91	22.64	52.35
T3	7.33	15.69	3.47	10.7	11.18	19.50	9.78	18.16	2.89	9.78	1.58	7.22	39.34	63.47	66.46	3.78	11.17	2.07	8.25	3.64	10.98	3.62	10.94	22.35	59.41
T4	7.07	15.4	3.4	10.6	13.11	21.22	12.53	20.71	2.00	8.13	1.90	7.92	22.24	64.21	62.08	3.73	11.09	2.47	9.01	3.37	10.56	3.22	10.32	30.88	51.57
T5	6.33	14.4	2.93	9.85	13.60	21.61	9.52	17.94	3.00	9.97	1.73	7.56	40.93	69.16	65.47	4.2	11.76	2.13	8.39	4.23	11.86	3.64	10.94	21.95	58.24
T6	4.73	12.54	2.97	9.9	9.55	18.00	6.96	15.22	2.54	9.17	1.92	7.96	56.81	68.74	61.68	3.97	11.38	1.83	7.77	4.08	11.58	2.30	8.62	50.66	64.12
T7	4.27	11.9	2.53	9.14	10.01	18.43	4.55	12.28	2.27	8.66	1.53	7.11	71.78	73.37	69.46	3.15	10.16	1.63	7.34	3.88	11.35	1.19	6.08	74.44	68.04
T8	14.3	22.1	9.5	17.9	12.87	20.98	16.12	23.64	3.44	10.68	5.01	12.93	-	0.00	0.00	5.73	13.84	5.1	13.04	5.12	13.08	4.66	12.41	-	0.00
F test		Sig.	-	.Sig	-	-	-	-	-	-	-	-	-	-	-	-	Sig.	-	Sig	-	-	-	-	-	-
S.Em. (T)		0.85	-	0.36	-	0.71	-	0.92	-	0.21	-	0.34	-	-	-	-	0.48	-	0.2	-	0.57	-	0.85	-	-
C.D. at5%		2.58	-	1.11	-	NS	-	2.79	-	0.66	-	1.04	-	-	-	-	1.48	-	0.62	-	NS	-	2.58	-	-
CV %		11.22	-	5.62	-	6.09	-	8.45	-	4.01	-	-	-	-	-	-	7.33	-	3.99	-	8.74	-	14.45	-	-

BA - Banswara, JU - Junagadh, SU - Surat, BH - Bharuch, AK -Akola, NA - Nanded, RA - Rahuri, KH - Khandwa, BW - Bhawanipatna

Treatment details

T1- Bt-127 SC formulation @2.0 ml/litre; T2- Bt-127 SC formulation @3.0 ml/litre; T3- Bt-127 SC formulation @4.0 ml/litre

T4- Brigade-B (WP formulation) @ 3gm/litre; T5- Brigade-B (WP formulation) @ 5 gm/litre;

T7- Chlorantraniliprole 18.5 SC @ 0.3ml/litre; T8- Untreated check

OV – Original Value; TV – Transformed Value;

Table 205. Ent 6: Evaluation of new microbial formulations against bollworm complex of cotton in Central Zone during 2020-2021 (Fruiting bodydamage)

Sr. No.	*P. gossypiella* - Fruiting body damage (%) atdifferent crop stage								Reduction of pest over control (%)	
	NA				RA					
	Pre		Post		Pre		Post			
	OV	TV	OV	TV	OV	TV	OV	TV	NA	RA
T1	35.8	36.69	29.2	32.43	17.05	24.39	14.40	22.30	31.17	**39.78**
T2	29.5	32.84	29.9	33.13	22.57	28.36	13.26	21.35	29.62	**39.95**
T3	37.1	37.52	36.4	34.08	18.42	25.42	12.79	20.95	14.34	**42.07**
T4	43.7	41.36	35.5	36.22	12.87	21.02	15.39	23.10	16.53	**30.30**
T5	37.4	37.72	33.1	35.08	17.39	24.65	13.16	21.27	22.06	**40.40**
T6	39.5	38.86	37.5	37.66	15.30	23.03	12.54	20.74	11.75	**43.21**
T7	28.7	32.36	23.4	28.91	14.10	22.06	11.65	19.96	44.81	**47.24**
T8	45.5	42.38	42.5	40.65	27.78	29.67	22.08	28.03	0.00	**0.00**
F test	-	Sig	-	N.S.	-	-	-	-	-	-
S.Em. (T)	-	1.42	-	2.95	-	0.94	-	1.59	-	-
C.D. at5%	-	3.4	-	8.94	-	2.88	-	4.88	-	-
CV %	-	6.56	-	14.55	-	6.51	-	12.80	-	-

Treatment details

T1- Bt-127 SC formulation @2.0 ml/litre; T2- Bt-127 SC formulation @3.0 ml/litre; T3- Bt-127 SC formulation @4.0 ml/litre

T4- Brigade-B (WP formulation) @ 3gm/litre; T5- Brigade-B (WP formulation) @ 5 gm/litre; T6- Brigade-B (WP formulation) @ 7 gm/litre

T7- Chlorantraniliprole 18.5 SC @ 0.3ml/litre; T8- Untreated check

OV – Original Value; TV – Transformed Value;

Table 206. Ent 6: Evaluation of new microbial formulations against bollworm complex of cotton in Central Zone during 2020-2021 (Open boll damage)

Sr. No.	Open boll damage (%)						Reduction of over control (%)		
	JU		SU		NA				
	OV	**TV**	OV	TV	OV	TV	JU	SU	NA
T1	-	-	14.99	22.72	-	-	-	38.45	-
T2	-	-	13.28	21.31	-	-	-	45.49	-
T3	-	-	5.66	13.74	-	-	-	76.75	-
T4	-	-	9.10	17.52	-	-	-	62.65	-
T5	-	-	4.74	12.56	-	-	-	80.52	-
T6	-	-	3.41	10.62	-	-	-	86.00	-
T7	-	-	2.51	9.10	-	-	-	89.69	-
T8	-	-	24.36	29.56	-	-	-	-	-
Mean	-	-	9.76	17.14	-	-	-	-	-
S.Em. (T)	-	-	-	0.64	-	-	-	-	-
C.D. at 5%	-	-	-	1.96	-	-	-	-	-
CV %	-	-	-	6.52	-	-	-	-	-

BA - Banswara, JU - Junagadh, SU - Surat, BH - Bharuch, AK -Akola, NA - Nanded, RA - Rahuri, KH - Khandwa, BW - Bhawanipatna

Treatment details

T1- Bt-127 SC formulation @2.0 ml/litre; T2- Bt-127 SC formulation @3.0 ml/litre; T3- Bt-127 SC formulation @4.0 ml/litre
T4- Brigade-B (WP formulation) @ 3gm/litre; T5- Brigade-B (WP formulation) @ 5 gm/litre; T6- Brigade-B (WP formulation) @ 7 gm/litre
T7- Chlorantraniliprole 18.5 SC @ 0.3ml/litre; T8- Untreated check

OV – Original Value; TV – TransformedValue;

Table.207. Ent 6: Evaluation of new microbial formulations against bollworm complex of cotton in Central Zone during 2020-2021 (Locule damage)

Sr. No.	Locule damage (%)						Reduction of over control (%)			Locule damage by PBW (%)								Reduction of over control (%)			
	JU		SU		NA		JU	SU	NA	SU		Ju		RA		NA		NA	RA	SU	JU
	OV	TV	OV	TV	OV	TV				OV	TV*	OV	TV*	OV	TV	OV	TV				
T1	-	-	6.48	14.73	-	-	-	44.68	-	5.78	13.88	22.92	28.6	14.57	24.2	8.87	17.3	50.64	45.97	41.55	35.22
T2	-	-	5.28	13.27	-	-	-	54.91	-	4.82	12.67	11.09	19.45	19.9	26.49	8.7	17.1	51.59	26.21	51.29	68.65
T3	-	-	2.29	8.67	-	-	-	80.49	-	1.76	7.59	24.92	29.95	11.68	26.42	9.77	18.2	45.63	56.69	82.23	29.56
T4	-	-	3.47	10.66	-	-	-	70.39	-	2.98	9.87	8.76	17.22	19.89	26.48	7.5	15.8	58.26	26.25	69.87	75.24
T5	-	-	2.14	8.34	-	-	-	81.71	-	1.73	7.41	7.24	15.61	18.43	25.43	9.97	18.4	44.52	31.66	82.52	79.54
T6	-	-	1.47	6.88	-	-	-	87.49	-	1.16	6.04	16.03	23.6	19.36	26.1	8.09	16.5	54.98	21.50	88.25	54.69
T7	-	-	0.42	3.69	-	-	-	96.40	-	0.30	3.03	13.02	21.15	10.56	18.97	7.17	15.5	60.10	60.85	96.93	63.20
T8	-	-	11.72	20.00	-	-	-	-	-	9.89	18.32	35.38	36.5	26.97	31.29	17.97	25.1	0.00	0.00	-	
Mean	-	-	4.16	10.78	-	-	-	-	-	3.55	9.85	-	-	-	-	-		-		-	-
F test	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Sig.	-		-	-
S.Em. (T)	-	-	-	0.42	-	-	-	-	-	-	0.51	-	1.50	-	1.38	-	0.78	-		-	-
C.D. at 5%	-	-	-	1.28	-	-	-	-	-	-	1.55	-	4.55	-	4.22	-	2.37	-		-	-
CV %	-	-	-	6.78	-	-	-	-	-	-	8.96	-	10.81	-	9.67	-	7.55	-		-	-
							-	-	-			-		-	-	-		-		-	-

BA - Banswara, JU - Junagadh, SU - Surat, BH - Bharuch, AK -Akola, NA - Nanded, RA - Rahuri, KH - Khandwa, BW - Bhawanipatna

Treatment details

T1- Bt-127 SC formulation @2.0 ml/litre; T2- Bt-127 SC formulation @3.0 ml/litre; T3- Bt-127 SC formulation @4.0 ml/litre

T4- Brigade-B (WP formulation) @ 3gm/litre; T5- Brigade-B (WP formulation) @ 5 gm/litre; T6- Brigade-B (WP formulation) @ 7 gm/litre

T7- Chlorantraniliprole 18.5 SC @ 0.3ml/litre; T8- Untreated check

OV – Original Value; TV – Transformed Value;

Table.208. Ent 6: Evaluation of new microbial formulations against bollworm complex of cotton in Central Zone during 2020-2021 (Open boll damage by PBW (%))

Sr. No.	Open boll damage by PBW (%)								Reduction of over control (%)			
	SU		JU		RA		NA		SU	JU	NA	RA
	OV	TV*	OV	TV*	OV	TV	OV	TV				
T1	11.29	19.57	28.3	32.16	21.17	27.39	21.6	27.6	36.56	30.58	**37.42**	**48.10**
T2	9.95	18.34	16.5	23.99	22.52	28.33	24.4	29.4	44.10	59.50	**29.26**	**44.79**
T3	4.02	11.51	30.3	33.42	20.50	26.92	21.2	27.4	77.42	25.68	**38.52**	**49.74**
T4	6.22	14.43	14.2	22.13	25.33	30.21	16.9	24.2	65.03	65.23	**51.11**	**37.90**
T5	3.25	10.36	12.7	20.88	22.69	28.44	21.2	27.4	81.75	68.88	**38.52**	**44.37**
T6	2.68	9.40	21.5	27.6	23.13	28.74	14.9	22.5	84.94	47.41	**56.96**	**43.29**
T7	1.76	7.58	18.4	25.43	14.54	22.42	14	21.4	90.12	54.84	**59.62**	**64.35**
T8	17.80	24.94	40.8	39.7	40.79	39.69	34.6	35.9	-	-	**0.00**	**0.00**
Mean	7.12	14.52	-	-	-	-	-	-	-	-	-	
F test	-	-	-	-	-	-	-	N.S.	-	-	-	
S.Em. (T)	-	0.54	-	1.34	-	1.30	-	3.61	-	-	-	
C.D. at 5%	-	1.63	-	4.07	-	3.99	-	10.9	-	-	-	
CV %	-	7.45	-	8.24	-	7.79	-	21.9	-	-	-	
	-	-	-	-	-	-	-			-	-	

BA - Banswara, JU - Junagadh, SU - Surat, BH - Bharuch, AK -Akola, NA - Nanded, RA - Rahuri, KH - Khandwa, BW - Bhawanipatna

Treatment details

T1- Bt-127 SC formulation @2.0 ml/litre; T2- Bt-127 SC formulation @3.0 ml/litre; T3- Bt-127 SC formulation @4.0 ml/litre
T4- Brigade-B (WP formulation) @ 3gm/litre; T5- Brigade-B (WP formulation) @ 5 gm/litre; T6- Brigade-B (WP formulation) @ 7 gm/litre
T7- Chlorantraniliprole 18.5 SC @ 0.3ml/litre; T8- Untreated check

OV – Original Value; TV – TransformedValue;

Table 209 Ent 6: Evaluation of new Bt formulation against bollworm complex of cotton in during 2020-21 (Phytotoxicity)

Treatments	Dosage ml/litre	Phytotoxicity	
		SU	RA
T1	2.0	0	0
T2	3.0	0	0
T3	4.0	0	0
T4	3.0	0	0
T5	5.0	0	0
T6	7.0	0	0
T7	0.3	0	0
T8	-	0	0

BA - Banswara, JU - Junagadh, SU - Surat, BH - Bharuch, AK -Akola, NA - Nanded, RA - Rahuri, KH - Khandwa, BW - Bhawanipatna

Treatment details

T1- Bt-127 SC formulation @2.0 ml/litre; T2- Bt-127 SC formulation @3.0 ml/litre; T3- Bt-127 SC formulation @4.0 ml/litre
T4- Brigade-B (WP formulation) @ 3gm/litre; T5- Brigade-B (WP formulation) @ 5 gm/litre; T6- Brigade-B (WP formulation) @ 7 gm/litre
T7- Chlorantraniliprole 18.5 SC @ 0.3ml/litre; T8- Untreated check

OV – Original Value; TV – TransformedValue;

Table.210. Ent 6: Evaluation of new microbial formulations against bollworm complex of cotton in Central Zone during 2020-2021 (Seed Cotton Yield and Natural enemies)

Sr. No.	Seed Cotton Yield (Kg/ha)				Natural enemies				Natural enemies/ 5 Plant				Natural enemies				Natural enemies			
	JU	SU	NA	RA	SU				NA				JU				RA			
					Pre		Post		Pre		Post		Pre		Post		Pre		Post	
					OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV*	OV	TV	OV	TV
T1	2425	1173	807	138	4.73	2.28	3.87	2.08	1.23	1.31	0.43	0.96	4.78	2.19	1.78	1.33	1.13	1.3	0.94	1.20
T2	2601	1245	896	141	4.73	2.29	3.67	2.04	1.37	1.35	0.17	0.81	6.23	2.50	3.31	1.82	1.2	1.3	0.95	1.20
T3	2513	1533	858	155	4.73	2.29	3.73	2.06	0.9	1.18	0.13	0.79	4.91	2.22	2.70	1.64	1.07	1.3	0.90	1.18
T4	2734	1502	799	134	4.93	2.31	3.90	2.09	0.89	1	0.2	0.83	4.99	2.23	3.37	1.84	1.33	1.4	1.02	1.23
T5	2976	1800	1194	129	4.60	2.25	3.56	2.01	1.37	1.35	0.27	0.87	4.84	2.20	3.66	1.91	1.07	1.3	0.80	1.14
T6	2491	1882	1045	142	5.27	2.40	3.90	2.10	1.27	1.23	0.13	0.79	4.65	2.16	2.66	1.63	1.2	1.3	0.90	1.18
T7	2403	2078	1162	166	5.13	2.37	3.28	1.94	0.89	1	0.03	0.72	5.57	2.36	2.04	1.43	0.47	1	0.40	0.95
T8	1962	751	784	87	5.40	2.43	4.52	2.24	1.23	1.31	0.8	1.13	5.43	2.33	6.79	2.61	1.8	1.5	1.27	1.33
Mean	-	1496	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F test	-	-	Sig.	-	-	-	-	-	-	N.S.	-	Sig.	-	-	-	-	-	-	-	-
S.Em. (T)	139.02	179.60	0.14	0.08	-	0.12	-	0.09	-	0.04	-	0.02	-	0.11	0.09	-	-	0.1	-	0.06
C.D. at 5%	421.71	544.80	0.43	0.24	-	NS	-	NS	-	0.13	-	0.07	-	NS	0.26	-	-	0.2	-	NS
CV %	9.58	20.80	5.63	3.67	-	9.11	-	7.44	-	7.81	-	5.00	-	8.46	8.41	-	-	11	-	9.67

BA - Banswara, JU - Junagadh, SU - Surat, BH - Bharuch, AK -Akola, NA - Nanded, RA - Rahuri, KH - Khandwa, BW - Bhawanipatna

Treatment details

T1- Bt-127 SC formulation @2.0 ml/litre;
T2- Bt-127 SC formulation @3.0 ml/litre;
T3- Bt-127 SC formulation @4.0 ml/litre
T4- Brigade-B (WP formulation) @ 3gm/litre;
T5- Brigade-B (WP formulation) @ 5 gm/litre;
T6- Brigade-B (WP formulation) @ 7 gm/litre
T7- Chlorantraniliprole 18.5 SC @ 0.3ml/litre;
T8- Untreated check

OV – Original Value; TV – TransformedValue;

Table:211. Ent 6 Evaluation of new microbial formulations against bollworm complex in South Zone during 2020-21 (Larval Population of ABW)

Treatment Name	DW				Reduction of the pest over Control (%)
	Pre		Post		DW
	OV	TV	OV	TV	
Bt-127 SC formulation @2.0 ml/litre	4.21	2.07	2.75	1.76	**57.36**
Bt-127 SC formulation @3.0 ml/litre	4.58	2.15	2.66	1.71	**58.76**
Bt-127 SC formulation @4.0 ml/litre	4.43	2.22	2.45	1.73	**62.02**
Brigade-B (WP formulation) @ 3 gm/litre	5.47	2.31	4.75	2.26	**26.36**
Brigade-B (WP formulation) @ 5 gm/litre	5.30	2.27	4.66	2.10	**27.75**
Brigade-B (WP formulation) @ 7 gm/litre	5.27	2.27	4.33	2.06	**32.87**
Chlorantraniliprole 18.5 SC @ 0.3 ml/litre	4.40	2.11	0.66	0.78	**89.77**
Untreated check	5.50	2.30	6.45	2.47	**0.00**
S. Em.		**0.48**		**0.33**	
C.D. at 5%		**1.46**		**1.00**	
CV%		**12.56**		**10.22**	

LG – Lam Guntur; ND – Nandyal; DW – Dharwad; RC – Raichur; CN – Chamarajanagara; CBE – Coimbatore;

Table.212. Ent 6.Evaluation of new microbial formulations against bollworm complex in South Zone - 2020-21 (Larval Population of Pink Bollworm)

Treatment Name	DW				RC				ND				Reduction of the pest over Control (%)		
	Pre		Post		Pre		Post		Pre		Post		DW	RC	ND
	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV			
Bt-127 SC formulation @2.0 ml/litre	14.51	3.70	8.33	3.15	4.54	2.24	2.74	1.80	11.83	3.51	9.41	3.14	33.36	58.23	37.15
Bt-127 SC formulation @3.0 ml/litre	14.44	3.87	6.00	2.80	4.57	2.25	2.61	1.77	11.00	3.36	11.56	3.46	52.00	60.21	22.81
Bt-127 SC formulation @4.0 ml/litre	14.60	3.72	5.75	2.61	4.63	2.26	2.52	1.74	13.00	3.67	7.22	2.77	54.00	61.59	51.76
Brigade-B (WP formulation) @ 3 gm/litre	14.68	3.90	12.00	3.61	5.01	2.35	1.22	1.31	12.17	3.56	12.17	3.55	4.00	81.40	18.74
Brigade-B (WP formulation) @ 5 gm/litre	14.70	3.90	11.33	3.44	4.55	2.25	2.51	1.73	11.83	3.50	11.17	3.22	9.36	61.74	25.40
Brigade-B (WP formulation) @ 7 gm/litre	14.60	3.58	10.50	3.32	3.88	2.09	2.40	1.70	10.50	3.31	10.00	3.41	16.00	63.41	33.21
Chlorantraniliprole 18.5 SC @ 0.3 ml/litre	14.57	3.71	1.50	1.41	4.44	2.22	0.71	1.10	12.83	3.65	12.44	3.58	88.00	89.18	16.88
Untreated check	14.95	3.77	12.50	3.38	4.69	2.28	6.56	2.65	14.17	3.83	14.97	3.93			
S. Em.		0.70		0.55		0.08		0.04	**0.16**		**0.17**				
C.D. at 5%		2.13		1.67		0.24		0.11	**0.49**		**0.50**				
CV%		10.78		10.71		16.25		12.54	**7.83**		**8.47**				

Table:213. Ent 6.Evaluation of new microbial formulations against bollworm complex - South Zone 2020-21 (Green Boll damage due to ABW)

Treatment Name	DW		Reduction of the pest over Control (%)
	Post		DW
	OV	TV	
Bt-127 SC formulation @2.0 ml/litre	12.41	20.23	27.93
Bt-127 SC formulation @3.0 ml/litre	10.80	18.67	37.28
Bt-127 SC formulation @4.0 ml/litre	9.03	17.02	47.56
Brigade-B (WP formulation) @ 3 gm/litre	15.72	22.07	8.71
Brigade-B (WP formulation) @ 5 gm/litre	14.11	20.76	18.05
Brigade-B (WP formulation) @ 7 gm/litre	12.12	20.32	29.61
Chlorantraniliprole 18.5 SC @ 0.3 ml/litre	7.87	16.29	54.30
Untreated check	17.22	23.23	
S. Em.		3.61	
C.D. at 5%		10.94	
CV%		10.51	

LG – Lam Guntur; ND – Nandyal; DW – Dharwad; RC – Raichur; CN – Chamarajanagara; CBE – Coimbatore;

Table: 214. Ent 6.Evaluation of new microbial formulations against bollworm complex - South Zone 2020-21 (Green Boll damage due to PBW)

Treatment Name	DW		RC				Reduction of the pest over Control (%)		
	Post		Pre		Post		DW	RC	ND
	OV	TV	OV	TV	OV	TV			
Bt-127 SC formulation @2.0 ml/litre	18.90	25.76	18.11	25.19	12.88	21.03	41.49	79.93	-
Bt-127 SC formulation @3.0 ml/litre	16.80	24.19	17.25	24.54	12.02	20.29	47.99	81.27	-
Bt-127 SC formulation @4.0 ml/litre	19.85	26.45	16.12	23.67	10.89	19.27	38.54	83.03	-
Brigade-B (WP formulation) @ 3 gm/litre	27.45	31.48	18.23	25.28	13.00	21.13	15.02	83.43	-
Brigade-B (WP formulation) @ 5 gm/litre	25.25	30.15	17.15	24.46	11.92	20.20	21.83	81.42	-
Brigade-B (WP formulation) @ 7 gm/litre	24.56	29.70	15.86	23.47	10.63	19.03	23.96	79.74	-
Chlorantraniliprole 18.5 SC @ 0.3 ml/litre	10.60	18.64	15.35	23.07	7.12	15.48	67.18	88.90	-
Untreated check	32.30	31.81	48.26	44.00	64.16	53.23			-
S. Em.		4.75		0.18		0.16			
C.D. at 5%		14.41		0.54		0.46			
CV%		10.06		16.36		14.35			

LG – Lam Guntur; ND – Nandyal; DW – Dharwad; RC – Raichur; CN – Chamarajanagara; CBE – Coimbatore;

Table: 215. Ent 6.Evaluation of new microbial formulations against bollworm complex - South Zone 2020-21 (Fruiting Body Damage due to PBW)

Treatment Name	RC				Reduction of the pest over Control (%)		
	Pre		Post		DW	RC	ND
	OV	TV	OV	TV			
Bt-127 SC formulation @2.0 ml/litre	18.11	25.19	12.88	21.03		79.93	
Bt-127 SC formulation @3.0 ml/litre	17.25	24.54	12.02	20.29		81.27	
Bt-127 SC formulation @4.0 ml/litre	16.12	23.67	10.89	19.27		83.03	
Brigade-B (WP formulation) @ 3 gm/litre	18.23	25.28	13.00	21.13		83.43	
Brigade-B (WP formulation) @ 5 gm/litre	17.15	24.46	11.92	20.20		81.42	
Brigade-B (WP formulation) @ 7 gm/litre	15.86	23.47	10.63	19.03		79.74	
Chlorantraniliprole 18.5 SC @ 0.3 ml/litre	15.35	23.07	7.12	15.48		88.90	
Untreated check	48.26	44.00	64.16	53.23		79.93	
S. Em.		0.18		0.16			
C.D. at 5%		0.54		0.46			
CV%		16.36		14.35			

LG – Lam Guntur; ND – Nandyal; DW – Dharwad; RC – Raichur; CN – Chamarajanagara; CBE – Coimbatore;

Table:216. Ent 6.Evaluation of new microbial formulations against bollworm complex - South Zone 2020-21 (Natural Enemies, Seed Cotton Yield)

Treatment Name	RC				ND				Seed Cotton Yield		
	Pre		Post		Pre		Post		DW	RC	ND
	OV	TV	OV	TV	OV	TV	OV	TV			
Bt-127 SC formulation @2.0 ml/litre	1.33	1.35	1.69	1.48	0.03	0.73	0.10	0.77	9.67	18.85	7.24
Bt-127 SC formulation @3.0 ml/litre	1.24	1.32	1.60	1.45	0.17	0.82	0.20	0.83	10.08	19.22	8.96
Bt-127 SC formulation @4.0 ml/litre	1.45	1.40	1.83	1.53	0.13	0.80	0.10	0.77	10.50	19.56	7.09
Brigade-B (WP formulation) @ 3 gm/litre	1.24	1.32	1.60	1.45	0.07	0.75	0.13	0.79	6.85	18.02	8.30
Brigade-B (WP formulation) @ 5 gm/litre	1.53	1.42	1.93	1.56	0.13	0.80	0.07	0.75	6.97	18.22	9.40
Brigade-B (WP formulation) @ 7 gm/litre	1.48	1.41	1.84	1.53	0.03	0.73	0.10	0.77	7.78	19.20	11.99
Chlorantraniliprole 18.5 SC @ 0.3 ml/litre	1.26	1.33	1.62	1.46	0.10	0.77	0.07	0.75	12.15	24.38	7.52
Untreated check	1.58	1.44	2.54	1.74	0.23	0.85	0.27	0.87	6.33	9.14	6.44
S. Em.		0.11		0.08	**0.04**		**0.04**		1.53	0.12	**1.02**
C.D. at 5%		0.35		0.23	**0.12**		**0.12**		4.65	0.35	**3.11**
CV%		14.12		16.24	**8.52**		**8.80**		10.07	14.26	**21.21**

Table:217. Ent 6.Evaluation of new microbial formulations against bollworm complex - South Zone 2020-21 (Open boll and locule damage)

Treatment Name	Open Boll Damage (%)						(%) Reduction of the pest over Control			Open Locule Damage (%)		Reduction of the pest over Control (%)
	DW		RC		ND		DW	RC	ND	RC		RC
	OV	TV	OV	TV	OV	TV				OV	TV	
Bt-127 SC formulation @2.0 ml/litre	30.02	33.21	19.59	26.27	38.05	38.02	21.33	69.46	22.51	14.77	22.60	76.98
Bt-127 SC formulation @3.0 ml/litre	27.05	31.33	18.78	25.68	38.43	38.33	29.12	70.73	21.74	13.96	21.94	78.24
Bt-127 SC formulation @4.0 ml/litre	24.59	29.72	14.30	22.22	57.68	49.50	35.56	77.72	-17.47	10.88	19.15	83.04
Brigade-B (WP formulation) @ 3 gm/litre	36.94	38.14	20.47	26.90	39.87	39.14	3.20	68.10	18.81	15.65	23.30	75.61
Brigade-B (WP formulation) @ 5 gm/litre	35.94	36.82	19.38	26.12	41.41	40.01	5.83	69.80	15.67	12.75	20.92	80.12
Brigade-B (WP formulation) @ 7 gm/litre	33.93	33.37	17.57	24.78	29.54	32.80	11.08	72.61	39.84	11.42	19.84	82.20
Chlorantraniliprole 18.5 SC @ 0.3 ml/litre	13.11	21.22	9.92	18.35	47.79	43.75	65.64	84.55	2.68	7.34	15.72	88.56
Untreated check	38.16	35.85	47.38	43.50	49.11	44.51			0.00	68.37	55.78	
S. Em.		6.29		0.21	**2.76**						0.18	
C.D. at 5%		19.07		0.62	**8.39**						0.42	
CV%		11.18		18.25	**11.75**						16.27	

LG – Lam Guntur; ND – Nandyal; DW – Dharwad; RC – Raichur; CN – Chamarajanagara; CBE – Coimbatore;

Table: 218.Ent 7(a) : Intensive Survey for pink bollworm on BT hybrids in the farmers fields.(Bathinda)

Sr. No.	Villages Surveyed	Rosette flowers (%)		No. of PBW larva/ 20 bolls		Green Boll damage (%)(20 bolls basis)	
		Range	Avg.	Range	Avg.	Range	Avg.
1	Jodhpur Romana	16.0 - 26.0	20.6	0-17	5.67	0 - 49.15	20.3
2	GurusarSainewala	0 -10.0	3.8	0 - 4	2.1	0 - 16.0	8.62
3	Sangat Mandi	0.0	0.00	0.00	0.00	0 - 1.35	1.35
4	Naruana	0.00	0.00	0.00	0.00	0.00	0.00
5	Gehri Buttar	0-10.0	2.30	0-4	1.54	0-1.20	1.20
6	GehriBaghi	0.0	0.0	0.0	0.0	0.0	0.0
7	Ramnagar	0.0	0.0	0.0	0.0	0.0	0.0
8	Kuttiwalkhurd	0.0	0.0	0.0	0.0	0.0	0.0
9	Ghumankhurd	0.0	0.0	0.0	0.0	0.0	0.0
10	Kuttiwalakalan	0.0	0.0	0.0	0.0	0.0	0.0
11	Ghumankalan	0.0	0.0	0.0	0.0	0.0	0.0
12	Nwapind	0.0	0.0	0.0	0.0	0.0	0.0
13	FatehgarhNoabad	0.0	0.0	0.0	0.0	0.0	0.0
14	Jagaram Tirth	0.0	0.0	0.0	0.0	0.0	0.0
15	Jambar Basti	0.0	0.0	0.0	0.0	0.0	0.0
16	BehmanJassa Singh	0.0	0.0	0.0	0.0	0.0	0.0
17	Kotguru	0.0	0.0	0.0	0.0	0.0	0.0
18	Ghudda	0.0	0.0	0.0	0.0	0.0	0.0
19	Dunewala	0.0	0.0	0.0	0.0	0.0	0.0
20	Malwala	0.0	0.0	0.0	0.0	0.0	0.0
21	Mehta	0.0	0.0	0.0	0.0	0.0	0.0
22	Machana	0.0	0.0	0.0	0.0	0.0	0.0
23	Jeewansinghwala	0.0	0.0	0.0	0.0	0.0	0.0
24	Chattewala	0.0	0.0	0.0	0.0	0.0	0.0
25	Banger Charat Singh	0.0	0.0	0.0	0.0	0.0	0.0
26	Burj Sema	0.0	0.0	0.0	0.0	0.0	0.0
27	Jodhpur Pakhar	0.0	0.0	0.0	0.0	0.0	0.0
28	Laleana	0.0	0.0	0.0	0.0	0.0	0.0

Table: 219.Ent 7(a) : Intensive Survey for pink bollworm on BT hybrids in the farmers fields(Faridkot)

Sr. No.	Rosette flowers (%)	No. of PBW larva/ 20 bolls	Boll damage on boll basis/ 20 bolls	Data from 10 locations	Open Boll Damage		Seed cotton yield (Q/ha)
					Boll basis (%)	Locule Basis (%)	
32 (Aug 6-12)	0.0	0.0	0.0	1	0.0	0.0	22.5
33 (Aug 13-19)	0.0	0.0	0.0	2	0.0	0.0	21.3
34 (Aug 20-26)	0.0	0.0	0.0	3	0.0	0.0	21.5
35 (Aug 27-2Sep)	0.0	0.0	0.0	4	0.0	0.0	26.3
36 (Sep 3-9)	0.0	0.0	0.0	5	0.0	0.0	22.0
37 (Sep 10-16)	0.0	0.0	0.0	6	0.0	0.0	25.0
38 (Sep 17-23)	0.0	0.0	0.0	7	0.0	0.0	20.5
39 (Sep 24-30)	0.0	0.0	0.0	8	0.0	0.0	21.0
40 (Oct 1-7)	0.0	0.0	0.0	9	0.0	0.0	28.8
41 (Oct 8-14)	0.0	0.0	0.0	10	0.0	0.0	27.5
42 (Oct 15-21)	0.0	0.0	0.0				
43 (Oct 22-28)	0.0	0.0	0.0				

Table: 220.Ent 7(a) : Intensive Survey for pink bollworm on BT hybrids in the farmers fields.(Hisar)

Sr. No.	Name of village	Rosette flowers (%)		No. of PBW larva/ 20 bolls		Boll damage on boll basis/ 20 bolls	
		Range	Average	Range	Average	Range	Average
1	Seoli	5.00-15.00	10.00	16.0-19.0	17.50	85.00-95.00	90.00
2	Lohina	10.00-15.00	12.50	12.0-15.0	13.50	60.00-70.00	65.00
3	Banchari	5.00-10.00	7.50	15.0-20.0	17.50	80.00-90.00	85.00
4	TajpurTihara Khurd	0.00-5.00	2.50	8.00-11.00	9.50	25.00-35.00	30.00
5	Karsindhu	10.00-20.00	14.17	1.00-5.00	2.50	5.00-25.00	12.50
6	Barwala	5.00-10.00	7.50	16.0-56.0	30.00	80.00-100.00	90.00
7	Sorkhi	-	-	3.00-47.00	27.00	20.00-70.00	50.00
8	Khedar	-	-	38.00	38.00	85.00	85.00
9	Danoda	-	-	1.00	1.00	5.00	5.00
10	KharakBhura	-	-	12.00	12.00	55.00	55.00
11	RojKhera	-	-	29.00	29.00	75.00	75.00
12	Ghoghadiya	-	-	13.00	13.00	55.00	55.00
13	Kucharna Khurd	-	-	1.00	1.00	5.00	5.00
14	Chhatar	-	-	2.00	2.00	5.00	5.00
15	Jhamola	-	-	38.0-50.0	41.45	90.00-100	95.00
16	Sisar	-	-	31.0-51.0	41.00	70.00-90.00	80.00
17	Badala	-	-	19.0-20.0	19.50	50.00-85.00	67.50
18	Karela	-	-	27.0-54.0	40.50	50.00-85.00	67.50
19	Malvi	-	-	23.0-29.0	26.00	70.00-90.00	80.00
20	DeshKhera	-	-	23.0-39.0	31.00	70.00-85.00	77.50
21	Rajgarh	-	-	32.0-40.0	36.00	90.00-95.00	92.50
22	KheraBakhta	-	-	9.00	9.00	35.00	35.00
23	GosainKhera	-	-	14.00	14.00	50.00	50.00
24	Padana	-	-	7.0-36.0	21.50	25.00-80.00	52.50
25	Nidani	-	-	22.0-96.0	59.00	85.00-95.00	90.00

Total Number of Location survey = 60

Table: 221. Ent 7(a): Intensive Survey for pink bollworm on Bt hybrids in the farmers field during 2020-21. --Sirsa

Weekly pink bollworm Status on cotton for whole year 2020-21				
SMW	Sirsa (Total No. of location= 4)		Jind (Total number of locations= 2)	
	Rosette Flower	Green Boll Damage	Rosette Flower	Green Boll Damage
29	0	0	2	0
30	0	0	0	3.5
31	0	0	0	10
32	0	0	0	15
33	0	0	0	15
34	0	0	2	10
35	0	0	0	15
36	0	0	1	15
37	0	0	0	15
38	0	0	3	40
39	0	0	0	20
40	0	0	0	45
41	0	0	0	40
42	0	0	0	30
43	0	0	0	35
Range	**0.00-0.00**	**0.00-0.00**	**0.00-2.00**	**0.00-45.00**

Table 222. Ent. 7(b). Validation of IPM module for cotton insect pests in Central Zone during 2020-2021

S. No.	Particulars	Modue-I (IPM)						Module-II (Farmers practice)					
		JU	SU	AK	NA	BW	RA	JU	SU	AK	NA	RA	BW
Sucking pest	Aphids/3 leaves	-	-	-	2.67	-	-	-	-	-	6.41	-	-
	Jassids/3 leaves	-	-	6.50	1.54	-	-	-	-	9.83	3.14	-	-
	Whitefly/3 leaves	-	-	4.67	1.71	-	-	-	-	10.17	8.18	-	-
	Thrips/3 leaves	-	-	9.16	1.32	-	-	-	-	18.17	5.63	-	-
Bollworm	*Helicoverpa* eggs/ 5 plant	-	-	-	2.13	1.00	-	-	-	-	2.25	-	3.25
	Helicoverpa larvae/ 5 plant	-	-	-	0.75	1.03	-	-	-	-	0.75	-	4.20
	SBW larvae / 5 plant	-	-	-	0.42	1.08	-	-	-	-	0.58	-	5.16
	Flower damage / 50 Flowers (%)	2.7	-	6.17	8.1	-	-	10.59	-	12.50	9.55	-	-
	Rossette Flower damage by PBW	-	-	-	-	0.00	-	-	-	-	-	-	0.00
	Rossette Flower damage	-	-	-	-	-	4.39	-	-	-	-	10.82	-
	Pink boll worm/ 20 green bolls	2.36	-	8.11	0.54	0.00	6.15	12.79	-	14.44	0.67	10.94	0.00
	Fruiting bodies damage %	-	-	-	-	6.80	-	-	-	-	-	-	22.40
	Fruiting bodies damage % by AMW	-	-	-	2.07	-	-	-	-	-	1.71	-	-
	Fruiting bodies damage % by SBW	-	-	-	4.58	-	-	-	-	-	3.88	-	-
	Fruiting bodies damage % by PBW	-	-	-	12.54	-	-	-	-	-	13.50	-	-
	Green Boll Damage %	2.84	-	20.11	19.33	-	8.91	14.38	-	51.56	20.33	15.49	-
	Green Boll Damage % by AMW	5.60	-	-	-	-	-	-	-	-	-	-	18.60
	Green Boll Damage % PBW	0.0	-	-	-	-	-	-	-	-	-	-	0.00
	Green boll damage on locule basis (%)		-	-	-	-	-	-	-	-	-	-	-
	Open boll damage	3.02	-	-	9.8	-	16.77	19.7	-	-	16.2	26.30	-
	Open boll damage by PBW		-	41.64	-	0.00	-	-	-	82.69	-	-	0.00
	Open boll locule damge	1.65	-	7.52	6.93	2.40	11.07	12.82	-	16.62	12.0	15.27	12.20
	Open boll locule damge by PBW	-	-	13.35		-	-	-	-	35.57	-	-	-
	% Parasitism on bollworms	-	-	-	1.78	-	-	-	-	-	1.69	-	-
Other pests	*Spodopteralitura* larvae/ 5 plant		-		0.46	2.04	-	-	-	-	0.46	-	8.08
	Mean Trap catches / week	8.32	-	47.26	4.5		-	52.16	-	59.10	6.7	-	-
	Natural enemies/plant	-	-	-	1.35	1.16	-	-	-	-	1.13	-	0.06
Seed cotton yield and economics	1. Seed cotton yield (q/ha)	-	-	-	-	25.6	16.27	-	-	-	-	11.24	21.8
	2. Gross income (Rs./ha)	-	-	-	-	148,480.0	94,366	-	-	-	-	65,192	126,440.0
	3. Cost of crop protection measures (Rs./ha)	-	-	-	-	8,400.00		-	-	-	-		12,000.00
	4. Cost of other expenditure (Rs./ha)	-	-	-	-	45,000.00	34560	-	-	-	-	32310	45,000.00
	Total (3+4)	-	-	-	-	53,400.00	34560	-	-	-	-	34560	57,000.00
	Net profit (Rs./ha)	-	-	-	-	95,080.00	59806	-	-	-	-	32882	69,440.00

	Cost Benefit ratio	-	-	-	-	2.78	1:2.73	-	-	-	-	1:2.01	2.22

Table 223. Ent 7(b): Validation of IPM module for pink boll worm at Khandwa in Central Zone during 2020-2021

S. No.	Farmers Practice							IPM Practices						
	Rosette flower		Green boll damage %		Open boll damage		Yield	Rosette flower		Green boll damage %		Open boll damage		Yield
	Total Flower	Rossette flower	Total bolls	Green boll damage	Total bolls	Open boll damage		Total Flower	Rossette flower	Total bolls	Green boll damage	Total bolls	Open boll damage	
1	13	6	15	6	13	5		16	2	15	2	13	1	
2	15	3	18	9	15	5		15	1	18	3	15	2	
3	11	3	16	11	13	8		11	3	16	2	13	1	
4	12	5	12	8	10	5		12	2	12	2	10	3	
5	13	4	8	6	7	2		13	1	8	1	7	1	
6	13	3	15	10	11	2		13	2	15	0	11	1	
7	15	3	10	7	9	3		15	2	10	2	9	2	
8	13	4	16	8	12	4		13	0	16	2	12	3	
9	11	6	15	9	11	6	8500	15	3	15	2	11	2	12750
10	13	2	19	11	16	5	kg/ha	13	1	19	3	16	0	Kg./ha.
11	16	4	11	6	9	4		16	2	11	2	9	1	
12	16	6	17	13	8	4		16	1	17	2	8	2	
13	18	5	9	8	7	4		18	0	9	1	7	2	
14	12	4	14	12	11	6		12	1	14	1	11	1	
15	18	6	10	8	7	4		18	1	10	2	7	2	
16	10	5	11	10	11	4		11	2	11	1	11	1	
17	13	4	16	12	15	3		13	3	16	1	15	3	
18	14	5	15	7	15	5		14	4	15	2	15	2	
19	13	3	14	10	13	5		16	2	14	1	13	2	
20	18	7	12	5	12	3		18	2	12	3	12	1	
Mean	**13.85**	**4.4**	**13.65**	**8.8**	**11.25**	**4.35**		**14.4**	**1.75**	**13.65**	**1.75**	**11.25**	**1.65**	

Table 224. Ent 7(b): Validation of IPM module for pink boll worm at Nanded in Central Zone during 2020-2021

Farmers Practice								IPM Practices							
SMW	Flower Damage %/ 50 Flower	PBW Larvae / 20 green bolls	Boll Damage on Boll basis		Boll Damage on Boll basis		Seed Cotton yield	Flower Damage %/ 50 Flower	PBW Larvae / 20 green bolls	Boll Damage on Boll basis		Boll Damage on Boll basis		Seed Cotton yield	Net Realization
			Green boll damage % /20 bolls	Open boll damage % / 20 Bolls At harvest	Locule damage % /20 bolls	Open boll Locule damage % / 20 Bolls At harvest				Green boll damage % /20 bolls	Open boll damage % / 20 Bolls At harvest	Locule damage % /20 bolls	Open boll Locule damage % / 20 Bolls At harvest		
32	0	0	0		0			0	0	0		0			
33	8.4	0	0		0			12	0	0		0			
34	12.2	0	0		0			15.1	2	2		0			
35	10.2	1	4		0			12	3	4		0			
36	4	0	5		0			4	0	4		0			
37	2.1	0	0		0			5.1	2	0		0			
38	1	0	3		0			2	4	4		0			
39	3.5	0	2		1.2		16.4 Q/Ha.	3.5	2	6		3.4			
40	2	0	4		2.4			5	4	4		6.2			
41	2.8	0	8		2.6			4.6	6	4		4.4		12.8 Q./Ha.	
42	6	1	10		4.1			6	8	8		8.8			19440
43	4.2	2	12		4.8			6.2	4	12		9.4			
44	10	1	16		6.2			14	2	14		10.8			
45	10	2	18		8.4			16	4	19		12.2			
46	12	1	22		8.8			18	2	22		12.8			
47	8	2	25		8			14	4	25		14.2			
48	12	2	28		7.6			18.8	6	30		14.4			
49	10	1	32		8.4			16	2	34		16.1			
50	6	0	36		10.8			12	2	44		16.2			
51	8.1	0	38		12.1			10	0	44		18.4			
52	8	0	38	9.8	12.1	8.2		8.4	0	44	16.2	20.6	16.2		

Table: 225.Ent. 7(b)Validation of IPM module for cotton insect pests in South Zone during 2020-021

S. No.	Particulars	Modue-I (IPM)						Module-II (Farmers practice)					
		ND	GU	DW	RC	CN	CBE	ND	GU	DW	RC	CN	CBE
Sucking pests	Aphids/3 leaves	-	5.76	9.82	-	-	4.46	-	9.12	29.83	-	-	4.75
	Jassids/3 leaves	-	0.94	4.52	-	-	1.78	-	1.48	5.73	-	-	1.91
	Whitefly/3 leaves	-	1.05	-	-	-	1.55	-	0.78	-	-	-	2.18
	Thrips/3 leaves	-	4.78	18.77	-	-	2.81	-	4.57	28.48	-	-	2.91
Bollworm	*Helicoverpa* eggs/ 5 plant	-	-	-	-	-	-	-		-	-	-	
	Helicoverpa larvae/ 5 plant	-	-	-	0.00	-	-	-		-	0.00	-	
	SBW larvae / 5 plant	-	-	-	0.00	-	-	-	-	-	0.00	-	
	Flower damage / 50 Flowers (%)	0.00	0.00	-	-	3.70	-	1.00	0.00	-		7.05	
	Rosette flowers (%)						0.33						0.35
	Pink boll worm/ 20 green bolls	9.00	11.33	8.11	9.10	7.13	-	11.00	11.67	18.28	12.58	15.45	
	Fruiting bodies damage %	-	-	-	0.00	-	-	-		-	0.00	-	
	Green Boll Damage %	31.70	43.33	7.85	9.10	8.74	0.83	46.70	50.00	23.89	12.58	17.15	0.88
	Green boll damage on locule basis (%)	36.62	25.25	8.69	-	9.28	7.56	-	27.59	28.04		22.66	7.78
	Open boll damage	24.89	22.70	7.38	13.22	9.50	-	35.67	21.20	25.89	14.13	28.30	
	Open boll locule damge	26.07	11.03	10.26	-	10.25	-	46.25	10.72	30.24		27.30	
	% Parasitism on bollworms	-	-	-	-		-	-	-	-		-	
Other pests	*Anomis flava* larvae/ 5 plant	-	-	-	-		-	-	-	-		-	
	Syleptaderogata larvae/ 5 plant	-	-	-	-		-	-	-	-		-	
	Spodopteralitura larvae/ 5 plant	-	-	-	-		-	-	-	-		-	
	Mean Trap catches / week	6	141	-	-	7.25	-	13	131	-		0.00	
	PBW Mean Trap catches / week						1.86						
	Earias vittella Mean Trap catches / week						0.03						
	*Spodoptera litura*Mean Trap catches / week						0.10						
	Mealy bug damage (%)						2.47						3.06
	Mirid bug damage (%)						1.23						1.46
	Stem weevil damage (%)						5.65						9.67
	Natural enemies/plant	-		2.43	2.16	4.56		-		1.79	0.23	1.25	
Seed cotton yield and economics	1. Seed cotton yield (q/ha)	-	9.26	11.25	26.79	19.25	19.78	-	9.83	9.00	25.42	15.20	17.86
	2. Gross income (Rs./ha)	-	-	56200		92400		-	-	45000		72960	
	3. Cost of crop protection measures (Rs./ha)	-	-	-		-		-	-	-		-	
	4. Cost of other expenditure (Rs./ha)	-	-	-		-		-	-	-		-	
	Total (3+4)	-	-	32985		42500		-	-	39000		43200	
	Net profit (Rs./ha)	-	-	23215	86489	49900		-	-	11000	67664	29760	
	Cost Benefit ratio	-	-	1.70				-	-	1.30			

CROP PROTECTION

PLANT PATHOLOGY

The following experiments were conducted in the discipline of Plant Pathology under All India Coordinated Research Project (AICRP) on Cotton at different centers in North Zone (Faridkot, Bathinda, Hisar, CICR RS Sirsa, Sriganganagar), in Central Zone (Akola, Nanded, Rahuri, Surat and Bharuch, Junagadh, Khandwa, Bhawanipatna, CICR-Nagpur) and South Zone (Lam Guntur, Warangal, Dharwad, TNAU Coimbatore):

Project	Title of the project	Participating Centers
Path.1	**Observations on the occurrence of the diseases (in farmer's field and research farms)**	
Path.1(a)	Observations on the occurrence of various diseases (in farmer's field and research farms)	All centers of North, Central, South zones
Path. 1(b)	Disease progress in relation to weather factors	All centers
Path. 1(c)	Studies on the variability in *Alternaria* causing leaf spot in cotton	All centers
Path. 1(d)	Survey and epidemiology of TSV	All centers
Path. 2	**Screening of AICRP entries for disease reaction and confirmation**	
Path. 2(a)	Screening of breeding lines for disease reaction	All centers
Path. 2(b)	Confirmation and maintenance of disease resistant lines	All centers
Path. 2 (c)	Monitoring of resistance against CLCuD in cotton	Sriganganagar, Hisar, Bhatinda
Path. 3	**Management of cotton diseases**	
Path. 3 (f)	Management of sooty mold (*Capnodium* spp.) in cotton	Faridkot, Abohar, Hisar, Sirsa, Junagarh, Coimbatore
Path. 3 (g)	Management of parawilt of cotton	Bathinda, Hisar, Akola, Nanded and Junagarh
Path. 3 (h)	Evaluation of efficacy of bioagents against cotton diseases	Nanded, Surat, Akola, CICR Nagpur
Path. 3(i)	Integrated management of CLCuD through its vector management	Bathinda, Faridkot, Sriganganagar, Hisar and ICAR-CICR, Sirsa
Path. 3(j)	Management of boll rot and foliar diseases of Cotton through CIB&RC recommended new chemical pesticides and their Combinations (2020-21)	Bathinda, Hisar, Surat, Nagpur, Guntur, Dharwad,
Path. 4	**Crop loss estimation and distribution pattern of cotton diseases**	
Path. 4(e)-	Exp. 1. Crop loss estimation due to CLCuD	Hisar, Faridkot, Sriganganagar
Path. 4(e)-	Exp. 2. Study on distribution pattern of cotton leaf curl virus disease on local popular Bt hybrid at farmer's fields	Hisar, Faridkot, Bathinda, Sriganganagar

Research Findings:

Path.1 Observations on the occurrence of cotton diseases (in farmers' field & research farm)

Path.1 (a): Observations on the occurrence of various diseases (in the farmer's field and research farms)

Farmer's field surveys to record the occurrence of various diseases in various cotton varieties/ hybrids were conducted by the respective Research Centers. The survey in the farmer's field was conducted thrice at regular intervals, during the early/vegetative stage, mid/flowering, and late cropping/boll development seasons/ stages in the defined cotton-growing farmer's fields. However, at on station trials (research farm), the occurrence of various diseases in various cotton varieties/ hybrids were recorded five times during the season in all three cotton-growing zones.

NORTH ZONE

District Faridkot, Fazilka, Muktsar (Punjab)

Farmer's field survey was conducted by PAU Regional station **Faridkot** thrice at regular intervals, during the early, mid, and late cropping seasons in three cotton-growing districts of Punjab. The data from farmers' fields in the districts (District Faridkot, Fazilka, Muktsar) were recorded from cotton hybrids (hybrids name RCH773, RCH776, SP7172, US51) **(Table 1a).** During the early season (20-30 DAS) CLCuD and FFS were not recorded. During mid-season (60-80 DAS) the CLCuD and FFS were recorded to be in the range of 3.5-29.8, 0.5-1.9% respectively. During the late-season (120-150 DAS) the CLCuD and MLS were recorded to be in the range of 7.1-47.7% and traces to 10.6%, respectively. The highest CLCuD 47.7% and FFS/MLS 10.6% were recorded during the late-season. When compared the disease incidence in the popular hybrids, the highest CLCuD was recorded in the hybrid US-51, RCH-776, SP-7172 in the Fazilka district, while the highest MLS was recorded in the hybrid US-51, RCH-773, RCH-776 in the Fazilka district. The average MLS, CLCuD in district Faridkot was observed to be 0.1, 5.2% during mid and during late-season 4.1, 10.5%, respectively. In district Fazilka, the average FFS, CLCuD was observed to be 0.2, 11.4% during mid and 6.7, 16.5% during late-season, respectively. While in-district Muktsar, the average MLS, CLCuD was observed to be 0.4, 8.3% during mid and 5.3, 11.4% during the late-season, respectively. Comparatively, the CLCuD and MLS were found to be higher in Fazilka and overall, the CLCuD and MLS were observed to be 12.8 and 5.4% during the late-season in these districts, respectively. The PDI of CLCuD varied from 4.57 to 13.89, 7.08 to 47.67% and 8.17 to 15.83% in different villages of Faridkot, Fazilka and Muktsar districts, respectively. Bt hybrid RCH 773 BG II and RCH 776 BG II were occupying the major area in the cotton-growing region. Bacterial blight was found in traces to II grade in Faridkot and from traces to 1.0 in Fazilka on hybrids like RCH 773 BG II, RCH 776 BG II, US 51, SP 7172, and various entries of coordinated trials in different cotton-growing areas. The fungal foliar leaf spots caused by *Alternaria*, Myrothecium, and Cercospora, ranged between traces to 8.3 in Faridkot and Traces to 10.4 in Fazilka and Traces to 9.6 in Muktsar district **(Table 1a).**

At Faridkot research farm, the disease incidence and severity were recorded on the hybrid RCH-773. The incidence of CLCuD, MLS was observed in August (9.8, 0.8%, respectively) and reached its peak in October (14.5, 9.6%, respectively) **(Table 1b).**

Blocks: Bathinda, Maur, Talwandi Sabo and Sangat (Punjab)

The regular field survey was conducted to record the incidence and severity of the cotton diseases by PAU Regional station **Bathinda** three times at regular intervals in farmer's fields in three cotton-growing districts of Punjab and five times at research farms. The data from farmers' fields in the district (Blocks: Bathinda, Maur, Talwandi Sabo and Sangat) were recorded from cotton hybrids (RCH773, RCH776, NCS 495 (sim-sim), US51, US 21, US 71). During this season of 2020, the severity of the CLCuD was found to be less in the cotton fields of the Bathinda district of Punjab as compared to the *Kharif* 2019. During *Kharif* 2020, the initial incidence of the CLCuD having the disease severity Grade I was noticed on August 24, 2020, in the farmer's field in the location of the village Kotshamir of district Bathinda. Incidence of root rot having the percent disease severity (PDI) was ranged from 0-3 % and found in the isolated pockets at 4-5 locations of the cotton field of Bathinda district after the first irrigation in the farmer's fields. The incidence of fungal leaf spots was also noticed after heavy rains in the last week of September 2020. An incidence of Bacterial Blight was noticed in traces at the farmer's fields at the later stages of the cropping season when the crop was about to mature. Besides, the problem of the sudden wilt (drying) was also noticed in few locations in the Bathinda and Fazilka district particularly in the *Bt* cotton hybrid RCH 773 BG II in September near about 100-120 DAS during the drastic change in the climatic conditions. After the first fortnight of the October, sudden wilt (parawilt) has not further spread and in the affected plants dropping of the leaves stopped. It might be due to the decreasing trend of the day and night temperature and the crop is towards maturity. The most popular *Bt* cotton hybrid sown in Bathinda District was found to be RCH 773 BG II followed by RCH 776 BG II, NCS 495 BG II (sim-sim) and US 51 BG II. During the early season, CLCuD and FFS were not observed while, during mid-season, the CLCuD, root rot and parawilt were recorded to be in the range of 1.7-18.3%, 0.0 to 1.5%, and 0.0-1.5%, respectively. During the late-season the CLCuD and FFS were recorded to be in the range of 1.7-25.0%, 1.0-7.0% respectively. The highest CLCuD PDI 25% was recorded during late-season, while FFS/MLS (7.0%) was recorded to the highest during late-season. Overall, in these districts, the highest MLS and CLCuD were recorded during the late-season. When compared the disease incidence in the popular hybrids, the highest CLCuD was recorded in the hybrid RCH-773, RCH-776, NCS 495 in Bathinda district, while the highest MLS was recorded in the hybrid US-51, RCH-773, RCH-776 in Block-Talwandi sabo **(Table 2a).**

The average CLCuD in Bathinda was observed to be 6.4% during mid and 9.8% during late-season. In the Maur block, the average CLCuD was observed to be 1.3% and 2.5% during mid- and late-season, respectively while in the block Talwandi sabo, the average CLCuD was observed to be 1.9% and 4.2%, respectively. In block Sangat, the average CLCuD was observed to be 1.7% and 3.3% during mid and late-season, respectively. Comparatively, the CLCuD was found to be higher in Bathinda. Overall, the CLCuD and MLS were observed to be during 4.9%, 0.7% late-season in these districts, respectively.

At Bathinda research farm, the disease incidence and severity were recorded on the hybrid RCH-773, RCH776, US51. The CLCuD incidence was observed on RCH-773, RCH-776 and US-51 and in July (4.4, 6.7 and 8.3%, respectively) and it reached its peak in September (46.7, 38.3 and 40.0%, respectively). Comparatively, the BLB, CLS and MLS were observed during September (**Table 2b**).

Sriganganagar and Hanumangarh (Rajasthan)

The farmer's field's data on disease intensity of cotton leaf curl virus was recorded during *Kharif* by ARS Sriganganagar, surveying the cotton-growing areas of Sriganganagar and adjoining areas of Hanumangarh districts of Rajasthan state. In Sriganganagar district, PDI of leaf curl virus was found to be higher i.e. 23.5% with a maximum disease incidence of 71%. In adjoining cotton areas of the

Hanumangarh district, the average disease intensity was 7.8% with a disease incidence of 37%. In the Sriganganagar district, during the early season, the incidence and PDI of CLCuD were recorded to be in the range of 0.0-31%, 0.0-11.7%, respectively. During mid-season the incidence and PDI of CLCuD were recorded to be in the range of 23.0-60.0%, 4.2-18.3%. while, during late-season incidence and PDI were in the range of 33.0-84.0%, 8.8-25.0%, respectively. Whereas, In the Hanumangarh district the incidence and PDI of CLCuD in the early season were recorded to be in the range of 0.0-15.0%, 0.0-5.7%, respectively. During mid-season, the incidence and PDI of CLCuD were in the range of 28.0-38.0%, 4.0-7.2% respectively. While, in late-season, the incidence and PDI of CLCuD were recorded to be in the range of 33.0-42.0%, 5.6-11.5%, respectively. The comparison of disease incidence and PDI in the locations revealed that the highest incidence and PDI of CLCuD were recorded in 84.0%, 25.0% in Kotha of Sriganganagar district during late-season. Overall, in these districts the average CLCuD incidence and PDI were recorded to be 48.5 and 12.7% during late-season, respectively. Comparatively, the CLCuD incidence and PDI were found to be higher in Sriganganagar (60% and 17.7%, respectively). The average CLCuD PDI in district Sriganganagar was observed to 5.4%, during early, 11.7% during mid and during late-season 17.7%, respectively. While in-district Hanumangarh, the average CLCuD PDI was observed to be 3.5%, during early, 5.8% during mid and during late-season 7.7%, respectively **(Table 3a).**

At the research farm of ARS SKRAU, Sriganganagar, the disease incidence, and PDI were recorded on all hybrids namely, RCH-773, RCH776, US51, NSPL 531, RCH 650, RST-9, HS-6, F846, RS 2013 and F2228. The incidence and PDI of CLCuD were observed to be in the range of 59.0-88.0% and 26.3-39.8%, respectively from 60 DAS to120 DAS. While the peak incidence and PDI of CLCuD were observed after 120 of sowing and these were recorded as 88.0% and 39.8%, respectively **(Table 3b).**

Hisar, Fatehabad, Sirsa, Jind, Bhiwani and Palwal (Haryana)

The intensive field survey was conducted in major cotton-growing districts of Haryana (Hisar, Fatehabad, Sirsa, Jind, Bhiwani and Palwal) for observation of different diseases in various cotton varieties/ hybrids. During the early season all diseases namely, CLCuD, SM, MLS and RR were not observed. During mid-season, the CLCuD, sooty mold (SM), Myrothecium leaf spot (MLS) and root rot (RR) were recorded to be in the range of 4.2-23.0, 2.2-15.9, 1.0-8.2 and 1.0-6.2% respectively. During the late-season, the CLCuD, SM, MLS and RR were recorded to be in the range of 8.0-36.4, 2.0-15.9, 2.0-8.2 and 1.0-6.2%, respectively. The average FFS, Sooty mold and CLCuD in district Hisar was observed to be 4.8, 9.8 and 11.9%, and 5.2, 10.6 and 15.6%, during mid and during late-season, respectively. In district Fatehabad, the average FFS, SM, CLCuD was observed to be 4.5, 8.0 and 12.1% during mid-season, 4.5, 8.4 and 15.4% during late-season, respectively. In district Sirsa, the average FFS, SM, CLCuD during mid-season were observed to be 4.1, 6.3 and 12.2% during mid-season 4.1, 9.6 and 14.3% during late, respectively. In district Jind, the average FFS, SM, CLCuD was observed to be 4.9, 7.5 and 15.3% during mid and 5.2, 8.0 and 21.2% during late-season, respectively. In district Bhiwani, the average FFS, SM, CLCuD was observed to be 4.0, 7.1 and 9.4% during mid and 4.6, 7.6 and 12.9% during late-season, respectively. While in district Palwal, the average FFS, CLCuD was observed to be 3.2, 7.7 and 9.8% during mid and 3.9, 8.6 and 11.3%, during late-season, respectively. Comparatively, the CLCuD, MLS and sooty mold were found to be higher in Uchana village of Jind district. Overall, the CLCuD, MLS, SM were observed to be 15.0, 4.6%, and 8.6% during late-season in these districts, respectively**.** Overall, in these districts, the highest CLCuD, SM, MLS and root rot were recorded to be 15.0,8.6, 4.6 and 2.6% during late-season**.** When compared the disease incidence in the popular hybrids, the highest CLCuD, SM and MLS were recorded in the hybrid RCH 602 and Katha in Uchana village of Jind district, while the highest root rot was recorded in the hybrid RCH-776 and US-51 in Hindwan village of Hisar. The highest PDI of CLCuD

during late-season (36.4%), MLS (8.2%) and SM (15.9%) were recorded in Uchana village of Jind districts. Whereas, the maximum PDI of RR (6.2%) was recorded in Hindwan village of Hisar district **(Table 4a)**.

At the research farm (HAU, Hisar) the disease incidence was recorded on the hybrid RCH-773, RCH-776, US51. The CLCuD, SM, MLS and root rot were observed in RCH-773, RCH-776 and US-51 and the incidence was recorded 18.0, 0.0, 2.4 and 5.2%, respectively in July. While, its peak was observed in October and it was 78.8, 20.4, 14.8 and 6.2%, respectively **(Table 4b).**

CENTRAL ZONE

Path.1 (a): Observations on the occurrence of various diseases (in the farmer's field and research farms).

Nanded, Jalna, Aurangabad and Beed (Maharastra).

Regular surveys were conducted by Cotton Research Station, VNMKV Nanded, in the farmers' field in four cotton-growing districts of Maharashtra (Nanded, Jalna, Aurangabad and Beed). The data were recorded from cotton hybrids (Mokaha, Wardan, Ajeet-05, Ajeet-155, Vittthal Supercot, Mallika, Raja, RCH 656, First class, GHH-029, 9011, Bramha, Kabaddi, Naksh, Jungee, Aatish, ATM). During early-season only root rot (4.2%) was observed in Georai Tq. Georai in hybrid Jungee, 9011. Whereas, in mid-season *Alternaria* leaf blight (ALB), bacterial leaf blight (BLB) and grey mildew (GM) were recorded in the range of 2.5-5.1, 4.2-5.7 and 3.3-4.3% in the Nanded district. However, in late-season, the ALB, BLB and GM were recorded to be in the range of 2.5-5.1, 3.4-5.9 and 3.3-8.3%, respectively. While the boll rot incidence was observed in trace to 2.7% amount in Nanded district. Overall, in these districts, the highest ALB, BLB, GM and boll rot were recorded to be 3.3, 4.7, 4.5 and 2.7% during late-season in Nanded. When compared the disease incidence in the popular hybrids, the highest ALB (5.1%) was recorded in the hybrid Ajeet 155, Vitthal, Supercot and the highest BLB (5.9%) were recorded in the hybrid Mallika and Raja in the Nanded district, while the highest GM (8.2%) was recorded in the hybrid Moksha in Jalna district **(Table 5a).**

The ALB, BLB, GM in district Nanded were not observed during the early season, whereas during mid-season the PDI was 3.4, 4.8 and 3.9% and during late-season PDI was 3.4, 5.1 and 3.9%, respectively. Boll rot was also noticed during the late-season ranging from traces to 2.7%. In Jalna the GM disease was observed during late-season (8.3%) only. In district Aurangabad, the ALB, BLB, GM were not observed during early- and mid-season but in the late-season, the PDI was 3.3, 4.5 and 4.8%, respectively. Similarly, in district Beed, the ALB, BLB and GM were not observed during early- and mid-season whereas, during late-season, the average PDI was 3.3, 4.6 and, 4.7% respectively. The root rot was observed (4.2%) in the early season at Georai Tq. In hybrid Jungee and 9011 hybrids. Comparatively, the ALB, BLB, GM and Boll rot were found to be higher in the Aurangabad district. Overall, the ALB, BLB, GM and boll rot PDI were observed to be 3.3, 4.7, 4.5 and 0.2% during late-season in these districts, respectively **(Table 5a)**.

At the research farm (CRS Nanded), the disease incidence was recorded on the cotton BGII hybrids (RCH 2, Jadoo, NHH 44). The incidence of ALB (0.5%) was initiated in July and reached its maximum (5.1%) in October. However, the incidence of BLB was initiated in August and reached its maximum (6.4%) in October. The incidence of GM was observed in trace in September but it increased in October (13.7%) and later it was decreased up to 5.4% in December. Boll rot was observed up 2.95% during October **(Table 5b).**

Akola and Buldhana district (Maharashtra)

During the survey conducted in the farmer's field of Akola and Buldhana district of Maharashtra. The data from farmers' fields were recorded from cotton hybrids (hybrids name Ajeet 115 Bt, Jadoo Bt, Bindast Bt, Ankur 3028, Jadoo BG II, Ajeet 5BG II, First-class BG II, Neo Bt BG II). The three diseases namely BLB, GM and MLS were observed in late-season only and their incidence was recorded to be in the range of 12.5-27.2, 0.0-16.6 and 0.0-17.5%, respectively. The average BLB, GM and MLS in district Akola during the late-season was 17.1, 11.4 and 9.8%, respectively. While, in district Buldhana, the average BLB, GM and MLS were observed to be 16.2, 14.4 and 4.8% during late-season, respectively. Overall, in these districts the average PDI of BLB, GM and MLS were recorded to be 16.7, 12.9% and 7.3%, respectively. Comparatively, the BLB, GM and MLS were found to be higher in Akola, while MLS was higher in the Buldana district. When compared the disease incidence in the popular hybrids, the highest BLB (27.2%) was recorded in the hybrid Jadoo Bt in the Bundana district. Whereas, the GM (16.6%) and MLS (17.5%) were recorded as the highest in hybrid First class BG II and Ankur 3028 in Akola district, respectively **(Table 6a).**

At research farm MPKV Akola, among eight cotton BGII hybrids, BLB was observed in all eight hybrids while GM was observed only in Bhakti, Ajeet, Mallika hybrids. The highest PDI of BLB (22.1%) was recorded in the hybrid (Ajeet 155 Bt) and GM (4.6%) in the hybrid (Mallika Bt) during the boll-development stage **(Table 6b).**

Surat and Bharuch (Gujarat)

The survey was conducted on farmer's field as well as on Research farm by MCRS Surat. In the case of farmer's fields, a roving survey was carried out on BG II hybrids. The BLB, ALB and wilt (in Desi) were observed as major diseases in the farmer's field. The data from farmers' fields were recorded from cotton hybrid (BG II) and Desi. All these diseases were observed during the flowering stage and the PDI of BLB, ALB and wilt were recorded to be in the range of 0.0-14.5%, 0.0-3.5% and 0.0-5.5%, respectively. During the boll developing stage the PDI of BLB, ALB and wilt was recorded to be in the range of 0.0-20.5%, 0.0-5.0% and 0.0-8.5%, respectively. Overall, in these districts, the average PDI of BLB, ALB and wilt were recorded to be 4.1, 1.8 and 4.2% at the boll developing stage, respectively. When compared to the PDI in the popular hybrids, the highest BLB (20.5%) and wilt (5.5%) were recorded in the hybrid BG II and Desi cotton in the Bharuch district. Whereas, the ALB (5.5%) was recorded in the hybrid BG II in the Surat district **(Table 7a).**

At research farm MCRS, Surat, the susceptible cultivars LRA 5166 showed the highest Bacterial leaf blight intensity to in the tune of 0.0 to 55.5% and *Alternaria* leaf spot disease varied from 0.0 to 8.5% PDI in different cultivars/hybrids during flowering and boll development stages **(Table 7b).**

Junagarh (Gujarat)

The survey conducted in major cotton-growing districts (Junagadh, Rajkot and Amreli) of Gujarat revealed that the disease BLB, and Phoma were observed during mid-season, while BLB, *Corynespora* leaf spot (CoLS), grey mildew (GM) and ALB were observed during late-season in different cotton hybrids (Bhakti, Super gold, Buyer 7576, Buyer first-class, Ankur-3028, ATM, Solar-77, Ajeet-155, Navab, Solar-76, Ganesh+, Ajit-5, Sanjivani, Muniraj and RCH-659). During mid-season, the PDI of BLB and Phoma leaf spot were recorded to be in the range of 0.5-14.3% and 1.2-12.3%, respectively. In late-season the PDI of CoLS, GM and ALB were recorded to be in the range of 1.0-16.2%, 2.3-19.2% and 2.3-17.1%, respectively. Overall average, in these districts the PDI of BLB, Phoma, during mid and CoLS, GM and ALB during the

late-season were recorded to be 2.3, 5.2, 5.4, 7.6 and 8.0%, respectively**.** When compared the PDI in the popular hybrids, the highest BLB (14.3%) and Phoma (12.3%) were recorded in the hybrid Muniraj, ATM and Ganesh in Junagarh district. Whereas, the highest CoLS (16.2%), GM (19.2%) and ALB (17.1%) were recorded in the hybrids ATM and Solar-76 in the Junagadh. During mid-season, the average PDI of two diseases namely BLB and Phoma were recorded 1.9 and 6.3%, respectively, while during the late-season the PDI of CoLS, GM and ALB were observed to be 6.7, 7.9 and 9.4% in Junagarh district, respectively. In district Rajkot, the average PDI of BLB and Phoma leaf spot were observed to be 3.1 and 5.0% during mid-season. Whereas, in the late-season the average PDI of CoLS, GM and ALS were observed to be 4.2, 8.0 and 6.7%, respectively. Similarly, the average PDI of BLB and Phoma during mid-season were recorded to be 1.8, 4.2, and CoLS, GM and ALB during late-season were 5.3, 6.8 and 8.0% in the Amreli district, respectively. Overall, the BLB, Phoma, during mid and CoLS, GM and ALB during late-season were observed to be 2.3, 5.2, 5.4, 7.6 and 8.0%, respectively in these districts **(Table 8a).**

At the CRS JAU research farm, the incidence and PDI of wilt root rot, boll rot, ALB, CLS, Anthracnose (ATN), CoLS, BLB GM and Phoma were recorded on the hybrids (RCH-2 and Cot-8 (BG-II)). The BLB and Phoma leaf spot incidence was observed during July, wilt, boll rot, ATN, BLB, CoLS were observed during August and GM during October and ALB during November. The highest incidence of wilt (3.1%) and boll rot (20.4%) were observed in susceptible cultivars *viz*., Cot-8 (BG-II) in August and October. However, the highest PDI of ALB (25.1%), ATN (6.1%), BLB (18.2%) and Phoma (15.6%) were recorded on the hybrid RCH-2 while, the CLS (2.3%), CoLS (15.2%) and GM (20.5%) on the hybrid COT-8 (BG-II) at different stages **(Table. 8b).**

SOUTH ZONE

Path.1 (a): Observations on the occurrence of various diseases (in the farmer's field and research farms)

Belagavi, Gadag, Haveri and Uttar Kannada Dharwad (Karnataka)

Regular surveys were conducted by UAS, Dharwad in farmers' fields thrice at a regular interval in five cotton-growing districts of Karnataka (District name Belagavi, Dharwad, Gadag, Haveri and Uttar Kannada). The data were recorded from different popular cotton hybrids in these regions. During the survey observations on several major diseases (ALB, BLB, GM Boll rot and Rust) were recorded at different plant development stages. In mid-season, the PDI of ALB, BLB, GM and Boll rot were recorded. During mid-season PDI of ALB, BLB, GM, Rust and Boll rot were recorded to be in the range of 4.0-24.5%, 1.5-8.5%, 1.2-8.6%, 8.9-26.7%, respectively. The PDI of ALB, BLB, GM, Rust and Boll rot in the late-season were recorded to be in the range of 16.6-35.8%, 7.7-12.9%, 6.0-13.6%, 8.9-26.7% and 7.7-18.9% in late-season. When compared the PDI in the popular hybrids during late season, the highest ALB was observed in the hybrid Puli (35.8) in Haveri, BLB in Everest (12.9%), GM in Ajeet 155 (13.6%), Rust in Lotus (26.7) and boll rot in Supercot & Lotus (18.9%) in Dharwad district. Overall average, in these districts the PDI of ALB, BLB, GM, Rust and Boll rot was recorded to be 21.3, 10.9, 9.9, 17.7 and 25.1% at boll developing stage. In Belagavi district, the higher average PDI of ALB, BLB, GM, Rust and Boll rot was recorded to be 16.7, 11.4, 7.9, 20.2 and 14.6% in the late-season followed by average PDI of ALB (6.0%), BLB (3.6%) and GM (2.5%) in mid-season, respectively. In the Dharwad district, the higher average PDI of ALB, BLB, GM, Rust and Boll rot was recorded to be 23.2, 10.5, 10.3, 24.2 and 17.7% in the late-season followed by average PDI of ALB (13.9%), BLB (5.0%) and GM (7.5%) in mid-season, respectively. In Gadag district, the higher average PDI of ALB, BLB, GM, Rust and Boll rot was recorded to be 18.0, 10.5, 10.0, 13.8 and 9.0% in the late-season followed by average PDI of ALB (9.9%), BLB (5.8%) and GM (3.8%) in mid-season,

respectively. In the Haveri district, the higher average PDI of ALB, BLB, GM, Rust and Boll rot was observed to be 7.4,11.1, 10.3, 10.3 and 14.8% in the late-season followed by average PDI of ALB (11.5%), BLB (7.5%) and GM (5.1%) in mid-season, respectively. In Uttar Kannada district, the higher average PDI of ALB, BLB, GM, Rust and Boll rot were recorded 21.3, 10.9, 9.9, 17.7 and 25.1% in the late-season followed by average PDI of ALB (10.2%), BLB (6.1%) and GM (5.3%) in mid-season, respectively. Comparatively, the higher PDI of ALB, BLB and GM were found in Haveri, Belagavi and Uttar Kannada district while the Rust and Boll rot were found in Dharwad district **(Table 9a).**

At UAS Dharwad research farm, the incidence and PDI of wilt, root rot, boll rot, ALS, HLS, CLS, CoLS, MLS, BLB GM and Rust were recorded on the hybrids (Jaadu, Rashi magic, RCH-368, JKCH-99, MRC-7383, MRC-7160, Ajit-55, Jalwa, NBC-102, Yuva-72152, RCH-659, Ajit-111, Jai, First class and Dr. Brent). The incidences of root rot, ALB, BLB and GM were initiated in August, while boll rot incidence was observed in September. However, the highest PDI of ALB (16.8%), BLB (8.7%), GM (9.5%) and Rust (24.6%) were recorded on all hybrids in October, November and December months **(Table. 9b).**

Guntur, Krishna and Prakasam (Andhra Pradesh)

The survey was conducted in major cotton-growing districts (Guntur, Krishna and Prakasam) of Andhra Pradesh for observation of different diseases and diseases namely BLB, ALB, MLS, CoLS, Cercospora leaf spot (CLS), Anthracnose (Antra), GM and Rust in different cotton hybrids. The ALB, MLS were observed in the range of 0.0 to traces during the early season while during mid-season BLB, MLS and ALB were in the range of 0.0 to traces except the CoLS was observed up to 15 and 12% in Akira and RCH 659 in Krishna district. During the late-season, the PDI of BLB ranged from 0 to 18%, ALB from 0 to 5.0%, CoLS from traces to 40%, GM 0.0 to 25% and boll rot from 2 to 25%. The average highest PDI 21.3%, 11.07%, and 7.7% of CoLS were recorded in Krishna, Guntur, and Prakasam districts while the highest average boll rot (12.3%) was recorded in the Prakasam district during late-season. Overall average, in these districts the PDI of BLB, ALB, MLS, CoLS, CLS, Anthracnose, GM and Rust were recorded to be 1.2, 0.6, 0.0, 13.3, 0.70, 1.2, 7.2 and 6.9% at boll developing stage. When compared the PDI in the popular hybrids, the highest BLB (18%), CoLS (35.0%), GM (25.0%) were recorded in the hybrids Asheerwad, Akira and RCH-659 in Krishna districts and Rust (25%) was recorded in the hybrid Akira in Prakasam district at late-season **(Table. 10a).**

At research farm Lam, Guntur, the incidence and PDI of wilt, root rot, boll rot, ALS, HLS, ANT, CoLS, MLS, BLB GM and Rust were recorded on the hybrids (BG-II). The incidence of ALB, CoLS was observed during August while the incidence of BLB, GM and boll rot was initiated during October and rust during November. The highest incidence of boll rot (10.0%) and CoLS (40.5%) were observed in November. However, the highest PDI of GM (26.0%) and Rust (36.0%) were recorded in Dec. months and other diseases were recorded in trace amount **(Table. 10b).**

Tirunelvelli, Madurai, Dindigul, Virudhunagar, Erode, and Perambalur Coimbatore (Tamil Nadu)

The surveys were conducted in farmer's fields in five cotton-growing districts of Tamil (Tirunelvelli, Madurai, Dindigul, Virudhunagar, Erode, Coimbatore and Perambalur) and observation of the occurrence of diseases was recorded from several popular cotton hybrids in these regions. During the survey, several major diseases (BLB, GM, MLS, root rot and ALB) were observed at different plant development stages. The incidence of BLB, GM and MLS diseases were not observed in farmers' fields during the early stage but the root rot and ALB were recorded in mid and late-season. The PDI of root rot and ALB were recorded to be in the range of 5.0-10.0 and 2.0-15.4% in late-season. When compared the

PDI in the popular hybrids, the highest root rot (10.0%) and ALB (15.4%) were recorded in the hybrids RCH-II-BGII, Mixed seed, RCH659, SVPR4, SVPR5, Kaveri, NEO, Ankur, Jackpot and Bagubali. In the early season, the average PDI of RR disease was recorded 1.7, 2.6 and 1.7% in Tirunelveli**,** Madurai and Virudhunagar districts and in mid-season, it was recorded 6.0 and 4.2% in Tirunelveli and Madurai districts. Whereas, in mid-season, the average PDI of ALB was recorded 5.6, 9.5, 2.5, 9.6 and 6.2% in Tirunelveli, Madurai, Virudhunagar, Coimbatore and Perambalur districts. In the late-season, the average PDI of root rot and ALB were recorded at 9.2 and 8.7% in the Tirunelveli district. Similarly, PDI of both diseases was recorded 8.7, 2.8, 5.5, 4.5, 2.9% in Madurai, Virudhunagar and Erode districts. Whereas in the Dindigul district, the average PDI of GM and ALB were recorded to be 13.0 and 14.0% and in Coimbatore the average PDI of GM, root rot and ALB were recorded 4.5, 5.7 and 13.2%, respectively. In the Perambalur district, the average PDI of BLB, GM, root rot and ALB were recorded to be 5.5, 11.1, 7.3 and 11.3%, respectively. Comparatively, the BLB and RR were found to be higher in Tirunelvelli and Perambalur districts while the GM and ALB were found in the Dindigul district. Overall, the BLB, GM, root rot and ALB were observed to be 0.8, 4.1, 5.2 and 8.2% in the late-season at all districts, respectively **(Table 11a).**

At research farm TNAU, Coimbatore, the incidence of wilt, root rot, boll rot, ALB, HLS, CLS, ATN, CoLS, MLS, BLB, GM and Rust were recorded on the hybrids (RCH-II-BGII, RCH 659 and varieties Co14 and Co17). The highest incidence of root rot (up to 15.0%), boll rot (up to 10.0%), rust (up to 10.3%) was observed in January, whereas the highest PDI of ALS (21.5%), CLS (5.5%), BLB (5.8%) and GM (20.0%) were observed in December. The highest PDI of MLS (5.3%) was recorded in Oct. months **(Table. 11b).**

Path.1 (b): Disease progress in relation to weather factors.

NORTH ZONE

The observations on the appearance and progress of Cotton leaf curl viral disease (CLCuD) were taken at weekly intervals starting from 25th to 40th Standard meteorological week (SMW) June to October at **Faridkot, Punjab**. CLCuD was first observed on RST-9 in the 27thSMW (2-8 July) during this the whitefly population was 1.2 to 3.5/3 leaves. It was found that CLCuD % increased up to 40th SMW in all the varieties. Max PDI was 44.3 followed by 44.0, 43.3 and 41.7 in RS921, RST9, HS6 and F846. The whitefly population was remained around 10- 12 per three leaves between 30 to 36 SMW but never crossed ETL **(Table-12).**

Susceptible variety RST-9 of cotton was sown on 15 May 2020 in 545 square meter area at **ARS, Sriganganagar** following recommended package of practices and weekly progress of CLCuD was recorded. CLCuD first appeared on 01st July in 26 Standard metrological week (SMW) after 46 days of sowing with an incidence of 0.4% during this the whitefly population was 1.1/3 leaves. However, in the subsequent period, the CLCuD incidence progressed fast increase reaching its maximum level of 100% on 10th August during 32nd SMW. Data indicate that disease incidence was increased significantly from 4.4 % (27th SMW) to 30.4 % (28th SMW) and then 68.5 % during 29th SMW (16 July-22 July). In subsequent 30th to 32nd SMW gradual disease progression was found reaching the level of 100%. The whitefly population remained around 19.9- 66.1 per three leaves during this period. The overall precipitation from June to August (vegetative phase) during this year was 293.0 mm. The average weekly temperature during this period of June to August remained between 25.11 to 43.87 ^{o}C and relative humidity ranged between 33.4 to 89.3% **(Table 13).**

CLCuD susceptible cultivar HS-6 was sown with a spacing of 67.5 x 30 cm at **Hisar, Haryana**. All the recommended agronomical practices were followed for raising the crop variety HS-6. The observations on disease progress were recorded at an interval of 7 days till the first week of November under field conditions. CLCuD appeared in the 24th SMW (11-17 June) (0.3% incidence) during this the whitefly population was 1.2 to 2.7/3 leaves. The CLCuD incidence increases from 0.3 to 98.0% on the 33rd SMW (13-19 August). The percent disease index was increased from 0.1% to up to 74.3% on 42nd SMW, during this period the average maximum and minimum temperature recorded were 36.2° and 24.4°C, whereas, morning and evening relative humidity was from 83.5 to 52.3% with 7.27 sunshine hours having maximum whitefly population 109.6 per three leaves on 42nd standard meteorological week **(Table 14).**

The leaf curl virus disease at CICR Regional Station, **Sirsa, Haryana** was initiated in 26th SMW (25 June-1 July) during this period the whitefly population was 2.5/3 leaves. The incidence reached 100% by the 37th SMW (6-12 Aug) Haryana. An increasing trend of whitefly incidence from 2.5 per 3 leaves up to 6.8 whiteflies per 3 leaves was observed during the season. The whitefly population was remained around 2.5 to 10.1 per three leaves between 26 to 32 SMW but never crossed ETL. The CLCuD PDI was reached from 38.3 to 41.3% in 42 SMW (15-21 October). The maximum temperature ranged from 33.4 to 42.9 ^{0}C whereas the minimum temperature was between 16.8 to 30.1^{0}C. Relative humidity morning and evening ranged between 56.1 – 87.7 and 29.3-63.1%, respectively. The total rainfall received during this period was 270.5 mm (**Table 15**).

CENTRAL ZONE

The first incidence of Bacterial blight in RCH BGII hybrid was noticed during 32nd SMW at **Nanded** and PDI was found in the range of 1.0 to 6.8%, while the incidence of *Alternaria* leaf blight (ALB) was observed during 33rd SMW and PDI was ranged from 0.3 to 5.8%. The grey mildew was observed during 39th SMW, and the PDI ranged from 2.7 to 21.9%. The GM (23.2%) and BLB (7.4%) were higher in LRA-05166 compared to RCH-2 and PA-255 **(Table 16a).**

The highly significant and negative correlation of BLB and ALB was recorded with Morning and evening relative humidity. A significant negative correlation between rainfall, and grey mildew while a non-significant and negative correlation with ALB and BLS was observed in all the cultivars **(Table 16b).**

The study on disease progression in relation to the weather factors was undertaken on cultivated susceptible *G. hirsutum* variety LRA-5166, hybrid Bhakti Bt at PDKV **Akola**. The weekly observations on major foliar diseases viz. Bacterial leaf blight, MLS and grey mildew were recorded on randomly selected 10 plants by using a 0-4 disease rating scale. Observations were recorded on major diseases (BLB, MLS & GM) from 37th SMW (10-16 September). The BLB incidence was observed during 37th SMW and was reached its maximum during 42 and 46th SMW (22.8%) on LRA 5166. During that period the maximum and minimum temperature was 32.9°C and 21.4^{0}C along with relative humidity between the range of 89 and 57 percent. MLS incidence was noticed on LRA 5166 and Bhakti Bt from 24-30th September 2019 (39thSMW) and reached its maximum (3.5%) during 22-28th October 2019 (42 and 43 SMW). However, Grey Mildew incidence was noticed on LRA 5166 from 15-21 Oct 2020 (42nd SMW) and GM was recorded maximum (5.5%) during 5 Nov -11 Nov 2020 (45th SMW). While the GM was observed in 44 SMW the case of Bhakti Bt **(Table 17a).** The maximum temperature has shown a significant positive correlation with bacterial leaf blight at a 5% level of significance on LRA-5166 and Bhakti Bt cotton. The rainfall, minimum temperature, relative humidity, and BSH had positive and non-significant correlations. Whereas, rainfall exhibited a negative and non-significant correlation with BLB in both the cultivars- LRA-5166 and Bhakti Bt (**Table 17b**).

During the season, only Bacterial leaf blight disease was found on G. Cot. Hy.12 Non-Bt at MCRS-NAU **Surat (Gujarat)**. The incidence of Bacterial leaf blight disease was noticed from 29th SMW (16-27 July) and it reached its maximum during 41st SMW (8-14 October) with the maximum disease intensity in the second week of October (40.5 % PDI). Thereafter, the BLB was decreased up to 4% in 51st SMW **(Table 18a).** Incidence of Bacterial leaf blight had a positive correlation with the evening humidity and rainfall, while maximum and minimum temperature, morning humidity and rainy days had a negative correlation for disease development **(Table 18b)**.

The incidence of bacterial leaf blight disease (BLB) at CRS JAU, Junagarh was noticed from 27th SMW (2-8 July) and it reached its maximum disease intensity in the 38th SMW (30.5% PDI). *Alternaria* leaf spot disease incidence was observed in the 41st SMW with the maximum PDI in 43rd SMW (10.0%), while grey mildew was first noticed in 43rd SMW and reached its maximum PDI in 49th SMW (10.0%) (**Table 19a**).

Correlation coefficient studies for bacterial leaf blight disease revealed a positive correlation with maximum temperature (0.11), minimum temperature (0.41), morning relatively humidity (0.37) and evening relatively humidity (0.36). Rainfall (-0.02) and sunshine hours (-0.73) were negatively correlated at a 1% level of significance with BLB. IN the case of *Alternaria* leaf blight disease, a significant negative correlation with minimum temperature, relative humidity was recorded. The maximum temperature was negatively correlated with ALB but non-significant at 5% level and 1% level of significance. Grey mildew disease had a positive correlation with rainfall (0.63) minimum temperature 0.20) all other factors *viz.,* morning relatively humidity (0.17), evening relatively humidity (0.38) and sunshine hour (0.04) were positively correlated **(Table 19b).**

SOUTH ZONE

At the research station **of UAS, Dharwad**, the observation of diseases namely *Alternaria* leaf blight, bacterial leaf blight, grey mildew and rust disease were recorded from 31st SMW to 02 SMW on the cultivars namely varieties Abhaditha, Jayadhar and hybrids Ajeeth 155 Bt and Dr. Brent Bt. *Alternaria* leaf blight incidence was observed in all the cultivars during 31 SMW (first week of August), whereas the incidence of Bacterial blight was observed only in the cultivar Abadhitha in 32 SMW. The incidence in and grey mildew diseases appeared in 31 & 32ndSMW only on Abhaditha, Jayadhar. The maximum incidence for all diseases was noticed between 44nd to 48th SMW (during November), thereafter these disease severities were started decreasing **(Table 20a)**. A significant positive correlation was observed between the maximum temperature and ALB, BLB, GM and rust disease incidence in all the genotypes. A significant negative correlation was observed between minimum temperature, relative humidity (Morning and evening) and all the genotypes like Abhadita, Jayadhar, Ajeeth Bt and Dr. Brent Bt **(Table 20b).**

At the research farm of Lam, **Guntur (AP)** disease progress was observed on BG II cotton hybrids, Jaadoo and RCH 2, and cotton varieties L 1060 and NDLH 1938, which were sown on 25 July 2020 in an area of 500 sq. m. each. Weekly observations were recorded on the percent intensity of *Corynespora* leaf spot, grey mildew and rust diseases after the appearance of the disease. *Corynespora* leaf spot was observed in 38th SMW (17-23 September) when the mean maximum temperature was 33.67°C; mean minimum temperature was 24.94°C; mean morning relative humidity of 89.86% (RH I); mean evening relative humidity of 62.29% (RH II); rainfall was 83.2mm in three rainy days; sunshine hours were 8.1; wind speed 6.49 km/h and evaporation was 7.71. *Corynespora* leaf spot attained a maximum PDI of 33.05 on L 1030 during 44th SMW (29 Oct- 2 November) during which the mean maximum temperature was 33°C; mean minimum temperature was 23.7^{0}C; mean RH I of 72%; mean RH II of 54.6%; rainfall was 54.4mm in 1days; sunshine hours were 4.7; wind speed 9.3 km/h and evaporation were 6.6 **(Table-21a).**

Grey mildew disease appeared in 41 SMW (8-14 October) in all the cultivars when average maximum temperature was 29°C; the average minimum temperature was 20.7°C; mean RH I was 95.9%; mean RH II was 95%, rainfall was 75.9mm in 3 rainy days; sunshine hours were 1.9; wind speed was 9.5 km/h and evaporation was 10.9. The disease progressed and reached PDI of 25.6 during 46 SMW (12-14 November) during which the mean maximum temperature was 31.3^{0}C; mean minimum temperature was 15.5°C; mean RH I was 78.7%; mean RH II was 52%; rainfall was 7.2 mm in 1 rainy day, sunshine hours were 0.7, wind speed 8.6kmph and evaporation were 5.4**.** Rust disease appeared in 46th SMW (12-18 November) in all the cultivars during that period the maximum temperature was 31.3°C; mean minimum temperature was 15.5°C; mean RH was 78.7%; mean RH II was 52%, rainfall was 7.2mm in one rainy day; sunshine hours were 0.69; wind speed 8.6km/h and evaporation were 5.4. The disease progressed and reached PDI of 33.0 on Jaadoo BG II during 51st SMW and 34.8 % during 2 SMW. Whereas the rust was reached its maximum in L1060 and NDLH1938 during 48 and 51 SMW, respectively **(Table 21a).**

A significant negative correlation of *Corynespora* PDI with maximum and minimum temperatures, rainfall and rainy days and sunshine hours was recorded. RCH 2 BG II, Jaadoo BG II and NDLH 1938 recorded the highest PDI of 27.8, 22.8 and 26.0, respectively. Multiple linear regression analysis revealed that rainfall, rainy days, sunshine hours and wind speed significantly influenced the progress of *Corynespora* leaf spot (R^2=0.923) during *Kharif* 2020. Y = 79.1 + 0.347 Rf – 13.844 Rd -4.855 SSH – 3.7 WS (L 1060, R^2=0.928). In NDLH 1938 variety, RH I, rainy days, sunshine hours and wind speed significantly influenced the progress of *Corynespora* leaf spot (R^2=0.846) Y = 4.57 + 0.58 RH I– 9.773 Rd – 3.067 SSH – 1.373 WS (NDLH 1938 R^2=0.846). In the case of RCH 2 BG II, maximum temperature and sunshine hours showed a significant negative correlation. Multiple linear regression analysis revealed that maximum temperature, RH I, rainfall, rainy days, sunshine hours and wind speed significantly influenced the progress of *Corynespora* leaf spot (R^2=0.948) whereas RHI, rainy days and sunshine hours promoted diseases in Jaadoo BG II during *Kharif* 2020. Y = 1.284 +1.524 Min T + 0.618338 RH I + 0.281 Rf – 17.578Rd – 5.776 SSH – 4.072WS (RCH 2 BG II R^2=0.948). Y= -5.844 +0.48 RH I - 8.249 Rd – 2.251SSH (Jaadoo BG II, R2=0.9). **(Table 21b).**

Significant positive correlation with maximum temperature and negative correlation of disease intensity wind speed was recorded with grey mildew. Multiple linear regression analysis revealed that maximum temperature, RH I, rainfall and rainy days significantly influenced the progress of grey mildew during *Kharif* 2020 (R^2=0.927). Y= -318.277 + 11.263 Max T – 0.268 RHI- 0.641 Rf + 23.357 SSH (0.927). L 1060 and NDLH 1938 showed the highest PDI of 6.8 whereas in RCH 2 BG II it was 3.0. Y= -108.782 + 3.375515 Max T - -0.21488 Min T -0.23561 RH I -0.01403 RH II-0.35323Rf + 14.76039Rd + 2.760574SSH +1.940625WS (L 1060, R^2=0.996)

Y= -68.852 + 2.328 Max T (NDLH 1938, R^2=0.654)
Y= 11.353 – 1.286 Evap. (NDLH 1938, R2=0. 408)

Disease intensity of rust was negatively correlated with maximum, minimum temperatures; rainfall, rainy days and wind speed which were significant while sunshine hours showed a significant positive correlation. Multiple linear regression analysis revealed that minimum temperature, sunshine hours and wind speed (R^2 = 0.99) influenced the progress of rust during *Kharif* 2020. Rainfall showed partial influence (R^2=0.424). Y= 42.473 – 1.332 Min. T + 0.25 SSH – 2.506WS (R^2=0.99). Y= 48.831-5.183WS (NDLH 1938, R^2=0.989) **(Table 21b).**

At the research station **TNAU, Coimbatore (Tamil Nadu),** the disease incidence, progress major diseases in cotton along with the weather parameters were observations and recorded from the field in

terms of Percent Disease Index (PDI) in the five selected Hybrids (RCH659, RCHBGII) and varieties (Co14, RG8 (*G. herbaceum*), K12 (*G. arboreum)*). It is observed that *Alternaria* Leaf Blight (ALB) started appearing in cotton from 38th SMW (17-23 September), reached its maximum during 45 SMW and continued up to January i.e., 2nd SMW. The incidence was found to be minimal within the PDI range of 1.0 to 3.0 and it has appeared in all hybrids and varieties which were taken for the study. The incidence was nil in *G. herbaceum* (RG8) and *G. arboreum* (K12). Tobacco Streak Virus infestation was also started in the 38th SMW on two hybrids RCH659, RCHBGII and the variety CO14. In these cultivars' disease started accelerating from 38th SMW and the PDI was reached its high level (10%) during 49th and continued up to 2nd SMW. Incidence of both the ALB and TSV was not observed in *G. herbaceum* (RG8) and *G. arboreum* (K12). The incidence of Grey mildew was minimal which ranged from PDI of 1.0 to 3.0 in all the hybrids and varieties tested including *G. herbaceum* (RG8) and *G. arboreum* (K12). The incidence of Grey mildew was initiated in RG8 and K12 was started during 38 SMW (17-23 September) while all the cultivars showed its incidence from 42nd SMW and the symptoms were clear from 50th SMW onwards. A conspicuous observation was that incidence of Grey mildew was more pronounced in *G. herbaceum* (RG8) and *G. arboreum* (K12) during the rainy and colder months of November, December and January. Collar rot caused by *Rhizoctonia solani* was observed in RCH BGII and CO14 during 32 to 35th SMW (5.0 – 10%), whereas RCH659 was found to be resistant to collar rot besides *G. herbaceum* (RG8) and *G. arboreum* (K12) which were also resistant. The root rot incidence was found to be increased gradually from 41 to 49 SWM onwards in both the hybrids RCH BGII, RCH659 and the variety CO14 (PDI of 5.0 to 15%) **(Table 22a, b).**

Path.1 (c) Studies on the variability in *Alternaria* causing leaf spot in cotton.

During the survey for cotton diseases, *Alternaria* leaf spot samples were collected from farmers' fields and experimental plots **at RARS, Lam** and observed for the presence of *Alternaria*. Based on the spore structure the species was identified as *Alternaria macrospora*. The fungus was cultured and the isolate was sent to TNAU, Coimbatore for molecular analysis **(Table 23).**

Junagadh, Dharwad and Bathinda: During the field survey the specimens were collected and isolated and purified isolates of *Alternaria* species of cotton were submitted to TNAU, Coimbatore further study.

TNAU, Coimbatore: The *Alternaria* cultures obtained from Junagardh, Guntur, Dharwad, Coimbatore and Bathinda were subjected to morphological studies, wherein the mycelial characteristics, the intensity of mycelial growth, nature of sporulation and intensity of virulence was analyzed. As discussed in the previous AICRP meet, *Alternaria* cultures from Coimbatore, Guntur, Bathinda and Junagadh were obtained to carry out the morphological study at this center. A total of 15 isolates including 2 from Bathinda, 1 from Junagarh, 2 from Guntur, 5 from Dharwad, 5 from TNAU Coimbatore, were received and characterized. The results of the morphological study are presented in **Table 24.**

Morphological studies for the cultures of *Alternaria* collected from the Coimbatore region revealed that the colony was characterized by black mycelial growth, with concentric rings on the dorsal side of the plate. The cultures from Guntur produced colonies with whitish mycelial growth with a black center on the dorsal side of the plate. The culture brought from Bathinda produced mycelium which was blackish with concentric circles of growth. Junagarh culture has produced mycelia with full whitish growth and raised the center of the colony. The mean mycelial diameter was analyzed for the cultures brought from four centers. The results given in the above table revealed that on 3rd day the mycelial diameter was high in Bathinda (7.3 cm) culture followed by Junagarh (2.8 cm) and Guntur (2.8 cm). The lowest mycelial

diameter on the 3rd day was recorded in the Coimbatore culture (2.3 cm). The same trend continued in subsequent days also. The mycelia diameter was the highest in Junagarh culture followed by Bathinda, Guntur and Coimbatore during the 5th, 7th and 9th day after culturing. On the 9th day, the mycelial diameter for Junagadh culture was 9.0 cm followed by Bathinda (9.0 cm), Guntur (7.5 cm) and Coimbatore (6.7 cm), respectively **(Table 24)**. The microscopic observations of *Alternaria* cultures are given in **table 25**

Path 1 (d): Survey and Epidemiology of TSV

During 2020-21, the surveys were undertaken in different locations of Haryana and Punjab for the occurrence of Tobacco Streak Virus (TSV) along with other diseases and TSV symptoms and incidence were not observed during the survey period. Surveys were undertaken in different locations of Vidarbha (Akola, Amravati, Buldhana, Washim, Yeotmal, Wardha, Nagpur, CRS, Dr. PDKV, Akola, CDF WaniRambhapur) of Vidarbha region / Dr. PDKV, Akola Jurisdiction for TSV incidence.

During the surveys conducted in Cotton growing districts, the Tobacco Streak Virus disease was recorded from August to December 2020. The incidence in different hybrids varied from 0% to 4.0% **(Table-26a & 26b).** Progress of TSV disease incidence (%) at RARS Lam, Guntur was in the range of 2.8 % to 10.2% in RCH 2 BG II, however, grade 1 symptom (restricted to few leaves and/or branches, mostly one or two spots) were observed in the majority of infected plants while few plants showed stunting. Jaadoo BG II (1.98 to 8.96%), L 1060 (0.0 to 5.5%) and NDLH 1938 (0.0 to 5.5%) showed grade 1 symptom on few leaves **(Table-27).**

The study on TSV progress at Coimbatore inferred that the TSV incidence could be rated as 'Medium or Moderate' as the percentage incidence was 5-6% in all locations except the fields of research farm being maintained at TNAU, Coimbatore where the incidence was 5-15%. When compared to other stages, the incidence was more pronounced in square formation and boll formation stages irrespective of the hybrids and varieties which were planted in the farmers' fields and at the research farm (**Table 28**).

Path. 2: Screening of AICRP entries for disease reaction

Path.2(a). Screening of AICCIP breeding lines for disease reaction

The breeding lines in various national and zonal trials were screened against important diseases in the area. In each screening trial, susceptible checks for the diseases were maintained and their reaction is presented at the end of each table where data from different locations of a trial is pooled. The reaction of a particular entry is considered valid provided there is an either susceptible or moderately susceptible reaction in the susceptible check.

The results of the National trials are given in Tables 29 to 39.

The results of Zonal trials (North Zone) are given in Tables - 40 to 42.

The results of Zonal trials (Central Zone) are given in Tables - 43 to 53

The results of Zonal trials (South Zone) are given in Tables - 54 to 67

Path.2 (b): Confirmation and maintenance of disease-resistant lines.

NORTH ZONE

ARS PAU, Faridkot: Six entries were evaluated under field conditions since 2019 with three susceptible checks. The six entries RCH1307, CSH3012, RS2909, F2687, GSHV208 and RAH1076 showed a highly resistant reaction against CLCuD compared to the checks (susceptible checks- F 2228, F 846 and RST 9 (MS-S) **(Table 68).**

CICR RS, Sirsa: Two entries found moderately resistant during 2019-20 were further evaluated under sick plot conditions during 2020-21. Both the entries exhibited susceptible reactions during 2020-21 **(Table 69).**

CENTRAL ZONE

CRS JAU, Junagarh: Seven entries evaluated for confirmation of resistance against Bacterial Leaf Blight (BLB) under field conditions at CRS JAU, Junagarh. The entries namely GJHV-523, BS2-17, RAH-0603, TSH-325, H-1488, RAH-0604 are continuously showed a resistant reaction. However, during 2017, 2018, 2019 the LRA-5166 (susceptible check) also showed MR reaction except in the year 2020 (LRA-5166;76.3% PDI). Similarly, these entries also showed the resistant reaction to *Alternaria* leaf blight and susceptible check (LRA 5166) showed MR and Susceptible reaction as it showed against BLB. The grey mildew disease was not observed during 2017- 2019 however, during 2020 all these entries showed resistant reaction against grey mildew and 75.2% PDI of grey mildew was observed on the susceptible check **(Table 70a, b, c). These entries have shown the potential of disease resistance under field conditions at CRS Junagarh and however, these entries are required to be evaluated under artificial inoculation conditions before confirming the resistance against the specific diseases at respective centers having artificial disease screening facilities.**

Six entries namely RAH1075, L1384, GJHV554, RS2909, RAH1076, TSH357 were evaluated against BLB, ALB and grey mildew under field conditions. These entries showed a resistant reaction against BLB and ALB during these years. However, the susceptible check (LRA5166) also showed a moderately resistant reaction during 2018, 2019 and a susceptible reaction during 2020. The grey mildew disease was not observed during 2018, 2019 however, during 2020 all these entries showed resistant reaction against grey mildew when the 77.1% PDI of grey mildew was observed on the susceptible check **(Table 71a, b, c).**

Five entries namely CCH 19-2, GJHV 557, RHC 1409, BGDS 1047 were evaluated for confirmation of resistance against BLB, ALB and GM under field conditions. These entries showed a resistant reaction against ALB, BLB and grey mildew, while the susceptible check showed a moderately resistant reaction during 2019 and a susceptible reaction during 2020 **(Table 72a, b, c).**

MCRS NAU, Surat: Different nine breeding lines were evaluated against *Alternaria* leaf spot, bacterial leaf blight diseases under field and artificial inoculation conditions during *Kharif*-2019 and 2020. All the entries namely GSHH 15032, GSHH 15035, GISV 312, GISV 319, GISV 323, GShv 329/15, GShv 829/16, GShv 797/16, GShv 780/16 showed resistant reaction against BLB and ALB both under field and artificial inoculation conditions (2019- and 2020) **(Table 73).**

SOUTH ZONE

UAS Dharwad (Karnataka): Eleven different breeding lines were evaluated against *Alternaria* leaf spot, and grey mildew diseases under field and artificial inoculation conditions during the last three years. The four genotypes SVA-1118, GSB-41, DB-40, DB-1302 exhibited a high degree of resistance to *Alternaria* blight (Resistant) both under field and artificial inoculation conditions **(Table 74).** Similarly, the seven entries namely SVA-1118, GSB-41, DB-40, DB-16, SCS-1206, DB-1302 and GSHB-989 were observed to be resistant against grey mildew (disease-free) **(Table 75).**

Lam farm, Guntur: Thirteen entries from 2018-19 *viz*., BS 4-18, SHS 113, CPD 1802, Suraj, LHCC 3, LHCC 4, CSH 3158, SHC 374, CPD 1702, RHC 1217, GISH 298, Suvin, NDLH 1938 selected for grey mildew (Grade 1) and *Alternaria* leaf spot (Grade 2); Suvin (Grade 1) for rust and *Corynespora* leaf spot were evaluated. Two checks, RCH 2 BG II (for bacterial blight and rust) and Jaadoo BG II (for *Alternaria* leaf spot and grey mildew) were sown after every four rows of randomized entries and evaluated for a second consecutive year. Jaadoo BG II also served as a border. RHC 1217 selected for grey mildew showed moderately resistant reaction whereas all the entries continued their resistant reaction to grey mildew during 2019-20. Suvin selected for rust showed a moderately resistant reaction during 2nd year of evaluation. All the entries remained moderately resistant against *Alternaria* leaf spot **(Table 76).** Based on two-year data, the entries namely CCB 1438, SBSD 5-6, DB 1801, CCB 51 were found to be multiple diseases resistant against ALB, CoLS, grey mildew and rust compared to the susceptible check (moderately resistant).

TNAU, Coimbatore: Among all the 15 entries namely RAH 1047, GTHV 15/34, RHC 1419, BGDS 1047, GTHV 8/17, CCH 15-1, GJHV 584, RAHC 1902, TCH 1875, CCB 648, CCB28, CCB29 including local Check, Phule Dhara (CC) and RCH II BGII (susceptible check) were consistently showed resistant during 2019- and 2020 (**Table 77**).

Path.2 (c) Monitoring of resistance against CLCuD in cotton.

In this experiment, three tolerant and susceptible varieties against CLCuD and one each of tolerant and susceptible BGII Bt cotton hybrid were selected and sown at three locations to see how they react against CLCuD changes over the years. The PDI in the case of tolerant varieties/hybrid was much less compared to susceptible varieties/hybrid at Sriganganagar whereas it was almost similar at Bhatinda and Hisar. The cumulative reaction results revealed that all the susceptible verities showed MS to HS reaction whereas the tolerant varieties showed S to HS reaction. The susceptible and tolerant Bt hybrid showed susceptible and moderately resistant reaction but at Bathinda, they showed moderate resistance to resistant reaction, respectively (**Table 78**).

Path.3: Management of Diseases of cotton

Path. 3 (f): Management of sooty mold (*Capnodium* spp.) in cotton

For the management of sooty mold, two experiments were planned. The first experiment was conducted as therapeutic spray treatments (during 2017-18) and another for prophylactic spray treatments (during 2019-20) both under polyhouse (CICR RS Sirsa) and field conditions. The first experiment, where 9 treatments including control were imposed once the sooty mold had developed under field conditions to see how much is controlled, whereas another experiment was planned and the

interventions were applied at the initiation of sooty mold and were compared with check without intervention.

In the polyhouse experiment at Sirsa, the prophylactic sprays (3 sprays at fortnightly interval) of flonicamid, followed by mancozeb, propiconazole and neem oil were showed lowest sooty mold and highest control over control treatment 15 days after the third spray. The highest reduction of whitefly population (per three leaves) 15 days after the third spray was recorded with the treatment of flonicamid followed mancozeb and neem oil were showed the lowest whitefly population/ 3 leaves 15 days after the first spray. However, after the first spray whitefly did not cross ETL (**Table 79**).

The field trial conducted at Faridkot, where sooty mold was initiated in the range of 19.7-23.6%, revealed that the maximum reduction was observed by Flonicamid spray followed by Neem oil 1500 ppm@ 5 ml/litre of water and Copper oxychloride 50 WP @2.25g/L. showed a maximum reduction of the sooty mold 15 days after 3rd spray (**Table 80**). Similarly, at HAU, Hisar, among seven treatments the maximum highest average reduction of sooty mold disease was recorded in the treatment propiconazole 25 EC @ 1ml/litre (40.15%) followed by Coper oxychloride @ 2.50 g/litre (31.54 %) and Copper oxychloride @ 1.25 g/litre (27.29 %) **(Table 81).**

Field trial conducted at CRS Junagarh (Aphid), revealed that among six treatments Flonicamid 50 WG resulted in significantly lowest disease intensity as well as aphid infestation followed by propiconazole, neem mold and COC 2.5g/L over control 15 days after the first and second spray. The highest yield was recorded in the treatment flonicamid and mancozeb (**Table 82**).

At TNAU Coimbatore, nine post-treatment sprays were evaluated for management of sooty mold under field conditions. In all the treatments the cotton plants were sprayed with the fungicides thrice at 15 days' intervals. After each spray, a reduction in the sooty mold was observed. Among the eight treatments T_4 (Copper oxychloride (COC) 50 WP @ 1.75 g/litre of water) was found to surpass other treatments in terms of reduction in sooty mold incidence and the seed cotton yield in quintals/ ha. The incidence of sooty mold was reduced consistently in all three sprays and the pooled mean reduced incidence was the lowest among all treatments (8.22) and the seed cotton yield was highest among all treatments (18.5q/ha). The T_4 was closely followed by T_3 (Copper oxychloride (COC) 50 WP @ 1.75 g/litre of water) and T_5 (Propiconazole 25 EC @ 1 ml/litre of water) in terms of their effectiveness in reducing the sooty mold in cotton and increased seed cotton yield. The pooled mean of reduction in the percentage of the sooty mold in the treatment T_3 and T_5 were found to be 9.43 and 11.36 respectively. The other treatments involving Copper oxychloride (COC) namely T_2 and T_1 were also effective in reducing the sooty mold incidence in cotton when compared to T_6 which involved the fungicide Mancozeb. Overall, it could be inferred that the Copper oxychloride (COC) with a higher dosage of 2.25 g/litre of water and 1.75 g/litre of water was found to check the incidence of sooty mold. Further among the fungicides tried in the experiment Copper oxychloride was the best in reducing the sooty mold incidence in cotton followed by Propiconazole and Mancozeb **(Table 83).**

Path 3g: Management of parawilt of cotton

At Bhatinda, foliar spray of 10 ppm Cobalt chloride immediately after the occurrence of disease followed by drenching of plants with a mixture of Copper oxychloride (COC) 50 WP@ 25g and 200 Urea in 10 litres of water and Salicylic acid (Commercial grade) @ 250ppm foliar spray found best, **(Table 84).** However, at Hisar, foliar spray of 10 ppm Cobalt chloride immediately after the occurrence of disease followed by foliar spray of *Pseudomonas fluorescens*@ 10gm or ml/litre of water, the drenching of plants

with a mixture of Copper oxychloride and 50ppm of Sodium Benzoate immediately after the occurrence of disease showed maximum recovery of plants from parawilt (**Table 85**).

Path. 3 (h): Evaluation of efficacy of bioagents against cotton diseases

The different bioagent treatments and their combinations (seed treatment, soil application and foliar spray) were evaluated against root rot, wilt, bacterial fungal foliar spot disease at Nanded, Akola, Nagpur and Surat **(Table 86).**

Among all treatments, the lowest PDI of *Alternaria* leaf blight **at Nanded** was recorded lowest in the treatment T7 (Pyraclostrobin @ 0.1%;), followed by T6 (ST (Vitavax power @ 0.2%); 2 gm/kg seed) and T1 (ST+ SA of *Bacillus aryabhattai* ST: 10^8cfu/g @10g per kg of seed at the time of sowing SA: 2.5 kg/ha (30 & 60 DAS) with FYM/compost), whereas the lowest ALB at Surat was recorded in T-7, T3 (T1+ T2: ST+ SA of *Bacillus aryabhattai* ST: 10^8cfu/g @10g per kg of seed at the time of sowing SA: 2.5 kg/ha (30 & 60 DAS) with FYM/compost & ST+ SA of *Bacillus tequeilencis* SA: 10^8cfu/g @10g per kg of seed at the time of sowing SA: 2.5 kg/ha (30 & 60 DAS) with FYM/compost), and T2.

At **Surat** PDI of BLB at Nanded was observed to the lowest in treatment T7 followed by T6 and T5 (ST+ SA of *Pf* CICR; SA: 10^8cfu/g @10g per kg of seed at the time of sowing; SA: 2.5 kg/ha (30 & 60 DAS) with FYM/compost), whereas PDI of BLB was recorded to be the lowest in T5, T3 and T2. At CICR Nagpur, the lowest PDI of BLB was recorded in the treatment T3 (Combined application of T1+ T2) followed by T1, T2, T4, T5. The lowest grey mildew disease PDI at **Nanded** was observed in the treatment T7, followed by T6, and T5. At **CICR Nagpur** GM was lowest in treatment T-7 & T3, followed byT2. The lowest Myrothecium leaf spot at CICR was recorded in the T2, T3 and T6 whereas the lowest *Corynespora* leaf spot was observed in the T3, T2 and T6 **(Table 87).**

A good seed germination was recorded in these treatments T1 (94.67 %), T5 (94.67 %), T4 (94.67 %), T2 (94.00 %) and T7 (94.00 %) at Nanded. Control recorded the lowest seed germination (88.67 %). Seed cotton yield showed different levels of results at all the centers. Among the different treatments, the average seed cotton yield was recorded in the T7 (Foliar application of Pyraclostrobin @ 0.1%; gm/lit) followed by T5 (ST+ SA of *Pf* CICR; SA: 10^8cfu/g @10g per kg of seed at the time of sowing; SA: 2.5 kg/ha (30 & 60 DAS) with FYM/compost) and T3 (T_1+T_2 SA: 10^8cfu/g @10g per kg of seed at the time of sowing SA: 2.5 kg/ha (30 & 60 DAS) with FYM/compost) **(Table 88).**

Path.3(i). Integrated Management of CLCuD through its vector management (2020-21)

In this experiment, eight different IPM-and bio-modules were evaluated under field conditions for the management of CLCuD through its vector whitefly management. The treatment details for IPM modules and biomodules along with two controls (existing IPM module and biomodules using commercial bioinsecticide of *Lecanicillium lecanii*) are given in **Table 89.**

At HAU Hisar the lowest CLCuD PDI and seed cotton yield was recorded with existing IPM modules followed by IPM module 2, and -**3.** However, there was not much difference between IPM and biomodules in terms of CLCuD PDI **(Table 90a).**

At ARS Sriganganagar, the highest reduction in whitefly (per 3 leaves) 7 days after the fourth spray was observed in the existing IPM module followed by Biomodule 1, IPM module 1 and Biomodule 2, **(Table 91a)** whereas, the lowest CLCuD PDI was observed in the existing IPM module followed by IPM module 1, Biomodule 3. The highest seed cotton yields were recorded in the IPM module 3, followed by

IPM module 2, and Biomodule 1. However, the seed cotton yield and CLCuD PDI are not significantly different between IPM and biomodules **(Table 91b).**

At ARS Bathinda, the highest reduction in whitefly (per 3 leaves) 7 days after the fourth spray was observed in the existing IPM module followed by IPM module 3, IPM module 2 and Biomodule 1 **(Table 92a).** Whereas, the highest reduction in the nymphal population was recorded in the existing IPM module followed by IPM module 3, 2 and 1 at 7 days after the fourth spraying (**Table 92b**). The lowest average CLCuD PDI 115 DAS was observed in the existing IPM module followed by modules 1, 2, and 3 however, not much difference between the PDI in IPM and Biomodules was observed **(Table 94a).**

At ARS Faridkot, the highest reduction in whitefly (per 3 leaves) 7 days after the fourth spray was observed in the existing IPM module followed by Biomodule 1, and Biomodule 3 **(Table 93a).** However, the highest reduction in the nymphal population was recorded in the existing IPM module followed by IPM module 1, biomodule 2 at 7 days after the fourth spraying (**Table 93b**). The lowest CLCuD PDI 115 DAS was observed lowest CLCuD PDI was also recorded in the existing IPM module followed by new IPM modules 1, 2, and 3 without much difference between IPM and Biomodules **(Table 94a).**

At CICR RS Sirsa, the lowest CLCuD PDI at 115 DAS was observed in the Biomodule 3, followed by biomodule 2 biomodule 1 and the existing IPM module **(Table 94a).** Similarly, at Sirsa, the highest reduction in whitefly population (adults/3leaves) was recorded in IPM modules 1, 3 and the existing IPM module, however, there was not much difference in the IPM and biomodules **(Table 94b).** The highest reduction in the nymphal population was recorded in the existing IPM module followed by IPM module 2, biomodule 1 and 2 **(Table 94c).** The highest seed cotton yield was recorded in the existing IPM module followed by IPM module 1, IPM module 3, and biomodule 2. Overall, the existing IPM module followed by IPM modules 3, 1 and 2 showed higher yield but there was not much difference among biomodules and IPM modules over controls **(Table 94d).**

Path 3(j): Management of boll rot and foliar diseases of Cotton through CIB&RC recommended new chemical pesticides and their Combinations

North Zone: The experiment was conducted at ARS Pau Bathinda and HAU, Hisar. During the season (100 DAS) the FFS (*Cercospora* leaf spot, *Alternaria* leaf spot) were observed to be in the range of 46.7 to 73.3% at Bathinda, while at HAU Hisar the FFS (*Myrothecium* leaf spot,) was observed in the range of 2.4 to 14.8% from July to October. The highest reduction in the FFS at Bathinda was recorded with Keroxim-methyl followed by the combination of Azoxystrobin 18.2% W/W + Difenoconazole 11.4 w/w SC and Propineb 70% WP, while at HAU Hisar the highest FFS reduction was recorded with Fluxapyroxad 167 g/l + Pyraclostrobin 333g/l SC followed by Metiram 55% + Pyraclostrobin 5% and Propineb 70% WP **(Table 95).**

Central Zone: A total of seven treatments including control were evaluated in the field trial at NAU Surat. Among all the treatments, Fluxapyroxad 167 g/l + Pyraclostrobin 333g/l SC (24.2 PDI) followed by Metiram 55% + Pyraclostrobin 5% WG (25.7 PDI) recorded minimum Bacterial leaf blight infection in comparison to the control (39.5% PDI) in RCH 2 BG II hybrid. The lowest *Alternaria* leaf spot disease was observed in the treatment Fluxapyroxad 167 g/l + Pyraclostrobin 333g/l SC (5.3%) followed by Metiram 55% + Pyraclostrobin 5% WG (8.2%) and Azoxystrobin 18.2% w/w + Difenoconazole 11.4% w/w SC (9.0%) compared to other treatments and control (17.7%) in RCH 2 BG II hybrid. The lowest boll rot incidence was observed in the treatment Fluxapyroxad 167 g/l + Pyraclostrobin 333g/l SC (13.8 PDI) followed by the by Metiram 55% + Pyraclostrobin 5% WG (16.2 PDI) and and Azoxystrobin 18.2% w/w + Difenoconazole

11.4% w/w SC.(17.3% PDI) treatment as compared to the control (29.8%). The highest seed cotton yield was recorded in the treatment T_4 (26.82 Q/ha) followed by treatment T_5 (24.27 Q/ha) and treatment T_6 (23.09 Q/ha), respectively. (**Table 96**).

At CICR Nagpur, the lowest boll rot was observed in the treatment Metiram 55% + Pyraclostrobin 5% followed by Propineb70%WP and Fluxapyroxad 167 g/l + Pyraclostrobin 333g/l SC while the lowest *Corynespora* leaf spot was recorded in the treatment of Kresoxim-methyl 44.3% SC followed by Azoxystrobin 18.2% w/w + Difenoconazole 11.4% w/w and Fluxapyroxad 167 g/l + Pyraclostrobin 333g/l SC. The lowest grey mildew was observed in Kresoxim-methyl 44.3% SC followed by Metiram 55% + Pyraclostrobin 5% WG. The highest seed cotton yield was recorded in T4, T2 and T2 (**Table 97**).

South Zone: At Lam, Guntur these seven treatments were evaluated on Cotton hybrid, Jaadoo BG II, which was sown on 25.07.2020 with seven treatments adopting randomized block design and replicated thrice. Uniform insecticidal sprays were given to control sucking pests and bollworms. In each plot 10 plants, at random, were tagged for recording disease data. Treatments were imposed after the disease initiation and subsequent 2 sprays were given when (PDI) crossed more than 10% PDI. *Corynespora* leaf spot PDI was non-significant in all the plots before spray. All treatments significantly reduced *Corynespora* leaf spot as against untreated control (20.7, 26.8 and 22.9 %) after 1st spray (13.2 to 15.3% PDI); 9.2 to 11.6 % PDI after 2nd spray and 1.1 to 2.3% PDI after 3rd spray, respectively. Propineb 70%WP @ 2.5g/l was significantly superior against grey mildew with 1.8% PDI followed by Azoxystrobin 18.2% w/w + Difenconazole 11.5% w/w SC @ 1ml/l (4.5% PDI), Propiconazole 25%EC @ 1ml/l (4.58PDI) and Fluxapyroxad 167g/l + Pyroclostrobin 333g/l SC @ 0.6l (5.17PDI) as against control (17.25PDI). Kresoxim methyl 44.3% SC @1ml/l and Metiram 55% + Pyroclostrobin 5%WG @2g/l recorded 7.0 and 7.42PDI, respectively. All treatments significantly reduced rust (9.3-10.9% PDI) as against control (37.2%PDI). Azoxystrobin 18.2% w/w + Difenconazole 11.5% w/w SC @ 1ml/l recorded lowest PDI of 9.3% followed by Fluxapyroxad 167g/l + Pyroclostrobin 333g/l SC @ 0.6l (9.4% PDI), Propiconazole 25%EC @ 1ml/l (9.8% PDI). All treatments significantly increased yield. Highest yield of 26.8 q/ha was recorded with Kresoxim methyl 44.3% SC @1ml/l followed by Propiconazole 25%EC @ 1ml/l (26.5q/ha), Azoxystrobin 18.2% w/w + Difenconazole 11.5% w/w SC @ 1ml/l (26.5 q/ha) and Propineb 70%WP @ 2.5g/l (26.4q/ha) as against control (19.5q/ha). Fluxapyroxad 167g/l + Pyroclostrobin 333g/l SC @ 0.6l and Metiram 55% + Pyroclostrobin 5%WG @2g/l recorded 24.9q/ha and 23.8q/ha, respectively (**Table 98**).

At UAS Dharwad, the highest reduction in *Alternaria* leaf blight was recorded by Fluxapyroxad 167 g/l + Pyraclostrobin 333 g/l SC followed by Metiram 55% + Pyraclostrobin 5% WG and Azoxystrobin 18.2% w/w + Difenoconazole 11.4% w/w SC whereas, the highest grey mildew reduction was observed with Fluxapyroxad 167 g/l + Pyraclostrobin 333 g/l SC followed by Propineb70%WP and Metiram 55% + Pyraclostrobin 5% WG. The highest reduction in the boll rot was achieved with the spray treatment of Fluxapyroxad 167 g/l + Pyraclostrobin 333 g/l SC followed by Metiram 55% + Pyraclostrobin 5% WG and Azoxystrobin 18.2% w/w + Difenoconazole 11.4% w/w SC (**Table 99**).

Path. 4.: Crop loss estimation

Path.4. (e) Expt.1: Crop loss estimation due to CLCuD and distribution pattern of CLCuD in the north zone

Pooled data of Hisar, Faridkot and Rajasthan seed cotton yield reduction (Grade wise from 1-6) due to CLCuD in different Bt hybrids varied from 10.3 to 40.7, 11.8 to 39.4, 9.4 to 38.7 and 9.4 to 38.3% in Bt hybrids US-51, RCH 773 BG II, NCS 9013 BGII and ACH177-7 BG II respectively. Based on mixed grades

it was 26.7, 27.3, 31.5 and 25.3%, respectively in US-51, RCH 773 BG II, NCS 9013 BGII and ACH177-7 BG II. A similar trend was observed in the case of reduction in the number of bolls but the reduction in boll weight was varied with the cultivars and the respective CLCuD grades (**Table 100-102**).

Path.4 (e) Expt.2: Distribution pattern of CLCuD on local popular BT hybrid at farmer's field.

The maximum leaf curl disease was noted in Haryana followed by Punjab and Rajasthan during the 2020 season. In Haryana, the maximum CLCuD was recorded in Jind and Sirsa followed by Hisar, Fatehabad, Bhiwani, Rohtak and Palwal. In Rajasthan, the Sriganganagar district showed maximum CLCuD followed by Hanumangarh. In Punjab, maximum CLCuD was noted in Bathinda followed by Fazilka, Faridkot and Muktsar (**Table 103**).

Agron. V: Technology for organic cotton production

Junagarh (G. Cot. 38): Percent disease intensity of bacterial leaf blight and *Alternaria* leaf spot for 1 to 11 treatments results were statistically nonsignificant. For the *Alternaria* leaf spot minimum disease intensity 21.6 was recorded in treatment- 9, 3 and 4 and maximum recorded in treatment T8 while medium PDI was recorded for all treatments. The lowest BLB was recorded in the treatment T3, T7, T8 and T11, and medium PDI of BLB was recorded for all treatments. However, all the treatments were nonsignificant. Wilt, Root rot and grey mildew were not observed during the season **(Table 104)**.

Surat (G. Cot. 20): In this experiment, a total of eleven different treatment combinations including control were evaluated against the Bacterial leaf blight, *Alternaria* leaf spot disease. Out of all treatments, T3, T5, T7, and combinations of these treatments T8, T9, T10 and T11 were observed as resistant in grade 1 against bacterial leaf blight. Whereas in the case of *Alternaria* leaf spot disease all the treatment combinations were disease-free from the infection (**Table. 105**).

Dharwad *(G. arboreum)*: The results indicate that the treatment - 2 Control (RDN through inorganic) has the least incidence of *Alternaria* blight, Bacterial blight. The highest *Alternaria* leaf blight and bacterial leaf blight was observed in the treatment T1 (absolute control with non-organic and non-inorganic) followed by T 3 (RD of Nutrient through organic based on P equivalent basis) **(Table. 106)**

<u>Concluded Experiment:</u>

Path.3 (f): Management of sooty mold (*Capnodium* spp.) in cotton

The experiment on the management of sooty mold (*Capnodium* spp.) in cotton caused by Aphis under field conditions at **TNAU Coimbatore** was initiated in 2012-18. Based on pooled results (2017-18-2018-19, 2019-20), all the treatments showed a numerical reduction of sooty mold over control. In all the treatments the cotton plants were sprayed with the fungicides thrice at 15 days intervals. After each spray, a reduction in the sooty mold was observed. Based on pooled data this can be inferred from the pooled data of the three-year trials that the highest reduction of sooty caused by whitefly/aphid was recorded by Copper oxychloride (COC) 50 WP @ 2.25 g/litre of water followed by Propiconazole 25EC @ 1ml /litre of water and detergent powder @5 g/L. Among these treatments, the highest yield was recorded with Copper oxychloride (COC) 50 WP @ 2.25 g/litre of water followed by Propiconazole 25EC @ 1ml / litre and Copper oxychloride (COC) 50 WP @ 21.25g /L of water at Coimbatore **(Tables 107).**

Path. 3 (g): Management of parawilt of cotton

The experiment was conducted for the management of the parawilt problem at Hisar and Bathinda and the seven treatments were evaluated as post spray within 24 of occurrence of parawilt. The pooled data of the three-year trial revealed that the incidence of parawilt was observed up 55% and the highest recovery of the plants was observed in the treatment Cobalt chloride @ 10 ppm foliar spray immediately after the occurrence of disease (85.4%) followed by Sodium benzoate @ 50ppm foliar spray (35.7%) and Drench plants with a mixture of Copper oxychloride@ 25g and 200g Urea in 10 ltr of water (29.1%). The highest yield was recorded in the foliar spray treatment of Cobalt chloride @ 10 ppm followed by Drench plants with a mixture of Copper oxychloride@ 25g and 200g Urea in 10 ltr of water and *Pseudomonas fluorescens@* 10gm or ml/litre of water at HAU Hisar **(Table 108).**

Similarly, it can be inferred from the pooled data of the three years' trials conducted at ARS, PAU Bathinda that the highest recovery of the plants (91.6%) and the yield (28.6 Q/ha) was recorded with Cobalt chloride @ 10 ppm foliar spray immediately after the occurrence of parawilt followed by Drench plants with a mixture of Copper oxychloride@ 25g and 200g Urea in 10 L of water (85.8% and 26.2 Q/ha%). Salicylic acid (Commercial grade) @ 250ppm foliar spray immediately after the occurrence of parawilt showed 38.9% recovery of the plants while the Sodium benzoate @ 50ppm foliar spray immediately after the occurrence of parawilt showed 24.7 Q/ha yield **(Table 109).**

Path.1. Observations on the occurrence of the diseases (in farmer's field and research farms)
NORTH ZONE

Path1(a): Observations on the occurrence of various diseases (in farmer's field and research farms)

Table 1a: Observations on the occurrence of diseases at farmer's fields in Faridkot, Fazilka, Muktsar (Punjab)

District/ Place	Variety/ Hybrid	Percent Disease Intensity (PDI)								
		Early-season/Seedling stage (20-30 DAS)			Mid-season/Flowering stage (60-80 DAS)			Late/ Boll development stage (120-150 DAS)		
		BLB	FFS	CLCuD	BLB	MLS	CLCuD	BLB	MLS	CLCuD
Faridkot										
Machaki	RCH 773	0.0	0.0	0.0	0.0	0.0	3.8	0.0	4.4	7.1
Chahal	RCH 776	0.0	0.0	0.0	0.0	0.0	6.7	0.0	3.7	10.8
Pakka	RCH 773	0.0	0.0	0.0	0.0	0.0	7.3	0.0	5.0	13.9
Mehmuana	RCH 773	0.0	0.0	0.0	0.0	0.0	5.7	0.0	3.1	11.7
	RCH 776	0.0	0.0	0.0	0.0	0.0	4.3	0.0	5.6	8.2
Sukhan Wala	RCH 773	0.0	0.0	0.0	0.0	0.0	4.2	0.0	2.5	9.2
Sher Singh Wala	RCH 776	0.0	0.0	0.0	0.0	0.5	3.5	0.0	8.1	8.3
Dhab Sher Singh	RCH 773	0.0	0.0	0.0	0.0	0.0	5.8	0.0	2.5	13.7
Wander jatana	RCH 776	0.0	0.0	0.0	0.0	0.0	4.0	0.0	3.7	13.3
NwanKilla	RCH 773	0.0	0.0	0.0	0.0	0.0	3.7	0.0	Trace	7.1
Bhanna	RCH 773	0.0	0.0	0.0	0.0	0.0	6.2	0.0	4.4	11.2
Sadik	RCH 773	0.0	0.0	0.0	0.0	0.0	5.7	0.0	1.9	9.6
Beer Sikhan Wala	RCH 776	0.0	0.0	0.0	0.0	0.0	7.2	0.0	4.4	12.9
Average		**0.0**	**0.0**	**0.0**	**0.0**	**0.1**	**5.2**	**0.0**	**4.1**	**10.5**
Fazilka										
Abohar	RCH 773	0.0	0.0	0.0	0.0	0.0	6.2	0.0	7.5	8.7
	SP 7172	0.0	0.0	0.0	0.0	0.0	5.5	0.0	3.1	7.1
KilyanWali	RCH 773	0.0	0.0	0.0	0.0	0.0	10.3	0.0	4.4	15.3
Bareka	RCH 776	0.0	0.0	0.0	0.0	0.0	22.7	0.0	5.6	33.7
Kheowalidhab	US 51	0.0	0.0	0.0	0.0	0.0	29.8	0.0	6.2	47.7
Nihal Khera	SP 7172	0.0	0.0	0.0	0.0	0.0	16.8	0.0	3.7	29.3
KhippanWali	RCH 776	0.0	0.0	0.0	0.0	0.5	15.5	0.0	8.7	24.8
KhuiKhera	US 51	0.0	0.0	0.0	0.0	0.0	13.3	0.0	9.4	17.0
Bhagu	RCH 773	0.0	0.0	0.0	0.0	0.0	9.5	0.0	7.5	13.0
Rajpura	RCH 776	0.0	0.0	0.0	0.0	0.5	7.1	0.0	9.4	11.2
Amarpura	RCH 776	0.0	0.0	0.0	0.0	0.0	6.2	0.0	6.9	11.8
Sito	RCH 773	0.0	0.0	0.0	0.0	1.9	15.0	0.0	10.6	17.2
	US 51	0.0	0.0	0.0	0.0	0.0	7.9	0.0	9.4	8.2
Bhagsar	RCH 773	0.0	0.0	0.0	0.0	0.0	10.4	0.0	8.1	14.5
Bajitpur	RCH 776	0.0	0.0	0.0	0.0	0.0	9.2	0.0	6.2	16.5
Karamgarh	RCH 776	0.0	0.0	0.0	0.0	0.0	10.8	0.0	3.1	14.8
Inakhera	RCH 776	0.0	0.0	0.0	0.0	0.0	8.7	0.0	Trace	9.8
Kabar Wala	RCH 773	0.0	0.0	0.0	0.0	0.0	9.5	0.0	3.7	11.3
Panniwala	RCH 773	0.0	0.0	0.0	0.0	0.0	7.3	0.0	Trace	9.7
Gobindgarh	RCH 773	0.0	0.0	0.0	0.0	0.0	6.0	0.0	Trace	8.2
Average		**0.0**	**0.0**	**0.0**	**0.0**	**0.2**	**11.4**	**0.0**	**6.7**	**16.5**
Muktsar										
Muktsar local	RCH 773	0.0	0.0	0.0	0.0	0.0	11.5	0.0	3.1	14.2
Aulakh	RCH 773	0.0	0.0	0.0	0.0	0.0	11.0	0.0	4.4	15.8
	RCH 776	0.0	0.0	0.0	0.0	0.0	6.0	0.0	5.6	9.7
MarhMallu	RCH 773	0.0	0.0	0.0	0.0	0.0	7.2	0.0	2.5	13.2
LubaniaWali	RCH 776	0.0	0.0	0.0	0.0	0.0	8.3	0.0	5.0	10.3
Seer Wali	RCH 773	0.0	0.0	0.0	0.0	0.0	7.0	0.0	Trace	11.3
Goniana	RCH 776	0.0	0.0	0.0	0.0	0.0	5.7	0.0	7.5	8.7
Rahurianwali	RCH 773	0.0	0.0	0.0	0.0	0.0	6.5	0.0	6.2	8.2
Khara	RCH 773	0.0	0.0	0.0	0.0	0.0	12.5	0.0	4.4	14.3
	RCH 776	0.0	0.0	0.0	0.0	0.0	7.0	0.0	3.7	9.6
Mahbaddar	RCH 773	0.0	0.0	0.0	0.0	0.5	10.5	0.0	9.4	12.2
Sherewala	RCH 776	0.0	0.0	0.0	0.0	0.0	6.8	0.0	6.2	8.8
Average		**0.0**	**0.0**	**0.0**	**0.0**	**0.1**	**8.3**	**0.0**	**5.3**	**11.4**
Overall Average		**0.0**	**0.0**	**0.0**	**0.0**	**0.1**	**8.3**	**0.0**	**5.4**	**12.8**

Table 1b: Observations on the occurrence of cotton diseases at research farm of ARS PAU Faridkot

Month	Hybrids (BG II)	Incidence (%)			Percent Disease Intensity (PDI)									
		Wilt	Root rot	Boll Rot	ALB	HLS	CLS	ATN	CoLS	MLS	BLB	GM	Rust	CLCuD
Aug-	RCH 773	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	9.8
Sept.	RCH 773	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	5.8	0.0	0.0	0.0	12.3
Oct.	RCH 773	0.0	0.0	0.0	4.2	0.0	0.0	0.0	0.0	9.6	0.0	0.0	0.0	14.5
Nov.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dec.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jan.	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ALB: Alternaria leaf spot; HLS: Helminthosporium leaf spot; CLS: Cercospora leaf spot; ATN: Anthracnose; CoLS: Corynespora Leaf spot; MLS: Myrothecium leaf spot; BLB: Bacterial leaf blight; GM: Grey mildew

Table 2a: Observations on the occurrence of cotton diseases at farmer's fields in Bathinda, Talwandi sabo and Sangat (Punjab)

District/ Block/ Place	Variety/ Hybrid	Stage of sampling														
		Percent Disease Intensity (PDI)														
		Early-season (20-30 DAS)					Mid-season (60-80 DAS)					Late stage (120-150 DAS)				
		CLCuD	FFS/ MLS	BLB	Root rot	Para wilt	CLCuD	FFS /MLS	BLB	Root rot	Para wilt	CLCuD	FFS /MLS	BLB	Root rot	Para wilt
Bathinda																
Jeewan Singh wala	RCH-773, RCH 776 NCS 495 (Sim-sim)	0.0	0.0	0.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0	16.7	0.0	0.0	0.0	0.0
Kotshamir	RCH 773, RCH 776 US -51, US- 21	0.0	0.0	0.0	0.0	0.0	6.7	0.0	0.0	0.0	1.0	11.7	0.0	0.0	0.0	1.0
Jodhpur Romana	RCH 773, RCH 776	0.0	0.0	0.0	0.0	0.0	18.3	0.0	0.0	1.5	0.0	25.0	Trace	Trace	2.0	0
Katar Singh Wala	RCH 773, RCH 776, US 51	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tungwali	RCH 773, RCH 776	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Burj Mansa	RCH 773, RCH 776 US 51	0.0	0.0	0.0	0.0	0.0	11.7	0.0	0.0	0.0	0.0	15.0	6.5	3.0	0.0	0.0
Jassipaunwali	RCH 773, RCH 776 US -51, US -21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0-2	0.0	0.0	0.0	0.0	1.0
Average		**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**6.4**	**0.0**	**0.0**	**0.2**	**0.3**	**9.8**	**1.1**	**0.5**	**0.3**	**0.3**
Block- Maur																
BhaiBakhtaur	RCH 773, RCH 776	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	4	0.0	0.0
Jatri	RCH 773, RCH 776	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0
Burj Mansa	RCH 773, RCH 776	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sandoha	US 81, NCS 495	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	8.3	1.0	0.0	0.0	0.0
Veer Behmam	RCH 773, RCH 776	0.0	0.0	0.0	1.0	0.0	3.3	0.0	0.0	1.0	0.0	5.0	0.0	0.0	1.0	0.0
Ramgarh,Bhunder	RCH 773, RCH 776	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KuttiwalKhurd	RCH 773, RCH 776	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	6.7	0.0	0.0	0.0	0.0
GhumanKhurd	RCH 773, RCH 776	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	1.5	0.0	0.0	0.0
KuttiwalKalan	RCH 773, RCH 776	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GhumanKalan	RCH 773, RCH 776	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average		0.0	**0.0**	**0.0**	**0.0**	**0.0**	**1.3**	**0.0**	**0.0**	**0.1**	**0.0**	**2.5**	**0.6**	**0.4**	**0.1**	**0.0**

District/ Block/ Place	Variety/ Hybrid	Stage of sampling														
		Percent Disease Intensity (PDI)														
		Early-season (20-30 DAS)					Mid-season (60-80 DAS)					Late stage (120-150 DAS)				
		CLCuD	FFS/ MLS	BLB	Root rot	Para wilt	CLCuD	FFS /MLS	BLB	Root rot	Para wilt	CLCuD	FFS /MLS	BLB	Root rot	Para wilt
Block-Talwandi sabo																
Nava pind	RCH 773, RCH 776	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fatehagarh Naubad	RCH 773, RCH 776	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0
MehmanDiwana	RCH 773, RCH 776	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0
Jagga Ram Tirth	RCH 773, RCH 776	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	6.7	0.0	0.0	0.0	0.0
Fattawallu	RCH 773, RCH 776 US - 51, US- 21	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0
Shekhpura	RCH 773, RCH 776 NCS 495	0.0	0.0	0.0	0.0	0.0	6.7	0.0	0.0	0.0	0.0	10.0	7.0	2.0	0.0	0.0
Shergarh	RCH 773, RCH 776	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MahiNangal	RCH 773, RCH 776	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0
Average		**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.9**	**0.0**	**0.0**	**0.0**	**0.0**	**4.2**	**0.9**	**0.3**	**0.0**	**0.0**
Block-Sangat																
SangatMandi	RCH 773, RCH 776	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunewala	RCH 773 NCS 495	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.5	1.7	0.0	0.0	1	1.5
Mehta	RCH 773, RCH 776	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0
Gursarsainewala	RCH 773, RCH 776	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	2.0	0.0	0.0	0.0
ChakRuldu Singh Wala	RCH 773, RCH 776	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0
GehriButtar	RCH 773, RCH 776 US 71	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0
Average		**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.7**	**0.0**	**0.0**	**0.1**	**0.3**	**3.3**	**0.3**	**0.0**	**0.2**	**0.3**
Overall Average		**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**2.8**	**0.0**	**0.0**	**0.1**	**0.1**	**4.9**	**0.7**	**0.3**	**0.1**	**0.1**

Table 2b: Observations on the occurrence of cotton diseases at research farm of ARS PAU Bathinda (Punjab)

Days after sowing (DAS)	Date/Month	Incidence (%)			Mean Percent Disease Intensity (PDI)											
		BLB			CLCuD			CLS			MLS			Boll Rot (Fungal)		
		RCH 773	RCH 776	US 51	RCH 773	RCH 776	US 51	RCH 773	RCH 776	US 51	RCH 773	RCH 776	US 51	RCH 773	RCH 776	US 51
60	Jul-15	0.0	0.0	0.0	4.4	6.7	8.3	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-
75	Aug-01	0.0	0.0	0.0	16.7	20.0	23.3	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-
90	Aug-15	0.0	0.0	0.0	29.4	23.3	25.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-
105	Sep-01	2.5	0.0	0.0	40.0	31.7	35.0	7.5	0.0	2.5	5.0	0.0	2.5	-	-	-
120	Sep-15	5.0	2.5	2.5	46.7	38.3	40.0	10	2.5	5.0	7.5	5.0	2.5	-	0.2	0.4

Table 3a: Observations on the occurrence of CLCuD at farmer's fields Sriganganagar and Hanumangarh (Rajasthan)

Locations surveyed	Bt hybrids/varieties	Stage of sampling								
		CLCuD Percent Disease incidence/intensity (%)								
		Early-season/Seedling stage (20-30 DAS)			Mid-season/Flowering stage (60-80 DAS)			Late/ Boll development stage (120-150 DAS)		
		Incidence	PDI	Range	Incidence	PDI	Range	Incidence	PDI	Range
Sriganganagar										
Kaliyan	RCH773	27.0	6.7	0.0-15.0	54.0	11.7	6.7-16.7	75.0	21.6	11.7-31.7
Hindumalkot	RCH 776	31.0	10.3	1.7-13.3	49.0	15.0	10.0-20.0	84.0	23.8	16.7-26.7
Kotha	RCH 653	24.0	11.7	10.0-13.3	54.0	18.3	10.0-23.3	73.0	25.0	18.3-38.3
Madera	RCH 650	0.0	0.0	0.0	45.0	6.3	3.3-13.3	68.0	16.7	13.3-20.0
Koni (4F Bada)	ACH 177	21.0	6.7	1.7-16.7	57.0	18.3	10.0-23.3	60.0	23.5	13.3-26.7
Mirzewala	US 51	22.0	3.3	0.0-6.7	60.0	16.2	6.7-23.3	68.0	23.3	16.7-26.7
Phusewala	US71	17.0	6.1	1.7-10.0	41.0	8.7	3.3-16.7	51.0	13.5	1.7-21.7
Gulabewala	SP7272	14.0	3.1	0.0-8.3	23.0	5.7	1.7-11.7	33.0	8.8	1.7-20.0
Arayan		14.0	2.1	0.0-6.7	30.0	4.2	1.7-10.0	42.0	10.8	1.7-20.0
37GG		11.0	4.0	0.0-10.0	34.0	6.3	3.3-15.0	46.0	10.2	3.3-18.3
Average		**18.1**	**5.4**	**5.74 (0-12)**	**44.7**	**11.07**	**11.51 (6-16.6)**	**60.0**	**17.7**	**17.31 (10.6-28.3)**
Hanumangarh										
Jandwali	RCH773	9.0	3.5	0.0-8.3	28.0	4.0	1.7-8.3	36.0	5.6	1.7-8.3
Pakkasaharna	RCH 776	12.0	5.7	1.6-11.7	29.0	7.2	1.7-10.0	35.0	8.0	3.3-10.0
Hirnawali	RCH 653	15.0	3.5	1.7-6.7	38.0	5.8	1.78.33	40.0	7.0	3.3-8.3
Chishtiyan	RCH 650	11.0	1.8	0.0-3.3	27.0	4.5	1.7-8.3	39.0	5.8	1.7-11.7
Nawan	ACH 177	12.0	3.5	0.0-8.3	32.0	4.8	1.7-6.7	37.0	6.8	6.7-8.3
Masani	US 51	14.0	5.8	1.7-10.0	28.0	9.3	3.3-13.3	33.0	11.5	10.0-18.3
Gurunagar	US71	10.0	2.3	0.0-6.7	23.0	4.5	3.3-10.0	36.0	6.5	1.7-10.0
Munda	SP7272	0.0	0.0	0.0	38.0	4.0	1.7-6.7	42.0	7.3	3.3-13.3
Shergarh	NCS9013	16.0	5.2	0.0-10.0	36.0	8.8	3.3-15.0	37.0	10.0	6.7-15.0
Makkasar		11.0	4.2	0.0-8.3	31.0	5.6	1.7-8.3	35.0	8.6	8.3-10.0
Average		**11.0**	**3.5**	**3.9(0-6.5)**	**31.0**	**5.8**	**5.8(4.2-9.2)**	**37.0**	**7.7**	**7.9 (5-14.2**
Overall Average		**14.6**	**4.5**	**4.8**	**37.9**	**8.4**	**8.7**	**48.5**	**12.7**	**12.6**

Table 3b: Observations on the occurrence of CLCuD at ARS SKRAU, Sriganganagar (Rajasthan)

Days after sowing	Bt hybrids/varieties	CLCuD Percent Disease incidence/intensity		
		Incidence (%)	PDI	Range
60 DAS	RCH773, RCH 776 US 71, NSPL531 RCH 650, RST-9 HS-6, F846, RS 2013 F2228	59.0	26.3	10.0-41.6
75DAS		63.0	30.7	13.3-48.3
90DAS		74.0	34.4	16.7-51.7
105 DAS		82.0	37.7	20.0-55.0
120 DAS		88.0	39.8	21.6-56.6

Table 4a: Observations on the occurrence of cotton diseases at Farmers fields in Haryana

District/Place	Variety/ Hybrid	Per cent Disease Intensity (PDI)										
		Early-season (20-30 DAS)			Mid-season (60-80 DAS)				Late stage (120-150 DAS)			
		CLCuD	MLS	RR	CLCuD	SM	MLS	RR	CLCuD	SM	MLS	RR
Hisar												
Fransi	US 51, BIO 6317	-	-	-	8.0	6.4	2.2	3.2	9.0	8.0	5.3	4.4
Kalirawana	RCH 773,776	-	-	-	5.8	12.0	4.6	5.1	15.4	13.0	4.8	5.6
Kohli	US 51, BIO 6488	-	-	-	10.0	10.2	4.0	1.0	14.0	10.2	4.0	2.0
Sadalpur	RCH 776, US 51	-	-	-	11.0	9.4	2.0	2.0	13.0	9.8	2.0	2.0
Juglan	RCH 653, US 51	-	-	-	14.0	3.2	7.0	1.0	18.2	3.2	7.0	1.0
Bherian	BIO 6588, RCH 773	-	-	-	9.0	8.4	5.0	2.0	10.0	9.6	5.0	2.5
Patan	RCH 773, US 51	-	-	-	15.0	4.0	8.0	1.0	16.4	5.3	8.0	1.0
Tokas	US 51 Krishana 555	-	-	-	16.0	15.2	6.3	2.0	18.0	15.8	6.3	2.0
Patan	Katha, US 51	-	-	-	16.0	15.0	4.2	1.2	20.0	15.0	4.2	2.3
Hindwan	RCH 776, US 51	-	-	-	13.8	14.0	5.0	6.2	22.0	15.6	5.0	6.2
Average					**11.9**	**9.8**	**4.8**	**2.5**	**15.6**	**10.6**	**5.2**	**2.9**
Fatehabad												
Khabra Kalan	US 51, RCH 773	-	-	-	10.0	10.0	4.1	5.2	18.0	11.1	4.1	5.4
Dayor	US 51, RCH 776	-	-	-	14.0	10.4	3.0	2.2	14.0	10.8	3.0	2.2
KharaKheri	RCH 773, 776	-	-	-	10.9	7.0	4.0	4.0	10.2	7.5	4.0	4.0
Bhattu Kalan	US 51, RCH 773,	-	-	-	9.2	8.4	4.0	5.0	19.0	8.4	4.0	5.0
PiliMandori	RCH 776, BIO 6688	-	-	-	16.2	9.9	6.2	2.0	20.2	9.9	6.2	2.0
Jandawala	RCH 650, 773	-	-	-	9.4	6.2	5.0	1.0	12.0	7.8	5.0	1.4
Jandli Kalan	US 51, BIO 6317	-	-	-	13.4	7.2	5.0	3.0	14.0	7.2	5.0	3.0
Dingsara	RCH 650, 773	-	-	-	14.0	3.0	5.0	3.0	16.0	4.5	5.0	3.0
Average					**12.1**	**8.0**	**4.5**	**3.2**	**15.4**	**8.4**	**4.5**	**3.3**
Sirsa		-	-	-								
Chaharwala	US 51,	-	-	-	16.0	6.0	5.4	4.8	19.0	9.2	5.4	4.8
Haripura	RCH 650, 776	-	-	-	12.4	2.0	3.0	5.0	14.0	5.6	3.0	5.0
Dabra Kala	RCH 776, US 51	-	-	-	12.0	6.4	3.0	2.0	15.0	10.8	3.0	2.0
Nahrena	RCH 776, BIO 6317	-	-	-	8.4	10.2	3.0	3.0	10.4	14.2	3.0	3.0
Kherka	BIO 6488, RCH 650	-	-	-	12.0	7.0	6.0	4.0	13.1	8.2	6.0	4.0
Average					**12.2**	**6.3**	**4.1**	**3.8**	**14.3**	**9.6**	**4.1**	**3.8**
Jind												
Palwan	RCH 650, 776	-	-	-	9.2	3.2	4.0	2.0	11.2	4.3	4.0	2.0
Badowala	RCH 602, 773	-	-	-	16.4	5.4	1.0	1.0	2.0	5.4	2.0	1.0
Sunder Pura	RCH 650, 776	-	-	-	12.0	10.0	5.8	1.0	22.2	10.0	5.8	1.0
Uchana	RCH 602, Katha	-	-	-	23.0	15.9	8.2	2.2	**36.4**	**15.9**	**8.2**	2.2
Milakpur	RCH 776, 773	-	-	-	17.0	7.2	3.2	2.0	28.7	7.2	4.0	2.0
Hebatpur	RCH 650, BIO 6588	-	-	-	14.0	3.4	7.0	1.0	26.4	5.4	7.2	1.0
Average					**15.3**	**7.5**	**4.9**	**1.5**	**21.2**	**8.0**	**5.2**	**1.5**
Bhiwani												
Mandoli Kalan	RCH 650, 773	-	-	-	10.4	10.2	4.0	4.0	12.0	12.0	4.2	4.0
Bakhtavarpur	RCH 602, 650	-	-	-	16.2	10.8	5.0	4.0	18.2	10.9	6.0	4.0
Salempur	RCH 776, 773	-	-	-	8.0	8.0	5.0	5.0	10.5	8.0	5.0	5.0
Bairan	RCH 602, 776	-	-	-	9.0	8.4	5.0	5.0	12.5	8.4	8.0	5.0
Kharkadi	RCH 650, RCH 653	-	-	-	6.2	3.2	4.0	4.0	13.0	4.2	4.0	4.0
Jhuppa Kalan	RCH 650, BIO 6588	-	-	-	8.0	7.0	3.0	2.0	14.0	7.0	3.0	2.0
Jhuppa Khurd	RCH 650, 776	-	-	-	4.2	2.0	1.8	1.2	10.2	2.0	2.8	1.2
Barwas	RCH 602, 650	-	-	-	12.0	11.0	5.2	1.2	14.0	11.5	5.2	1.2
Gagarwas	RCH 602, Bio 6317	-	-	-	10.2	3.6	3.0	1.2	12.0	4.3	3.0	1.2
Average					**9.4**	**7.1**	**4.0**	**3.1**	**12.9**	**7.6**	**4.6**	**3.1**
Palwal		-	-	-								
Aluka	RCH 773, BIO 6588	-	-	-	8.9	3.0	5.0	0.0	10.0	3.0	5.0	0.0
Mandkola	US 51, BIO 6317	-	-	-	10.4	9.0	1.0	0.0	10.9	10.2	2.3	0.0
Dhateer	RCH 773, 776	-	-	-	10.0	8.2	4.0	2.0	13.0	8.2	4.0	2.0
Maheshpur	Ankur 3028, RCH 776	-	-	-	12.3	7.6	4.0	1.0	12.7	7.6	4.0	1.0
Janacholi	RCH 776, US 51	-	-	-	12.0	8.0	3.2	0.0	13.0	10.2	3.2	0.0
Rakhota	RCH 773, RCH 650	-	-	-	5.0	2.0	2.2	0.0	8.0	2.0	5.2	0.0
Average					**9.8**	**6.3**	**3.2**	**0.5**	**11.3**	**6.9**	**3.9**	**0.5**
Overall Average					**11.6**	**7.7**	**4.3**	**2.5**	**15.0**	**8.6**	**4.6**	**2.6**

CLCuD= cotton leaf curl disease, SM= sooty mold, MLS= Myrothecium leaf spot and RR= Root rot

Table 4.b: Observations on the occurrence of cotton diseases at research farm, CCS HAU, Hisar

Month	Hybrids (BG II)	Incidence (%)			Mean Percent Disease Intensity (PDI)			
		CLCuD	MLS	RR	CLCuD	SM	MLS	RR
June	RCH 773, 776, US 51	0.0	0.0	0.0	0.0	0.0	0.0	0.5
July	RCH 773, 776, US 51	18.0	2.4	5.2	7.0	0.0	2.0	2.2
August	RCH 773, 776, US 51	57.2	6.4	6.2	20.4	8.4	3.6	2.4
September	RCH 773, 776, US 51	72.0	10.1	6.2	30.2	9.0	7.0	4.2
October	RCH 773, 776, US 51	78.8	14.8	6.2	33.3	9.6	8.8	4.2

CENTRAL ZONE

Table 5.a: Observations on the occurrence of cotton diseases at farmer's fields in Nanded, Jalna and Beed (Maharashtra)

District/ Place	Variety/ hybrid	Percent Disease Intensity (PDI)							
		Early season/ Seedling stage (20-30 DAS)	Mid-season/ Flowering stage (60-80 DAS)			Late / Boll development stage (120-150 DAS)			
		Root Rot	ALB	BLB	GM	ALB	BLB	GM	Boll Rot
Nanded									
GharpurTq. Himayatnagar	Moksha, Wardan,Ajeet-05	-	3.0	4.2	4.3	3.0	5.0	4.3	Trace
Dorli (Salwadi) Tq. Bhokar	Ajeet 155, Vitthal,Supercot	-	5.1	5.3	3.5	5.1	5.8	3.5	-
Wai Tq. Mudkhed	Mallika, Raja	-	3.1	5.7	4.2	3.1	5.9	4.2	Trace
Lagludh, Tq. Bhokar	RCH 659, Moksha	-	3.2	4.5	4.3	3.2	4.5	4.3	Trace
KivalaTq. Loha	First class, Supercot, Ajeet-05	-	2.5	4.2	3.3	2.5	4.2	3.3	2.7
Average		-	**3.4**	**4.8**	**3.9**	**3.4**	**5.1**	**3.9**	**0.7**
Jalna									
Sipora	Moksha	-	-	-	-	-	-	8.3	-
Aurangabad									
BhaigaonTq. Sillod	RCH 659, Raja	-	-	-	-	3.2	4.6	5.2	-
KawitkhedaTq. Phulambri	9011, GHH 029	-	-	-	-	3.1	4.4	4.7	-
WarkhediTq. Sillod	Bramha, Kabaddi	-	-	-	-	3.0	4.3	4.2	-
VerulTq. Khuldabad	Ajeet 155, Naksh	-	-	-	-	4.2	5.1	5.2	-
HatnoorTq. Kannad	Raja, Ajeet 155	-	-	-	-	3.1	4.1	4.8	-
Average		-	-	-	-	**3.3**	**4.5**	**4.8**	-
Beed									
GeoraiTq. Georai	Jungee, 9011	4.2	-	-	-	2.6	3.5	4.2	-
GadhiTq. Georai	Vitthal, Aatish	-	-	-	-	3.4	3.4	5.1	-
JategaonTq. Georai	ATM, Bramha	-	-	-	-	3.2	4.4	4.4	-
MajalgaonTq. Majalgaon	Mallika, Aatish	-	-	-	-	3.1	4.9	4.3	-
Average		**0.2**	**-**	**-**	**-**	**3.1**	**4.1**	**4.5**	**-**
Overall Average		**2.2**	**2.2**	**3.2**	**3.9**	**3.3**	**4.7**	**4.5**	**0.2**

Table 5.b. Observations on the occurrence of cotton diseases at research farm at CRS, Nanded (Maharashtra)

Month	RCH 2 BG II, Jadoo, NHH 44 BG II	Incidence (%)	Mean Percent Disease Intensity (PDI)		
		Boll Rot	ALB	BLB	GM
July		-	0.5	-	-
Aug		-	3.4	5.6	
Sept.		Trace	4.9	5.8	Trace
Oct.		2.95	5.1	6.4	13.7
Nov.		-	4.0	5.1	9.0
Dec.		-	-	4.8	5.4

Table 6a: Observations on the occurrence of the cotton diseases at farmer's field in Akola and Buldhana (Maharashtra)

District/ Place	**Variety/ Hybrid**	**Stage of sampling/ Percent Disease Intensity (PDI)**								
		Seedling stage			**Flowering stage**			**Boll development stage**		
		BLB	**GM**	**MLS**	**BLB**	**GM**	**MLS**	**BLB**	**GM**	**MLS**
Akola district										
Dhotardi	Ajeet 155 Bt	-	-	-	-	-	-	13.1	-	-
	BindastBt	-	-	-	-	-	-	13.5	4.6	-
Wadegoan	Ankur 3028	-	-	-	-	-	-	19.9	8.3	**17.5**
	Ajeet 155 Bt	-	-	-	-	-	-	12.8	-	-
	Jadoo BG II	-	-	-	-	-	-	23.1	-	-
	Ajeet 5 BG II	-	-	-	-	-	-	15.1	14.2	-
Dhopati	First class BG II							13.4	**16.6**	5.8
	Neo Bt BG II	-	-	-	-	-	-	17.8	13.4	-
	RCH 659 Bt	-	-	-	-	-	-	21.3	-	6.2
	Ajeet 155 Bt	-	-	-	-	-	-	24.7	-	-
Shingoli	First class BG II	-	-	-	-	-	-	13.2	-	-
	Neo Bt BG II	-	-	-	-	-	-	17.1	-	-
Average		-	-	-	-	-	-	**17.1**	**11.4**	**9.8**
Buldhana district										
Shelodi	Ajeet 155 Bt	-	-	-	-	-	-	15.3	-	-
	First class BG II							12.5	15.8	5.
Jawla	Neo Bt BG II	-	-	-	-	-	-	14.2		-
	JadooBt	-	-	-	-	-	-	**27.2**	14.6	-
Kanarkhed	Ajeet 155 Bt	-	-	-	-	-	-	13.1	15.8	-
	First class BG II	-	-	-	-	-	-	17.1	-	4.6
Bodakha	JadooBt	-	-	-	-	-	-	14.1	-	-
Average		-	-	-	-	-	-	**16.2**	**14.4**	**4.8**
Overall Average		-	-	-	-	-	-	**16.7**	**12.9**	**7.3**

Table 6b: Observations on the occurrence of the cotton diseases at MPKV Akola (Maharashtra)

Variety/Hybrid	Seedling stage (20-30 DAS)			Flowering stage (60-80 DAS)			Boll development stage (120-150 DAS)		
	BLB	GM	MLS	BLB	GM	MLS	BLB	GM	MLS
Bhakti Bt	-	-	-	-	-	-	19.6	2.5	-
Ajeet 155 Bt	-	-	-	-	-	-	22.1	3.8	-
MallikaBt	-	-	-	-	-	-	17.5	4.6	-
Rasi 2 Bt	-	-	-	-	-	-	20.4	-	-
JKAL 116 Bt	-	-	-	-	-	-	16.2	-	-
PKV Hy 2 Bt	-	-	-	-	-	-	14.8	-	-
AKH 081 Bt							18.6		
RajatBt	-	-	-	-	-	-	14.2	-	-

Table7a: Observations on the occurrence of the diseases in farmer's field in Surat and Bharuch

Location/ District/Village	Variety/ Hybrids	Stage of sampling (Percent Disease Intensity (PDI))								
		Seedling stage (20-30 DAS)			Flowering stage (60-80 DAS)			Boll development stage (120-150 DAS)		
		BLB	ALB	Wilt %	BLB	ALB	Wilt %	BLB	ALB	Wilt %
Surat										
Chandaniya- Mangrol 21.43'87" °N; 73.18'61" °E	BG II	0.0	0.0	0.0	0-14.5	0-3.5	0.0	0.0-18.5	0.0-5.5	0.0
Umarpada 21.62'83" °N; 73.58'29" °E	BG II	0.0	0.0	0.0	0-3.5	0-2.5	0.0	0.0-5.5	0.0-3.5	0.0
Average		0.0	0.0	0.0	0-9.0	0-3.0	0.0	0-12.0	0-5.5	0.0
Bharuch										
Bharuch 21.46'09" °N; 73.01'26" °E	BG II	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kargat 21.49'44" °N; 73.01'26" °E	BG II	0.0	0.0	0.0	0-5.5	0.0	0.0	0.0-8.5	0.0	0.0
Varadiya 21.46'09" °N; 73.01'.26"°E	BG II	0.0	0.0	0.0	0-10.0	0-3.0	0.0	0-15.0	0-5.0	0.0
Haldarva 21.53'46" °N; 73.04'16" °E	BG II	0.0	0.0	0.0	0.0	0.0	0.0	0.0-0.0	0.0	0.0
Valan 21.57'18" °N; 73.05'34" °E	BG II	0.0	0.0	0.0	0-1.5	0.0	0.0	0.0-2.5	0.0	0.0
Hingalla 21.87'62" °N; 72.89'70" °E	BG II	0.0	0.0	0.0	0.0	0.0	0.0	0.0-0.0	0.0	0.0
Kambodiya- Valia 21.36'24" °N; 73.21'21" °E	BG II	0.0	0.0	0.0	0-14.5	0-1.0	0.0	0-20.5	0-2.0	0.0
Chiklota 21.37'53" °N; 73.18'36" °E	BG II	0.0	0.0	0.0	0.0	0-1.0	0.0	0.0	0.0-2.0	0.0
Kothi- Amod 21.99'61"°N ;72.89'63" °E	Desi	0.0	0.0	0.0	0.0	0.0	0-5.5	0.0	0.0	0-8.5
Tahol- Hansot 21.26'25"°N ;72.49'17" °E	BG II	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rayma 21.30'40"°N; 72.49'20" °E	BG II	0.0	0.0	0.0	0-3.5	0.0	0.0	0-5.5	0.0	0.0
Average		0.0	0.0	0.0	0-3.2	0-0.5	0-0.5	0-4.7	0-0.8	0-0.8
Overall Average		0.0	0.0	0.0	0-6.2	0-1.5		0-8.3	0-3.1	0-0.4

Table7b: Observations on the occurrence of the diseases at research farm of MCRS Surat (Gujarat)

Location/ Village	Variety/ Hybrids/cultivar	Stage of sampling (Percent Disease Intensity (PDI)							
		Seedling stage (20-30 DAS)			Flowering stage (60-80 DAS)			Boll development stage (120-150 DAS)	
		BLB	ALB	Wilt %	BLB	ALB	Wilt %	BLB	ALB
MCRS 21.10'30" °N 72.47'55" °E	G. Cot. Hy. 12 BG II	0.0	0.0	0.0	0.0-5.5	0.0	0.0	0.0-10.5	0.0
	G. Cot. Hy. 8 BG II	0.0	0.0	0.0	0.0-3.5	0.0	0.0	0.0-7.5	0.0
	G. Cot. Hy. 10 BG II	0.0	0.0	0.0	0-10.5	0.0	0.0	0.0-18.5	0.0
	G. Cot. Hy. 12 BG II	0.0	0.0	0.0	0.0-5.5	0.0	0.0	0.0-8.5	0.0
	GTHH 49 BG II	0.0	0.0	0.0	0.0-1.5	0.0	0.0	0.0-3.5	0.0
	G. Cot. Hy. 4	0.0	0.0	0.0	0.0-6.5	0.0	0.0	0.0-8.5	0.0
	GSHH 15035	0.0	0.0	0.0	0.0-0.0	0.0	0.0	0.0-0.0	0.0
	GSHH 15021	0.0	0.0	0.0	0.0-3.0	0.0	0.0	0.0-5.0	0.0
	G. Cot. 100	0.0	0.0	0.0	0.0-3.0	0.0-6.5	0.0	0.0-5.0	0.0-8.5
	G. Cot. 34	0.0	0.0	0.0	0.0-4.5	0.0	0.0	0.0-4.5	0.0
	DH 9	0.0	0.0	0.0	0.0	0.0	0.0	0.0-0.0	0.0
	G. Cot. 23	0.0	0.0	0.0	0.0	0.0	0.0	0.0-0.0	0.0
	G. Cot. 13	0.0	0.0	0.0	0.0	0.0	0.0	0.0-0.0	0.0
	ADC 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0-0.0	0.0
	G. Cot. Hy. 6	0.0	0.0	0.0	0.0-5.0	0.0	0.0	0.0-8.0	0.0
	GSHH 15036	0.0	0.0	0.0	0.0	0.0	0.0	0.0-0.0	0.0
	GSHH 15032	0.0	0.0	0.0	0.0	0.0	0.0	0.0-0.0	0.0
	G. Cot. 10	0.0	0.0	0.0	0.0-3.0	0.0-1.5	0.0	0.0-5.0	0.0-3.0
	G. Cot. 36	0.0	0.0	0.0	0.0	0.0-0.0	0.0	0.0	0.0
	DH 7	0.0	0.0	0.0	0.0	0.0-0.0	0.0	0.0	0.0
	G. Cot. 25	0.0	0.0	0.0	0.0	0.0-0.0	0.0	0.0	0.0
	G. Cot. 15	0.0	0.0	0.0	0.0	0.0-0.0	0.0	0.0	0.0
	ADC 2	0.0	0.0	0.0	0.0	0.0-0.0	0.0	0.0	0.0
	G. Cot. Hy. 8	0.0	0.0	0.0	0.0-4.5	0.0-2.5	0.0	0.0-6.5	0.0-3.5
	G. Cot. Hy. 10	0.0	0.0	0.0	0.0-18.0	0.0-0.0	0.0	0.0-28.0	0.0
	G. Cot. Hy. 12	0.0	0.0	0.0	0.0-20.5	0.0-3.5	0.0	0.0-40.5	0.0-5.5
	G. Cot. Hy.14	0.0	0.0	0.0	0.0-6.5	0.0-0.0	0.0	0.0-8.5	0.0
	LRA 5166	0.0	0.0	0.0	**0.0-30.5**	0.0-5.0	0.0	**0.0-55.5**	**0.0-8.0**
	G. Cot. Hy 18	0.0	0.0	0.0	0.0-15.5	0.0-0.0	0.0	0.0-22.5	0.0
	Overall Average	0.0	0.0	0.0	**4.6 (0-15.3)**	**1.6 (0-3.2)**	0.0	**7.5 (0-27.7)**	**2.4 (0-4.3)**

Table 8a: Observations on the occurrence of diseases at farmer's fields in Junagarh, Rajkot, Amreli (Gujarat)

District/ Place	Variety/ Hybrid	Stage of sampling								
		Percent Disease Intensity (PDI)								
		Early season (20-30 DAS)			Mid-season (60-80 DAS)			Late season (120-150 DAS)		
		BLB	GM	ALB	BLB	GM	Phoma	CoLS	GM	ALB
Junagadh										
Valasimadi 1	Bhakti	0.0	0.0	0.0	1.2	0.0	2.5	1.5	5.6	16.3
Valasimadi 2	Super Gold	0.0	0.0	0.0	1.0	0.0	3.6	3.6	8.9	12.3
Valasimadi 3	Buyer 7576	0.0	0.0	0.0	1.9	0.0	8.5	2.1	7.1	6.9
JuniGudali 1	Buyer First Class	0.0	0.0	0.0	2.1	0.0	6.1	3.9	8	5.6
Sardargadh 1	Ankur-3028	0.0	0.0	0.0	1.5	0.0	7.1	4.1	4.5	16.9
Sardargadh 2	ATM	0.0	0.0	0.0	2.5	0.0	5.6	**16.2**	11.2	**17.1**
Sardargadh 3	Solar-77	0.0	0.0	0.0	1.8	0.0	6.5	10.2	4	5.6
Sardargadh 4	Bhakti	0.0	0.0	0.0	1.9	0.0	8.9	2.3	1.6	9.6
Thapla 1	Ajeet-155	0.0	0.0	0.0	0.5	0.0	7.5	4.5	2.3	3.6
Thapla 2	Navab	0.0	0.0	0.0	1.5	0.0	4.5	3.6	11.6	4.6
Thapla 3	Solar-76	0.0	0.0	0.0	1.3	0.0	10.2	13.2	**19.2**	8.9
Thapla 4	Ganesh+	0.0	0.0	0.0	2.5	0.0	**12.3**	11.1	14	11.3
Choki 1	Navab	0.0	0.0	0.0	2.1	0.0	4.5	4.2	10	4.6
Choki 2	Buyer 7576	0.0	0.0	0.0	2.3	0.0	6.8	4.6	7.6	14.3
Choki 3	Navab	0.0	0.0	0.0	2.5	0.0	4.2	3.2	8.9	4.0
Choki 4	ATM	0.0	0.0	0.0	1.5	0.0	5.6	15.3	6.3	11.2
Mendapra 1	Navab	0.0	0.0	0.0	2.0	0.0	5.1	1.2	5.6	5.2
Mendapra 2	Navab	0.0	0.0	0.0	2.5	0.0	4.5	3.2	5.7	4.6
Mendapra 3	Ajit-5	0.0	0.0	0.0	1.5	0.0	6.3	4.6	6.9	10.9
Mendapra 4	ATM	0.0	0.0	0.0	2.3	0.0	4.5	8.5	11.2	11.0
Mendapra 5	ATM	0.0	0.0	0.0	2.8	0.0	4.9	16	8.9	14
Mendapra 6	Sanjivani	0.0	0.0	0.0	1.9	0.0	8.9	10.2	4.3	8.2
Average		**0.0**	**0.0**	**0.0**	**1.9**	**0.0**	**6.3**	**6.7**	**7.9**	**9.4**
Rajkot										
Ujala 1	Navab	0.0	0.0	0.0	1.5	0.0	4.6	2.1	11.6	4.9
Ujala 2	Muniraj	0.0	0.0	0.0	14.3	0.0	4.9	1.3	9.3	2.3
Bandhiya 1	Navab	0.0	0.0	0.0	2.3	0.0	8.7	4.0	4.5	6.9
Bandhiya 2	ATM	0.0	0.0	0.0	1.2	0.0	12.3	3.1	6.9	5.0
Bandhiya 3	RCH-659	0.0	0.0	0.0	3.2	0.0	6.9	4.1	13.2	4.9
Lilakha 1	Navab	0.0	0.0	0.0	1.9	0.0	1.3	4.1	4.5	11.2
Lilakha 2	ATM	0.0	0.0	0.0	2.3	0.0	2.5	11.5	8.4	16.3
Lilakha 3	RCH-659	0.0	0.0	0.0	1.5	0.0	4.5	5.6	9.6	10.1
Lilakha 4	Navab	0.0	0.0	0.0	2.1	0.0	2.6	1.2	6.3	3.3
Bhader 1	Navab	0.0	0.0	0.0	2.0	0.0	8.3	3.2	4.5	7.5
Bhader 2	Navab	0.0	0.0	0.0	1.9	0.0	1.2	4.5	5.00	4.5
Bhader 3	Navab	0.0	0.0	0.0	2.0	0.0	4.5	6.3	3.1	5.5
Bhader 4	Solar-76	0.0	0.0	0.0	4.1	0.0	3.2	4.1	17.10	4.2
Average		**0.0**	**0.0**	**0.0**	**3.1**	**0.0**	**5.0**	**4.2**	**8**	**6.7**

District/ Place	Variety/ Hybrid	Stage of sampling								
		Percent Disease Intensity (PDI)								
		Early season (20-30 DAS)			Mid-season (60-80 DAS)			Late season (120-150 DAS)		
		BLB	GM	ALB	BLB	GM	Phoma	CoLS	GM	ALB
Amreli										
Bagasara 1	Super Gold	0.0	0.0	0.0	1.2	0.0	3.1	4.5	11.2	7.5
Bagasara 2	Prabhat	0.0	0.0	0.0	1	0.0	4.9	3.6	13.2	5.6
Bagasara 3	Buyer First Class	0.0	0.0	0.0	2.3	0.0	7.5	7.5	4.6	9.3
Bagasara 4	Buyer First Class	0.0	0.0	0.0	1.2	0.0	8.6	12.3	3.2	11.3
Natavar 1	ATM	0.0	0.0	0.0	2.3	0.0	4.1	7.3	5.6	15.6
Natavar 2	Navab	0.0	0.0	0.0	1	0.0	2.1	4.1	6.3	10.1
Natavar 3	RCH-659	0.0	0.0	0.0	2.1	0.0	2.8	1.00	4.5	3.6
Natavar 4	Ajuba	0.0	0.0	0.0	2.2	0.0	1.9	3.6	3.1	6.8
Natavar 5	ATM	0.0	0.0	0.0	3.2	0.0	3.2	4.1	9.1	2.3
Average		**0.0**	**0.0**	**0.0**	**1.8**	**0.0**	**4.2**	**5.3**	**6.8**	**8.0**
Overall Average		**0.0**	**0.0**	**0.0**	**2.3**	**0.0**	**5.2**	**5.4**	**7.6**	**8.0**

BLB- Bacterial leaf blight GM- Grey Mildew, CoLs-*Corynespora* leaf spot

Table 8b: Observations on the occurrence of cotton diseases at research farm of CRS JAU, Junagarh

Month	Hybrids (BG II)	Incidence (%)			Mean Percent Disease Intensity (PDI)						
		Wilt	Root rot	Boll Rot	ALB	CLS	ATN	CoLS	BLB	GM	Phoma
July	RCH-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.0	10.2
	Cot-8(BG-II)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	8.4
Aug-	RCH-2	2.4	0.0	4.2	0.0	0.0	3.6	0.0	5.6	0.0	15.6
	Cot-8(BG-II)	3.1	0.0	5.1	0.0	0.0	4.6	3.4	2.6	0.0	12.2
Sept.	RCH-2	0.0	0.0	7.0	0.0	0.0	6.1	2.1	18.2	0.0	0.0
	Cot-8(BG-II)	0.0	0.0	15.0	0.0	0.0	4.2	15.2	12.3	0.0	0.0
Oct.	RCH-2	0.0	0.0	18.1	0.0	1.5	0.0	5.1	8.0	0.0	0.0
	Cot-8(BG-II)	0.0	0.0	20.4	0.0	2.3	0.0	4.3	3.4	2.0	0.0
Nov.	RCH-2	0.0	0.0	2.3	25.1	0.0	0.0	0.0	1.2	5.0	0.0
	Cot-8(BG-II)	0.0	0.0	3.1	21.2	0.0	0.0	0.0	0.0	20.5	0.0
Dec.	RCH-2	0.0	0.0	0.0	14.1	0.0	0.0	0.0	0.0	4.5	0.0
	Cot-8(BG-II)	0.0	0.0	0.0	12.2	0.0	0.0	0.0	0.0	10.1	0.0

ALB: Alternaria leaf spot; HLS: Helminthosporium leaf spot; CLS: Cercospora leaf spot; ATN: Anthracnose; CoLS: Corynespora Leaf spot; MLS: Myrothecium leaf spot; BB: Bacterial blight; GM: Grey mildew

SOUTH ZONE

Table 9a: Observations on the occurrence of diseases at Farmer's fields in Dharwad (Karnataka)

District/ Place	Variety/ Hybrid	Stage of sampling												
		Percent Disease Intensity (PDI)												
		Early season/Seedling stage (20-30 DAS)				Mid-season/Flowering stage (60-80 DAS)				Late/ Boll development stage (120-150 DAS)				
		ALB	BLB	GM	Boll rot	ALB	BLB	GM	Boll rot	ALB	BLB	GM	Rust	Boll rot
District: Belagavi														
1.Anigol	First class	0.0	0.0	0.0	0.0	5.3	4.6	2.3	0.0	18.9	10.1	6.4	20.0	14.6
	Yuva	0.0	0.0	0.0	0.0	8.5	3.9	1.8	0.0	19.7	11.5	**6.0**	21.3	15.6
	RCH-659	0.0	0.0	0.0	0.0	6.1	4.2	3.0	0.0	**16.6**	11.9	8.5	20.6	15.0
	Soumya	0.0	0.0	0.0	0.0	5.8	5.0	2.2	0.0	19.5	10.3	8.7	19.6	14.7
	Puli	0.0	0.0	0.0	0.0	5.0	4.7	1.7	0.0	20.1	12.6	6.8	20.0	15.2
2.Pattehala	Jaadu	0.0	0.0	0.0	0.0	4.6	4.0	2.0	0.0	19.4	12.1	9.6	20.0	15.7
	Chiranjeevi	0.0	0.0	0.0	0.0	5.0	3.5	2.9	0.0	18.9	9.6	8.8	20.6	14.5
	MRC7351	0.0	0.0	0.0	0.0	4.6	5.0	2.5	0.0	17.1	10.1	6.6	20.0	14.5
	Jwala	0.0	0.0	0.0	0.0	7.8	2.2	1.2	0.0	20.7	11.5	7.8	20.6	15.0
	Money maker	0.0	0.0	0.0	0.0	6.7	2.0	3.0	0.0	21.5	12.1	7.5	18.9	15.0
3. Hosur	Lotus	0.0	0.0	0.0	0.0	4.0	4.1	3.6	0.0	19.1	11.6	6.4	20.7	14.7
	Super cot	0.0	0.0	0.0	0.0	5.0	4.0	2.9	0.0	20.0	12.3	8.3	20.0	14.0
	Mahadev	0.0	0.0	0.0	0.0	7.6	3.2	1.5	0.0	16.7	11.4	7.9	20.0	14.8
	Bhaskar	0.0	0.0	0.0	0.0	6.7	3.5	3.0	0.0	30.0	10.6	8.9	20.0	14.2
	Soumya	0.0	0.0	0.0	0.0	8.2	3.0	2.6	0.0	18.8	11.0	8.5	20.6	14.0
4.Vakkunda	First class	0.0	0.0	0.0	0.0	5.0	1.5	4.0	0.0	18.7	12.9	7.9	20.0	14.9
	Yuva	0.0	0.0	0.0	0.0	5.4	2.6	3.8	0.0	18.6	11.5	6.8	20.2	15.3
	RCH-659	0.0	0.0	0.0	0.0	5.7	3.5	2.1	0.0	21.5	12.8	8.9	20.6	13.7
	Soumya	0.0	0.0	0.0	0.0	5.0	3.7	1.8	0.0	20.5	12.0	9.2	19.5	13.3
	Puli	0.0	0.0	0.0	0.0	5.0	3.9	1.7	0.0	18.3	12.7	8.7	20.2	14.5
5.Asundi	Jaadu	0.0	0.0	0.0	0.0	5.2	2.9	2.1	0.0	18.4	10.5	7.4	21.1	13.7
	Chiranjeevi	0.0	0.0	0.0	0.0	6.9	4.0	2.0	0.0	18.9	10.7	8.3	20.1	14.5
	MRC7351	0.0	0.0	0.0	0.0	7.8	3.7	2.4	0.0	19.9	10.5	6.7	20.0	15.5
	Jwala	0.0	0.0	0.0	0.0	7.8	3.0	2.7	0.0	20.6	10.5	8.8	19.9	14.5

	Money maker	0.0	0.0	0.0	0.0	5.5	3.9	3.0	0.0	19.8	11.0	8.9	19.7	13.3
Average		**0.0**	**0.0**	**0.0**	**0.0**	**6.0**	**3.6**	**2.5**	**0.0**	**16.7**	**11.4**	**7.9**	**20.2**	**14.6**
District: Dharwad														
1.Shivalli	RCH-659	0.0	0.0	0.0	0.0	12.5	4.5	7.8	0.0	24.6	8.8	10.6	20.7	18.1
	Super cot,	0.0	0.0	0.0	0.0	13.5	5.0	8.2	0.0	25.6	10.0	9.8	23.6	17.8
	Jwala	0.0	0.0	0.0	0.0	12.3	4.8	7.7	0.0	20.0	11.1	11.2	24.5	18.9
	Vega	0.0	0.0	0.0	0.0	12.5	5.3	6.6	0.0	20.7	8.6	10.7	23.6	17.8
	MRC7351	0.0	0.0	0.0	0.0	13.3	5.0	6.6	0.0	23.4	9.6	12.3	22.7	17.6
2.Byahatti	Bhaskar	0.0	0.0	0.0	0.0	**24.5**	4.3	7.2	0.0	24.7	10.7	10.9	24.7	16.6
	Mahadev	0.0	0.0	0.0	0.0	14.0	4.0	5.6	0.0	25.6	11.2	11.1	23.9	15.6
	RCH-659	0.0	0.0	0.0	0.0	13.8	4.0	5.3	0.0	24.5	10.1	10.6	26.7	17.8
	Soumya	0.0	0.0	0.0	0.0	12.4	5.0	5.0	0.0	23.7	11.0	9.7	24.0	15.8
	Ajeet 155	0.0	0.0	0.0	0.0	12.6	5.1	4.6	0.0	20.2	11.2	**13.6**	24.1	17.8
3.Dastikoppa	Ajeet 199	0.0	0.0	0.0	0.0	13.6	5.0	8.5	0.0	20.0	9.9	10.9	23.9	15.6
	Super cot,	0.0	0.0	0.0	0.0	12.9	5.0	7.9	0.0	25.0	10.6	9.6	23.1	**18.9**
	Jwala	0.0	0.0	0.0	0.0	14.0	5.8	**8.6**	0.0	24.7	11.7	9.9	23.1	18.0
	Vega	0.0	0.0	0.0	0.0	14.1	5.5	6.9	0.0	18.8	11.5	11.1	23.7	17.8
	MRC7351	0.0	0.0	0.0	0.0	14.0	4.8	7.6	0.0	24.0	9.8	10.1	25.7	18.0
4.Kundagol	Lotus	0.0	0.0	0.0	0.0	13.8	5.0	8.1	0.0	24.1	10.8	9.4	**26.7**	**18.9**
	Super cot,	0.0	0.0	0.0	0.0	14.8	5.1	8.9	0.0	23.9	10.9	9.6	24.8	18.6
	Jwala	0.0	0.0	0.0	0.0	14.0	4.8	7.9	0.0	24.6	11.1	11.1	24.0	18.0
	Vega	0.0	0.0	0.0	0.0	14.7	5.1	7.6	0.0	19.8	9.8	10.1	24.8	17.7
	RCH-659	0.0	0.0	0.0	0.0	14.4	5.7	7.3	0.0	24.0	11.9	9.7	24.0	18.0
5.Shirur	Bhaskar	0.0	0.0	0.0	0.0	13.7	5.9	8.6	0.0	24.2	11.0	8.8	24.5	18.1
	Mahadev	0.0	0.0	0.0	0.0	12.4	5.7	8.0	0.0	22.7	10.9	10.4	24.8	18.0
	RCH-659	0.0	0.0	0.0	0.0	12.3	5.0	8.2	0.0	24.8	10.9	7.7	25.6	17.7
	Soumya	0.0	0.0	0.0	0.0	13.7	5.5	8.7	0.0	23.2	10.5	8.6	21.5	17.8
	Ajeet 155	0.0	0.0	0.0	0.0	12.6	5.1	8.9	0.0	24.0	9.7	10.0	25.7	18.0
Average		**0.0**	**0.0**	**0.0**	**0.0**	**13.9**	**5.0**	**7.5**	**0.0**	**23.2**	**10.5**	**10.3**	**24.2**	**17.7**
District: Gadag														
1.Laxmeshwar	Rasi 659	0.0	0.0	0.0	0.0	10.2	5.9	4.0	0.0	18.5	8.6	10.0	13.5	8.9
	First class	0.0	0.0	0.0	0.0	9.8	4.6	4.0	0.0	16.8	11.1	9.9	12.8	10.1
	Super fiber,	0.0	0.0	0.0	0.0	10.0	6.1	3.2	0.0	17.9	11.0	10.6	14.0	9.9
	Jiaho	0.0	0.0	0.0	0.0	8.5	6.0	3.6	0.0	17.7	10.7	8.9	9.9	8.8

	Puli	0.0	0.0	0.0	0.0	9.9	6.0	3.9	0.0	18.9	11.6	9.7	10.8	9.0
2.Govinhala	Everest	0.0	0.0	0.0	0.0	10.6	6.0	4.0	0.0	16.7	**12.9**	10.6	13.9	7.9
	Ajeet 155	0.0	0.0	0.0	0.0	10.5	5.9	4.1	0.0	18.1	9.8	9.2	12.7	8.7
	RCH-659	0.0	0.0	0.0	0.0	9.8	5.8	3.8	0.0	17.7	10.9	9.6	13.0	9.0
	Bhaskar	0.0	0.0	0.0	0.0	10.0	5.7	3.9	0.0	18.5	11.8	10.8	13.7	9.5
	Rasi 659	0.0	0.0	0.0	0.0	10.0	6.0	3.9	0.0	16.6	9.9	11.0	12.7	10.0
3.Jalligeri	MRC7351	0.0	0.0	0.0	0.0	9.9	4.8	4.5	0.0	18.9	11.0	10.7	14.7	9.6
	First class	0.0	0.0	0.0	0.0	10.1	6.1	3.9	0.0	18.1	11.9	9.9	15.6	9.0
	Super fiber,	0.0	0.0	0.0	0.0	9.6	5.8	3.9	0.0	18.0	11.0	9.7	15.0	**7.7**
	Jiaho	0.0	0.0	0.0	0.0	9.6	5.9	4.2	0.0	18.5	10.8	9.6	14.0	8.8
	puli	0.0	0.0	0.0	0.0	9.6	6.0	4.2	0.0	18.8	10.7	9.6	14.8	9.6
4.Hulakoti	Everest	0.0	0.0	0.0	0.0	10.1	6.8	4.1	0.0	17.7	11.3	10.7	13.9	9.0
	Ajeet 155	0.0	0.0	0.0	0.0	9.0	6.1	4.1	0.0	18.0	**7.7**	10.5	14.0	8.8
	RCH-659	0.0	0.0	0.0	0.0	10.5	5.7	5.0	0.0	17.7	9.0	10.5	14.8	9.0
	Bhaskar	0.0	0.0	0.0	0.0	10.0	5.8	2.6	0.0	17.9	12.0	10.3	15.1	9.1
	Rasi 659	0.0	0.0	0.0	0.0	9.8	5.4	3.6	0.0	18.8	10.9	9.6	13.9	9.7
5.Mevundi	Rasi 659	0.0	0.0	0.0	0.0	9.7	5.4	3.7	0.0	18.0	12.1	9.5	14.8	7.9
	First class	0.0	0.0	0.0	0.0	10.5	5.9	2.5	0.0	18.0	10.7	10.0	14.9	8.5
	Super fiber,	0.0	0.0	0.0	0.0	10.0	6.1	2.9	0.0	18.4	12.4	9.5	13.8	9.2
	Jiaho	0.0	0.0	0.0	0.0	9.3	6.0	4.0	0.0	18.0	12.7	10.0	14.7	9.1
	Puli	0.0	0.0	0.0	0.0	10.0	6.0	4.0	0.0	17.7	11.1	10.0	13.3	9.0
Average		**0.0**	**0.0**	**0.0**	**0.0**	**9.9**	**5.8**	**3.8**	**0.0**	**18**	**10.5**	**10.0**	**13.8**	**9.0**
District: Haveri														
1.Varadahalli	MRC7351	0.0	0.0	0.0	0.0	10.7	6.0	4.9	0.0	27.5	13.5	10.7	9.8	15.5
	MRC 7383	0.0	0.0	0.0	0.0	11.2	7.7	5.0	0.0	27.0	12.4	9.9	12.9	18.7
	Jaadu	0.0	0.0	0.0	0.0	10.0	**8.5**	5.1	0.0	26.9	11.5	10.0	10.5	20.0
	Chiranjeevi,	0.0	0.0	0.0	0.0	12.3	6.7	4.8	0.0	26.8	10.7	8.9	9.9	14.0
	Everest	0.0	0.0	0.0	0.0	10.1	6.0	4.9	0.0	27.0	10.0	10.1	10.8	14.2
2.Savanur	First class	0.0	0.0	0.0	0.0	11.2	7.5	5.6	0.0	26.9	11.9	9.8	11.1	13.8
	Priya seeds	0.0	0.0	0.0	0.0	12.5	8.6	6.0	0.0	25.6	10.9	9.7	9.9	15.1
	Yuva	0.0	0.0	0.0	0.0	12.0	8.0	6.0	0.0	27.9	9.8	11.0	10.6	1390.0
	Dhanya	0.0	0.0	0.0	0.0	12.6	8.0	5.7	0.0	28.0	11.0	10.8	10.3	14.1
	Puli	0.0	0.0	0.0	0.0	11.9	8.0	4.9	0.0	**35.8**	10.9	10.9	9.9	12.6
3.Hmsabhavi	Mahadev	0.0	0.0	0.0	0.0	11.9	6.8	5.0	0.0	26.6	11.9	10.8	10.5	14.2

	MRC7351	0.0	0.0	0.0	0.0	11.0	7.8	4.0	0.0	27.1	12.9	11.0	10.1	13.9
	MRC 7383	0.0	0.0	0.0	0.0	12.7	8.0	5.0	0.0	27.1	9.9	9.6	10.0	14.2
	Jaadu	0.0	0.0	0.0	0.0	10.7	8.2	5.7	0.0	27.0	9.5	9.0	9.6	13.0
	Chiranjeevi,	0.0	0.0	0.0	0.0	10.9	8.1	5.9	0.0	26.8	10.0	9.9	10.0	14.8
4.Akkialur	Ajeet 155	0.0	0.0	0.0	0.0	12.0	8.0	5.7	0.0	26.9	10.0	10.8	10.5	13.1
	MRC 7383	0.0	0.0	0.0	0.0	12.6	8.0	4.9	0.0	27.5	10.7	10.0	10.7	12.0
	Jaadu	0.0	0.0	0.0	0.0	11.7	7.6	4.6	0.0	27.0	10.8	9.8	9.9	13.0
	Chiranjeevi,	0.0	0.0	0.0	0.0	10.8	7.0	4.7	0.0	27.5	9.6	10.6	10.7	13.9
	Ajeet 199	0.0	0.0	0.0	0.0	10.9	7.5	5.0	0.0	27.0	11.9	11.1	10.7	11.8
5.Devihosur	First class	0.0	0.0	0.0	0.0	11.7	7.7	4.0	0.0	26.8	11.7	10.7	9.6	14.1
	Priya seeds	0.0	0.0	0.0	0.0	12.1	7.3	5.9	0.0	25.9	12.3	10.8	10.5	12.0
	Yuva	0.0	0.0	0.0	0.0	10.7	6.8	5.4	0.0	27.6	11.9	10.8	**8.9**	13.9
	Dhanya	0.0	0.0	0.0	0.0	12.6	7.0	5.0	0.0	27.0	11.1	10.0	9.8	12.0
	Puli	0.0	0.0	0.0	0.0	11.5	7.2	4.0	0.0	26.9	11.0	10.8	11.0	14.2
Average		**0.0**	**0.0**	**0.0**	**0.0**	**11.5**	**7.5**	**5.1**	**0.0**	**27.4**	**11.1**	**10.3**	**10.3**	**69.1**
District: Uttar kannada														
1.Koppa	MRC7351	0.0	0.0	0.0	0.0	8.8	4.5	5.6	0.0	18.8	11.7	11.1	20.0	15.0
	MRC 7383	0.0	0.0	0.0	0.0	9.5	5.7	8.9	0.0	22.2	10.9	8.8	20.0	14.5
	Jaadu	0.0	0.0	0.0	0.0	8.7	5.8	8.0	0.0	20.0	12.3	11.0	18.9	14.0
	Everest	0.0	0.0	0.0	0.0	10.0	6.0	7.9	0.0	20.8	11.0	10.7	19.8	14.7
	Mahadev	0.0	0.0	0.0	0.0	9.8	6.5	7.5	0.0	21.3	11.1	10.8	20.6	15.0
2.Mundagod	First class	0.0	0.0	0.0	0.0	8.0	6.0	5.5	0.0	21.0	10.9	11.9	19.8	14.8
	Yuva	0.0	0.0	0.0	0.0	8.7	6.1	6.6	0.0	21.0	11.1	11.9	19.0	14.0
	Priya seeds	0.0	0.0	0.0	0.0	7.5	5.9	8.0	0.0	20.7	10.8	10.6	19.1	16.7
	Puli	0.0	0.0	0.0	0.0	10.1	4.9	7.6	0.0	21.1	10.9	`0.78	21.0	15.6
	Chiranjeevi	0.0	0.0	0.0	0.0	10.5	5.9	6.7	0.0	20.8	12.1	10.9	20.9	15.0
3.Bachunaki	Dhanya	0.0	0.0	0.0	0.0	9.5	6.0	7.6	0.0	21.0	10.8	11.0	20.0	15.0
	MRC 7383	0.0	0.0	0.0	0.0	10.1	6.4	8.0	0.0	20.7	11.5	9.9	19.9	15.0
	Jaadu	0.0	0.0	0.0	0.0	8.8	6.1	7.8	0.0	22.6	11.6	10.6	20.1	15.1
	Everest	0.0	0.0	0.0	0.0	10.0	6.0	6.9	0.0	21.8	11.0	11.5	20.7	15.1
	Mahadev	0.0	0.0	0.0	0.0	9.7	5.9	8.0	0.0	20.7	10.5	10.7	19.8	13.7
4.Malagi	First class	0.0	0.0	0.0	0.0	10.6	6.9	7.1	0.0	20.0	10.7	12.9	20.5	16.6
	First class	0.0	0.0	0.0	0.0	10.0	7.0	8.3	0.0	21.9	11.1	11.9	20.0	15.0
	Yuva	0.0	0.0	0.0	0.0	9.5	5,67	7.5	0.0	21.9	11.0	11.0	19.8	15.0

	Priya seeds	0.0	0.0	0.0	0.0	10.1	6.5	7.9	0.0	21.6	10.5	10.9	20.0	15.0
	Puli	0.0	0.0	0.0	0.0	10.0	6.0	7.7	0.0	21.0	11.7	10.7	18.9	15.0
5.Bachanaki	Chiranjeevi	0.0	0.0	0.0	0.0	10.0	5.5	8.3	0.0	21.1	10.6	11.0	21.7	14.8
	MRC 7383	0.0	0.0	0.0	0.0	11.0	5.9	7.7	0.0	20.9	10.5	11.9	20.6	15.1
	Jaadu	0.0	0.0	0.0	0.0	10.4	6.1	7.9	0.0	20.8	10.0	10.9	19.5	14.9
	Everest	0.0	0.0	0.0	0.0	9.7	6.5	8.1	0.0	21.8	10.8	11.0	19.8	15.9
	Mahadev	0.0	0.0	0.0	0.0	10.6	6.9	8.0	0	21.0	11.0	11.5	20.7	15.0
Average		**0.0**	**0.0**	**0.0**	**0.0**	**9.7**	**8.7**	**7.6**	**0.0**	**21.1**	**11.0**	**11.1**	**20.0**	**15.0**
Overall Average		**0.0**	**0.0**	**0.0**	**0.0**	**10.2**	**6.1**	**5.3**	**0**	**21.3**	**10.9**	**9.9**	**17.7**	**25.1**

Table 9b: Observations on the occurrence of diseases at research farm at UAS Dharwad (Karnataka)

Month	Hybrids (BG II)	Incidence (%)			Mean Percent Disease Intensity (PDI)							
		Wilt	Root rot	Boll Rot	ALB	HLS	CLS	CoLS	MLS	BLB	GM	Rust
Aug-	Jaadu, Rashi magic RCH386,JKCH99, MRC7383,MRC7160,Ajit155,JalwaNBC102,Yuva7215-2,RCH659,Ajit111,Jai,Firstclass and Dr Brent.	0.0	1.0	0.0	9.6	0.0	0.0	0.0	0.0	4.5	6.5	0.0
Sept.	Jaadu, Rashi magic RCH386,JKCH99, MRC7383,MRC7160,Ajit155,JalwaNBC102,Yuva7215-2,RCH659,Ajit111,Jai,Firstclass and Dr Brent.	0.0	1.5	4.3	12.7	0.0	0.0	0.0	0.0	5.7	7.1	0.0
Oct.	Jaadu, Rashi magic RCH386,JKCH99, MRC7383,MRC7160,Ajit155,JalwaNBC102,Yuva7215-2,RCH659,Ajit111,Jai,Firstclass and Dr Brent.	0.0	2.0	5.7	14.5	0.0	0.0	0.0	0.0	8.7	9.5	0.0
Nov.	Jaadu, Rashi magic RCH386,JKCH99, MRC7383,MRC7160,Ajit155,JalwaNBC102,Yuva7215-2,RCH659,Ajit111,Jai,Firstclass and Dr Brent.	0.0	2.2	8.5	16.8	0.0	0.0	0.0	0.0	7.9	6.5	18.5
Dec.	Jaadu, Rashi magic RCH386,JKCH99, MRC7383,MRC7160,Ajit155,JalwaNBC102,Yuva7215-2,RCH659,Ajit111,Jai,Firstclass and Dr Brent.	0.0	0.0	6.6	12.9	0.0	0.0	0.0	0.0	5.4	4.5	24.6
Jan.	Jaadu, Rashi magic RCH386,JKCH99, MRC7383,MRC7160,Ajit155,JalwaNBC102,Yuva7215-2,RCH659,Ajit111,Jai,Firstclass and Dr Brent.	0.0	0.0	6.0	5.9	0.0	0.0	0.0	0.0	0.0	4.0	18.3

ALB: Alternaria leaf spot; BB: Bacterial blight; GM: Grey mildew;

Table 10a: Observations on the occurrence of diseases- Guntur Center (Andhra Pradesh) (in farmers' fields)

District/ Place	Variety/ Hybrid	Stage of Sampling																
		Seedling (20-50 DAS)			Flowering state (50-100 DAS)						Boll development (100-150 DAS)							
		BLB	ALB	MLS	BLB	ALB	MLS	CoLS	CLS	Antra	BLB	ALB	MLS	CoLS	CLS	Antra	GM	Rust
District: Guntur																		
1.Ponnekllu	Akira, Jaadoo	0.0	Trace	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.Varagani	US 4078, Jaadoo	0.0	Trace	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.Ravela	Akira, Dodleru	0.0	Trace	0.0	0.0	Trace	0.0	-	-	-	-	-	-	-	-	-	-	-
4.Vemavaram	Akira, Magic	0.0	1.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.Repudi	Sadananda	0.0	Trace	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.Perecherla	Akira	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-
7.Visadala	ATM	0.0	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.Gundlapalem	Nava Mallika	0.0	Trace	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.Siripuram	Jaadoo	0.0	Trace	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.Podapadu	Bhakthi	0.0	0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.Pedakurapadu	NavaMallika	0.0	Trace	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	US 7067	0.0	2.0	0.0	0.0	**2.0**	0.0	0.0	-	-	-	-	-	-	-	-	-	-
12.Gudipudi	Big Boss	0.0	**2.0**	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Target	0.0	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.Lam	Money Maker	0.0	<1.0	Trace	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Magic, Crystal 999	0.0	Trace	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.Dinthenapadu	Non Bt	-	-	-	0.0	Trace	0.0	0.0	-	-	-	-	-	-	-	-	-	-
15.Timmapuram	Akira, Jaadoo	0.0	Trace	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.Edlapadu	Akira	-	-	-	0.0	Trace	0.0	0.0	-	-	-	-	-	-	-	-	-	-
17.Lingapuram	Akira	-	-	-	0.0	Trace	0.0	0.0	-	-	-	-	-	-	-	-	-	-
18.Repudi	Tulasi 4	-	-	-	0.0	Trace	0.0	0.0	-	-	-	-	-	-	-	-	-	-
19.Satuluru	Jaadoo	-	-	-	0.0	<1	Trace	0.0	-	-	-	-	-	-	-	-	-	-
20.Jonnalagadda	Akira	-	-	-	0.0	Trace	0	0.0	-	-	-	-	-	-	-	-	-	-

21.Kunkalagunta	Mudra	-	-	-	0.0	Trace	Trace	0.0	-	-	-	-	-	-	-	-	-	-
22.Julakallu	Jaadoo	-	-	-	0.0	1.0	Trace	0.0	-	-	-	-	-	-	-	-	-	-
	US 7067	-	-	-	0.0	2.0	Trace	0.0	-	-	-	-	-	-	-	-	-	-
23.Petasannegundla	Geetha	-	-	-	-	Trace	-	Trace	-	-	-	-	-	-	-	-	-	-
24.Janapadu	Super 971	-	-	-	-	Trace	-	0.0	-	-	-	-	-	-	-	-	-	-
25.Brahmanapalli	Nava Mallika	-	-	-	-	Trace	-	Trace	-	-	-	-	-	-	-	-	-	-
26.Gangireddypalem	Akira	-	-	-	-	Trace	-	0.0	-	-	-	-	-	-	-	-	-	-
27.Paladugu	Akira	-	-	-	-	Trace	-	Trace	-	-	-	-	-	-	-	-	-	-
	Lotus	-	-	-	-	2.0	-	Trace	-	-	-	-	-	-	-	-	-	-
28.Jonnalagadda	US 7067	-	-	-	-	Trace	-	5.0	-	-	-	-	-	-	-	-	-	-
29.Achempet	Sadananda	-	-	-	-	1.0	-	Trace	-	-	-	-	-	-	-	-	-	-
	Tulasi 7	-	-	-	-	**5.0**	-	5.0	-	-	-	-	-	-	-	-	-	-
30.Pedapalem	Akira	-	-	-	-		-		-	-	-	**5.0**		3.0	-	-	-	-
31.Dodleru	Akira	-	-	-	-	Trace	-	2.0	-	-	-	-	-		-	-	-	-
32.Gudipudi	Jaadoo	-	-	-	-	3.0	-	1.0	-	-	-	-	-		-	-	-	-
33.Bejathpuram	Crystal 999	-	-	-	-	2.0	-	3.0	-	-	-	-	-		-	-	-	-
34.Pamulapadu	RCH 659	-	-	-	-	4.0	-	4	-	-	-	-	-		-	-	-	-
35.Kothapalem	Akira	-	-	-	-		-	-	-	-	-	5.0	-	1.0	-	-	-	-
36.Reddigudem	Crystal 999	-	-	-	-	-	-	-	-	-	-	2.0	-	Trace	-	-	-	-
37.Kamepalli	Akira	-	-	-	-	-	-	-	-	-	-	**5.0**	-	5.0	-	-	-	-
38.Karlapadu	Magic	-	-	-	-	-	-	-	-	-	-	2.0	-	3.0	-	-	-	-
39.Venegalla	Akira	-	-	-	-	**6.0**	-	-	-	-	-		-		-	-	-	-
40.Nadikudi	Geetha	-	-	-	-	-	-	-	-	-	-	Trace	-	4.0	-	-	0.0	0.0
41.Rentachintala	Bhakthi	-	-	-	-	-	-	-	-	-	-	3.0	-	8.0	-	-	0.0	0.0
42.Gurazala	Akira	-	-	-	-	-	-	-	-	-	-	2.0	-	7.0	-	-	0.0	0.0
43.Chirumamilla	Jaadoo	-	-	-	-	-	-	-	-	-	-	5.0	-	12.0	-	-	0.0	0.0
	Crystal 999	-	-	-	-	-	-	-	-	-	-	2.0	-	6.0	-	-	0.0	0.0
	Vardhini	-	-	-	-	-	-	-	-	-	-	1.0	-	10.0	-	-	0.0	0.0
44.Pedanandipadu	Akira	-	-	-	-	-	-	-	-	-	-	4.0	-	5.0	-	-	0.0	0.0
45.Krosuru	Jaadoo	-	-	-	-	-	-	-	-	-	-	2.0	-	15.0	-	-	0.0	0.0
46.Narukullapadu	Ujjwal	-	-	-	-	-	-	-	-	-	-	2.0	-	10.0	-	-	0.0	0.0
	Money Maker	-	-	-	-	-	-	-	-	-	-	Trace-2.0	-	5.0	-	-		
47.Perecherla	Akira	-	-	-	-	-	-	-	-	-	-	0.0	-	23.5	-	-		
48.Gundlapalem	Akira	-	-	-	-	-	-	-	-	-	-	0.0	-	12.0	-	-		
49.Garudachalpalem	Magic	-	-	-	-	-	-	-	-	-	-	1.0	-	8.0	-	-		
50.Korrapadu	RCH 668	-	-	-	-	-	-	-	-	-	-	4.0	-	16.0	-	-		

51.Ramapalem	US 4753	-	-	-	-	-	-	-	-	-	-	2.0	-	6.0	-	-		
52.Reddigudem	Money Maker	-	-	-	-	-	-	-	-	-	-	2.0	-	4.0	-	-		
53.Brahmanapalli	Bhakthi	-	-	-	-	-	-	-	-	-	-	Trace	-	5.0	-	-	0.0	0.0
54.Anjanipuram	US 7067	-	-	-	-	-	-	-	-	-	-	3.0	-	10.0	-	-	0.0	0.0
55.Nadikudi	Akira	-	-	-	-	-	-	-	-	-	-	2.0	-	5.0	-	-	0.0	0.0
56.Kotta Anjanipuram	Super Cot	-	-	-	-	-	-	-	-	-	-	0.0	-	5.0	-	-	7.5	0.0
57.Gurazala	Akira	-	-	-	-	-	-	-	-	-	-	2.0	-	10.0	-	-	10.0	0.0
	Magic	-	-	-	-	-	-	-	-	-	-	0.0	-	27.0	-	-	5.0	0.0
58.Rentachinthala	Magna	-	-	-	-	-	-	-	-	-	-	0.0	-	21.0	-	-	2.0	0.0
59.Kambhampadu	RCH 659	-	-	-	-	-	-	-	-	-	-	0.0	-	23.0	-	-	10.0	1.0
60.Rayavaram	RCH 659	-	-	-	-	-	-	-	-	-	-	0.0	-	17.0	-	-	10.0	5.0
61.Chintapalli	Khiladi	-	-	-	-	-	-	-	-	-	-	0.0	-	20.0	-	-	5.0	3.0
62.Zulakallu	US 7067	-	-	-	-	-	-	-	-	-	-	0.0	-	15.0	-	-	7.0	4.0
63.Satuluru	Jaadoo	-	-	-	-	-	-	-	-	-	-	0.0	-	30.0	-	-	3.0	0.0
64.Koyavaripalem	Crystal 999	-	-	-	-	-	-	-	-	-	2.0	0.0	-	10.0	-	-	3.0	20.0
65.Palaparru	Akira	-	-	-	-	-	-	-	-	-	0.0	0	-	15.0	-	-	2.0	**25.0**
Average		**0.0**	**0.4**	**0.0**	**0.0**	**2.3**	**0.0**	**1.1**	**0.0**	**0.0**	**0.1**	**1.8**	**0.0**	**11.1**	**0.0**	**0.0**	**0.0**	**2.8**
Krishna district																		
1.Nandigama	Akira	-	-	-	-	0.0	0.0	15.0	0.0	0.0	-	-	-	-	-	-	-	-
2.Kanchikacherla	RCH 659	-	-	-	-	0.0	0.0	12.0	0.0	0.0	-	-	-	-	-	-	-	-
3.Paritala	NCS 927	-	-	-	-	-	-	-	-	-	0.0	-	-	30.0	-	-	13	-
	Akira	-	-	-	-	-	-	-	-	-	0.0	-	-	25.0	-	-	15	-
4.Ponnavaram	RCH 659	-	-	-	-	-	-	-	-	-	0.0	-	-	29.0	-	-	8.4	-
5.Perakalapadu	Super Target	-	-	-	-	-	-	-	-	-	14.0	-	-	18.0	-	-	1.5	-
6.Ambapuram	Akira	-	-	-	-	-	-	-	-	-	0.0	-	-	25.0	-	-	8.5	-
	RCH 659	-	-	-	-	-	-	-	-	-	0.0	-	-	27.0	-	-	10	-
7.Muppala	Magic	-	-	-	-	-	-	-	-	-	0.0	-	-	24.0	-	-	10	-
8.Chandrapuram	Akira	-	-	-	-	-	-	-	-	-	0.0	-	-	28.0	-	-	20	-
9.Konakanchi	RCH 659	-	-	-	-	-	-	-	-	-	0.0	-	-	24.0	-	-	7.5	-
10.Gowravaram	Akira	-	-	-	-	-	-	-	-	-	7.0	-	-	18.5	2	3	4.0	3.0
11.Bhimavaram	Jaadoo	-	-	-	-	-	-	-	-	-	12.0	-	-	17.5	-	-	6.0	-
12.Vatsavai	Asheerwad	-	-	-	-	-	-	-	-	-	**18.0**	-	-	26.0	-	-	4.0	-
13.Penugolanu	RCH 659	-	-	-	-	-	-	-	-	-	2.0	-	-	9.0	-	-	**24.0**	-
14.Gampalgudem	RCH 659	-	-	-	-	-	-	-	-	-	0.0	-	-	15.0	-	-	20.0	-
15.G.kotturu	Tulasi-7	-	-	-	-	-	-	-	-	-	0.0	-	-	15.0	-	-	7.0	-
16.Ramachandrapuram	RCH 659	-	-	-	-	-	-	-	-	-	0.0	-	-	8.0	-	-	14.0	-
17.Chandragudem	RCH 659	-	-	-	-	-	-	-	-	-	15.0	-	-	11.0	-	-	8.0	-

18.Penuganchiprolu	Akira	-	-	-	-	-	-	-	-	-	0.0	-	-	**40.0**	-	-	20.0	15.0
19.Konakanchi	RCH 659	-	-	-	-	-	-	-	-	-	0.0	-	-	35.0	-	-	15.0	5.0
20.Vatsavai	RCH 659	-	-	-	-	-	-	-	-	-	0.0	-	-	10.0	-	-	5.0	2.0
21.Adiviravulapadu	Dhan Dev	-	-	-	-	-	-	-	-	-	0.0	-	-	30.0	-	-	15.0	12.0
22.Chendarlapadu	Money Maker	-	-	-	-	-	-	-	-	-	0.0	-	-	20.0	-	-	15.0	7.0
23.Chandrapuram	Akira	-	-	-	-	-	-	-	-	-	0.0	-	-	35.0	-	-	**25.0**	3.0
24.Kanchikacherla	Dhan Dev	-	-	-	-	-	-	-	-	-	5.0	-	-	12.0	-	-	10.0	5.0
25.Kachavarm	RCH 659	-	-	-	-	-	-	-	-	-	0.0	-	-	10.0	-	-	5.0	5.0
26.Atukur	Bahubali	-	-	-	-	-	-	-	-	-	2.0	-	-	18.00	-	-	3.0	2.0
27.Chandragudem	RCH 659	-	-	-	-	-	-	-	-	-	7.0	-	-	15.0	-	-	12.0	Trace
Average		**0**	**0**	**0**	**0**	**0**	**0**	**13.5**	**0**	**0**	**3.0**	**0**	**0**	**21.3**	**2**	**3**	**11.3**	**5.9**
Prakasam district																		
1.Chinadegarlamudi	ATM	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	3.75	0	0	8.4	12.5
	Sadananda	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	4.7	0	0	3.5	6.7
2.Yanamadala	Akira	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	2.0	0	0	6.8	13.7
3.Yaddhanapudi	RCH 659	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	6.3	0	5	8.4	12.5
4.Poluru	ATM	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	10.5	0	0	18.2	10.7
5.Peesapadu	RCH 659	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	12.5	0	0	15.7	5.5
6.Daggubadu	Jaadoo	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	3.0	0	0	5	2.0
7.Sankarapuram	Jabardasth	-	-	-	-	-	-	-	-	-	10.0	0.0	0.0	12.7	0	0	5.8	8.0
	Crystal 999	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	2.5	0	6	12.3	11.9
8.Chandaluru	Akira	-	-	-	-	-	-	-	-	-	2.0	0.0	0.0	7.3	2.5	0	12.7	9.0
9.Tummedalapadu	Akira	-	-	-	-	-	-	-	-	-	0.0	0.0	Trace	12.1	0.0	0.0	3.4	3.75
10.PedaGudipadu	RCH 659	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	11.0	0.0	0.0	10	8.75
11.Ganga Donakonda	RCH 659	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	6.5	0.0	0.0	4.8	10.0
12.Potlapadu	Jaadoo	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	5.0	0.0	0.0	2.5	10.5
13.Ramayyapalem	Jabardasth	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	.05	0.0	0.0	5.0	21.0
14.Sankarapuram	Crystal 999	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	6.0	0.0	0.0	0.0	20.0
15.Pusapadu	Akira	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	15.0	0.0	0.0	5.0	10.0
16.Chandalu1ru	Akira	-	-	-	-	-	-	-	-	-	2.0	0.0	0.0	10.0	0.0	0.0	7.0	15.0
17.Pulimivaripalli	RCH 659	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	8.0	0.0	0.0	10.0	20.0
18.Gangadevipalli	RCH 659	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	5.0	0.0	0.0	5.0	15.0
19.Ganga Donakonda	Jaadoo	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	10.0	0.0	0.0	10.0	**25.0**
20.Potlapadu	Akira	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	5.0	0.0	0.0	5.0	18.0
Average		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.6**	0.0	0.0	**7.4**	**0.1**	**0.5**	**7.5**	**12.3**
Overall average		**0.0**	**0.1**	**0.0**	**0.0**	**0.8**	**0.0**	**4.8**	**0.0**	**0.0**	**1.2**	**0.6**	**0.0**	**13.3**	**0.7**	**1.2**	**7.2**	**6.9**

Table10b: Observations on the occurrence of diseases at research farm at Lam, Guntur (Andhra Pradesh)

Month	Hybrids (BG II)	Incidence (%)			Mean Percent Disease Intensity (PDI)								
		Wilt	Root rot	Boll Rot	AL	HLS	CLS	ATN	CoLS	MLS	BB	GM	Rust
Aug-2020	Varieties and hybrids of cotton triALB	0.0	0.0	0.0	Trace	0.0	0.0	0.0	Trace	0.0	0.0	0.0	0.0
Sept. 2020		0.0	0.0	0.0	0.0 - 3.0	0.0	0.0 - 2.0	0.0	0.0 - 4.5	0.0	0.0 - 1.0	0.0	0.0
Oct. 2020		0.0	0.0	Trace	0.0	0.0	0.0	Trace	3-25.0	Trace	0.0 -4.5	0.0 - 3.0	0.0
Nov. 2020		0.0	0.0	0.0 -10.0	0.0	0.0	0.0	Trace	6.5- 40.5	0.0	0.0 - 5.0	0.0 - 22.0	0.0 - 5.0
Dec. 2020		0.0	0.0	0.0 - 3.0	Trace	0.0	0.0 - 8.5	Trace	12-33	0.0	Trace	0.0 - 26.0	8.0- 36

Table 11a: Observations on the occurrence diseases in farmer's fields in Coimbatore (Tamil Nadu)

District/ Place	Variety/ Hybrid	Stage of sampling - Percent Disease Intensity (PDI)															
		Early season / Seedling (20-30 DAS)					Mid-season/Flowering (60-80 DAS)					Late/ Boll development (120-150 DAS)					
		BLB	GM	MLS	CR (%)	ALB	BLB	GM	MLS	RR (%)	ALB	BLB	GM	MLS	RR (%)	ALB	
Tirunelvelli District																	
Sholaisari	RCHIIBGII	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	5.0	2.0	0.0	0.0	0.0	5.0	4.2	
Perumalpatti	RCHIIBGII	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	5.0	5.3	0.0	0.0	0.0	10.0	8.0	
Karivalamvan thanallur	Mixed seeds	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	5.0	7.5	0.0	0.0	0.0	10.0	9.5	
Sankarankovil	Mixed seeds	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	5.0	6.0	0.0	0.0	0.0	10.0	10.0	
Kurukalpatti	Mixed seeds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7	7.0	0.0	0.0	0.0	10.0	10.6	
Kuvalakanni	Mixed seeds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	5.9	0.0	0.0	0.0	10.0	9.7	
Average		**0.0**	**0.0**	**0.0**	**1.7**	**0.0**	**0.0**	**0.0**	**0.0**	**6.0**	**5.6**	**0.0**	**0.0**	**0.0**	**9.2**	**8.7**	
Madurai District																	
Alampatti	RCH659, SVPR4 and SVPR 5	0.0	0.0	0.0	5.5	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	8.6	5.0	
Peraiyur	RCH659, SVPR4 and SVPR 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.7	0.0	0.0	0.0	0.0	10.0	6.1	
T. Kallupatti	RCH659, SVPR4 and SVPR 5	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	8.9	0.0	
V. Ammapatti	RCH659, SVPR4 and SVPR 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.2	0.0	
Average		**0.0**	**0.0**	**0.0**	**2.6**	**0.0**	**0.0**	**0.0**	**0.0**	**4.2**	**0.0**	**0.0**	**0.0**	**0.0**	**8.7**	**2.8**	
Dindigul District																	
Palam Rajakkapatti	RCHIIBGII, Kaveri, NEO, RCH 659, Ankur	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	0.0	12.2	0.0	0.0	13.8	
Ambaligai	RCHIIBGII, Kaveri, NEO, RCH 659, Ankur	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	13.7	0.0	0.0	14.2	
Average		**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**9.5**	**0.0**	**13.0**	**0.0**	**0.0**	**14.0**	

Virudhunagar District																
Krishnankovil	RCHIIBGII, Mixed seeds	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	0.0
Rajapalayam	RCHIIBGII, Mixed seeds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	0.0	0.0	6.1
Sholapuram	RCHIIBGII, Mixed seeds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.0	0.0	0.0	10.0	7.3
Average		**0.0**	**0.0**	**0.0**	**1.7**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**2.5**	**0.0**	**0.0**	**0.0**	**5.5**	**4.5**
Erode																
Erankattur	Kaveri, Bagubali	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0
Thottampalayam	Kaveri, Bagubali	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2
Anthiyur	Kaveri, Bagubali	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6
Average		**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**2.9**
Coimbatore District																
Thottipalayam	RCHIIBGII, Kaveri, NEO, RCH 659, Ankur, Jackpot	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.1	0.0	10.5	0.0	9.7	15.4
Keeranatham	RCHIIBGII, Kaveri, NEO, RCH 659, Ankur, Jackpot	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	10.0	13.2
Pallipalayam	RCHIIBGII, Kaveri, NEO, RCH 659, Ankur, Jackpot	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.0	0.0	0.0	0.0	0.0	13.5
Vaiyampalayam	RCHIIBGII, Kaveri, NEO, RCH 659, Ankur, Jackpot	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.6	0.0	0.0	0.0	0.0	12.7
Kondampalayam	RCHIIBGII, Kaveri, NEO, RCH 659, Ankur, Jackpot	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.1	0.0	12.0	0.0	8.9	11.4
Average		**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**9.6**	**0.0**	**4.5**	**0.0**	**5.7**	**13.2**
Perambalur District																
Veppanthattai	RCHIIBGII, Kaveri, NEO, RCH 659, Ankur, Jackpot, Bagubali	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	5.4	9.2	0.0	6.0	12.2
Nergunam	RCHIIBGII, Kaveri, NEO, RCH 659, Ankur, Jackpot, Bagubali	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	5.2	13.0	0.0	7.5	11.0

Krishnapuram	RCHIIBGII, Kaveri, NEO, RCH 659, Ankur, Jackpot, Bagubali	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	4.5	8.8	0.0	5.6	13.1
Alathur	RCHIIBGII, Kaveri, NEO, RCH 659, Ankur, Jackpot, Bagubali	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	6.7	13.2	0.0	10.0	9.0
Average		**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**6.2**	**5.5**	**11.1**	**0.0**	**7.3**	**11.3**
Overall Average		**0.0**	**0.0**	**0.0**	**0.9**	**0.0**	**0.0**	**0.0**	**0.0**	**1.5**	**4.8**	**0.8**	**4.1**	**0.0**	**5.2**	**8.2**

Table 11b: Observations on the occurrence of diseases at research farm of TNAU Coimbatore

Month	Hybrids (BG II)	Incidence (%)			Mean Percent Disease Intensity (PDI)								
		Wilt	Collar rot / Root rot	Boll Rot	ALB	HLS	CLS	ATN	CoLS	MLS	BB	GM	Rust
Aug-2020	RCHIIBGII, RCH 659 and varieties Co14 and Co17	-	5-10	-	-	-	-	-	-	-	-	-	-
Sept. 2020		-	5-10	-	5.1	-	-	-	-	5.0	5.0	-	-
Oct. 2020		-	5-10	-	15.4	-	5.1	-	-	5.3	5.2	5.0	-
Nov. 2020		-	5-15	-	20.2	-	5.4	-	-	5.0	5.5	12.0	-
Dec. 2020		-	5-15	5-10	21.5	-	5.5	-	-	5.0	5.8	20.0	5.9
Jan.2021		-	5-15	5-10	22.0	-	5.3	-	-	5.0	5.0	18.0	10.3

NORTH ZONE

Path 1(b) Disease progress in relation to weather factors

Table 12: Disease progress in relation to weather factors at ARS, PAU Faridkot (Punjab)

SMW	Temperature (°C)			Relative humidity (%)			Wind Speed	Suns hine	Rainfall	Rainy days	CLCuD (F 846)		WF Adult	CLCuD (HS6)		WF Adult	CLCuD (RS921)		WF Adult	CLCuD (RST 9)		WF Adult
	max	min	mean	Max	Min	Mean	Km/h	Hour	mm	No.	Incidence	PDI	per 3 leaf	Incidence	PDI	per 3 leaf	Incidence	PDI	per 3 leaf	Incidence	PDI	per 3 leaf
25	39.9	29.3	34.6	65.0	42.0	53.4	7.4	6.3	0.0	1.1	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
26	35.6	28.0	31.8	73.0	58.0	65.9	7.2	5.6	5.6	1.3	0.0	0.0	3.2	0.0	0.0	0.9	0.0	0.0	0.6	0.2	0.7	2.7
27	37.6	28.9	33.2	74.0	50.0	62.1	6.5	5.4	11.4	1.4	0.4	0.7	4.0	0.1	1.0	1.2	0.4	1.3	2.7	0.7	1.0	3.5
28	34.3	26.0	30.2	85.0	62.0	73.1	7.4	5.1	91.1	0.9	0.9	1.3	5.2	0.9	1.7	3.3	1.3	1.7	7.2	1.7	2.0	6.0
29	33.4	26.2	29.8	88.0	67.0	77.9	6.5	5.5	56.6	1.7	1.5	3.3	9.7	2.2	3.7	6.5	4.1	3.0	9.3	3.5	4.3	8.5
30	34.8	27.0	30.9	83.0	61.0	71.9	3.8	5.5	64.0	1.4	4.6	8.7	9.9	5.9	10.3	7.2	8.3	9.3	11.1	8.3	11.0	9.3
31	35.8	28.1	32.0	79.0	59.0	68.9	6.0	6.1	2.8	1.0	11.5	19.3	10.5	23.3	22.0	12.6	21.5	23.3	11.7	19.6	23.0	12.0
32	36.0	28.3	32.2	82.0	65.0	73.6	5.7	5.3	0.0	1.1	25.0	21.0	9.6	50.0	25.3	12.0	41.3	26.3	13.0	40.2	27.3	10.3
33	35.7	27.8	31.8	86.0	67.0	76.5	6.3	6.4	53.2	1.0	50.0	25.3	9.9	76.1	29.7	9.6	67.6	29.0	11.0	60.4	30.7	10.0
34	32.8	25.8	29.3	87.0	71.0	79.1	5.7	6.3	27.0	1.3	74.6	31.7	12.2	83.9	33.7	9.0	80.2	34.7	12.2	81.5	36.0	14.1
35	32.0	26.1	29.0	88.0	72.0	79.9	6.0	5.3	84.6	1.1	78.7	33.7	13.0	84.8	36.7	8.8	81.5	36.3	12.9	82.8	38.0	14.0
36	32.0	25.2	28.6	90.0	76.0	82.8	3.3	6.3	118.5	1.3	80.7	35.7	12.1	87.2	38.3	10.2	83.9	39.0	9.0	84.6	39.0	12.0
37	36.1	26.1	31.1	86.0	57.0	71.2	1.2	7.7	0.0	0.1	82.6	36.3	9.1	90.4	40.0	9.7	85.0	40.7	8.5	85.7	41.3	8.8
38	36.1	25.1	30.6	86.0	52.0	69.3	2.0	7.1	0.0	0.7	85.0	37.3	6.1	92.0	42.0	4.9	87.2	42.3	6.0	87.4	42.7	6.7
39	35.2	24.0	29.6	81.0	47.0	63.9	2.1	7.6	0.0	0.1	92.8	40.0	4.2	95.7	42.7	4.1	92.4	43.0	5.2	95.0	43.3	5.1
40	34.8	18.8	26.8	86.0	36.0	60.7	1.9	7.0	0.0	0.1	96.7	41.7	4.1	97.8	43.3	4.0	97.0	44.3	3.0	98.9	44.0	5.0

Table 13: Disease progress in relation to weather factors at ARS SKRAU, Sriganganagar (Rajasthan)

SMW	Temperature (°C)		RH (%)		Rain fall	CLCuD (%) RST-9		Whitefly Adult
	Max	Min	Mor	Eve	mm	Incidence	PDI	Per 3 leaves
26	39.9	28.5	59.3	50.7	0.0	0.4	0.1	19.9
27	41.2	28.9	68.1	38.6	1.8	4.4	8.3	32.1
28	39.7	27.6	75.9	53.6	50.0	30.4	20.1	43.2
29	36.8	26.4	82.3	66.0	34.6	68.5	34.2	47.8
30	37.8	27.3	77.6	70.7	4.2	81.5	43.3	62.6
31	37.4	27.4	78.1	70.0	40.6	99.3	54.8	66.1
32	37.2	27.9	80.0	70.6	28.6	100.0	55.6	52.2

Table 14: Disease progress in relation to weather factors at HAU, Hisar (Haryana)

SMW	Temp. ^{0}C		RH %		Rainfall	Rainy-day	Sunshine	Wind Speed	CLCuD (%) HS 6		Whitefly population
	Max	Min	Mor	Eve	mm	No	Hour	Kmph	Incidence	PDI	Adult/3 leaves
23	36.6	24.6	72.0	41.0	2.2	0.0	7.6	5.9	0.0	0.0	0.5
24	41.5	27.3	66.0	31.0	0.0	0.0	9.0	5.5	0.3	0.1	1.1
25	39.7	27.0	73.0	40.0	29.2	3.0	7.9	7.6	10.0	1.8	10.4
26	37.4	28.3	74.0	54.0	14.0	1.0	6.5	8.1	17.7	3.2	22.5
27	38.7	27.9	80.0	55.0	8.7	1.0	8.7	8.4	28.7	5.3	18.6
28	36.0	26.5	89.0	64.0	38.4	3.0	8.0	6.7	47.0	9.0	40.7
29	34.6	25.9	92.0	75.0	111.1	4.0	5.7	8.7	66.6	14.3	42.6
30	34.5	26.8	87.0	60.0	14.7	1.0	7.3	4.8	75.3	17.8	97.9
31	36.4	27.0	84.0	66.0	0.0	0.0	6.6	5.9	96.3	28.2	172.2
32	35.3	27.5	88.0	62.0	32.8	1.0	6.6	6.9	96.7	30.5	217.9
33	35.3	26.9	90.0	77.0	17.5	2.0	6.7	6.5	98.0	35.8	220.5
34	32.6	25.4	91.0	76.0	11.7	1.0	6.4	7.7	98.0	40.3	120.5
35	33.9	25.6	90.0	64.0	0.0	0.0	6.8	7.5	98.0	49.7	290.8
36	34.2	25.1	93.0	67.0	32.5	2.0	5.1	3.4	98.0	54.0	308.8
37	36.3	24.9	88.0	49.0	0.0	0.0	8.3	3.0	98.0	55.5	345.8
38	37.6	24.7	87.0	48.0	7.0	1.0	7.6	3.9	98.0	56.6	380.3
39	36.9	22.3	85.0	39.0	0.0	0.0	7.4	4.1	98.0	62.6	276.5
40	36.6	18.2	79.0	29.0	0.0	0.0	8.2	3.4	98.0	67.0	102.7
41	35.6	16.3	86.0	28.0	0.0	0.0	7.9	2.9	98.0	71.8	123.2
42	34.2	13.7	76.0	22.0	0.0	0.0	7.1	2.6	98.0	74.3	109.6

Table 15: Disease progress in relation to weather factors at CICR-RS, Sirsa (Haryana)

SMW	Temp. ^{0}C		RH %		Rainfall	CLCuD (%) HS-6		Whitefly adult
	Max	Min	Mor	Eve	mm	Incidence	PDI	Per 3 leaf
22	36.9	24.7	67.3	38.6	42.1	-	-	-
23	38.4	26.4	67.1	39.0	5.6	-	-	-
24	42.9	30.1	56.1	63.1	0.0	-	-	-
25	40.6	29.9	61.0	40.0	0.0	-	-	-
26	38.6	29.8	73.9	47.7	10.2	0.0	0.0	2.5
27	38.8	29.3	74.6	48.3	22.0	0.3	0.1	2.5
28	37.0	26.7	78.9	51.6	24.0	1.5	0.2	12.7
29	34.8	26.2	87.3	61.1	89.3	2.7	0.8	7.0
30	36.4	27.0	74.9	55.6	0.0	7.9	1.6	10.1
31	36.5	26.9	72.1	60.1	0.0	14.2	2.9	10.1
32	36.5	26.8	78.4	60.3	16.2	24.1	4.9	6.8
33	36.1	26.5	84.1	60.4	0.0	46.9	15.3	-
34	33.4	26.1	85.3	73.1	18.3	66.3	22.4	-
35	33.9	25.8	86.3	61.9	2.0	87.0	31.5	-
36	34.8	25.7	87.7	61.0	40.8	96.6	35.1	-
37	37.0	27.1	80.0	51.7	0.0	100.0	38.3	-
38	36.6	26.9	71.7	54.4	0.0	100.0	38.5	-
39	36.3	25.8	67.1	42.9	0.0	100.0	39.3	-
40	36.2	25.1	83.7	50.7	0.0	100.0	39.7	-
41	35.6	23.0	66.1	30.3	0.0	100.0	40.4	-
42	34.0	18.4	59.1	25.7	0.0	100.0	41.3	-
43	32.1	16.8	63.3	29.3	0.0	100.0	41.3	-

CENTRAL ZONE

Table 16a: Disease progress in relation to weather factors at CRS NAU, Nanded (Maharashtra)

SMW	Temperature ^{0}C		Relative Humidity		Rainfall	Rainy days	PDI (RCH 2 BG II)			PDI (LRA-05166)			PDI (PA-255)		
	Max	Min	Morn	Even	mm	No	BLB	ALB	GM	BLB	ALB	GM	BLB	ALB	GM
27	34.4	20.1	75.9	59.3	28.8	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	31.0	18.6	75.6	65.7	51.8	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	31.1	18.4	87.7	77.3	71.6	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	32.4	19.0	80.5	71.7	40.8	4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
31	32.9	18.5	74.7	65.3	34.8	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32	29.6	18.1	83.0	80.6	53.8	4	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
33	27.7	17.1	86.0	82.3	83.6	5	2.3	0.3	0.0	0.0	0.7	0.0	0.0	0.0	0.0
34	29.0	17.7	86.1	84.6	49.8	4	5.2	4.4	0.0	2.1	2.0	0.0	0.0	0.0	0.0
35	30.0	18.9	86.3	77.9	13.4	1	5.6	5.6	0.0	5.4	3.6	0.0	0.0	0.0	0.0
36	35.3	21.1	84.9	64.7	0.0	0	5.8	4.7	0.0	5.4	4.4	0.0	0.0	0.0	0.0
37	30.7	18.9	89.6	70.9	182.0	5	5.8	5.3	0.0	5.8	**4.6**	0.0	0.0	0.0	0.0
38	29.9	18.1	85.3	79.6	96.8	6	5.7	5.6	0.0	5.1	1.7	0.0	0.0	0.0	0.0
39	29.7	18.4	84.3	84.3	57.0	2	6.0	4.0	2.7	6.1	1.6	8.6	0.0	0.0	0.0
40	30.0	18.7	87.4	82.9	18.0	1	6.1	**5.8**	5.6	6.6	3.3	13.9	1.2	0.9	0.0
41	30.3	19.9	86.4	82.6	54.4	5	6.6	4.8	13.1	7.1	3.3	18.3	1.4	0.3	5.2
42	32.8	19.7	79.0	68.7	1.8	0	6.8	5.1	19.5	**7.4**	1.7	**23.2**	3.2	0.7	10.4
43	32.7	20.7	76.1	63.4	0.0	0	**6.8**	5.1	21.9	7.3	3.4	19.0	3.4	0.9	11.8
44	32.6	19.3	77.3	58.4	0.0	0	4.1	3.4	16.6	4.6	1.9	9.1	3.2	1.0	10.1
45	31.7	16.3	62.0	42.9	0.0	0	5.7	2.2	11.4	1.4	1.0	4.0	1.1	0.3	4.7
46	33.3	19.6	66.0	41.4	0.0	0	4.6	0.4	8.3	1.5	1.0	2.0	1.0	0.2	2.6

Table 16b: Correlation values between weather parameters and diseases of cotton Nanded [Correlation coefficient (r)]

Weather Parameters	Correlation coefficient (r)								
	RCH 2 BG II			LRA 5166			PA 255		
	ALB	BLB	GM	ALB	BLB	GM	ALB	BLB	GM
Rainfall (mm)	-0.4	-0.4	-0.53*	-0.4	-0.4	-0.553*	-0.53*	-0.5	-0.52*
Temp. Maximum (^{0}C)	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.4
Temp. Minimum (^{0}C)	0.2	0.2	0.1	0.2	0.2	0.1	0.0	0.1	0.0
Morning RH (%)	-0.46*	-0.437*	-0.75**	-0.49*	-0.4	-0.68**	-0.75**	-0.7	-.077**
Evening RH (%)	-0.49*	-0.470*	-0.76**	-0.52*	-0.45*	-0.68**	-0.77**	-0.7	-0.89**
Note. * p < .05, ** p < .01									

Table 17a: Disease progress in relation to weather factors at PDKV, Akola (Maharashtra).

Met. Week	Temperature ^{0}C		R. Humidity %		Rainfall	Rainy days	Sunshine hours	PDI (LRA-5166)			PDI (Bhakti Bt)		
	Max.	Min.	Morn.	Even	mm	No	hr	BLB	MLS	GM	BLB	MLS	GM
34	30	22.3	87	73	42.2	4	3.8	-	-	-	-	-	-
35	29.7	22.3	86	69	20.5	2	3.6	-	-	-	-	-	-
36	33.4	22.8	86	56	16.6	1	6.2	-	-	-	-	-	-
37	33.3	22.2	90	56	26.5	4	5.5	7.6	-	-	-	-	-
38	32.5	21.8	90	63	47.6	3	4.1	7.8	-	-	13.8	-	-
39	32.3	21.2	86	60	0	0	6.8	12.9	0.7	-	17.8	0.3	-
40	34.1	21.3	83	46	0	0	5.7	16.8	1	-	19.6	1.2	-
41	32.2	21.4	89	61	14.2	1	0	19.8	2.3	-	22.1	2.2	-
42	32.9	21.4	89	57	17.8	2	5.5	**22.8**	2.9	0.5	22.6	**3.5**	-
43	33.4	17.3	84	43	0	0	7.1	18.9	**3.5**	1.0	19.3	3.3	-
44	33	12.6	84	28	0	0	7.9	15.3	2.5	3.5	16.3	2.1	0.3
45	31.8	8.9	80	29	0	0	8.3	17.5	1.7	**5.5**	14.7	0.8	0.9
46	32.8	14.2	81	30	0	0	8.7	**22.8**	0.7	2.5	12.7	0.7	1.2
47	32.1	13.8	88	34	5.5	1	7.2	19.9	Trace	2.1	8.2	Trace	3.8
48	30.7	13.4	79	31	0	0	7.5	12.7	-	1.3	7.9	-	4.6
49	31.8	10.3	80	23	0	0	8.8	8.7	-	0.8	7.9	-	**6.1**
50	29.9	17.8	82	36	0.5	0	4.3	6.3	-	0.7	5.2	-	3.7
51	29	10.7	83	33	0	0	7.2	3.9	-	0.7	2.1	-	3.2
52	28.8	11.6	81	29	0	0	7.9	1.7	-	0.4	0.8	-	2.1
1	30.1	17.1	89	57	0	0	3.6	0	-	0.3	0.5	-	1.7
2	31.7	18.1	82	49	0	0	4.4	0	-	0	0	-	0.8

Table 17b: Correlation values between weather parameters and bacterial blight of cotton at Akola (Maharashtra) [Correlation coefficient (r)]

Sr. No.	Particulars	Rainfall	Temperature ^{0}C		R.Humidity		Sunshine hours
			Max.	Mini	Morn.	Even.	
1	LRA-5166 % disease intensity	-0.109	0.606*	0.264	0.436	0.079	0.260
2	Bhakti Bt % disease intensity	-0.078	0.592*	0.261	0.435	0.110	0.220

Table 18a. Disease progress in relation to weather factors at NAU, Surat (Gujrat).

SMW	Temp °C		Humidity %		Rainfall	Rainy days	Sunshine	BLB PDI (G. Cot. Hy. 12 Non Bt)
	Max	Min	Morning	Evening	mm	No	hour	
25	32.6	28.0	92.0	74.0	41.0	4.0	3.0	0.0
26	35.0	28.5	90.0	74.0	34.0	2.0	4.0	0.0
27	32.5	26.6	89.0	85.0	59.0	3.0	0.0	0.0
28	32.2	27.0	94.0	97.0	39.0	3.0	0.0	0.0
29	**30.6**	**25.5**	**87.0**	**82.0**	**122.0**	**3.0**	**3.0**	**2.5**
30	31.9	26.4	90.0	60.0	315.0	7.0	7.0	5.5
31	32.7	26.6	84.0	78.0	40.0	3.0	7.0	6.5
32	30.4	25.1	88.0	88.0	57.0	6.0	0.0	8.0
33	29.1	24.9	98.0	94.0	21.0	2.0	0.0	9.5
34	30.6	26.2	99.0	91.0	59.0	4.0	0.0	12.5
35	30.0	26.5	92.0	95.0	433.0	7.0	1.0	15.5
36	31.7	26.5	80.0	84.0	224.0	6.0	5.0	18.5
37	32.0	26.5	84.0	85.0	175.0	6.0	1.0	20.5
38	30.6	26.4	88.0	94.0	3.0	1.0	1.0	23.5
39	30.5	25.0	86.0	89.0	41.0	4.0	2.0	28.5
40	31.4	27.2	88.0	86.0	115.0	3.0	6.0	30.5
41	**32.4**	**25.8**	**82.0**	**83.0**	**113.0**	**3.0**	**2.0**	**40.5**
42	29.6	24.2	85.0	89.0	0.0	0.0	0.0	38.0
43	33.6	24.7	86.0	95.0	0.0	0.0	6.0	36.5
44	33.4	23.9	66.0	83.0	0.0	0.0	6.0	33.5
45	29.0	21.2	71.0	52.0	0.0	0.0	6.0	28.0
46	33.5	22.5	81.0	68.0	0.0	0.0	6.0	23.5
47	31.5	17.4	84.0	60.0	0.0	0.0	6.0	20.5
48	32.1	19.2	85.0	62.0	0.0	0.0	5.0	16.5
49	34.1	16.5	84.0	53.0	0.0	0.0	7.0	12.0
50	28.6	18.3	94.0	75.0	46.0	3.0	2.0	5.5
51	29.4	15.3	86.0	61.0	0.0	0.0	4.0	4.0

*significant at 5 % (r=0.381) and ** 1% (r=0.487) level of significance at n-2 degree of freedom

Table 18b: Correlation values between weather parameters and bacterial blight at MCRS, Surat

	Temp °C		Humidity %		Rainfall	Rainy days	Sunshine
	Max	Min	Morning	Evening	mm	No	hour
Correlation matrix	**-0.013**	**-0.039**	**-0.543**	**0.1497**	**0.186**	**-0.110**	**-0.317**

Table 19a: Disease progress in relation to weather factors at JAU, Junagarh (Gujarat).

SMW	Temperature ^{0}C		R. Humidity%		Rainfall	Rainy days	Sunshine hours	Wind speed	PDI (LRA-5166)		
	Max.	Min.	Morn.	Even	mm	No	BSH	km/h	BLB	ALB	GM
27	31.7	25.5	94.0	89.0	267.6	4	3.0	7.3	2.5	0.0	0.0
28	31.3	25.9	95.0	89.0	118.7	6	0.7	6.9	5.0	0.0	0.0
29	32.5	26.4	94.0	80.0	30.1	4	3.4	5.8	6.5	0.0	0.0
30	33.1	26.3	94.0	82.0	37.6	1	3.5	5.2	11.5	0.0	0.0
31	33.2	25.9	86.0	76.0	53.8	4	4.6	3.6	20.0	0.0	0.0
32	31.3	25.5	93.0	83.0	203.4	6	0.9	6.4	3.5	0.0	0.0
33	28.6	25.3	96.0	92.0	224.4	7	0.0	6.9	2.5	0.0	0.0
34	29.3	24.9	93.0	87.0	133.7	5	0.7	6.8	1.0	0.0	0.0
35	30.2	24.5	96.0	87.0	250.7	4	2.5	6.2	1.5	0.0	0.0
36	33.9	25.9	84.0	59.0	0.0	0	8.3	2.9	0.5	0.0	0.0
37	32.9	25.4	90.0	73.0	112.6	4	4.0	3.6	4.0	0.0	0.0
38	33.2	25.6	89.0	70.0	23.5	3	4.5	3.0	**30.5**	0.0	0.0
39	32.5	24.8	83.0	56.0	0.0	0	6.5	4.0	8.5	0.0	0.0
40	34.0	24.2	84.0	51.0	19.1	1	9.0	3.0	2.5	0.0	0.0
41	36.7	25.2	73.0	35.0	0.0	0	8.3	4.0	1.1	2.0	0.0
42	35.8	26.0	78.0	55.0	29.8	1	5.5	3.8	1.0	4.0	0.0
43	35.6	21.7	69.0	36.0	0.0	0	9.1	2.5	1.5	**10.0**	2.5
44	35.1	18.3	68.0	28.0	0.0	0	8.7	2.4	1.5	8.0	10.0
45	34.8	17.1	71.0	27.0	0.0	0	8.6	1.9	1.0	9.5	5.0
46	33.9	17.5	64.0	31.0	0.0	0	8.6	3.5	2.5	9.5	2.5
47	30.8	14.9	66.0	33.0	0.0	0	7.7	3.8	1.0	1.5	4.0
48	32.4	18.7	64.0	32.0	0.0	0	8.2	4.7	0.0	3.5	4.0
49	34.1	15.2	74.0	32.0	0.0	0	8.5	2.2	0.0	4.5	**10.0**
50	29.3	17.8	67.0	44.0	1.2	0	3.4	4.4	0.0	5.6	5.0
51	29.3	11.9	74.0	34.0	0.0	0	4.6	3.8	0.0	4.2	4.5
52	27.9	11.0	58.0	25.0	0.0	0	5.8	5.3	0.0	6.4	2.5

Table 19b: Correlation values between weather parameters and BLB, ALB, Grey mildew diseases of cotton Junagarh [Correlation coefficient (r)]

Sr. No.	Diseases	Rainfall	Temperature ^{0}C		R. Humidity		Sunshine hours
			Max.	Mini	Morn.	Even.	
1	Bacterial leaf blight	-0.02	0.11	0.41	0.37	0.36	-0.73
2	Alternaria leaf spots	-0.19	0.20	-0.07	-0.23	-0.30	-0.06
3	Grey mildew	0.63	-0.08	0.20	0.17	0.38	0.04

('r') values * Significant at 5 % (P at 0.05) : 0.433 ; ** Significant at 1 % (P at 0.01): 0.549

SOUTH ZONE

Table – 20a: Disease progress in relation to weather factors at UAS, Dharwad (Karnataka)

SMW	Temperature ^{0}C		R. Humidity %		Rainfall	Rainy days	V1Abhaditha				V2 Jayadhar				V3 Ajeeth 155 Bt				V4 Dr.Brent Bt			
	Max.	Min.	Morn.	Evn.	mm	No	ALB	BLB	GM	Rust	ALB	BLB	GM	Rust	ALB	BLB	GM	Rust	ALB	BLB	GM	Rust
31	28.0	20.7	88.1	86.1	41.0	0	5.7	-	-	0.0	6.1	0.0	8.0	0.0	4.0	0.0	0.0	0.0	5.1	0.0	0.0	0.0
32	25.2	20.9	93.7	88.4	160.8	0	5.9	3.2	5.0	0.0	6.9	0.0	8.0	0.0	4.8	0.0	0.0	0.0	5.5	0.0	0.0	0.0
33	24.7	20.5	92.3	90.3	91.4	1	6.1	4.5	5.0	0.0	7.6	0.0	8.1	0.0	5.0	0.0	0.0	0.0	5.6	0.0	0.0	0.0
34	26.9	20.5	92.6	87.1	21.4	3	7.5	4.9	5.4	0.0	8.7	0.0	8.2	0.0	5.8	0.0	0.0	0.0	5.9	0.0	0.0	0.0
35	27.5	19.8	91.4	80.6	19.0	6	8.1	5.7	6.1	0.0	9.0	0.0	8.6	0.0	6.2	0.0	0.0	0.0	6.0	0.0	0.0	0.0
36	30.5	21.0	87.1	68.1	66.6	10	9.9	6.8	6.9	0.0	9.5	0.0	9.0	0.0	7.1	0.0	0.0	0.0	6.4	0.0	0.0	0.0
47	28.1	20.5	90.9	83.9	70.0	15	10.5	7.2	7.3	0.0	10.8	0.0	9.1	0.0	8.3	0.0	0.0	0.0	6.8	0.0	0.0	0.0
48	27.8	20.6	90.7	81.4	47.0	17	10.9	7.9	7.8	0.0	11.5	0.0	9.5	0.0	9.5	0.0	0.0	0.0	7.1	0.0	0.0	0.0
49	27.2	20.0	89.6	83.9	34.8	11	11.5	8.0	8.0	0.0	11.9	0.0	9.9	0.0	10.4	0.0	0.0	0.0	7.8	0.0	0.0	0.0
40	29.5	19.9	83.4	78.0	11.4	10	15.5	9.0	8.5	0.0	12.1	0.0	10.0	0.0	11.2	0.0	0.0	0.0	8.3	0.0	0.0	0.0
41	29.6	20.6	92.0	76.0	45.8	0	18.9	9.1	9.0	0.0	13.3	0.0	10.4	0.0	11.9	0.0	0.0	0.0	9.0	0.0	0.0	0.0
42	27.6	20.0	90.0	85.3	22.8	0	20.2	9.8	9.9	0.0	14.7	0.0	10.5	0.0	12.2	0.0	0.0	0.0	9.3	0.0	0.0	0.0
43	29.6	20.3	91.1	75.9	97.2	0	22.3	11.7	10.6	0.0	15.8	0.0	10.7	0.0	13.7	0.0	0.0	0.0	10.4	0.0	0.0	0.0
44	30.2	18.0	74.1	51.3	0.0	0	24.6	**12.2**	10.9	**15.1**	17.8	0.0	10.8	10.1	14.5	0.0	0.0	12.0	11.5	0.0	0.0	12.0
45	29.6	17.6	79.0	51.4	0.0	0	26.5	**12.8**	11.5	**15.9**	19.5	0.0	11.1	11.6	16.8	0.0	0.0	**13.5**	13.5	0.0	0.0	12.3
46	29.6	17.6	79.0	51.4	1.0	0	27.7	11.6	11.7	**16.5**	21.1	0.0	11.6	13.6	18.9	0.0	0.0	**13.2**	15.5	0.0	0.0	**12.9**
47	30.3	16.9	72.9	43.6	0.0	0	**29.6**	10.7	**12.1**	14.5	**22.8**	0.0	11.9	15.7	**20.5**	0.0	0.0	12.8	**17.6**	0.0	0.0	**13.3**
48	27.0	16.7	84.4	61.3	0.8	0	**30.5**	11.8	**12.4**	14.0	**23.1**	0.0	**12.0**	17.8	**20.9**	0.0	0.0	12.9	**18.6**	0.0	0.0	**13.4**
49	29.4	15.5	78.1	45.1	0.0	0	26.7	10.5	12.0	13.9	**23.0**	0.0	**12.1**	19.8	**19.7**	0.0	0.0	12.1	**19.0**	0.0	0.0	**13.7**
50	29.2	16.2	72.7	51.9	0.0	0	19.7	8.1	11.8	12.7	**22.4**	0.0	**12.0**	21.0	17.7	0.0	0.0	11.1	16.4	0.0	0.0	11.1
51	28.3	13.5	81.6	42.9	0.0	0	17.7	7.7	11.7	12.0	20.4	0.0	11.8	20.7	16.5	0.0	0.0	10.7	14.2	0.0	0.0	10.4
52	28.6	13.3	67.3	42.6	0.0	1	15.2	6.5	11.0	11.7	19.7	0.0	11.1	18.6	15.3	0.0	0.0	9.3	10.2	0.0	0.0	8.6
01	28.2	16.0	81.1	54.3	6.4	1	12.2	5.5	8.6	10.8	18.2	0.0	10.7	16.7	13.3	0.0	0.0	7.1	7.1	0.0	0.0	7.2
02	28.1	17.7	83.9	68.4	48.8	2	8.7	4.5	7.3	10.7	15.1	0.0	9.9	13.4	11.1	0.0	0.0	6.1	5.2	0.0	0.0	5.2

Path– 20.b: Correlation values between weather parameters and cotton foliar diseases [Correlation coefficient (r)]

r'values / weather parameters	V1 Abhadita				V2 Jayadhar			V3 Ajeet 155 Bt				V4 Dr.Brent Bt			
	AB	BB	GM	Rust	AB	GM	Rust	AB	BB	GM	Rust	AB	BB	GM	Rust
Max. Temp	0.61	0.50	0.56	0.53	0.57	0.49	0.55	0.49	0.59	0.58	0.49	0.53	0.57	0.49	0.52
Min. Temp	-0.62	-0.52	-0.55	-0.28	0.51	-0.57	-0.27	-0.59	-0.48	0.09	-0.30	-0.67	-0.50	-0.15	-0.29
RH Morning (%)	-0.26	-0.19	-0.32	-0.43	0.47	-0.13	-0.38	-0.21	-0.23	-0.36	-0.38	-0.29	-0.28	-0.39	-0.39
RH Evening (%)	-0.41	-0.27	-0.44	-0.39	0.40	-0.33	-0.40	-0.27	-0.37	-0.42	-0.35	-0.43	-0.39	-0.30	-0.37

('r') values : * Significant at 5% 0.482, ** Significant at 1% 0.606

Table 21a: Disease progress in relation to weather factors (weekly observations) at RARS, Lam Guntur (Andhra Pradesh)

SMW	Temp ^{0}C		R. H %		Sun shine h	Wind speed	Evap.	Rainy days	Rainfall	Corynespora leaf spot				Grey mildew		Rust			
	Max.	Min.	Mor.	Eve	BSH	km/H		No	mm	Jaadoo BG II	RCH II BG II	L1060	NDLH 1938	Jaadoo BG II	L1060	Jaadoo BG II	RCH II BG II	L1060	NDLH 1938
35	35.1	24.6	91.4	67.7	7.8	6.9	8.9	0.0	1.3	-	-	-	-	-	-	-	-	-	-
36	35.2	26.1	86.3	61.9	8.2	4.9	11.2	1.0	3.3	-	-	-	-	-	-	-	-	-	-
37	33.7	24.9	89.9	69.3	8.1	6.5	7.2	3.0	83.2	-	-	-	-	-	-	-	-	-	-
38	32.9	25.0	89.3	58.6	8.2	6.9	5.6	1.0	6.4	1.5	0.8	3.8	4.5	-	-	-	-	-	-
39	32.9	23.5	93.4	77.1	7.2	7.0	4.4	2.0	86.6	5.4	3.0	8.0	6.5	-	-	-	-	-	-
40	29.8	20.7	86.0	85.6	1.7	10.3	6.3	2.0	56.3	6.3	10.0	14.0	10.0	3.0	0.0	-	-	-	-
41	29.0	20.5	95.9	95.0	1.9	9.5	10.9	3.0	75.9	14.5	16.0	22.0	14.5	9.5	1.0	-	-	-	-
42	30.5	20.3	97.6	84.9	0.5	8.3	4.3	2.0	31.8	17.8	19.8	24.3	19.3	14.5	4.8	-	-	-	-
43	31.8	20.4	86.3	75.9	7.4	6.1	3.7	0.0	0.0	**20.8**	**22.8**	25.3	23.3	20.3	**6.8**	-	-	-	-
44	33.0	23.7	72.0	54.6	4.7	9.3	6.6	1.0	54.4	**22.8**	**27.3**	28.5	26.0	17.5	1.8	-	-	-	-
45	31.2	19.7	78.6	65.7	3.5	9.8	6.3	0.0	0.0	17.0	15.3	25.5	20.0	21.5	**5.3**	-	-	-	-
46	31.3	15.5	78.7	52.0	0.7	8.6	5.4	1.0	7.2	12.3	12.3	25.5	18.3	**25.6**	**5.3**	4.8	4.5	4.3	4.8
47	31.3	15.4	72.7	62.0	5.6	7.7	3.4	0.0	0.0	19.5	18.8	26.8	**22.3**	20.5	1.0	8.8	6.8	10.0	8.5
48	31.3	14.0	98.7	91.2	1.9	6.0	5.7	3.0	83.4	**21.5**	14.8	**30.3**	**24.8**	21.8	0.8	23.5	13.5	20.3	16.5
49	31.2	15.6	93.1	48.4	7.9	3.8	8.4	0.0	0.0	16.5	16.0	**33.0**	**22.0**	11.5	1.0	26.3	20.5	**35.0**	26.0
50	31.3	15.7	81.6	43.4	7.6	3.8	8.6	0.0	0.0	17.5	17.8	**31.5**	**23.5**	11.0	3.0	27.3	26.5	**32.5**	27.8
51	31.0	15.3	61.1	59.7	6.7	3.7	7.0	0.0	0.0	12.0	14.8	28.8	19.8	13.5	2.0	**33.0**	25.8	**30.8**	**35.8**
52	30.3	15.3	61.4	61.1	6.2	3.6	6.4	0.0	0.0	17.8	16.3	30.0	26.0	9.0	0.3	29.3	**26.8**	29.3	28.3
01	30.2	15.3	65.4	57.6	7.4	4.7	5.9	0.0	0.0	6.3	7.0	23.0	18.5	4.3	-	29.0	20.5	23.0	25.5
02	30.7	14.5	72.3	58.7	7.6	4.7	6.4	0.0	0.0	7.0	4.5	10.8	6.0	2.5	-	**34.8**	22.5	17.0	29.5
03	30.7	12.2	96.0	54.1	6.1	5.1	6.2	0.0	0.0	5.0	3.5	18.0	2.0	3.0	-	29.8	**27.0**	11.3	18.5
04	30.6	11.2	90.6	51.5	6.2	4.7	5.9	0.0	0.0	1.0	-	-	-	-	-	26.3	18.0	18.5	15.8

Table 21b: Correlation values between weather parameters Guntur (Andhra Pradesh)

Particulars (Entry/PDI)	Rainfall	Rainy days	Temperature ^{0}C		R. Humidity		Sunshine hours	Wind Speed	Evaporation
			Max.	Mini	Morn.	Even.	hr	kmph	
	Corynespora leaf spot								
L 1060 (33.0 PDI)	-0.51	-0.56	-0.67	-0.87	-0.33	-0.19	-0.44	-0.16	-0.16
NDLH 1938 (24.8 PDI)	-0.31	-0.32	-0.50	-0.57	-0.05	-0.11	-0.54	0.06	-0.19
RCH 2 Bt (27.3 PDI)	0.06	0.05	-0.51	-0.21	0.30	0.28	-0.73	0.40	-0.22
Jaadoo BGII (22.8 PDI)	-0.21	-0.21	-0.63	-0.50	0.05	0.19	-0.73	0.28	-0.36
	Grey mildew								
L 1060 (6.8 PDI)	-0.52	-0.53	0.87	0.01	-0.40	-0.31	0.13	0.05	-0.76
Jaadoo BG II (25.6PDI)	-0.03	-0.01	0.77	0.21	0.01	-0.06	-0.24	0.25	-0.48
	Rust								
L 1060 (30.8PDI)	-0.46	-0.44	-0.68	-0.71	0.21	-0.34	0.77	-0.95	0.57
NDLH 1938 (35.8PDI)	-0.65	-0.48	-0.81	-0.77	0.11	-0.36	0.88	-0.99	0.49
Jaadoo BG II (33.0PDI)	-0.65	-0.48	-0.86	-0.84	0.19	-0.27	0.87	-0.98	0.38

Table 22a: Disease progress in relation to weather factors at UAS, Coimbatore (Tamil Nadu)

SMW	Temperature (^{0}C)		Relative Humidity (%)		Rainfall	Rainy days	Wind speed	Sun Shine hours	*Alternaria* leaf blight					Tobacco streak virus				
	Max.	Min.	Morn.	Even	mm	No	km/h	BSH	RCH659	RCHBGII	Co14	RG8	K12	RCH659	RCHBGII	Co14	RG8	K12
30	32.7	23.8	82.9	52.1	1.6	1	6.2	6.9	0	0	0	0	0	0	0	0	0	0
31	31.1	23.0	85.9	63.6	6.8	4	7.6	4.8	0	0	0	0	0	0	0	0	0	0
32	29.2	23.1	81.6	66.7	6.3	7	15.0	3.8	0	0	0	0	0	0	0	0	0	0
33	29.9	23.7	80.0	57.1	0.1	1	11.3	2.5	0	0	0	0	0	0	0	0	0	0
34	31.4	23.3	85.0	55.3	0.0	0	9.4	5.6	0	0	0	0	0	0	0	0	0	0
35	33.3	23.4	85.4	51.0	0.1	1	5.7	8.4	0	0	0	0	0	0	0	0	0	0
36	32.0	23.0	85.7	58.7	8.0	5	4.8	6.1	0	0	0	0	0	0	0	0	0	0
37	29.0	23.1	85.1	71.0	4.1	5	7.8	3.6	0	0	0	0	0	0	0	0	0	0
38	30.1	23.1	81.3	65.6	4.1	2	10.8	4.6	**1.0**	**2.0**	**1.0**	0	0	**0.5**	**0.5**	**0.5**	0	0
39	29.9	23.3	82.4	58.6	3.9	3	7.8	4.4	1.0	2.0	1.0	0	0	0.5	0.5	0.5	0	0
40	31.9	23.5	84.7	49.9	0.0	0	6.2	8.2	2.0	2.0	1.0	0	0	0.5	0.5	0.5	0	0
41	30.1	24.4	84.9	61.0	2.9	3	5.1	4.9	2.0	2.0	1.0	0	0	1.0	1.0	1.0	0	0
42	29.2	23.5	76.7	60.3	1.9	3	8.4	5.7	2.0	2.0	1.0	0	0	2.0	2.0	2.5	0	0
43	30.6	23.2	82.7	51.7	0.4	2	5.2	6.0	2.0	2.0	1.0	0	0	3.0	3.0	3.0	0	0
44	32.0	22.7	86.0	50.6	2.2	1	4.0	7.5	2.0	2.0	1.0	0	0	3.0	3.0	3.0	0	0
45	29.1	21.9	89.7	62.9	1.6	2	4.3	5.1	**3.0**	**3.0**	**2.0**	0	0	3.0	3.0	3.0	0	0
46	31.5	20.1	88.7	51.3	0.5	1	6.0	6.1	3.0	3.0	2.0	0	0	3.0	3.0	3.0	0	0
47	28.2	22.6	88.9	64.9	2.5	4	5.5	6.2	3.0	3.0	2.0	0	0	5.0	5.0	6.0	0	0
48	27.9	21.4	87.9	65.4	1.3	2	4.2	4.5	3.0	3.0	2.0	0	0	7.0	7.2	7.5	0	0
49	22.3	20.8	86.4	64.3	1.8	5	5.0	3.4	3.0	3.0	2.0	0	0	**10.0**	**10.0**	**10.0**	0	0
50	22.2	20.5	85.4	58.0	2.4	3	5.4	6.0	3.0	3.0	2.0	0	0	10.0	10.0	10.0	0	0
51	21.5	19.8	84.3	55.4	0.3	2	6.5	3.6	3.0	3.0	2.0	0	0	10.0	10.0	10.0	0	0
52	20.7	19.1	84.9	55.3	0.0	0	5.0	5.1	3.0	3.0	2.0	0	0	10.0	10.0	10.0	0	0
1	20.0	19.0	83.3	54.3	0.7	1	4.0	4.1	3.0	3.0	2.0	0	0	10.0	10.0	10.0	0	0
2	20.0	18.5	83.0	54.1	0.6	1	4.5	4.0	3.0	3.0	2.0	0	0	10.0	10.0	10.0	0	0

Table 22b: Disease progress in relation to weather factors at UAS, Coimbatore (Tamil Nadu)

SMW	Temperature (^{0}C)		Relative Humidity (%)		Rainfall	Rainy days	Wind speed	Sun Shine hours	Grey mildew					Collar rot / Root rot				
	Max.	Min.	Morn.	Even	mm	No	km/h	BSH	RCH659	RCHBGII	Co14	RG8	K12	RCH659	RCHBGII	Co14	RG8	K12
30	32.7	23.8	82.9	52.1	1.6	1	6.2	6.9	0	0	0	0	0	0	0	0	0	0
31	31.1	23.0	85.9	63.6	6.8	4	7.6	4.8	0	0	0	0	0	0	0	0	0	0
32	29.2	23.1	81.6	66.7	6.3	7	15.0	3.8	0	0	0	0	0	0	**5.0**	**5.0**	0	0
33	29.9	23.7	80.0	57.1	0.1	1	11.3	2.5	0	0	0	0	0	0	5.0	10.0	0	0
34	31.4	23.3	85.0	55.3	0.0	0	9.4	5.6	0	0	0	0	0	0	**10.0**	**10.0**	0	0
35	33.3	23.4	85.4	51.0	0.1	1	5.7	8.4	0	0	0	0	0	0	**10.0**	**10.0**	0	0
36	32.0	23.0	85.7	58.7	8.0	5	4.8	6.1	0	0	0	0	0	0	0	0	0	0
37	29.0	23.1	85.1	71.0	4.1	5	7.8	3.6	0	0	0	0	0	0	0	0	0	0
38	30.1	23.1	81.3	65.6	4.1	2	10.8	4.6	0	0	0	**1.0**	**1.0**	0	0	0	0	0
39	29.9	23.3	82.4	58.6	3.9	3	7.8	4.4	0	0	0	1.0	1.0	0	0	0	0	0
40	31.9	23.5	84.7	49.9	0.0	0	6.2	8.2	0	0	0	1.0	1.0	0	0	0	0	0
41	30.1	24.4	84.9	61.0	2.9	3	5.1	4.9	0	0	0	2.0	2.0	**5.0**	**5.0**	**5.0**	0	0
42	29.2	23.5	76.7	60.3	1.9	3	8.4	5.7	**1.0**	**1.0**	**0**	**2.0**	2.0	6.2	6.5	7.0	0	0
43	30.6	23.2	82.7	51.7	0.4	2	5.2	6.0	1.0	1.0	0	2.0	2.0	10.0	10.0	10.0	0	0
44	32.0	22.7	86.0	50.6	2.2	1	4.0	7.5	1.0	1.0	0	2.0	2.0	10.0	10.0	10.0	0	0
45	29.1	21.9	89.7	62.9	1.6	2	4.3	5.1	1.0	1.0	0	2.0	2.0	10.0	10.0	10.0	0	0
46	31.5	20.1	88.7	51.3	0.5	1	6.0	6.1	1.0	1.0	0	**3.0**	**3.0**	10.0	10.0	10.0	0	0
47	28.2	22.6	88.9	64.9	2.5	4	5.5	6.2	1.0	1.0	0	3.0	3.0	10.0	10.0	10.0	0	0
48	27.9	21.4	87.9	65.4	1.3	2	4.2	4.5	1.0	1.0	0	3.0	3.0	10.0	10.0	10.0	0	0
49	22.3	20.8	86.4	64.3	1.8	5	5.0	3.4	1.0	1.0	0	3.0	3.0	**15.0**	**15.0**	**15.0**	0	0
50	22.2	20.5	85.4	58.0	2.4	3	5.4	6.0	**2.0**	**2.0**	0	3.0	3.0	15.0	15.0	15.0	0	0
51	21.5	19.8	84.3	55.4	0.3	2	6.5	3.6	2.0	2.0	0	3.0	3.0	15.0	15.0	15.0	0	0
52	20.7	19.1	84.9	55.3	0.0	0	5.0	5.1	2.0	2.0	0	3.0	3.0	15.0	15.0	15.0	0	0
1	20.0	19.0	83.3	54.3	0.7	1	4.0	4.1	2.0	2.0	0	3.0	3.0	15.0	15.0	15.0	0	0
2	20.0	18.5	83.0	54.1	0.6	1	4.5	4.0	2.0	2.0	0	3.0	3.0	15.0	15.0	15.0	0	0

Path 1c: Studies on the variability in Alternaria causing leaf spot in cotton

Table 23: Presence of *Alternaria* species in cotton leaf spot samples during: RARS Lam

S. No.	Date	Place (district)	Hybrid / variety	Presence of Alternaria spores
1	27.08.20	Gudipudi (Guntur)	Target	Positive
2	08.09.20	RARS, Lam	Jaadoo (Field No 3)	Positive
3	16.09.20	Dasupalem (Guntur)	Akira	Positive
4	21.09.20	RARS, Lam	Jaadoo (Field No 5)	Positive
5	22.10.20	Makkapeta (Krishna)	Akira	Positive
6	22.10.20	Nandigama	RCH 659	Positive
7	19.12.20	RARS, Lam	L 1060 (PG trial)	Positive
8	28.12.20	Rajupalem (Kadapa)	Jaadoo	Positive

Table 24: Morphological studies of *Alternaria* cultures

Isolate	Morphological character	Growth (cm)				Mycelial growth	Sporulation
		3 DAI	5 DAI	7 DAI	9 DAI		
Junagardh-1	The mycelium was initially white in colour.	2.9	7.3	9.0	9.0	Rapid	Sporulation has not initiated
Guntur-1	The mycelium was thin	2.5	5.8	6.0	8.0	Rapid	Sporulation has not initiated
Guntur-2	The mycelium was thick. Border of the mycelium white in colour.	3.0	5.3	5.5	7.0	Slow	Sporulating conidia
Dharwad-1	The mycelium was thin and in septate in nature. White in centre, Olive green in colour	3.3	6.5	7.0	8.0	Rapid	Sporulating conidia
Dharwad-2	The mycelium was thick and in septate in nature. Greyish centre, whitish border.	3.0	5.2	6.0	6.8	Slow	Sporulating conidia
Dharwad-3	The mycelium was thick and in septate in nature. Greyish centre, whitish border.	2.4	6.5	7.5	8.0	Rapid	Sporulating conidia
Dharwad-4	The mycelium was thin and in septate in nature. Whitish in centre, Greyish black in colour	2.5	5.4	5.8	6.8	Slow	Sporulating conidia
Dharwad--5	The mycelium was thin and septate in nature. White in colour.	2.6	6.8	7.6	9.0	Rapid	Sporulating conidia
Coimbatore-1	The mycelium was thick and in septate in nature. Greyish brown centre and white border	2.3	4.9	6.6	7.7	Slow	Sporulation has not initiated
Coimbatore-2	The mycelium was thick and in septate in nature. Greyish white mycelium	2.4	6.0	6.8	7.4	Slow	Sporulation has not initiated
Coimbatore-3	The mycelium was thick and in septate in nature. Greyish white mycelium	1.8	4.5	5.0	5.9	Slow	Sporulation has not initiated
Coimbatore-4	The mycelium was thick and in septate in nature. Greyish white mycelium	3.5	6.7	7.0	7.9	Rapid	Sporulation has not initiated
Coimbatore-5	The mycelium was thick and in septate in nature. Greyish white mycelium	1.4	4.5	4.9	5.5	Slow	Sporulation has not initiated
Bathinda-1	The mycelium was thick and septate in nature. White in colour.	3.5	6.2	7.5	9.0	Rapid	Sporulation has not initiated
Bathinda-2	The mycelium was thick and septate in nature. White in colour.	3.0	5.8	7.0	9.0	Rapid	Sporulation has not initiated

Table. 25. Microscopic Observation of *Alternaria* Cultures

Location	Character of Mycelial growth	Character of Conidial growth
I. TNAU COIMBATORE (Dr.P. Latha)		
1. Coimbatore	The mycelium was found to be thin, coloured and it was septate in nature	The conidia were found to be small in size. Only longitudinal septation was seen with small peak
2.Coimbatore	The mycelium was found to be thick, coloured and it was septate in nature.	The conidia were found to be big in size, transverse and longitudinal septation was seen with long peak.
3. Coimbatore	The mycelium was found to be thick, coloured and it was septate in nature.	The conidia were found to be big in size, transverse and longitudinal septation was seen with long peak.
4. Coimbatore	The mycelium was found to be thick, coloured and it was septate in nature.	The conidia were found to be big in size, longitudinal septation was seen with long peak.
5. Coimbatore	The mycelium was found to be thick, coloured and it was septate in nature.	The conidia were found to be big in size, transverse septation was seen with long peak.
II. ANGRAU, Lam, GUNTUR (Dr. Srilakshmi)		
1.Guntur	The mycelium was thin and it was coloured in septate in nature	The conidia were found to be longitudinal with transverse septation and small in size with rudimentary peak
2. Guntur	The mycelium was thick and it was coloured in septate in nature	The conidia were found to be longitudinal septation and small in size with rudimentary peak
III. DHARWAD (Dr. Venkatesh Kulkarni)		
1. Dharwad	The mycelium was thin and it was coloured in septate in nature	The conidia were found to be longitudinal with transverse septation and big in size with rudimentary peak
2. Dharwad	The mycelium was thick and it was coloured in septate in nature	The conidia were found to be longitudinal and transverse septation) and very small in size with small peak
3. Dharwad	The mycelium was thin and it was coloured in septate in nature	The conidia were found to be longitudinal with transverse septation and long in size with rudimentary peak.
4.Dharwad	The mycelium was thin and it was coloured in septate in nature	The conidia were found to be longitudinal septation and big in size with rudimentary peak.
5.Dharwad	The mycelium was thin and it was coloured in septate in nature	The conidia were found to be transverse septation and small in size with small peak.
IV. JAU, JUNAGARDH (Dr.G.K. Kataria)		
1.Junagardh	The mycelium was thick and it was coloured in septate in nature	The conidia were found to be small in size. Only longitudinal septation was seen with small peak
V. ARS PAU, BATHINDA (Dr. Rupesh Arora)		
1.Bathinda	The mycelium was white in coloured and septate in nature	*Alternaria* conidia were not observed. Only *Fusarium* conidia were observed in the plate
2. Bathinda	The mycelium was white in coloured and septate in nature	*Alternaria* conidia were not observed. Only *Fusarium* conidia were observed in the plate

Path 1 (d) Survey and Epidemiology of TSV

SOUTH ZONE

Table-26a: Incidence of TSV on Cotton in farmers' fields in Guntur

Month	Location (Village/ District)	Hybrid (BG II)	Age/ Stage of the crop (days)	TSV Incidence (%)
Aug'20	Ponnekllu	Akira, Jaadoo	25	0
	Varagani	US 4078, Jaadoo	20	0
	Ravela	Akira, Dodleru	50	0
	Vemavaram	Akira	20	Trace
		Magic	45	0
	Repudi	Sadananda	30	0
	Perecherla	Akira	50	Trace
	Visadala	ATM	25	0
	Gundlapalem	Nava Mallika	30	0
	Siripuram	Jaadoo	30	Trace
	Podapadu	Bhakthi	30	0
	Pedakurapadu	Nava Mallika	35	0
		US 7067	50	<1.0
	Gudipudi	Big Boss	30	1
		Target	30	0
	Lam	Money Maker	35	2
		Magic, Crystal 999	30	Trace
Sept'20	Dinthenapadu	Non Bt	60	Trace
	Timmapuram	Akira, Jaadoo	45	Trace
	Edlapadu	Akira	55	Trace
	Lingapuram	Akira	60	Trace
	Repudi	Akira, Tulasi 4	60	Trace
	Satuluru	Jaadoo	70	Trace
	Jonnalagadda	Akira	60	Trace
	Kunkalagunta	Mudra	90	Trace
		Akira	90	3
	Julakallu	Jaadoo	80	Trace
		US 7067	80	2
	Petasannegundla	Geetha	60	Trace
	Janapadu	Super 971	80	Trace
	Brahmanapalli	Nava Mallika	90	4
	Gangireddypalem	Akira	60	Trace
Oct.'20	Paladugu	Akira	70	Trace
		Lotus	80	1

	Jonnalagadda	US 7067	90	Trace
	Achempet	Sadananda, Tulasi 7	90	Trace
	Pedapalem	Akira	100	2
	Dodleru	Akira	90	Trace
	Gudipudi	Jaadoo	90	1
	Bejathpuram	Crystal 999	90	Trace
	Pamulapadu	RCH 659	90	3
	Kothapalem	Akira	100	Trace
	Reddigudem	Crystal 999	100	Trace
	Kamepalli	Akira	100	1
	Karlapadu	Magic	100	Trace
	Venegalla	Akira	90	3
	Nadikudi	Geetha	100	Trace
	Rentachintala	Bhakthi	100	Trace
	Gurazala	Akira	100	Trace
	Chirumamilla	Jaadoo	100	2
		Crystal 999, Vardhini	100	Trace
	Pedanandipadu	Akira	100	3
	Krosuru	Jaadoo	100	Trace
	Narukullapadu	Ujjwal, Money Maker	100	Trace
	Nandigama	Akira	100	
	Kanchikacherla	RCH 659	100	Trace
	Perecherla	Akira	100	0
Nov.'20	Gundlapalem	Akira	100	0
	Garudachalpalem	Magic	100	0
	Korrapadu	RCH 668	100	0
	Ramapalem	US 4753	100	0
	Reddiguem	Money Maker	100	0
	Brahmanapalli	Bhakthi	100	0
	Anjanipuram	US 7067	100	0
	Nadikudi	Akira	100	0
	Kotta Anjanipuram	Super Cot	100	0
	Gurazala	Akira, Magic	100	0
	Rentachinthala	Magna	100	0
	Kambhampadu	RCH 659	100	0
	Rayavaram	RCH 659	100	0
	Chintapalli	Khiladi	100	0
	Zulakallu	US 7067	100	0
	Satuluru	Jaadoo	100	0

	Paritala	NCS 927, Akira	120	0
	Ponnavaram	RCH 659	150	0
	Perakalapadu	Super Target	120	0
	Ambapuram	Akira, RCH 659	120	0
	Muppala	Magic	120	0
	Chandrapuram	Akira	120	0
	Konakanchi	RCH 659	120	0
	Gowravaram	Akira	120	0
	Bhimavaram	Jaadoo	120	0
	Vatsavai	Asheerwad	120	0
	Penugolanu	RCH 659	120	0
	Gampalgudem	RCH 659	120	0
	G.kotturu	Tulasi-7	120	0
	Ramachandrapuram	RCH 659	120	0
	Chandragudem	RCH 659	130	0
	Chinadegarlamudi	ATM	130	Trace
	Yanamadala	Akira	130	0
	Yaddhanapudi	RCH 659	130	0
	Poluru	ATM	130	0
	Peesapadu	RCH 659	130	0
	Daggubadu	Jaadoo	150	0
	Sankarapuram	Jabardasth , Crystal 999	130	Trace
	Chandaluru	Akira	130	0
	Tummedalapadu	RCH 659	100	0
	PedaGudipadu	RCH 659	120	0
	Ganga Donakonda	Jaadoo	150	0
	Potlapadu	Akira	150	0
	Penuganchiprolu	Akira	130	0
	Konakanchi	RCH 659	140	0
	Vatsavai	RCH 659	130	Trace
	Adiviravulapadu	Dhan Dev	130	0
	Chendarlapadu	Money Maker	120	0
	Chandrapuram	Akira	140	0
	Kanchikacherla	Dhan Dev	160	0
	Kachavarm	RCH 659	150	0
	Atukur	Bahubali	150	0
	Chandragudem	RCH 659	150	0
Dec.'20	Koyavaripalem	Crystal 999	150	0
	Palaparru	Akira	150	0
	Ramayyapalem	Jabardasth	150	Trace
	Sankarapuram	Crystal 999	150	0

	Pusapadu	Akira	150	0
	Chandaluru	Akira	150	0
	Pulimivaripalli	RCH 659	150	0
	Gangadevipalli	RCH 659	150	0
	Ganga Donakonda	Jaadoo	180	0
	Potlapadu	Akira	180	0

Table 26b: Incidence of TSV on Cotton BGII hybrids in farmers' fields in Guntur

Month	Hybrids (BG II)	Incidence of TSV (%)
August 2020	Akira, Jaadoo, US 4078, Sidda, Magic, Sadananda, ATM, Nava Mallika, US 7067, Bhakthi, Big Boss, Target, Money Maker, Crystal 999	0 to 2.0
September 2020	Unknown Non Bt, Akira, Jaadoo, Tulasi 4, Mudra, US 7067, Geetha, Super 971, Nava Mallika	Trace to 4.0
October 2020	Akira, Lotus, US 7067, Sadananda, Tulasi 7, Jaadoo, Crystal 999, RCH 659, Magic, Geetha, Bhakthi, Vardhini, Ujjwal, Money Maker	Trace to 3.0
November 2020	Akira, Magic, RCH 668, US 4753, Money Maker, Bhakthi, US 7067, Super Cot, Magna, RCH 659, Khiladi,Jaadoo, NCS 927, Super Target, Asheerwad, Tulasi-7, ATM, Sadananda, Jabardasth, Crystal 999, Dhan Dev, Bahubali	0 to Trace
December 2020	Crystal 999, Akira, Jabardasth, Crystal 999, Akira, RCH 659, Jaadoo,	0 to Trace

Table 27: Progress of TSV at RARS, Lam, Guntur

SMW	Month & Date	Incidence of Tobacco Streak Virus Disease (%)			
		RCH 2 BG II	Jaadoo BG II	L 1060	NDLH 1938
36	3-9 Sept'20	2.91	6.51	2.83	5.52
37	10-16	5.36	2.39	2.64	0.92
38	17-23	9.22	8.56	5.53	3.43
39	24-30	3.03	2.5	0.79	1.05
40	Oct.1-7	7.38	3.95	1.19	2.11
41	8-14	7.51	6.06	1.32	2.5
42	15-21	8.83	5.0	1.98	1.19
43	22-28	7.38	3.95	1.19	2.11
44	29Oct- 4 Nov	**9.75**	**8.96**	**3.95**	**4.08**
45	5-11	**10.14**	**7.91**	**3.16**	**2.9**
46	12-18	2.37	1.98	0.26	0.53
47	19-25	2.64	3.82	0.79	0.26
48	26 Nov- 2Dec	7.64	3.69	0	0
49	3-9	7.11	5.27	0	0
50	10-16	2.77	2.11	0	0
51	17-23	4.22	2.9	0.4	0
52	24-31	5.53	4.08	0	0

Table 28: Occurrence of TSV from major cotton growing areas of Coimbatore district in Tamil Nadu

District/ Place	Variety/ Hybrid	Stage of sampling		
		TSV Incidence (%)		
		Vegetative stage Aug 20	Square formation stage Nov 20	Boll formation stage Dec-Jan 21
	Hybrids - RCHIIBGII, RCH 659 and varieties Co14 and Co17	5-10	5-15	5-15
Thottaiyampalayam	RCHIIBGII and RCH 659	5.0	5.1	
Kondaiyampalayam	RCHIIBGII and RCH 659	5.0	6.2	6.5
Keeranatham	RCHIIBGII and RCH 659		5.0	
Karamadai	RCHIIBGII and RCH 659			5.0

Path 2. Screening of AICRP entries for disease reaction and confirmation

NATIONAL TRIALB: North Zone

Path 2(a) Screening of breeding lines for disease reaction

Table 29: Br. 02(a)- Initial Evaluation Trial of *G. hirsutum* (Irrigated)

Code	Entries	Cotton leaf curl disease (CLCuD) PDI & DR											
		Faridkot		Bathinda		Hisar		Sriganganagar		Sirsa		Pooled	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
101	F 2732	28.5	MR	16.7	R	17.5	R	34.6	MS	25.3	MR	24.5	MR
102	PBH 197	17.2	R	14.6	R	34.4	MS	29.4	MR	26.4	MR	24.4	MR
103	HS 310	27.4	MR	27.1	MR	42.7	S	61.5	HS	30.2	MS	37.8	MS
104	CSH 90	13.9	R	12.5	R	29.2	MR	41.1	S	32.2	MS	25.8	MR
105	**QC (CSH 3129)**	29.1	MR	16.7	R	33.3	MS	37.8	MS	22.9	MR	28.0	MR
106	RS 2958	22.2	MR	12.5	R	41.7	S	34.8	MS	10.4	R	24.3	MR
107	F 2743	28.5	MR	8.3	HR	30.9	MS	32.9	MS	24.8	MR	25.1	MR
108	H 1569	21.8	MR	16.7	R	18.2	R	38.9	MS	28.1	MR	24.7	MR
109	CSH 89	4.2	HR	18.8	R	26.4	MR	38.4	MS	25.2	MR	22.6	MR
110	**LC**	20.7	MR	8.3	HR	28.6	MR	33.3	MS	11.7	R	20.5	MR
111	PBH 79	27.2	MR	16.7	R	26.2	MR	46.8	S	28.8	MR	29.1	MR
112	H 1480	21.9	MR	12.5	R	30	MR	32.9	MS	26.7	MR	24.8	MR
113	RS 2943	23.6	MR	2.1	HR	31.8	MS	26.9	MR	33.3	MS	23.5	MR
114	**ZC (F 2228)**	28.1	MR	14.6	R	33.3	MS	28.5	MR	29.2	MR	26.7	MR
	F 846 (SC)	-	-	33.3	MS	-	-	-	-	-	-	33.3	MS
	RST-9	-	-	-	-	-	-	56.1	HS	-	-	56.1	HS
	HS-6	-	-	-	-	-	-	-		44.2	S	44.2	S

Table 29b: Br. 02(a) - Initial Evaluation Trial of *G. hirsutum* (Irrigated)

Code	Entries	Bacterial Blight (BB)				Fungal foliar leaf spot (FFS)				Pooled			
		Faridkot		Bathinda		Faridkot		Bathinda		BLB		FFS	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
101	F 2732	0.0	R	0.0	R	10.4	R	10.5	R	0.0	DF	10.5	R
102	PBH 197	0.0	R	0.0	R	13.8	R	12.0	R	0.0	DF	12.9	R
103	HS 310	1.0	R	2.0	R	9.2	R	11.5	R	1.5	R	10.4	R
104	CSH 90	0.0	R	0.0	R	5.4	R	12.5	R	0.0	DF	9.0	R
105	**QC (CSH 3129)**	0.0	R	0.0	R	4.6	R	12.5	R	0.0	DF	8.6	R
106	RS 2958	0.0	R	0.0	R	4.2	R	10.0	R	0.0	DF	7.1	R
107	F 2743	0.0	R	0.0	R	4.6	R	13.5	R	0.0	DF	9.1	R
108	H 1569	1.0	R	0.0	R	9.2	R	12.5	R	0.5	R	10.9	R
109	CSH 89	0.0	R	0.5	R	7.1	R	15.5	R	0.3	R	11.3	R
110	**LC**	2.0	R	0.0	R	11.8	R	12.5	R	1.0	R	12.2	R
111	PBH 79	0.0	R	0.0	R	4.6	R	13.5	R	0.0	DF	9.1	R
112	H 1480	0.0	R	0.0	R	5.4	R	13.5	R	0.0	DF	9.5	R
113	RS 2943	1.0	R	0.0	R	3.3	R	13.0	R	0.5	R	8.2	R
114	**ZC (F 2228)**	2.0	R	0.0	R	6.7	R	15.0	R	1.0	R	10.9	R
	F 846 (SC)	-	-	2.5	R	-	-	14.0	R	1.3	R	7.0	R

Table 30: Br. 06: Initial Evaluation Trial of Compact genotypes under irrigated condition

Code	Entry	Cotton Leaf Curl Virus Disease										FFS		BLB	
		Faridkot		Bathinda		Hisar		Sriganganagar		Pooled		Bathinda		Bathinda	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
2601	F 2785	29.2	MR	20.8	MR	29	MR	34.6	MS	28.4	MR	24.5	R	0	R
2602	CSH 49	39.8	MS	25	MR	29.8	MR	34.9	MS	32.4	MS	21.8	R	0	R
2603	CSH 50	23.9	MR	21.9	MR	18.7	R	34.5	MS	24.8	MR	13.5	R	1.5	R
2604	F 2772	38.3	MS	33.3	MS	15	R	26.7	MR	28.3	MR	16.5	R	2	R
2605	RS 2946	34.1	MS	12.5	R	31.8	MS	33.3	MS	27.9	MR	7.5	R	0	R
2606	**ZC (CSH 3075)**	31.4	MS	24	MR	30.1	MS	32.3	MS	29.5	MR	19.3	R	0	R
2607	RS 2957	35.2	MS	14.6	R	31.9	MS	33.3	MS	28.8	MR	23.5	R	0	R
2608	H 1601	33.7	MS	21.9	MR	22.7	MR	19.2	R	24.4	MR	22.8	R	0	R
2609	**LC**	39	MS	16.7	R	33.3	MS	34.8	MS	31	MS	26.8	MR	0	R
	F 846 (SC)	-	-	47.9	S	-	-	-	-	-	-	27.3	MR	3	R
	RST-9 (SC)	-	-	-	-	-	-	55.3	HS	-	-	-	-	-	-

Table 31: Br. 22 a/b Initial Evaluation Trial -*G. arboreum*

Code	Entry	Bacterial leaf blight				Fungal Foliar leaf spot				Root rot	
		Faridkot		Bathinda		Faridkot		Bathinda		Sirsa	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
2201	PBD 130	0.0	DF	DF	R	4.2	R	18.0	R	84.4	S
2202	CISA 6-3	0.0	DF	DF	R	5.4	R	20.0	R	91.8	S
2203	FDK 312	0.0	DF	DF	R	3.3	R	16.8	R	91.5	S
2204	RG 873	0.0	DF	DF	R	5.4	R	10.0	R	77.5	S
2205	**LC**	0.0	DF	1.0	R	4.2	R	25.3	MR	89.9	S
2206	RG 883	0.0	DF	DF	R	3.3	R	11.3	R	76.2	S
2207	FDK 324	0.0	DF	DF	R	2.9	R	15.3	R	91.4	S
2208	HD 555	0.0	DF	DF	R	4.6	R	13.5	R	76.2	S
2209	**ZC (FDK 124)**	0.0	DF	DF	R	2.1	R	16.8	R	91.5	S
2210	CISA 33-5	0.0	DF	0.5	R	3.3	R	29.0	MR	71.5	S
2211	PBD 81	0.0	DF	DF	R	4.2	R	14.0	R	82.3	S
2212	HD 556	0.0	DF	DF	R	4.6	R	20.3	R	81.0	S
	LD 949 (SC)	-	-	2.0	R	-	-	25.3	MR	-	-
	CICR-3	-	-	-	-	-	-	-	-	78.1	S
	CICR-1	-	-	-	-	-	-	-	-	87.8	S

Table 32: Br. 25 a/b Preliminary Hybrid Trial - Desi Hybrid

Code	Entry	Bathinda				Sirsa	
		FFS		Bacterial Blight		Root rot	
		PDI	DR	PDI	DR	PDI	DR
2501	**ZC (KR 64-NZ)**	7.5	R	0.0	R	67.8	MS
2502	CISAA 19-4	6.8	R	0.0	R	82.2	S
2503	KR 148	6.8	R	0.0	R	85.6	S
2504	KR 150	7.2	R	0.0	R	85.7	S
2505	CISAA 19-3	6.5	R	1.0	R	80.3	S
2506	KR 149	8.8	R	0.0	R	89.1	S
2507	**LC**	5.5	R	0.0	R	82.7	S
2508	AAH 43	6.0	R	0.0	R	90.0	S
	LD 949 (Check)	9.8	R	1.5	R	-	-
	CICR-2	-	-	-	-	95.7	S

NATIONAL TRIALS: CENTRAL ZONE & SOUTH ZONE

Table 33: Br. 02a - IET- *G. hirsutum* (Irrigated)

Code	Entry	Bacterial leaf blight				Alternaria leaf spot						Corynespora				Grey mildew		Rust	
		Junagarh		Surat		Junagarh		Surat		Coimbatore		Junagarh		Lam		Junagarh		Lam	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
301	GJHV 548	12.8	MS	13.5	R	9.5	R	0.0	DF	11.2	R	23.3	MS	27.5	MR	5.8	R	23.3	R
302	RB 602	2.5	MR	0.0	DF	8.0	R	0.0	DF	7.1	R	11.0	MR	22.8	R	6.8	R	20.3	R
303	L 1536	2.8	MR	9.0	R	11.0	R	0.0	DF	10.5	R	3.5	R	24.8	R	4.0	R	22.3	R
304	TSH 354	2.8	MR	0.0	DF	7.8	R	0.0	DF	11.6	R	2.0	R	18.3	R	3.3	R	21.5	R
305	CPD 2003	8.5	MR	7.0	R	7.8	R	0.0	DF	11.4	R	6.5	R	24.0	R	2.0	R	17.8	R
306	**ZC (Phule Yamuna/BGDS 1063)**	2.8	MR	0.0	DF	17.8	R	0.0	DF	11.8	R	29.3	MS	24.5	R	0.5	R	16.5	R
307	TCH 1941	9.0	MR	24.7	R	7.5	R	3.8	R	5.2	R	24.5	MS	25.3	MR	3.8	R	20.3	R
308	CPD 2002	2.5	MR	0.0	DF	13.5	R	0.0	DF	5.5	R	16.5	MR	21.3	R	6.8	MR	22.0	R
309	GISV 328	2.0	R	0.0	DF	7.5	R	0.0	DF	11.8	R	8.0	MR	21.5	R	1.5	R	26.8	MR
310	SHSV 14	16.3	MS	0.0	DF	14.8	R	0.0	DF	11.8	R	6.8	MR	19.8	R	1.5	R	24.8	R
311	RB 1903	3.8	MR	0.0	DF	10.3	R	0.0	DF	6.0	R	4.5	R	20.3	R	5.5	R	24.8	R
312	**Quality Check (Suraj)**	3.5	MR	0.0	DF	16.5	R	0.0	DF	11.9	R	9.0	MR	24.8	R	3.3	R	15.5	R
313	ADB 727	13.3	MS	0.0	DF	15.5	R	0.0	DF	6.1	R	16.0	MR	22.3	R	2.5	R	21.8	R
314	TSH 387	3.0	MR	0.0	DF	10.8	R	0.0	DF	5.8	R	23.5	MS	27.3	MR	1.3	R	25.8	R
315	GISV 332	17.5	MS	22.0	R	7.5	R	0.0	DF	5.9	R	23.8	MS	20.8	R	1.0	R	27.8	MR
316	CPD 2001	9.3	MR	0.0	DF	26.5	MR	0.0	DF	10.9	R	27.3	MS	27.0	MR	3.8	R	19.8	R
317	BS 10-20	5.3	MR	0.0	DF	12.5	R	0.0	DF	11.2	R	13.8	MR	27.0	MR	1.3	R	18.0	R
318	GJHV 568	1.8	R	0.0	DF	20.5	R	0.0	DF	10.8	R	25.3	MS	23.8	R	2.3	R	23.8	R
319	RAH 1083	10.8	MS	17.0	R	10.0	R	0.0	DF	6.1	R	5.3	R	26.8	MR	3.3	R	20.8	R
320	RAH 1081	3.3	MR	0.0	DF	20.5	R	0.0	DF	6.0	R	15.8	MR	24.3	R	8.3	MR	25.5	MR
321	**LC**	0.5	R	0.0	DF	7.5	R	0.0	DF	11.4	R	2.5	R	27.8	MR	1.0	R	27.3	MR
322	GTHV 18/19	2.5	MR	26.7	MR	13.3	R	3.3	R	11.7	R	19.5	MR	21.0	R	3.3	R	19.5	R
323	RAH 1082	0.5	R	0.0	DF	14.0	R	0.0	DF	10.8	R	7.0	MR	21.8	R	1.5	R	21.3	R
SC	Check	-	-	-	-	-	-	-	-	11.2	R	-	-	-	-	-	-	-	-
SC	L 1060	-	-	-	-	-	-	-	-	-	-	-	-	33.0	MR	-	-	32.5	MR
SC	Jaadoo BG II	-	-	-	-	-	-	-	-	-	-	-	-	21.5	R	-	-	34.8	MR
SC	RCH 2 BG II	-	-	-	-	-	-	-	-	-	-	-	-	16.0	R	-	-	26.8	MR

Table 34: Br. 02 b – IET- *G. hirsutum* (Rainfed)

Code	Entry	Alternaria blight		Bacterial blight				Grey Mildew				Rust		MLS	
		Dharwad		Dharwad		Akola		Dharwad		Akola		Dharwad		Akola	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
351	CNH 18298	22.9	R	0.0	DF	5.0	R	0.0	DF	3.3	R	27.9	MR	1.7	R
352	CPD 2052	20.0	R	10.4	R	6.7	R	0.0	DF	6.7	R	23.3	R	3.3	R
353	BS 10-20	20.3	R	12.1	R	5.0	R	0.0	DF	8.3	R	23.6	R	3.3	R
354	Quality Check (Suraj)	20.9	R	13.0	R	6.7	R	6.3	R	5.0	R	25.0	R	5.0	R
355	NDLH 2061-4	24.3	R	9.5	R	10.0	R	11.5	R	6.7	R	23.9	R	3.3	R
356	CNH 119	22.6	R	0.0	DF	8.3	R	0.0	DF	8.3	R	23.5	R	6.7	R
357	TKH 1225	21.4	R	0.0	DF	6.7	R	16.8	R	10.0	R	26.9	MR	15.0	R
358	TSH 337	20.6	R	0.0	DF	5.0	R	20.3	R	6.7	R	25.6	MR	1.7	R
359	CNDTS 287	23.0	R	13.3	R	3.3	R	0.0	DF	8.3	R	23.8	R	3.3	R
360	WGCV 192	22.9	R	17.8	R	6.7	R	0.0	DF	5.0	R	26.1	MR	1.7	R
361	TVH 003	22.0	R	17.9	R	3.3	R	0.0	DF	6.7	R	23.4	R	3.3	R
362	ZC (NH 615/ NDLH 1938)	23.3	R	0.0	DF	6.7	R	0.0	DF	8.3	R	23.3	R	5.0	R
363	NDLH 2071-2	21.5	R	0.0	DF	8.3	R	0.0	DF	3.3	R	27.3	MR	1.7	R
364	RAH 1082	20.9	R	0.0	DF	10.0	R	0.0	DF	8.3	R	24.4	R	5.0	R
365	CNH 18173	21.9	R	0.0	DF	8.3	R	0.0	DF	3.3	R	25.6	MR	3.3	R
366	NH 723	23.5	R	0.0	DF	5.0	R	22.3	R	5.0	R	26.5	MR	1.7	R
367	RB 1908	19.3	R	0.0	DF	6.7	R	16.9	R	6.7	R	24.4	R	10.0	R
368	GBHV 202	21.8	R	14.8	R	8.3	R	19.0	R	8.3	R	23.9	R	3.3	R
369	RAH 1081	22.6	R	0.0	DF	6.7	R	20.6	R	10.0	R	23.0	R	5.0	R
370	ADB 728	21.8	R	0.0	DF	10.0	R	17.0	R	5.0	R	25.8	MR	3.3	R
371	TKH 1197	21.4	R	16.0	R	3.3	R	22.5	R	3.3	R	25.4	MR	1.7	R
372	CPD 2053	24.0	R	0.0	DF	6.7	R	0.0	DF	6.7	R	25.3	MR	3.3	R
373	AKH 2013-3	23.1	R	16.0	R	8.3	R	0.0	DF	3.3	R	23.1	R	5.0	R
374	CNDTS 2131	24.4	R	0.0	DF	3.3	R	21.5	R	5.0	R	24.6	R	1.7	R
375	LC	20.6	R	22.5	R	5.0	R	25.0	R	6.7	R	22.8	R	3.3	R
376	CNH 1137	2.1	R	19.5	R	5.0	R	20.5	R	3.3	R	24.9	R	6.7	R
377	CPD 2051	21.1	R	0.0	DF	6.7	R	5.3	R	6.7	R	23.6	R	5.0	R
378	GBHV 217	24.8	R	0.0	DF	8.3	R	21.8	R	5.0	R	24.4	R	3.3	R
379	TSH 358	21.3	R	0.0	DF	10.0	R	23.0	R	3.3	R	24.4	R	3.3	R
380	RB 1910	27.3	R	0.0	DF	6.7	R	24.5	R	6.7	R	22.3	R	5.0	R
381	AKH 2016-1	21.0	R	0.0	DF	5.0	R	21.8	R	3.3	R	22.5	R	3.3	R
382	RAH 1083	23.3	R	0.0	DF	6.7	R	0.0	DF	8.3	R	22.4	R	6.7	R
SC	LRA 5166(Ch)	-	-	-	-	8.3	R	-	-	8.3	R	-	-	11.7	R
SC	Jaydhar (C)	65.0	MR	0.0	DF	-	-	52.8	MS	-	-	47.5	MR	-	-
SC	Abhadita (C)	54.5	MR	47.3	MR	-	-	41.0	MR	-	-	49.0	MR	-	-

Table 35: **Br. 02 a/b CC – IET- *G. hirsutum* – Coloured Cotton Trial(Irrigated / Rainfed)**

Code	Entries	Surat		Surat		Lam		Lam	
		Bacterial leaf blight		Alternaria leaf spot		Corynespora		Rust	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR
391	CNH 19325	0.0	DF	0.0	DF	19.0	R	16.3	R
392	DHCC 2002	0.0	DF	0.0	DF	19.8	R	9.3	R
393	**ZC (Phule Yamuna/ Suraj)**	0.0	DF	0.0	DF	23.0	R	16.3	R
394	CNH 19480	0.0	DF	0.0	DF	17.0	R	14.0	R
395	DHCC 2001	0.0	DF	0.0	DF	18.8	R	8.0	R
396	**Local Check**	0.0	DF	0.0	DF	23.3	R	20.5	R
397	SHSCC 5	23.5	R	0.0	DF	20.5	R	13.5	R
SC	L 1060	-	-	-	-	33.0	MR	32.5	MR
SC	Jaadoo BG II	-	-	-	-	21.5	R	34.8	MR
SC	RCH 2 BG II	-	-	-	-	16.0	R	26.8	MR

Table 36: **Br. 06 a – IET of Compact genotypes under irrigated condition**

Code	Entry	Bacterial leaf blight		Alternaria leaf spot				Corynespora				Grey mildew		Rust	
		Junagarh		Junagarh		Coimbatore		Junagarh		Lam		Junagarh		Lam	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
401	RB 1918	1.5	R	7.5	R	10.0	R	1.0	R	19.0	R	1.0	R	15.3	R
402	CNH 20-31	1.0	R	10.5	R	5.0	R	2.0	R	20.0	R	7.5	R	11.0	R
403	RHC 1651	1.0	R	8.0	R	12.0	R	1.0	R	21.3	R	1.0	R	24.5	R
404	BS 11-20	6.0	R	9.8	R	12.1	R	9.0	R	30.0	MR	1.0	R	14.5	R
405	**Local Check**	4.5	R	9.3	R	12.5	R	2.0	R	40.5	MR	1.0	R	21.3	R
406	TCH 1895	9.5	R	8.3	R	10.9	R	5.8	R	24.3	R	1.0	R	20.0	R
407	RHC 1639	1.3	R	11.8	R	10.7	R	22.8	R	34.5	MR	1.5	R	16.5	R
408	RB 1901	4.3	R	9.0	R	5.1	R	2.3	R	19.3	R	1.0	R	19.0	R
409	RAHC 1032	3.0	R	15.0	R	5.0	R	5.3	R	18.0	R	1.3	R	22.0	R
410	**Common Check (Suraj)**	0.8	R	11.0	R	5.0	R	5.0	R	26.3	MR	1.0	R	13.0	R
411	RAHC 1031	1.5	R	14.0	R	10.0	R	6.8	R	18.0	R	1.0	R	29.8	MR
412	RB 1918	-	-	-	-	-	-	-	-	19.5	R	-	-	29.0	R
SC	CNH 20-31	-	-	-	-	11.1	R	-	-	-	-	-	-	-	-
SC	L 1060	-	-	-	-	-	-	-	-	33.0	MR	-	-	32.5	MR
SC	Jaadoo BG II	-	-	-	-	-	-	-	-	21.5	R	-	-	34.8	MR
SC	RCH 2 BG II	-	-	-	-	-	-	-	-	16.0	R	-	-	26.8	MR

Table 37: Br. 06 b – Initial Evaluation of Compact genotypes under rainfed condition

Code	Entry	Alternaria leaf spot				Bacterial blight				Grey mildew				Rust	
		Nanded		Dharwad		Nanded		Dharwad		Nanded		Dharwad		Dharwad	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
421	CNH 1139	7.0	R	24.5	R	8.8	R	0.0	DF	26.5	MR	0.0	DF	26.2	MR
422	CNH 20-32	5.9	R	23.8	R	26.0	MR	0.0	DF	26.9	MR	19.3	R	22.7	R
423	CNDTS 5114	6.0	R	24.3	R	26.1	MR	23.9	R	28.1	MR	0.0	DF	25.7	MR
424	DSC 2051	6.4	R	24.0	R	26.3	MR	19.5	R	27.0	MR	0.0	DF	27.1	MR
425	**Local Check**	7.3	R	24.6	R	26.6	MR	13.5	R	11.4	R	15.8	R	24.9	R
426	CNH 20-33	6.3	R	24.3	R	9.1	R	0.0	DF	26.9	MR	16.8	R	26.1	MR
427	CNH 1140	8.0	R	26.5	MR	9.0	R	21.4	R	27.0	MR	0.0	DF	27.5	MR
428	CNH 121	6.6	R	23.8	R	7.8	R	0.0	DF	12.4	R	0.0	DF	25.1	MR
429	CNDTS 5170	5.6	R	25.6	MR	10.1	R	17.0	R	26.6	MR	0.0	DF	26.9	MR
430	CNH 20-31	7.5	R	24.1	R	26.1	MR	11.0	R	29.5	MR	26.0	MR	26.6	MR
431	CNH 120	6.4	R	26.4	MR	26.1	MR	16.8	R	13.8	R	0.0	DF	25.5	MR
432	RAHC 1032	4.8	R	24.1	R	11.0	R	0.0	DF	13.0	R	0.0	DF	22.7	R
433	**Common Check (Suraj)**	5.8	R	20.5	R	26.0	MR	17.3	R	14.1	R	18.0	R	25.9	MR
434	RAHC 1031	6.1	R	12.9	R	7.9	R	0.0	DF	27.6	MR	0.0	DF	25.7	MR
435	GTHV 19/18	5.9	R	24.6	R	26.4	MR	19.3	R	26.5	MR	0.0	DF	24.5	R
SC	NHH 44 BG II	6.4	R	-	-	7.3	R	-	-	19.3	R	-	-	-	-
SC	Jaydhar (C)	-	-	65.0	MS	-	-	0.0	DF	-	-	52.8	MS	47.5	MR
SC	Abhadita (C)	-	-	54.5	MS	-	-	47.3	MR	-	-	41.0	MR	49.0	MR

Table 38: Br. 22 a/b IET-*G. arboreum*

Code	Entry	ALB		BLB				Grey Mildew				Rust		MLS	
		Dharwad		Dharwad		Akola		Dharwad		Akola		Dharwad		Akola	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
441	NDLA 3140	24.1	R	0.0	DF	3.3	R	24.4	R	8.3	R	24.3	R	10.0	R
442	CNA 18392	24.9	R	0.0	DF	6.7	R	29.8	MR	11.7	R	26.3	MR	8.3	R
443	CNA 2034	24.3	R	0.0	DF	1.7	R	27.3	MR	5.0	R	24.1	R	6.7	R
444	CNA 1071	27.1	MR	0.0	DF	5.0	R	28.4	MR	1.7	R	27.3	MR	6.7	R
445	JLA-1512	25.8	MR	0.0	DF	1.7	R	25.3	MR	3.3	R	26.8	MR	11.7	R
446	PA 885	24.4	R	0.0	DF	3.3	R	22.6	R	3.3	R	25.6	MR	10.0	R
447	DWDa 2051	26.6	MR	0.0	DF	5.0	R	25.6	MR	1.7	R	29.9	MR	6.7	R
448	CNA 18408	26.8	MR	0.0	DF	1.7	R	27.4	MR	3.3	R	26.4	MR	10.0	R
449	CNA 1072	24.6	R	0.0	DF	1.7	R	28.4	MR	5.0	R	27.8	MR	8.3	R
450	JLA-1430	25.3	MR	0.0	DF	5.0	R	28.0	MR	3.3	R	24.1	R	11.7	R
451	NDLA 3151	24.9	R	0.0	DF	8.3	R	29.8	MR	6.7	R	26.8	MR	5.0	R
452	PA 881	24.9	R	0.0	DF	6.7	R	29.8	MR	8.3	R	29.0	MR	5.0	R
453	GAM 266	21.8	R	0.0	DF	5.0	R	28.6	MR	3.3	R	28.8	MR	8.3	R
454	MDL 2674	24.0	R	0.0	DF	3.3	R	30.1	MR	1.7	R	29.3	MR	5.0	R
455	GAM 269	24.1	R	0.0	DF	3.3	R	29.1	MR	5.0	R	27.5	MR	10.0	R
456	**ZC (AKA 7/DLSa 17)**	22.4	R	0.0	DF	1.7	R	29.9	MR	1.7	R	29.0	MR	13.3	R
457	**LC**	25.0	R	0.0	DF	8.3	R	29.4	MR	13.3	R	29.0	MR	10.0	R
458	MDL ABB1	23.9	R	0.0	DF	1.7	R	29.4	MR	5.0	R	28.4	MR	6.7	R
459	AKA 2015-8	23.0	R	0.0	DF	5.0	R	27.4	MR	3.3	R	28.3	MR	10.0	R
SC	LRA 5166 (Ch)	-	-	-	-	8.3	R	-	-	13.3	R	-	-	11.7	R
SC	Jaydhar (C)	65.0	MS	0.0	DF	-	-	52.8	MS	-	-	47.5	MR	-	-
SC	Abhadita (C)	54.5	MS	47.3	MR	-	-	41.0	MR	-	-	49.0	MR	-	-

Table 39: Br. 32b: IET of *G. herbaceum* cotton -Rainfed

Code	Entry	BLB				Grey Mildew		Rust		ALB			
		Surat		Dharwad		Dharwad		Dharwad		Surat		Dharwad	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
481	GShv 833/16	0	DF	0.0	DF	27.8	MR	26.9	MR	0.0	DF	25.0	R
482	**ZC (G Cot 23/DDhc 11)**	0	DF	0.0	DF	23.0	R	23.9	R	0.0	DF	25.8	MR
483	GShv 789/16	0	DF	0.0	DF	23.9	R	25.0	R	0.0	DF	25.8	MR
484	GBhv 316	0	DF	0.0	DF	25.3	MR	24.8	R	0.0	DF	22.8	R
485	**LC**	0	DF	0.0	DF	25.4	MR	25.1	MR	0.0	DF	24.4	R
486	GShv 219/16	0	DF	0.0	DF	24.8	R	24.9	MR	0.0	DF	25.1	MR
487	GBhv 324	0	DF	0.0	DF	25.0	R	24.4	MR	0.0	DF	23.9	R
488	GVhv 996	0	DF	0.0	DF	23.6	R	23.1	MR	0.0	DF	21.8	R
SC	Jaydhar (C)	-	-	0.0	DF	52.8	MS	47.5	MR	-	-	65.0	MS
SC	Abhadita (C)	-	-	47.3	MR	41.0	MR	49.0	MR	-	-	54.5	MS

ZONAL TRIAL: NORTH ZONE

Table 40: Br-24 a - Coordinated Variety trial of *G. arboreum*

Code	Entry	BLB				FFS			
		Faridkot		Bathinda		Bathinda		Faridkot	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR
2401	PBD 88	0	R	0	R	4.7	R	2.9	R
2402	PBD 35	0	R	0	R	10.7	R	3.3	R
2403	PBD 92	0	R	2.0	R	12.8	R	4.1	R
2404	**FDK 124 (ZC)**	0	R	0	R	8.8	R	2.1	R
2405	**LC**	0	R	0	R	9.8	R	1.67	R
2406	PBD 36	0	R	0	R	6.0	R	3.7	R
2407	FDK 281	0	R	0	R	8.3	R	2.5	R
SC	LD 949(SC)	-	-	3.0	R	12.3	R	-	-

Table 41: Br-25 a Coordinated Desi Hybrid trial

Code	Entry	BLB				FFS			
		Faridkot		Bathinda		Bathinda		Faridkot	
		PDI	DR	PDI		PDI	DR	PDI	DR
2511		0	DF	0	DF	1.2	R	6.0	R
2512	KR 147	0	DF	0	DF	2.1	R	4.2	R
2513	KR 139	0	DF	1.0	R	4.2	R	6.7	R
2514	**ZC (KR 64)**	0	DF	0	DF	3.7	R	6.2	R
2515	**LC**	0	DF	0	DF	2.1	R	7.7	R
2516	KR 136	0	DF	0	DF	2.9	R	11.5	R
2517	KR 133	0	DF	0	DF	3.7	R	8.	R
SC	LD 949	-	-	2.0	R	-	-	10.7	R

Table 42: Br-06 a – Coordinated Variety trial of *G. hirsutum (Irrigated)*

Code	Entry	CLCuD										FFS		BLB	
		Faridkot		Bathinda		Hisar		Sirsa		Sriganganagar		Bathinda		Bathinda	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
2621	RS 2928	19.1	R	17.7	R	25.9	MR	25.0	MR	24.5	MR	22.5	R	0.0	R
2622	PBH 174	35.4	MS	37.5	MS	38.4	MS	28.7	MR	32.5	MS	16.8	R	0.0	R
2623	F 2757	29.2	MR	30.2	MS	33.3	MS	27.7	MR	28.1	MR	21.8	R	0.0	R
2624	H 1530	29.5	MR	32.3	MS	33.3	MS	31.5	MS	33.6	MS	34.5	MR	3.5	R
2625	F 2560	28.8	MR	36.5	MS	28.0	MR	27.4	MR	35.5	MS	28.3	MR	2.0	R
2626	**ZC (CSH 3075)**	25.7	MR	27.1	MR	33.3	MS	20.4	MR	26.6	MR	30.8	MR	0.0	R
2627	CSH 100	28.1	MR	22.9	MR	23.3	MR	24.0	MR	33.3	MS	31.3	MR	0.0	R
2628	RS 2914	24.7	MR	34.4	MS	33.3	MS	19.4	R	23.8	MR	25.8	MR	0.0	R
2629	RS 2913	25.4	MR	31.3	MS	31.8	MS	11.1	R	28.3	MR	22.0	R	1.5	R
2630	**LC**	29.9	MR	30.2	MS	33.3	MS	28.9	MR	35.4	MS	26.0	MR	0.0	R
SC	**F 846**	-	-	37.5	MS	-	-	-	-	-	-	31.3	MR	3.5	R
SC	**RST-9**	-	-	-	-	-	-	-	-	57.2	HS	-	-	-	-
SC	**CSH-3129**	-	-	-	-	-	-	27.5	MR	-	-	-	-	-	-
SC	**CSH 3075**	-	-	-	-	-	-	23.3	MR	-	-	-	-	-	-

ZONAL TRAIL: CENTRAL ZONE

Table 43: Br. 03 (a) Preliminary Varietal Trial (PVT) of *G. hirsutum* – Irrigated

Code	Entry	Bacterial leaf blight				Alternaria leaf spot				Corynespora		Grey mildew	
		Junagarh		Surat		Junagarh		Surat		Junagarh		Junagarh	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
2001	GISV319	4.0	R	6.3	R	12.8	R	0.0	DF	20.0	R	0.8	R
2002	**ZC (Phule Yamuna)**	0.8	R	9.8	R	12.0	R	2.8	R	23.0	R	1.0	R
2003	GJHV 566	0.5	R	0.0	DF	11.5	R	0.0	DF	14.8	R	1.3	R
2004	**LC**	1.3	R	0.0	DF	9.0	R	0.0	DF	4.5	R	3.0	R
2005	CPD 1902	7.0	R	6.0	R	8.0	R	0.0	DF	9.5	R	1.0	R
2006	RHC 1409	9.8	R	18.8	R	7.5	R	2.3	R	2.8	R	1.0	R
2007	**QC (Suraj)**	14.3	R	31.3	MR	23.0	R	3.8	R	10.0	R	1.0	R
2008	CCH 19-2	1.8	R	11.8	R	12.0	R	0.0	DF	31.8	MR	1.0	R
2009	GISV 323	6.0	R	33.5	MR	7.3	R	4.8	R	8.5	R	1.0	R
2010	RAH 1076	26.8	MR	28.0	MR	11.0	R	3.8	R	21.8	R	1.0	R

Table 44: Br. 03aPVT Coloured Cotton (*G. hirsutum*)- Irrigated

Code	Entry	Surat			
		BLB		ALB	
		PDI	DR	PDI	DR
2011	DHCC 1901	22.8	R	4.3	R
2012	LHCC 4	9.3	R	0.0	DF
2013	**Phule Yamuna (ZC)**	22.0	R	4.5	R
2014	CNH 18528	19.3	R	1.5	R
2015	DHCC 1801	17.0	R	0.0	DF
2016	CNH 18529	22.8	R	4.8	R
2017	CNH 17395	20.5	R	4.5	R
2018	Local Check	9.5	R	0.0	DF
2019	DHCC 1902	0.0	DF	0.0	DF

Table 45: Br. 04 (a) Co-ordinated Varietal Trial (CVT) of *G. hirsutum* – Irrigated

Code	Entry	Bacterial leaf blight				Alternaria leaf spot				Corynespora		Grey mildew	
		Junagarh		Surat		Junagarh		Surat		Junagarh		Junagarh	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
2031	TSH 367	3.0	R	7.8	R	15.0	R	0.0	DF	17.8	R	3.3	R
2032	**ZC (Phule Yamuna)**	1.0	R	25.8	MR	14.3	R	4.3	R	27.3	MR	7.5	R
2033	SHS 113	21.8	R	28.8	MR	12.3	R	5.0	R	7.5	R	1.0	R
2034	LC	0.8	R	14.8	R	10.3	R	0.0	DF	3.8	R	10.5	R
2035	GJHV-554	0.5	R	18.5	R	14.8	R	0.0	DF	18.5	R	1.0	R
2036	**QC (Suraj)**	4.8	R	32.5	MR	21.8	R	4.5	R	15.8	R	3.3	R
2037	GJHV-522	1.8	R	19.5	R	15.0	R	0.0	DF	5.3	R	1.3	R

Table 46: Br. 05 (a) Co-ordinated Hybrid Trial (CHT-HxH) of *G. hirsutum* – Irrigated)

Code	Entry	Bacterial leaf blight				Alternaria leaf spot				Corynespora		Grey mildew	
		Junagarh		Surat		Junagarh		Surat		Junagarh		Junagarh	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
2041	GTHH 17/01	1.8	R	22.8	R	13.8	R	0.0	DF	6.5	R	1.8	R
2042	**ZC (Phule Asmita)**	5.5	R	22.0	R	15.0	R	2.5	R	19.3	R	1.0	R
2043	GJHH 19	1.0	R	31.8	MR	8.0	R	6.8	R	7.5	R	1.0	R
2044	GTHH 1203	1.0	R	7.8	R	9.0	R	0.0	DF	5.3	R	1.0	R
2045	**LC**	3.8	R	30.3	MR	18.8	R	6.3	R	4.8	R	5.8	R
2046	GSHH 15035	1.0	R	15.0	R	9.5	R	0.0	DF	17.3	R	5.3	R

Table 47: Br-06a-CVT Compact Culture- Irrigated

Junagarh									
Code	Entry	Bacterial leaf blight		Alternaria leaf spot		Corynespora		Grey mildew	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR
2051	RHC-HD 1312	15.0	R	10.5	R	16.3	R	1.3	R
2052	**ZC (Suraj)**	7.3	R	13.3	R	26.3	MR	4.8	R
2053	CCH 19-2	9.3	R	17.0	R	44.8	MR	1.3	R
2054	RHC-HD 1438	1.5	R	14.3	R	26.0	MR	5.0	R
2055	**LC**	12.0	R	10.0	R	4.5	R	1.0	R
2056	RHC-HD 1405	8.5	R	12.8	R	32.5	MR	1.3	R
2057	SHC 374	8.8	R	13.8	R	11.8	R	1.3	R
2058	GTHV 18/17	15.3	R	14.3	R	23.8	R	4.8	R
2059	CCH 19-4	4.3	R	14.0	R	28.8	MR	4.8	R
2060	RAHC 1902	7.8	R	15.0	R	19.0	R	2.8	R

Table 48: Br.03b P.V.T of *G. hirsutum*-Rainfed

Code	Entry	Alternaria leaf spot				Bacterial blight						Wilt		Grey mildew				MLS	
		Bhruch		Nanded		Bhruch		Nanded		Akola		Bhruch		Nanded		Akola		Akola	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
2091	**QC (Suraj)**	0.0	DF	5.0	R	0.0	DF	26.9	MR	3.3	R	0.0	DF	15.5	R	3.3	R	11.7	R
2092	CNH 1134	14.5	R	4.4	R	14.5	R	8.5	R	6.7	R	0.0	DF	20.0	R	8.3	R	13.3	R
2093	**LC**	0.0	DF	5.0	R	0.0	DF	8.3	R	3.3	R	0.0	DF	27.3	MR	6.7	R	5.0	R
2094	NDLH – 2057-1	0.0	DF	4.9	R	0.0	DF	10.0	R	1.7	R	0.0	DF	15.3	R	5.0	R	10.0	R
2095	TVH 007	0.0	DF	5.5	R	0.0	DF	26.4	MR	11.7	R	0.0	DF	13.8	R	3.3	R	16.7	R
2096	ZC (NH 615)	0.0	DF	4.6	R	0.0	DF	8.0	R	6.7	R	0.0	DF	25.3	R	5.0	R	15.0	R
2097	AKH 2013-2	0.0	DF	4.8	R	0.0	DF	9.5	R	8.3	R	0.0	DF	14.5	R	6.7	R	10.0	R
SC	LRA 5166									6.7	R					13.3	R	16.7	R

Table 49: Br.04b CVT-Rainfed

Code	Entry	Alternaria leaf spot				Bacterial blight						Wilt		Grey mildew				MLS	
		Bhruch		Nanded		Bhruch		Nanded		Akola		Bhruch		Nanded		Akola		Akola	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
2101	NDLH – 2035-5	0.0	DF	5.0	R	0.0	DF	26.0	MR	13.3	R	0.0	DF	14.8	R	8.3	R	15.0	R
2102	**Local Check**	0.0	DF	5.1	R	1.0	R	10.8	R	11.7	R	0.0	DF	26.1	MR	6.7	R	11.7	R
2103	ZC (NH 615)	0.0	DF	4.5	R	0.0	DF	10.0	R	13.3	R	0.0	DF	14.5	R	3.3	R	15.0	R
2104	BS 3-17	1.0	R	4.5	R	1.0	R	9.1	R	15.0	R	0.0	DF	26.9	MR	5.0	R	16.7	R
2105	**QC (Suraj)**	0.0	DF	5.1	R	1.0	R	26.5	MR	8.3	R	0.0	DF	14.1	R	6.7	R	13.3	R
SC	LRA 5166			9.1	R			26.0	MR	13.3	R			26.3	MR	10.0	R	10.0	R

Table 50: Br. 06b CVT of compact *G. hirsutum* genotype -Rainfed

Code	Entry	Bacterial blight						Grey mildew				Alternaria leaf spot				MLS	
		Surat		Nanded		Akola		Nanded		Akola		Surat		Nanded		Akola	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
2111	GISV 312	15.0	R	7.0	R	3.3	R	26.1	MR	3.3	R	0.0	DF	7.1	R	8.3	R
2112	**Local Check**	6.3	R	6.4	R	1.7	R	12.9	R	1.7	R	0.0	DF	7.0	R	6.7	R
2113	CNH 09-77	0.0	DF	26.1	MR	5.0	R	24.3	R	5.0	R	0.0	DF	6.3	R	8.3	R
2114	DSC 1851	0.0	DF	6.4	R	3.3	R	26.3	MR	3.3	R	0.0	DF	6.9	R	6.7	R
2115	**ZC (Suraj)**	0.0	DF	26.0	MR	1.7	R	26.1	MR	1.7	R	0.0	DF	7.0	R	8.3	R
2116	AKH 1302	22.3	R	6.3	R	3.3	R	27.3	MR	3.3	R	3.3	R	4.8	R	15.0	R
2117	RHC-HD 1405	26.0	MR	6.9	R	5.0	R	26.4	MR	5.0	R	3.8	R	6.5	R	16.7	R
2118	CNH 1133	18.0	R	6.6	R	3.3	R	26.6	MR	3.3	R	0.0	DF	6.4	R	8.3	R
2119	TVH 002	27.0	MR	26.3	MR	1.7	R	26.6	MR	1.7	R	3.8	R	6.9	R	11.7	R
2120	RHC-HD 1312	18.0	R	6.3	R	5.0	R	28.4	MR	5.0	R	0.0	DF	4.8	R	15.0	R
2121	RAHC 1901	25.8	MR	6.5	R	6.7	R	27.3	MR	6.7	R	2.3	R	6.1	R	8.3	R
2122	RAHC 1029	13.0	R	5.9	R	1.7	R	26.0	MR	1.7	R	0.0	DF	6.0	R	16.7	R
C	NHH 44 BG II			6.0	R			19.1	R					6.5	R		
SC	LRA 5166					6.7	MR			11.7	R					8.3	R

Table 51: Br. 24b CVT: Coordinated varietal trial *G. arboreum* cotton- Rainfed: Akola

Code	Entry	Akola					
		BLB		MLS		GM	
		PDI	DR	PDI	DR	PDI	DR
2131	CNA 2036	5.0	R	1.7	R	8.3	R
2132	NDLA 3104-4	5.0	R	3.3	R	10.0	R
2133	MDL 2667	3.3	R	5.0	R	11.7	R
2134	AKA 2013-8	1.7	R	8.3	R	6.7	R
2135	**ZC (AKA 7)**	3.3	R	3.3	R	13.3	R
2136	JLA-1207	5.0	R	5.0	R	3.3	R
2137	CNA 2035	3.3	R	6.7	R	5.0	R
2138	**LC**	3.3	R	5.0	R	5.0	R
2139	DWDa 1802	5.0	R	3.3	R	1.7	R
2140	NDLA 3116-3	3.3	R	6.7	R	6.7	R
2141	MDL 2663	3.3	R	1.7	R	5.0	R
SC	AKA-8	13.3	R	11.7	R	16.7	R

Table 52: Br. 24bLL: Coordinated varietal trial Long linted *G. arboreum* cotton (LL) - Rainfed

Code	Entry	Akola					
		BLB		MLS		GM	
		PDI	DR	PDI	DR	PDI	DR
2151	CNA 1065	5.0	R	16.7	R	11.7	R
2152	PA 873	1.7	R	15.0	R	8.3	R
2153	PAIG 379	3.3	R	18.3	R	13.3	R
2154	PA 869	1.7	R	15.0	R	10.0	R
2155	QC (PA 255)	6.7	R	6.7	R	1.7	R
2156	CINA 1068	11.7	R	18.3	R	5.0	R
2157	CINA 1069	10.0	R	16.7	R	3.3	R
2158	CINA 1067	6.7	R	11.7	R	5.0	R
SC	AKA-8	13.3	R	16.7	R	18.3	R

Table 53: Pr.Br. 24 (b) CC: CVT coloured cotton -*G. arboreum* -Rainfed*:* Surat

Code	Entry	Bacterial Blight		Alternaria leaf spot	
		PDI	DR	PDI	DR
2161	CNA 18562	0.0	DF	0.0	DF
2162	DDCC 1902	0.0	DF	0.0	DF
2163	DDCC 1801	0.0	DF	0.0	DF
2164	CNA 1092	0.0	DF	0.0	DF
2165	**AKA 7 (ZC)**	0.0	DF	0.0	DF
2166	CNA 1091	0.0	DF	0.0	DF
2167	CNA 17522	0.0	DF	0.0	DF
2168	CNA 19475	0.0	DF	0.0	DF
2169	**Local Check**	0.0	DF	0.0	DF
2170	CNA 18563	0.0	DF	0.0	DF
2171	DDCC 1802	0.0	DF	0.0	DF
2172	DDCC 2001	0.0	DF	0.0	DF
2173	DDCC 1901	0.0	DF	0.0	DF
SC	LRA 5166	56.0	MS	8.0	R

ZONAL TRIAL: SOUTH ZONE

Table 54: Br.03a: Reaction of *G. hirsutum* L. entries- PVT (Irrigated) - Lam, Andhra Pradesh

Code	Entry	Corynespora Leaf spot		Rust	
		PDI	Reaction	PDI	Reaction
2501	TSH 383	20.5	R	25.0	R
2502	**ZC (Suraj)**	22.3	R	18.8	R
2503	CCH 19-2	25.3	MR	22.0	R
2504	RHC 1409	21.5	R	23.5	R
2505	**LC**	22.5	R	24.0	R
2506	CPD 1902	20.3	R	22.3	R
2507	RAH 1046	17.0	R	23.0	R
SC	L 1060	33.0	MR	32.5	MR
SC	Jaadoo BG II	21.5	R	34.8	MR
SC	RCH 2 BG II	16.0	R	26.8	MR

Table 55: Br-03 a/b (CC) – PVT Colour Cotton – Irrigated / Rainfed - Lam, Andhra Pradesh

Code	Entry	Corynespora Leaf spot		Rust	
		PDI	DR	PDI	DR
2511	DHCC 1801	18.3	R	22.0	R
2512	CCHC 19-2	16.8	R	23.8	R
2513	DHCC 1901	20.5	R	18.0	R
2514	**Suraj (ZC)**	21.3	R	17.0	R
2515	CNH 18528	17.5	R	22.5	R
2516	CNH 17395	17.8	R	21.8	R
2517	CCHC 19-1	17.3	R	23.0	R
2518	DHCC 1902	17.8	R	15.8	R
2519	**LC**	24.0	R	26.5	R
2520	DHCC 1802	17.0	R	18.5	R
2521	CNH 18529	21.0	R	19.5	R
2522	LHCC 3	19.5	R	19.8	R
SC	L 1060	33.0	MR	32.5	MR
SC	Jaadoo BG II	21.5	R	34.8	MR
SC	RCH 2 BG II	16.0	R	26.8	MR

Table 56: Br-04a: CVT *G. hirsutum* L. entries– Irrigated - Lam, Andhra Pradesh

Code	Entry	Corynespora Leaf spot		Rust	
		PDI	Reaction	PDI	Reaction
2531	CPD 1701	22.0	R	18.5	R
2532	**ZC (Suraj)**	24.2	R	20.0	R
2533	CPD 1702	21.2	R	17.5	R
2534	RAH 1075	17.5	R	22.7	R
2535	**LC**	22.5	R	20.5	R
2536	TSH 325	23.2	R	21.5	R
SC	L 1060	33.0	MR	32.5	MR
SC	Jaadoo BG II	21.5	R	34.7	MR
SC	RCH 2 BG II	16.0	R	26.7	MR

Table 57: Br-05a CHT Intra specific cotton hybrid entries, HXH - Lam, Andhra Pradesh

Code	Entry	Corynespora Leaf spot		Rust	
		PDI	Reaction	PDI	Reaction
2541	BGDHH 2013	22.3	R	21.3	R
2542	DHH 2001	26.5	MR	19.8	R
2543	**LC**	25.3	MR	15.8	R
2544	RAHH 2012	21.5	R	21.3	R
2545	RAHH 2011	20.8	R	19.0	R
SC	L 1060	33.0	MR	32.5	MR
SC	Jaadoo BG II	21.5	R	34.7	MR
SC	RCH 2 BG II	16.0	R	26.7	MR

Table 58: Br-06a –CVT Compact Cultures – Irrigated - Lam, Andhra Pradesh

Code	Entry	Corynespora Leaf spot		Rust	
		PDI	Reaction	PDI	Reaction
2551	CCH 19-2	29.3	MR	18.0	R
2552	**ZC (Suraj)**	28.3	MR	24.5	R
2553	RHC-HD 1312	27.8	MR	24.0	R
2554	CCH 19-4	34.5	MR	21.0	R
2555	**LC**	21.8	R	21.8	R
2556	RHC-HD 1438	30.0	MR	11.8	R
2557	RAHC 1028	26.3	MR	24.8	R
2558	LHDP 5	31.5	MR	23.8	R
2559	CCH 19-2	9.3	R	32.5	MR
SC	L 1060	33.0	MR	32.5	MR
SC	Jaadoo BG II	21.5	R	34.7	MR
SC	RCH 2 BG II	16.0	R	26.7	MR

Table 59: Br 13a: PVT *G. barbadense*-Irrigated

Code	Entry	ALB				BLB		Grey Mildew		Rust	
		Dharwad		Coimbatore		Dharwad		Dharwad		Dharwad	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
2561	DB 1901	16.1	R	11.0	R	20.0	R	0.0	DF	25.5	MR
2562	CCB 29	15.6	R	12.0	R	22.8	R	0.0	DF	26.6	MR
2563	CCB 64B	17.5	R	12.1	R	21.6	R	0.0	DF	26.6	MR
2564	CCB 15	19.1	R	4.9	R	25.8	R	0.0	DF	23.9	R
2565	CCB 26	17.4	R	5.0	R	25.3	MR	0.0	DF	25.1	MR
2566	**ZC (Suvin)**	18.6	R	10.4	R	25.4	MR	0.0	DF	26.4	MR
2567	CCB 142	20.6	R	5.0	R	25.4	MR	0.0	DF	25.8	MR
2568	SBSD 5-6	24.8	R	12.4	R	29.0	MR	0.0	DF	25.6	MR
2569	CCB 6	24.6	R	12.7	R	25.8	MR	0.0	DF	24.9	R
2570	CCB 141	26.1	MR	6.0	R	26.6	MR	0.0	DF	25.9	MR
2571	CCB 51	26.5	MR	10.0	R	26.0	MR	0.0	DF	24.5	R
2572	CCB 64	27.0	MR	11.1	R	24.0	R	0.0	DF	24.9	R
SC	Jaydhar	65.0	MS	-	-	0.0	DF	52.8	MS	47.5	MR
SC	Abhadita	54.5	MS	-	-	47.3	MR	41.0	MR	49.0	MR
SC	RCH-659	-	-	12.7	R	-	-	-	-	-	-

Table 60: Br.14a CVT *G. barbadense* L. entries (CVT) -Irrigated

Code	Entry	ALB				BLB		Grey Mildew		Rust	
		Dharwad		Coimbatore		Dharwad		Dharwad		Dharwad	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
2581	CCB 51-2	23.6	R	11.9	R	24.5	R	0.0	DF	24.6	R
2582	**ZC (Suvin)**	24.5	R	12.0	R	24.6	R	0.0	DF	23.9	R
2583	DB 1801	25.5	MR	10.8	R	22.9	R	0.0	DF	24.6	R
SC	Jaydhar	65.0	MS			0.0	DF	52.8	MS	47.5	MR
SC	Abhadita	54.5	MS			47.3	MR	41.0	MR	49.0	MR
SC	RCH-659	-	-	11.5	R	-	-	-	-	-	-

Table 61: Br.15a CHT Inter-specific cotton hybrid HxB entries-Irrigated

Code	Entry	ALB				BLB		GM		Rust				Corynespora	
		Dharwad		Coimbatore		Dharwad		Dharwad		Dharwad		Lam		Lam	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
2591	RHB 1623	22.5	R	11.5	R	23.3	R	0.0	DF	24.3	R	25.8	MR	16.0	R
2592	LC	22.5	R	11.4	R	22.5	R	0.0	DF	25.0	R	16.5	R	6.5	R
2593	DHB 2002	24.4	R	5.2	R	22.1	R	0.0	DF	25.1	MR	20.8	R	12.8	R
2594	Phule Dhara (CC)	20.6	R	11.3	R	19.4	R	0.0	DF	27.5	MR	17.5	R	17.0	R
2595	DHB 1901	22.4	R	11.1	R	21.5	R	0.0	DF	26.5	MR	21.0	R	16.3	R
2596	LAHB 2	20.9	R	5.6	R	18.1	R	0.0	DF	25.6	MR	23.0	R	14.0	R
2597	DHB 1902	21.5	R	11.8	R	20.4	R	0.0	DF	23.5	R	22.8	R	15.8	R
2598	RHB 1624	22.3	R	12.9	R	18.8	R	0.0	DF	23.4	R	21.8	R	15.5	R
2599	DHB 2003	22.6	R	11.5	R	21.3	R	0.0	DF	25.9	MR	19.8	R	14.8	R
2600	RHB 1401	17.5	R	5.4	R	17.9	R	0.0	DF	25.5	MR	22.3	R	13.5	R
2601	DHB 2001	19.0	R	12.5	R	17.1	R	0.0	DF	24.4	R	24.3	R	16.5	R
SC	Jaydhar	65.0	MS	-	-	0.0	DF	52.8	MS	47.5	MR	32.5	MR	33.0	MR
SC	Abhadita	54.5	MS	-	-	47.3	MS	41.0	MR	49.0	MR	34.8	MR	21.5	R
SC	L 1060	-	-	-	-	-	-	-	-	-	-	26.8	MR	16.0	R
SC	Jaadoo BG II	-	-	-	-	-	-	-	-	-	-	25.8	MR	16.0	R
SC	RCH 2 BG II	-	-	-	-	-	-	-	-	-	-	16.5	R	6.5	R
SC	RCH-659	-	-	11.7	R	-	-	-	-	-	-	-	-	-	-

Table 62: Br – 03(b) PVT- Rainfed

Code	Entry	Dharwad							
		ALB		BLB		GM		Rust	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR
2611	CNH 09-119	18.6	R	0.0	DF	0.0	DF	25.8	MR
2612	NDLH 2051-3	19.1	R	0.0	DF	0.0	DF	27.4	MR
2613	CNH 1134	22.8	R	0.0	DF	0.0	DF	26.8	MR
2614	**ZC (Sahana)**	22.9	R	0.0	DF	0.0	DF	26.4	MR
2615	CCH 19-2	23.3	R	0.0	DF	0.0	DF	28.3	MR
2616	QC (Suraj)	24.9	R	14.1	R	0.0	DF	26.1	MR
2617	TSH 375	24.9	R	0.0	DF	0.0	DF	24.9	R
2618	TVH 007	23.8	R	18.4	R	0.0	DF	27.6	MR
2619	**LC**	25.0	R	20.6	R	0.0	DF	26.3	MR
2620	NDLH 2056-4	18.6	R	0.0	DF	0.0	DF	25.6	MR
2621	BGDS 1033	21.9	R	16.6	R	0.0	DF	27.9	MR
SC	Jaydhar	65.0	MS	0.0	DF	52.8	MS	47.5	MR
SC	Abhadita	54.5	MS	47.3	MR	41.0	MR	49.0	MR

Table 63: Br – 04(b) CVT Rainfed

Code	Entry	Dharwad							
		ALB		BLB		GM		Rust	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR
2631	NDLH – 2035-5	21.5	R	0.0	DF	0.0	DF	27.0	MR
2632	**ZC (Sahana)**	23.6	R	0.0	DF	0.0	DF	27.2	MR
2633	GBHV-193	22.6	R	0.0	DF	0.0	DF	26.1	MR
2634	**QC (Suraj)**	24.3	R	16.8	R	0.0	DF	27.0	MR
2635	RAH 1075	23.5	R	11.8	R	0.0	DF	26.1	MR
2636	LC	25.3	MR	0.0	DF	0.0	DF	26.0	MR
SC	Jaydhar	65.0	MS	0.0	DF	52.8	MS	47.5	MR
SC	Abhadita	54.5	MS	47.3	MR	41.0	MR	49.0	MR

Table 64: Br – 05(b) CHT HXH -Rainfed

Code	Entry	Dharwad							
		ALB		BLB		GM		Rust	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR
2641	RAHH 2012	22.3	R	0.0	DF	0.0	DF	23.9	R
2642	**LC**	24.5	R	0.0	DF	0.0	DF	25.3	MR
2643	BGDHH 2013	24.4	R	0.0	DF	0.0	DF	27.4	MR
2644	DHH 2051	26.1	MR	17.3	R	0.0	DF	24.4	R
2645	RAHH 2011	23.6	R	0.0	DF	0.0	DF	26.1	MR
SC	Jaydhar	65.0	MS	0.0	DF	52.8	MS	47.5	MR
SC	Abhadita	54.5	MS	47.3	MR	41.0	MR	49.0	MR

Table 65: Br-06(b) CVT CC-Rainfed

Code	Entry	Dharwad							
		ALB		BLB		GM		Rust	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR
2651	CCH 19-4	26.4	MR	0.0	DF	0.0	DF	26.0	MR
2652	TVH 002	25.8	MR	0.0	DF	0.0	DF	25.1	MR
2653	**ZC (Suraj)**	26.1	MR	12.3	R	0.0	DF	26.8	MR
2654	DSC 1951	24.1	R	0.0	DF	0.0	DF	25.6	MR
2655	CNH 09-77	24.1	R	0.0	DF	0.0	DF	7.0	R
2656	RAHC 1029	20.9	R	0.0	DF	0.0	DF	25.0	R
2657	**LC**	21.0	R	0.0	DF	0.0	DF	27.1	MR
2658	RAHC 1901	22.4	R	0.0	DF	0.0	DF	29.0	MR
2659	AKH 1302	23.1	R	13.3	R	0.0	DF	25.3	MR
2660	DSC 1851	27.0	MR	0.0	DF	0.0	DF	26.5	MR
2661	CNH 2046	23.8	R	0.0	DF	0.0	DF	25.1	MR
SC	Jaydhar	65.0	MS	0.0	DF	52.8	MS	47.5	MR
SC	Abhadita	54.5	MS	47.3	MR	41.0	MR	49.0	MR

Table 66: Br-24(b) CVT *G arboreum* -Rainfed

Code	Entry	Dharwad							
		ALB		BLB		GM		Rust	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR
2671	CNA 2035	24.6	R	0.0	DF	28.6	MR	23.6	R
2672	NDLA 3116-3	24.0	R	0.0	DF	30.3	MR	23.5	R
2673	**ZC (DLSa 17)**	21.9	R	0.0	DF	26.5	MR	25.4	MR
2674	JLA 1102	24.0	R	0.0	DF	27.5	MR	24.4	R
2675	DWDa 1802	23.1	R	0.0	DF	25.8	MR	23.0	R
2676	CNA 1031	25.8	MR	0.0	DF	25.0	R	25.0	R
2677	**LC**	20.1	R	0.0	DF	26.4	MR	24.6	R
2678	CNA 1054	22.4	R	0.0	DF	28.0	MR	24.1	R
2679	NDLA 3104-4	23.9	R	0.0	DF	27.3	MR	26.4	MR
2680	JLA-1227	22.9	R	0.0	DF	26.9	MR	25.5	MR
SC	Jaydhar	65.0	MS	0.0	DF	52.8	MS	47.5	MR
SC	Abhadita	54.5	MS	47.3	MR	41.0	MR	49.0	MR

Table 67: Br-24b CVT – Long linted *G. arboreum* -Rainfed

Code	Entry	Dharwad							
		ALB		BLB		GM		Rust	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR
2681	CINA 1068	26.1	MR	0.0	DF	27.0	MR	23.5	R
2682	PA 807	24.8	R	0.0	DF	25.6	MR	24.1	R
2683	PA 806	25.1	MR	0.0	DF	29.0	MR	24.0	R
2684	**ZC (DLSa 17)**	23.3	R	0.0	DF	28.0	MR	23.8	R
2685	CINA 1069	24.9	R	0.0	DF	24.9	R	24.5	R
2686	PAIG 396	25.5	MR	0.0	DF	22.9	R	23.0	R
2687	PAIG 384	23.3	R	0.0	DF	25.6	MR	23.1	R
2688	PA 833	24.0	R	0.0	DF	24.6	R	22.9	R
2689	PA 880	24.6	R	0.0	DF	26.0	MR	23.9	R
2690	CINA 1067	23.0	R	0.0	DF	25.3	MR	26.8	MR
2691	CNA 1065	22.1	R	0.0	DF	24.6	R	26.4	MR
SC	Jaydhar	65.0	MS	0.0	DF	52.8	MS	47.5	MR
SC	Abhadita	54.5	MS	47.3	MR	41.0	MR	49.0	MR

Path 2 (b) Confirmation and maintenance of disease resistant lines

NORTH ZONE

Table 68: Screening of *hirsutum* entries in (confirmation) trial against Cotton leaf curl disease (CLCuD), Faridkot

Entry code and name	First year: 2019		Second year	
	Field trial		Field trial	
	PDI	Reaction	PDI	Reaction
RHC 1307	9.47	HR	3.30	HR
CSH 3012	7.65	HR	7.69	HR
RS 2909	1.29	HR	2.68	HR
F 2687	5.04	HR	4.76	HR
GSHV 208	12.50	R	9.36	HR
RAH 1076	4.29	HR	2.56	HR
F 2228 (SC)	37.23	MS	41.33	S
F 846 (SC)	32.74	MS	42.00	S
RST 9 (SC)	39.29	MS	40.70	S

Table 69: Screening of *G. arboreum* varieties (confirmation) against root rot at CICR RS, Sirsa

Code	Entry	PDI and disease reaction against root rot in disease nursery			
		2019-20		2020-21	
		PDI	DR	PDI	DR
9025	FDK 281	18.7	MR	70.7	S
9026	Local Check	14.4	MR	79.4	S

CENTRAL ZONE

Table 70: Confirmation and maintenance of disease resistant lines at Junagarh (Gujrat)

Table 70a: Third year trial for confirmation of disease resistance

Sr. No	Bacterial Leaf Blight (BLB) : PDI and Disease reaction														
	First year (2017)				Second year (2018)			Third year (2019)			Fourth year (2020)				
	Field trial				Field trial			Field trial			Field trial			Artificial	
	Entries	Av. Grade	PDI	DR	Av. Grade	PDI	DR	Av. Grade	PDI	DR	Av. Grade	PDI	DR	PDI	DR
1	**GJHV-523**	0.32	8.0	R	0.04	1.0	R	0.52	13.00	R	0.38	9.50	R	Not conducted	
2	**BS2-17**	0.25	6.25	R	0.04	1.00	R	0.59	14.75	R	0.3	7.50	R		
3	RAH-0603	0.21	5.25	R	0.15	3.75	R	0.43	10.75	R	0.22	5.50	R		
4	TSH-325	0.2	5.0	R	0.18	4.5	R	0.35	8.75	R	0.33	8.25	R		
5	H-1488	0.3	7.5	R	0.04	1.0	R	0.74	18.50	R	0.4	10.00	R		
6	RAH-0604	0.26	6.5	R	0.02	0.5	R	0.78	19.50	R	0.39	9.75	R		
7	**LRA-5166 (SC)**	**1.59**	**39.75**	**MR**	**1.70**	**42.5**	**MR**	**1.54**	**38.5**	**MR**	**3.05**	**76.30**	**S**		

Table 70b: Third year trial for confirmation of disease resistance

S. N.	Alterneria Leaf Spot (ALB)														
	First year (2017)				Second year (2018)			Third year (2019)			Fourth year (2020)				
	Field trail				Field trail			Field trail			Field trail			Artificial inoculation	
	Entries	Av. Grade	PDI	DR	Av. Grade	PDI	DR	Av. Grade	PDI	DR	Av. Grade	PDI	DR	PDI	DR
1.	GJHV-523	0.54	13.5	R	0.35	8.75	R	0.76	19.00	R	0.39	9.75	R	Not conducted	
2.	BS2-17	0.17	4.3	R	0.83	20.75	R	0.89	22.25	R	0.69	17.25	R		
3.	RAH-0603	0.14	3.5	R	0.58	14.5	R	0.24	6.00	R	0.34	8.50	R		
4.	TSH-325	0.21	5.2	R	0.73	18.25	R	0.75	18.75	R	0.60	15.00	R		
5.	H-1488	0.89	22.25	R	0.55	13.75	R	0.84	21.00	R	0.49	12.25	R		
6.	RAH-0604	0.18	4.5	R	0.48	12.0	R	0.70	17.50	R	0.45	11.25	R		
7.	**LRA-5166 SC)**	**1.82**	**45.50**	**MR**	**1.66**	**41.5**	**MR**	**1.54**	**38.50**	**MR**	**3.14**	**78.60**	**S**		

Table 70c: Third year trial for confirmation of disease resistance

Sr. No	Grey mildew (GM)													
	First year (2017)				Second year (2018)			Third year (2019)			Fourth year (2020)			
	Field trail				Field trail			Field trail			Field trail		Artificial inoculation	
	Entries	Av. Grade	PDI	DR	Av. Grade	PDI	DR	Av. Grade	PDI	DR	Av. Grade	PDI	DR	PDI	DR
1.	GJHV-523	GM was not observed			GM was not observed			GM was not observed			0.01	0.25	R	Not conducted	
2.	BS2-17										0.13	3.25	R		
3.	RAH-0603										0.13	3.25	R		
4.	TSH-325										0.03	0.75	R		
5.	H-1488										0.11	2.75	R		
6.	RAH-0604										0.11	2.75	R		
7.	**G. cot 10 (SC)**										**3.01**	**75.20**	**S**		

Table 71a: Second year trial for confirmation of disease resistance

Sr. NO	Bacterial Leaf Blight (BLB)									
	First year (2018)				Second year (2019)			Third year (2020)		
	Field trail				Field trail			Field trail		
	Entries	Av. Grade	PDI	DR	Av. Grade	PDI	DR	Av. Grade	PDI	DR
1	RAH1075	0.22	5.6	R	0.79	19.75	R	0.51	12.75	R
2	L1384	0.32	8.0	R	0.38	9.50	R	0.22	5.50	R
3	GJHV554	0.25	6.3	R	0.13	3.25	R	0.11	2.75	R
4	RS2909	0.32	8.2	R	0.23	5.75	R	0.20	5.00	R
5	RAH1076	0.27	6.9	R	0.3	7.50	R	0.43	10.75	R
6	TSH357	0.20	5.0	R	0.73	18.25	R	0.24	6.00	R
7	LRA-5166(SC)	**1.54**	**38.60**	**MR**	**1.58**	**39.5**	**MR**	**3.16**	**79.10**	**S**

Table 71b: Second year trial for confirmation of disease resistance

Sr. NO	Alternaria Leaf Spot (ALB)									
	First year (2018)				Second year (2019)			Third year (2020)		
	Field trail				Field trail			Field trail		
	Entries	Av. Grade	PDI	DR	Av. Grade	PDI	DR	Av. Grade	PDI	DR
1	RAH1075	0.65	16.25	R	0.45	11.25	R	0.96	24.00	R
2	L1384	0.42	10.50	R	0.59	14.75	R	0.58	14.50	R
3	GJHV554	0.38	9.50	R	0.82	20.50	R	0.50	12.50	R
4	RS2909	0.29	7.25	R	0.49	12.25	R	0.75	18.75	R
5	RAH1076	0.51	12.75	R	1.48	37.00	MR	0.41	10.25	R
6	TSH357	0.33	8.25	R	0.64	16.00	R	0.36	9.00	R
7	**LRA-5166(SC)**	**1.70**	**42.50**	**MR**	**2.08**	**52.10**	**MS**	**3.12**	**78.10**	**S**

Table 71c: Second year trial for confirmation of disease resistance

Sr. NO	Grey mildew (GM)									
	First year (2018)				Second year (2019)			Third year (2020)		
	Field trail				Field trail			Field trail		
	Entries	Av. Grade	PDI	DR	Av. Grade	PDI	DR	Av. Grade	PDI	DR
1	RAH1075	GM was not observed			GM was not observed			0.09	2.25	R
2	L1384							0.06	1.50	R
3	GJHV554							0.14	3.50	R
4	RS2909							0.07	1.75	R
5	RAH1076							0.11	2.75	R
6	TSH357							0.14	3.50	R
7	**LRA-5166(SC)**							**3.08**	**77.10**	**S**

Table 72a: First year trial for confirmation of disease resistance

Sr. NO	Bacterial Leaf Blight (BLB)						
	First year (2019)				Second year (2020)		
	Field trail				Field trail		
	Entries	Av. Grade	PDI	DR	Av. Grade	PDI	DR
1	CCH 19-2	0.32	8.0	R	0.31	7.75	R
2	GJHV 557	0.06	1.5	R	0.48	12.00	R
3	GISV 323	0.02	0.5	R	0.18	4.50	R
4	**LC**	**0.04**	**1**	**R**	**0.25**	**6.25**	**R**
5	RHC 1409	0.21	5.25	R	0.13	3.25	R
6	BGDS 1047	0.06	1.5	R	0.03	0.75	R
7	**LRA-5166 (SC)**	**1.58**	**39.5**	**MR**	**3.16**	**79.10**	**S**

Table 72b: First year trial for confirmation of disease resistance

Sr. NO	Alternaria Leaf Spot (ALB)						
	First year (2019)				Second year (2020)		
	Field trail				Field trail		
	Entries	Av. Grade	PDI	DR	Av. Grade	PDI	DR
1	CCH 19-2	1.23	30.67	MR	0.28	7.00	R
2	GJHV 557	0.90	22.50	R	0.31	7.75	R
3	GISV 323	0.79	19.83	R	0.31	7.75	R
4	**LC**	**0.87**	**21.83**	**R**	**0.33**	**8.25**	**R**
5	RHC 1409	0.72	18.00	R	0.59	14.75	R
6	BGDS 1047	0.84	21.00	R	0.54	13.50	R
7	**LRA-5166 (SC)**	**1.82**	**45.50**	**MR**	**3.08**	**77.00**	**S**

Table 72c: First year trial for confirmation of disease resistance

Sr. NO	Alternaria Leaf Spot (ALB)						
	First year (2019)				Second year (2020)		
	Field trail				Field trail		
	Entries	Av. Grade	PDI	DR	Av. Grade	PDI	DR
1	CCH 19-2	GM was not observed			0.18	4.50	R
2	GJHV 557				0.18	4.50	R
3	GISV 323				0.12	3.00	R
4	**LC**				**0.09**	**2.25**	**R**
5	RHC 1409				0.11	2.75	R
6	BGDS 1047				0.02	0.50	R
7	**LRA-5166 (SC)**				**3.08**	**77.00**	**S**

Table 73: Confirmation and maintenance of disease resistant lines at MCRS, NAU, Surat .

Name of Entry	First Year 2019-20						Second Year 2020-21					
	BLB			ALB			BLB			ALB		
	Field	Artificial	DR	Field	Artificial	DR	Field	Artificial	DR	Field	Artificial	DR
GSHH 15032	0.0	0.0	DF	0.0	0.0	DF	0.0	22.0	R	0.0	0.0	DF
GSHH 15035	0.0	0.0	DF	0.0	0.0	DF	0.0	20.0	R	0.0	0.0	DF
GISV 312	0.0	0.0	DF	0.0	0.0	DF	0.0	19.3	R	0.0	0.0	DF
GISV 319	0.0	0.0	DF	0.0	0.0	DF	0.0	16.0	R	0.0	0.0	DF
GISV 323	0.0	0.0	DF	0.0	0.0	DF	0.0	17.8	R	0.0	0.0	DF
GShv 329/15	0.0	0.0	DF	0.0	0.0	DF	0.0	0.0	DF	0.0	0.0	DF
GShv 829/16	0.0	0.0	DF	0.0	0.0	DF	0.0	0.0	DF	0.0	0.0	DF
GShv 797/16	0.0	0.0	DF	0.0	0.0	DF	0.0	0.0	DF	0.0	0.0	DF
GShv 780/16	0.0	0.0	DF	0.0	0.0	DF	0.0	0.0	DF	0.0	0.0	DF
***LRA 5166, SC**	**36.50**	**-**	**MR**	**0.0**	**0.0**	**0.00**	**55.50**	**-**	**MS**	**8.0**	**-**	**R**

SOUTH ZONE

Table 74: Confirmation and maintenance of disease resistant lines at UAS Dharwad (Karnataka)

Entry	Year of start	PDI and disease reaction of Alternaria leaf blight UAS, Dharwad							
		First year		Second year		Third year			
		Field trial		Field trial		Field trial		Artificial inoculation trial	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR
DB-14	2013-14	37.0	MR	30.1	MR	34.1	MR	47.5	MR
SVA-1118	**2013-14**	**9.3**	**R**	**11.9**	**R**	**9.7**	**R**	**12.6**	**R**
GSB-41	**2013-14**	**15.1**	**R**	**22.3**	**R**	**22.6**	**R**	**24.6**	**R**
DB-40	**2013-14**	**12.6**	**R**	**17.1**	**R**	**16.3**	**R**	**21.3**	**R**
DB-16	2013-14	21.3	R	22.6	R	20.1	R	27.6	MR
Suvin	2013-14	39.4	MR	41.4	MR	43.7	MR	49.4	MR
SCS-1206	2013-14	25.0	R	30.9	MR	24.6	R	31.1	MR
RHB-1005	2013-14	41.1	MR	46.4	MR	39.2	MR	48.9	MR
DB-1302	**2013-14**	**22.3**	**R**	**24.4**	**R**	**31.4**	**MR**	**25.0**	**R**
GSHB-989	2013-14	30.1	MR	36.4	MR	30.9	MR	41.4	MR
Jaydhar (SC)	**2013-14**	**54.3**	**MS**	**53.0**	**MS**	**59.6**	**MS**	**72.5**	**MS**

Table 75: Confirmation and maintenance of disease resistant lines at UAS Dharwad (Karnataka)

Entry	Year of start	PDI and disease reaction of Grey mildew UAS, Dharwad							
		First year		Second year		Third year			
		Field trial		Field trial		Field trial		Artificial inoculation trial	
		PDI	DR	PDI	DR	PDI	DR	PDI	DR
DB-14	2013-14	27.0	MR	20.1	R	24.1	R	37.5	MR
SVA-1118	**2013-14**	**4.3**	**R**	**6.9**	**R**	**4.7**	**R**	**7.6**	**R**
GSB-41	**2013-14**	**10.1**	**R**	**17.3**	**R**	**15.6**	**R**	**18.6**	**R**
DB-40	**2013-14**	**7.6**	**R**	**10.1**	**R**	**9.3**	**R**	**14.3**	**R**
DB-16	**2013-14**	**11.3**	**R**	**12.6**	**R**	**10.1**	**R**	**17.6**	**R**
Suvin	2013-14	29.4	R	21.4	R	23.7	R	29.4	MR
SCS-1206	**2013-14**	**25.0**	**R**	**14.9**	**R**	**14.6**	**R**	**21.1**	**R**
RHB-1005	2013-14	26.1	MR	31.4	MR	29.2	MR	28.9	MR
DB-1302	**2013-14**	**16.3**	**R**	**18.4**	**R**	**19.4**	**R**	**22.0**	**R**
GSHB-989	**2013-14**	**15.1**	**R**	**16.4**	**R**	**18.9**	**R**	**21.4**	**R**
Jaydhar (SC)	**2013-14**	**49.9**	**MR**	**54.3**	**MS**	**58.4**	**MS**	**72.5**	**MS**

Table 76: Confirmation and maintenance of disease resistant lines Guntur (Lam)

Disease	Entry Name	First Year (2019)		Second Year (2020)	
		Field trial		Field trial	
		PDI	DR	PDI	DR
Alternaria leaf spot	BGDS 1047	-	R	Traces	R
	NDLH 1938	-	R	Traces	R
	CCB 51	-	R	Traces	R
	DB 1801	-	R	Traces	R
	CCB 1438	-	R	Traces	R
	RHC HD 1420	-	R	Traces	R
Susceptible Check	**Jaadoo BG II**	**30.0**	**MR**	**Traces**	**R**
Susceptible Check	**RCH 2 BG II**	**27.5**	**MR**	**Traces**	**R**
Corynespora leaf spot	**SBSD 5-6**	-	R	3.0	R
	CCB 51	-	R	1.0	R
	DB 1801	-	R	1.0	R
	CCB 1438	-	R	1.0	R
Susceptible Check	**Jaadoo BG II**	**28.8**	**MR**	**21.5**	**R**
Susceptible Check	**RCH 2 BG II**	**15.0**	**R**	**16.0**	**R**
Susceptible Check	**L 1060**	**48.3**	**MR**	**33.0**	**MR**
Grey mildew	**SBSD 5-6**	-	DF	0.0	DF
	CCB 51	-	DF	0.0	DF
	CCB 1438	-	DF	Traces	R
	RAH 1075	-	R	Traces	R
	NDLH 1938	-	R	Traces	R
	DB 1801	-	R	2.0	R
	CNH 17395	-	R	Traces	R
	16301 DB	-	R	Traces	R
Susceptible Check	**Jaadoo BG II**	**35.5**	**MR**	**24.5**	**MR**
Susceptible Check	**RCH 2 BG II**	**traces**	**R**	**Traces**	**R**
Rust	**SBSD 5-6**	-	R	4.0	R
	DB 1801	-	R	9.5	R
	CCB 1438	-	R	5.0	R
	CNH 17395	-	R	20.5	R
Susceptible Check	**Jaadoo BG II**	**44.0**	**MR**	**34.8**	**MR**
Susceptible Check	**RCH 2 BG II**	**29.3**	**MR**	**25.8**	**MR**

Table 77: Confirmation and maintenance of disease resistant lines TNAU Coimbatore

Entry name	Alternaria leaf blight			
	First Year		Second Year	
	Field trial (2019-20)		Field trial (2020-21)	
	PDI	DR	PDI	DR
RAH 1047	0	DF	8.5	R
GTHV 15/34	5.0	R	10.6	R
RHC 1419	5.0	R	8.7	R
BGDS 1047	5.0	R	8.9	R
GTHV 8/17	5.0	R	9.1	R
Local Check	**5.0**	**R**	**10.6**	**R**
CCH 15-1	5.0	R	8.5	R
GJHV 584	5.0	R	8.7	R
RAHC 1902	5.0	R	8.1	R
TCH 1875	5.0	R	8.0	R
CCB 648	0.0	DF	10.4	R
CCB28	0.0	DF	11.8	R
CCB29	0.0	DF	8.7	R
Phule Dhara (CC)	**0.0**	**DF**	**10.2**	**R**
RCH II BGII (SC)	**10.8**	**R**	**12.1**	**R**

Path. 2 (c) Monitoring of resistance against CLCuD in cotton

Table 78. Monitoring of resistance against CLCuD in North Zone

Name of variety/ hybrid	Sriganganagar			Hisar			Bathinda		
	CLCuD)		Whitefly population	CLCuD		Whitefly population	CLCuD		Whitefly population
	PDI	DR	Adult/3 leaves	PDI	DR	Adult/3 leaves	PDI	DR	Adult/3 leaves
Susceptible variety									
HS-6	53.8	HS	40.3	66.6	HS	138.84	37.2	MS	6.0
F-846	48.1	S	31.9	66.6	HS	154.00	44.4	S	5.1
RST-9	55.6	HS	52.3	78.8	HS	147.00	50.6	HS	6.9
Moderately resistant varieties									
H 1098 (i)	37.8	MS	32.8	50.0	S	134.78	45.6	S	6.4
F 2228	32.5	MS	25.6	66.6	HS	141.95	39.4	MS	6.4
CSH 3075	35.9	MS	36.7	66.6	HS	135.94	43.3	S	2.9
Moderately susceptible BG II hybrid									
NSPL-531	43.1	S	32.5	66.6	HS	160.56	26.7	MR	5.8
Moderately resistant BGII hybrid									
RCH 773	28.6	MR	36.8	33.3	MS	145.58	11.7	R	6.0

Path.3: Management of Diseases of cotton

Path.3 (f) ; Management of sooty mold (*Capnodium* spp.) in cotton

Path. 79: Management of sooty mold (*Capnodium* spp.) in cotton (Poly House Experiment: Prophylactic spray thrice)) at Sirsa

Treatments	% Sooty mold per plant (Polyhouse study: Sirsa)					Whitefly population / 3 leaves				
	Before I spray	15 DAS I spray	15 DAS II spray	15 DAS III spray	Reduction over control	Before I spray	15 DAS I spray	15 DAS II spray	15 DAS III spray	Reduction after I spray
T1-COC 50 WP @ 1.25 g/litre	0.0	42.3 (40.6)	69.1 (56.2)	62.2 (52.1)	18.6	41.1	28.6	12.6	3.1	30.4
T2-COC 50 WP @ 2.50 g/litre	0.0	31.8 (34.3)	62.2 (52.1)	58.3 (49.8)	23.7	34.3	17.2	13.1	2.1	49.9
T3-Propiconazole 25 EC @ 1 ml / litre	0.0	0.1 (1.8)	1.4 (6.8)	2.0 (8.1)	97.4	31.9	19.1	11.2	1.2	40.1
T4-Mancozeb 50 WP @2.0 g /litre	0.0	0.0 (0.0)	1.1 (6.0)	1.1 (6.0)	98.6	58.8	18.1	11.0	0.8	69.2
T5-Neem oil 1500ppm @5ml / litre	0.0	0.0 (0.0)	1.0(3.2)	4.7(9.9)	93.8	34.0	15.1	10.0	0.9	55.6
T6-Flonicamid 0.4g/L	0.0	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	100.0	42.6	8.4	2.5	0.0	80.3
T7-Control	0.0	53.2 (46.8)	72.2 (58.2)	76.4 (61.6)	0.0	39.7	31.7	18.8	4.2	20.2
C.D.		2.3	2.01	5.79		2.54	3.34	2.33	1.2	
C.V.		14.65	12.74	11.08		11.67	12.34	14.82	11.53	

Table 80: Management of sooty mold (*Capnodium* spp.) in cotton (Field Experiment (Spray thrice)) Faridkot

Treatments	PDI (Before Spray)	PDI (7 DAS)	PDI (15 DAS)	Reduction at 15 days after 3rd spray
T1-COC 50 WP @ 1.25 g/litre	20.0 (26.6)	15.0 (22.8)	10.56 (19.0)	29.7
T2-COC 50 WP @ 2.50 g/litre	21.7 (27.7)	12.8 (20.9)	7.22 (15.6)	41.7
T3-Propiconazole 25 EC @ 1 ml / litre	22.2 (28.1)	14.2 (22.1)	7.78 (16.2)	39.5
T4-Mancozeb 50 WP @2.0 g /litre	19.7 (26.4)	16.1 (23.6)	8.06 (16.5)	38.4
T5-Neem oil 1500ppm @5ml / litre	21.9 (27.9)	16.9 (24.3)	6.39 (14.6)	45.3
T6-Flonicamid 0.4g/L	21.1 (27.3)	13.3 (21.4)	4.17 (11.8)	60.0
T1-COC 50 WP @ 1.25 g/litre	23.6 (29.1)	21.4 (27.6)	20.28 (26.8)	0
CD 0.05%	1.7	1.1	1.3	0

* Value in parentheses are arcsine transformation values

Table 81: Effect of different treatments on the sooty mold in Cotton (*Bt* Hybrid US 51) Hisar

Treatments	I spray		II spray		III spray		Pooled mean of Reduction (%)	SCY (q/ha)
	DI (%)	% Reduction 15 DAS®	DI (%)	% Reduction 15 DAS	DI (%)	% Reduction 15 DAS		
T_1: COC* 50 wP @ 1.25 g/litre	35.7(36.6)&	21.2	41.0(39.8)	27.7	44.0(41.5)	33.0	27.3	25.0
T_2: COC 50 WP @ 2.50 g/litre	33.3(35.2)	26.4	39.0(38.6)	31.2	41.3(40.0)	37.1	31.5	27.0
T_3: Propiconazole25 EC @ 1 ml/Litre	30.7(33.6)	32.3	32.0(34.4)	43.5	36.3(37.0)	44.7	40.2	29.0
T_4: Mancozeb 50 WP @ 2.0 g/litre	37.7(37.8)	16.8	43.3(41.1)	23.5	45.3(42.3)	30.9	23.8	21.0
T_5: Neem oil 1500 ppm @5ml/Litre	38.5(38.3)	15.0	44.0(41.5)	22.4	44.7(41.9)	32.0	23.1	23.0
T_6: Flonicamid 0.4g/L	37.7(37.8)	16.8	43.0(40.9)	24.1	44.3(41.7)	32.5	24.5	25.0
T_7: Control	45.3(42.3)	-	56.7(48.8)	-	65.7(54.1)	-	-	19.0
CD at 5%	3.3		3.3		3.89			
C.V.	4.9		4.6		5.06			
SE (m)	1.1		1.1		1.24			

*: Copper oxychloride 50 WP, ©: Disease Intensity, ®: DAS Days after spray; I spray 25.9.2020, II spray 11.10.2020, III spray 17.10.2020

Table 82: Management of sooty mold (*Capnodium* spp.) in cotton (Field Experiment- Spray thrice) Junagarh

Tr. No.	Treatments	Sooty mold PDI (%) mean			Number of aphid/3 leaves/plant			Seed cotton yield (Q/ha) mean
		at 1st spray after 15th day	2nd spray after 15th day	Pooled	Before spray	15 DAS 1 spray	15 DAS 2 spray	
T_1	Copper oxychloride 50 WP @ 1.25 g/l	20.6 (27.0)	62.7(52.3)	41.7	16.5 (24.0)	16.5 (24.0)	87.9 (110.3)	21.7
T_2	Copper oxychloride 50 WP @ 2.50 g/l	19.2 (26.0)	55.8(48.3)	37.5	16.5 (24.0)	16.5 (24.0)	72.1 (121.9)	22.2
T_3	Propiconazole 25 EC	9.8 (18.2)	53.8(47.2)	31.8	14.0 (22.0)	14.0 (22.0)	94.8 (103.2)	23.4
T_4	Mancozeb 75 WP	9.2 (17.7)	51.7(46.0)	45.5	15.7 (23.3)	15.7 (23.3)	80.1 (116.5)	24.3
T_5	Neem oil 1500 ppm	14.7 (22.6)	55.5(48.2)	36.6	15.7 (23.3)	15.7 (23.3)	86.3 (111.7)	23.9
T_6	Flonicamid 50 WG (Insecticide)	2.8 (9.7)	5.6(13.7)	4.2	15.7 (23.3)	15.7 (23.3)	3.3 (10.5)	27.6
T_7	Control	16.(24.2)	67.4(55.2)	41.7	13.6 (21.7)	13.6 (21.7)	74.2 (120.5)	20.6
S. Em.±		1.24	3.9	0.934	0.934	2.68	0.934	1.14
C.D.at 5%		3.82	12.1	NS	NS	8.27	NS	3.516
C.V.%		10.37	15.4	7.01	7.01	14.33	7.01	0.845

#Arcsin re-transformed values, NumerALB in parenthesis are transformed value

Table 83: Management of sooty mold (*Capnodium* spp.) in cotton (Field Experiment- Spray thrice) Coimbatore

Treatments	Sooty mold incidence at 15 days after every spray (%)			Pooled mean	SCY (Q/ha)
	I spray	II spray	III spray		
T_1 - Copper oxychloride (COC) 50 WP @ 0.75 g/litre of water	14.5(22.4)	12.7(20.9)	9.2(17.65)	12.1	16.0
T_2 - Copper oxychloride (COC) 50 WP @ 1.25 g/litre of water	14.8(22.6)	13.0(21.1)	7.8(16.22)	11.9	16.7
T_3- Copper oxychloride (COC) 50 WP @ 1.75 g/litre of water	12.0(20.3)	10.0(18.4)	6.3(14.54)	9.4	17.5
T_4- Copper oxychloride (COC) 50 WP @ 2.25 g/litre of water	11.0(19.4)	9.00(17.4)	4.7(12.5)	8.2	18.5
T_5- Propiconazole 25 EC @ 1 ml / litre of water	11.9(20.2)	9.50(17.9)	5.85(14.0)	11.4	17.1
T_6 - Mancozeb 50 WP @2.0 g /litre of water	14.8(22.6)	13.8(21.8)	11.5(19.8)	13.4	15.3
T_7- Detergent powder @ 5.0 g / litre of water	15.2(22.9)	14.2(22.1)	13.5(21.6)	14.3	14.8
T_8- Water spray	16.5(24.0)	15.5(23.2)	14.6(22.5)	15.5	14.1
T_9- Control	18.1(25.2)	18.1(25.2)	18.1(25.2)	18.1	13.9
CD (0.05%)	0.53	0.40	0.54	0.61	0.66

Path. 3 (g): Management of parawilt of cotton

Table 84: Management of parawilt of cotton at Bathinda (hybrid RCH 773)

S. No.	Treatments	Recovery (%)	No. of Monopods	No. of Sympods	Shoot length (cm)	No. of open bolls	Total root mass (Dry wt.) (gm.)	Root Length Density (g)	Boll Wt. (gm)	SCY (Q/ha)
T_1	Cobalt chloride foliar spray 10 ppm foliar spray immediately after occurrence of disease	91.7 (80.0)*	1.3	27.6	160.6	54.3	22.5	1.6	4.2	**22.1**
T_2	Sodium benzoate foliar spray 50ppm foliar spray immediately after occurrence of disease	25.0 (30.0)	0.4	25.2	140.0	47.6	20.4	1.4	4.0	20.3
T_3	Salicylic acid (Commercial grade) @ 250ppm foliar spray immediately after occurrence of disease	41.7 (40.0)	0.7	26.6	151.7	47.4	21.7	1.4	4.1	20.2
T_4	Foliar spray of *Pseudomonas fluorescens*@ 10gm or ml/litre of water (University strain/commercial preparation)	33.3 (35.0)	1.0	26.1	150.6	48.1	22.0	1.3	4.0	20.3
T_5	Drench plants with a mixture of Copper oxychloride 25g and 200g Urea in 10 ltr of water	75.0 (60.0)	1.0	27.0	153.3	50.4	22.1	1.5	4.2	**21.5**
T_6	Drench plants with Carbendazim 1g/L	16.7 (20.0)	0.6	24.0	140.8	46.3	22.2	1.3	3.9	20.6
T_7	Control	8.3 (10.0)	0.33	23.9	136.1	44.6	21.2	1.3	3.9	18.3
CD @ 0.05 %		19.9	0.58	NS	NS	NS	NS	NS	NS	NS
CV %		28.5	43.0	8.4	6.0	15.6	12.3	12.9	4.5	15.8

Table 85: Management of parawilt of cotton at Hisar (hybrid RCH 773)

S. No.	Treatments	% Recovery	No. of Monopods	No. of Sympods	Shoot length (cm)	No. of open balls per plants	Boll weight (gm)	Seed Cotton Yield (q/ha)
T_1	Cobalt chloride foliar spray 10 ppm foliar spray immediately after occurrence of disease	**91.3 (72.9)**	2.4	40.3	180	51	4.47	28.0
T_2	Sodium benzoate foliar spray 50ppm foliar spray immediately after occurrence of disease	32.0 (34.4)	1.8	32.0	175	53	4.17	24.0
T_3	Salicylic acid (Commercial grade) @ 250ppm foliar spray immediately after occurrence of disease	30.0 (33.2)	2.4	35.0	174	45	4.03	24.0
T_4	Foliar spray of *Pseudomonas fluorescens*@ 10gm or ml/litre of water (University strain/commercial preparation)	**34.7 (36.0)**	2.3	28.7	184	44	3.97	26.0
T_5	Drench plants with a mixture of Copper oxychloride 25g and 200g Urea in 10 ltr of water	32.3 (34.6)	1.9	31.0	176	30	3.87	26.0
T_6	Drench plants with Carbendazim 1g/L	14.0 (21.9)	1.9	31.0	170	35	3.07	23.0
T_7	Control	9.7 (18.0)	1.6	28.0	171	30	3.03	21.0
	CD @ 0.05 %	19.9	NS	4.57	NS	5.21	NS	
	CV %	28.5	18.75	7.86	5.19	7.06	16.38	

Path 3 (h): Evaluation of efficacy of bioagents against cotton diseases (From 2019-20)

Table 86: List of treatments for Evaluation of efficacy of bioagents against cotton diseases

Treatment	Details
T_1	ST+ SA of *Bacillus aryabhattai* ST: 10^8cfu/g @10g per kg of seed at the time of sowing SA: 2.5 kg/ha (30 & 60 DAS) with FYM/compost
T_2	ST+ SA of *Bacillus tequeilencis* SA: 10^8cfu/g @10g per kg of seed at the time of sowing SA: 2.5 kg/ha (30 & 60 DAS) with FYM/compost
T_3	T_1+T_2 ST: 10^8cfu/g @10g per kg of seed at the time of sowing SA: 2.5 kg/ha (30 & 60 DAS) with FYM/compost
T_4	ST+ SA of Commercial product *Bacillus subtilis* SA: 10^8cfu/g @10g per kg of seed at the time of sowing; Soil application: 2.5 kg/ha (30 & 60 DAS) with FYM/compost
T_5	ST+ SA of *Pf* CICR ;SA: 10^8cfu/g @10g per kg of seed at the time of sowing; SA: 2.5 kg/ha (30 & 60 DAS) with FYM/compost
T_6	Chemical ST (Vitavax power @ 0.2%); 2 gm/kg seed at the time of sowing
T_7	Foliar application of Pyraclostrobin @ 0.1%; gm/lit of water
T_8	Control

Table 87. Evaluation of efficacy of bioagents against bacterial and fungal foliar diseases

Treatment	*Alternaria Leaf spot PDI (%)*			Bacterial Leaf Blight *PDI (%)*				Grey mildew PDI (%)			*MLS* (PDI)	*CoLS* (PDI)	Wilt (%)	Root Rot (%)
	Nanded	Surat	Average	Nanded	Surat	Nagpur	Average	Nanded	Nagpur	Average	Nagpur			
T_1	4.9 (12.8)	14.5 (22.2)	9.7	6.6 (14.9)	26.7 (30.9)	6.7	16.7	9.6 (18.1)	3.3	6.4	8.3	8.3	6.7	8.3
T_2	6.8 (15.1)	12.3 (20.5)	9.6	6.5 (14.8)	22.5 (28.2)	6.7	14.7	9.4 (17.8)	2.7	6.1	6.7	8.3	1.7	3.3
T_3	5.1 (12.9)	10.5 (18.8)	7.8	5.6 (13.7)	20.8 (27.0)	5.3	13.1	8.5 (16.9)	1.7	4.6	6.7	7.2	0.0	1.7
T_4	5.7 (13.8)	15.7 (23.3)	10.7	6.1 (14.3)	28.2 (31.9)	6.7	17.5	8.9 (17.4)	3.3	5.6	11.7	7.8	667	6.7
T_5	5.1 (13.1)	18.3 (25.3)	11.7	5.1 (13.1)	14.3 (22.1)	6.7	10.5	7.9 (16.3)	8.8	8.8	11.7	8.9	6.7	6.7
T_6	4.5 (12.2)	16.5 (23.9)	10.5	4.7 (12.4)	29.5 (32.8)	11.7	20.6	7.4 (15.7)	6.7	7.1	6.7	8.8	1.7	8.3
T_7	2.8 (9.57)	8.7 (17.1)	5.7	3.6 (10.9)	32.5 (34.5)	8.3	21.4	6.3 (14.5)	1.7	4.0	8.3	6.7	8.3	8.3
T_8	8.6 (16.9)	20.3 (26.7)	14.4	9.2 (17.6)	40.5 (39.5)	13.3	26.8	15.3 (22.9)	16.7	16.0	16.7	21.7	13.3	13.3
S. Em.± (T)	0.62	1.06		0.66	1.77			0.84						
C.D.at 5% (T)	1.87	3.21		2.01	5.38			2.54						
C.D. (Y x T)	8.01	-		8.23	-			8.30						
C.V. %	4.94 (12.82)	8.24		6.63 (14.89)	9.95			9.64 (18.06)						

Table 88: Effect bioagents against cotton diseases and seed cotton yield at various locations: Nagpur, Nanded and Surat

S. No.	Nanded (RASI BG-II)	Nanded (SCY Q/ha)	Nagpur (Suraj cv.) (SCY Q/ha) (RCH 2 BG II).	Surat (SCY Q/ha) (RCH 2 BG II).	Average
T_1	94.7 (77.09)*	12.3	8.9	19.0	13.4
T_2	94.0 (75.95)	10.6	8.9	21.0	13.5
T_3	98.0 (83.44)	14.0	9.8	21.2	15.0
T_4	94.7 (76.70)	10.7	8.2	19.6	12.8
T_5	94.7 (76.70)	11.9	8.0	25.8	15.2
T_6	97.3 (80.73)	12.9	8.5	18.1	13.2
T_7	94.0 (75.95)	12.2	8.7	22.5	14.5
T_8	88.7 (70.34)	8.9	7.6	16.3	10.9
S. Em.± (T)	1.8	0.5		1.6	
C.D.at 5% (T)	5.5	1.6		4.9	
C.D. (Y x T)	4.1	8.0		-	

Path.3(i). Integrated Management of CLCuD through its vector management (2020-21)

Table 89: Treatments detail for the Integrated Management of CLCuD through its vector management (2020-21)

	IPM/Biomodule	I spray based on ETL	II spray based on ETL	III spray based on ETL	IV spray based on ETL	Fifth spray based on ETL
T1	IPM existing module	Neem 300 ppm	Neem 300 ppm	Diafenthiuron /Flonicamid	Spiromesifen	Repeat fourth spray treatment of respective module if required
T2	IPM module-1	Neem 300 ppm	Neem 300 ppm	Diafenthiuron /Flonicamid	CICRRS-Ij	
T3	IPM module-2	Neem 300 ppm	Neem 300 ppm	Diafenthiuron / Flonicamid	CICRRS-Bb	
T4	IPM module- 3	Neem 300 ppm	Neem 300 ppm	Diafenthiuron/ Flonicamid	CICRRS Ma	
T5	Biomodule-1	Neem 300 ppm	Neem 300 ppm	CICRRS-Ij	CICRRS-Ij	
T6	Biomodule-2	Neem 300 ppm	Neem 300 ppm	CICRRS-Bb	CICRRS-Bb	
T7	Biomodule-3	Neem 300 ppm	Neem 300 ppm	CICRRS-Ma	CICRRS-Ma	
T8	Biomodule-4	Neem 300 ppm	Neem 300 ppm	*L. lacanii commercial formulation*	*L. lacanii commercial formulation*	
T9	Control	No spray	No spray	No spray	No spray	

Table 90: Integrated Management of CLCuD through its vector management (Hisar)

S.No	Treatments	WF nymph /3 leaves				WF adults /3 leaves				CLCuD PDI (%)				Pl ht	Sym	Yield (q/ha)
	Spray	I	II	III	IV	I	II	III	IV	I	II	III	IV			
T_1	IPM existing module	70.6	55.8	85.7	86.4	73.3	71.4	125.6	111.2	2.4	4.3	6.6	11.3	180.0	30.0	24.0
T_2	IPM module-1	68.8	55.1	93.1	111.5	73.0	70.3	128.9	128.5	3.1	5.6	9.8	15.2	175.0	25.0	19.0
T_3	IPM module-2	71.1	54.6	89.2	113.7	76.0	69.4	126.5	134.6	2.5	5.4	9.1	13.7	174.0	27.0	22.0
T_4	IPM module- 3	74.4	56.3	89.4	112.3	79.6	72.2	123.1	128.9	2.7	5.6	9.4	13.8	184.0	26.0	21.0
T_5	Biomodule-1	73.8	56.2	109.6	110.9	79.0	71.8	151.0	124.6	3.2	5.9	9.7	16.2	176.0	24.0	17.0
T_6	Biomodule-2	72.1	56.0	107.9	107.8	77.1	72.0	147.7	136.1	4.0	6.8	10.3	16.9	170.0	21.0	17.0
T_7	Biomodule-3	71.6	54.6	105.4	109.9	76.0	69.2	142.1	132.5	3.1	5.8	9.8	15.3	171.0	25.0	19.0
T_8	Biomodule-4	70.7	56.4	112.1	108.3	75.3	72.4	145.8	145.6	2.9	5.6	10.7	14.8	168.0	26.0	20.0
T_9	Control	88.0	66.3	130.0	132.8	89.6	81.3	173.1	184.6	4.4	7.0	15.2	19.3	171.0	20.0	16.0

Table 91a: Integrated Management of CLCuD through its Vector Management (Sriganganagar)

IPM/Bio-module	Whitefly/3 leaves																			
	First Spray					Second Spray					Third Spray					fourth Spray				
	B.S.	5 DAS	7 DAS	Mean	% reduction	B.S.	5 DAS	7 DAS	Mean	% reduction	B.S.	5 DAS	7 DAS	Mean	% reduction	B.S.	5 DAS	7 DAS	Mean	% reduction
IPM existing module	29.4	15.0	17.3	16.2	53.0	38.3	17.4	19.4	18.4	57.8	29.4	7.9	9.5	8.7	72.8	22.5	6.7	7.7	7.2	**73.0**
IPM module-1	26.8	13.9	16.3	15.1	51.9	39.5	16.7	18.7	17.7	61.0	28.8	6.9	8.9	7.9	74.6	21.5	10.60	11.8	11.2	56.3
IPM module-2	23.8	11.5	13.9	12.7	54.0	35.4	16.6	18.3	17.4	56.6	27.1	6.8	8.4	7.6	73.9	20.6	11.1	12.1	11.6	52.6
IPM module- 3	25.5	12.5	14.5	13.5	54.8	37.2	15.9	17.7	16.8	60.3	25.8	7.20	8.8	8.0	71.8	18.8	10.4	11.5	11.0	51.1
Biomodule-1	29.6	14.9	18.3	16.6	51.3	39.1	17.4	19.1	18.2	58.5	29.7	14.7	15.7	15.2	52.4	35.0	15.4	17.9	16.7	60.0
	25.5	12.5	15.0	13.8	53.9	37.7	16.9	18.4	17.8	57.7	30.8	14.4	16.1	15.2	53.9	36.7	18.7	20.5	19.6	**55.1**
Biomodule-3	26.9	13.7	15.7	14.7	53.2	41.1	17.7	20.0	18.8	59.7	28.4	13.8	15.5	14.6	52.2	33.6	17.7	19.3	18.5	53.7
Biomodule-4	24.5	12.6	14.7	13.7	52.3	36.8	15.5	17.5	16.5	60.5	26.7	13.5	14.8	14.1	51.2	30.8	18.4	19.9	19.2	47.9
Control	28.6	32.4	34.7	33.6	0.0	48.7	55.1	54.8	55.0	0.0	37.3	40.1	41.1	40.6	0.0	46.8	54.9	56.6	55.8	0.0
CV %	11.6	11.7	10.5	7.2	8.8	11.7	12.2	11.5	11.2	8.4	11.5	11.2	12.4	9.9	6.2	11.1	10.3	12.5	10.3	6.24
S.Em (±)	2.5	1.5	1.5	0.9	3.4	3.7	2.1	2.1	2.0	3.6	2.8	1.3	1.6	1.2	3.1	2.7	1.5	2.0	1.6	2.5
CD at 5%	7.6	4.4	4.6	2.9	10.2	11.2	6.3	6.4	6.0	10.9	8.3	3.8	4.8	3.6	9.3	8.0	4.6	6.0	4.7	7.6

Table 91b: Integrated Management of CLCuD through its vector management (Sriganganagar)

S. No.	IPM/Bio-module	CLCuD (PDI)				Yield (Q/ha)	Plant height (cm)	Monopods	Sympods	No. of bolls
		60DAS	75DAS	90DAS	115DAS					
1	IPM Module-1	16.1(23.6)*	18.8 (25.6)	27.2 (31.4)	31.1 (33.9)	29.6	192.2	3	19.8	51.8
2	IPM Module-2	17.3 (24.5)	18.0 (25.0)	27.6 (31.7)	30.7(33.6)	30.1	190.1	2.8	18.8	50.6
3	IPM Module-3	16.7 (24.9)	18.8 (25.6)	29.4 (32.8)	32.5 (34.7)	29.6	183.4	3	19.6	49.2
4	IPM Module-4	16.9(24.4)	17.1 (24.4)	30.0 (33.2)	32.3 (34.6)	30.3	180.6	2.8	17.8	48.6
5	Biomodule-1	17.1 (24.4)	18.7(25.5)	29.2 (32.6)	33.0 (34.9)	29.2	181.8	2.6	17.8	49.4
6	Biomodule-2	17.4 (24.6)	19.6 (26.3)	29.9 (33.1)	32.4 (34.7)	28.9	189.0	2.6	19.6	52.2
7	Biomodule-3	17.2 (24.5)	19.2 (26.0)	30.3 (33.3)	32.0 (34.5)	28.9	187.8	2.8	19.2	50.2
8	Biomodule-4	16.3 (23.7)	17.2 (24.5)	29.8 (33.0)	31.8 (34.3)	27.4	183.2	2.8	18.8	51.2
9	Control	16.9 (24.3)	18.8 (25.6)	31.2 (34.0)	35.7 (36.6)	27.2	189.8	2.8	18.4	49.6
	CD at 5%	2.3	4.2	4.9	4.9	2.4				
	CV	5.4	9.6	8.6	8.2	4.3				

* Figures in parentheses are arc sine transformed values, Ist spray: 05/07/2020, IInd 18/07/2020, IIIrd 03.08.2020, IVth 17.08.2020

Table 92a: Integrated Management of CLCuD through its Vector Management (Bathinda)

Treatment	No. of whitefly adults/ 3 leaves																			
	First spray					Second spray					Third spray					Forth spray				
	BS	5 DAS	7 DAS	Mean	% reduction	BS	5 DAS	7 DAS	Mean	% reduction	BS	5 DAS	7 DAS	Mean	% reduction	BS	5 DAS	7 DAS	Mean	
T1	11.9	7.1	8.1	9.0	16.2	14.1	7.8	7.1	9.7	8.7	18.3	9.0	9.0	12.1	23.5	15.7	13.5	9.5	12.9	30.4
T2	12.3	6.5	8.6	9.1	15.4	14.2	7.3	7.3	9.6	9.2	18.6	9.3	9.1	12.3	22.1	16.0	14.4	12.2	14.2	23.4
T3	12.4	7.0	8.8	9.4	12.8	14.0	7.4	7.0	9.5	10.5	18.3	9.3	8.6	12.0	24.0	15.1	16.0	11.9	14.3	22.7
T4	12.5	7.4	9.1	9.7	10.5	14.5	7.6	7.3	9.8	7.2	17.6	9.1	8.8	11.8	25.3	15.6	14.3	12.4	14.1	23.9
T5	13.5	7.2	9.2	10.0	7.6	12.7	7.9	7.0	9.2	12.9	20.8	12.0	9.8	14.2	10.3	16.8	14.2	11.6	14.2	23.3
T6	14.0	7.0	9.0	10.0	7.4	13.6	8.0	7.0	9.5	9.9	21.0	11.4	9.0	13.8	13.0	15.7	16.2	12.1	14.7	20.9
T7	14.0	7.5	8.2	9.9	8.0	14.3	7.8	6.6	9.5	9.7	19.7	11.0	9.0	13.2	16.3	15.9	15.6	11.8	14.4	22.2
T8	13.7	7.2	8.5	9.8	9.3	13.4	8.2	6.9	9.5	10.2	20.0	11.5	10.1	13.9	12.3	17.3	18.3	11.9	15.8	14.5
T9	13.7	9.3	9.4	10.8	0.0	14.8	9.1	7.8	10.6	0.0	21.4	16.0	10.1	15.8	0.0	17.3	21.4	16.9	18.5	0.0
C.D.	N/A	0.99	0.71			N/A	0.92	N/A			1.96	2.27	N/A			N/A	1.86	1.58		
SEm	0.83	0.33	0.24			0.46	0.30	0.47			0.65	0.75	0.36			0.51	0.62	0.52		
SEd	1.17	0.46	0.33			0.65	0.43	0.67			0.92	1.06	0.51			0.72	0.87	0.74		
C.V.	10.93	7.70	4.65			5.68	6.68	11.46			5.76	11.87	6.76			5.46	6.67	7.37		

Table 92b: Integrated Management of CLCuD through its Vector Management (Bathinda)

Treatment	No. of whitefly nymphs/ 3 leaves																			
	First spray					Second spray					Third spray					Forth spray				
	BS	5 DAS	7 DAS	Mean	% reduction	BS	5 DAS	7 DAS	Mean	% reduction	BS	5 DAS	7 DAS	Mean	% reduction	BS	5 DAS	7 DAS	Mean	% reduction
T1	13.0	7.5	7.1	9.2	13.9	16.6	8.3	5.7	10.2	10.5	14.4	10.9	7.3	10.9	26.3	13.6	9.0	8.9	10.5	29.4
T2	13.3	7.0	7.2	9.2	14.2	16.8	7.8	5.9	10.2	10.6	14.3	12.1	7.5	11.3	23.5	14.9	11.6	11.6	12.7	14.8
T3	13.5	7.5	7.3	9.4	12.1	16.7	8.0	5.6	10.1	11.2	14.6	11.6	7.3	11.2	24.3	14.4	12.1	11.5	12.7	14.9
T4	13.4	7.9	7.6	9.6	9.9	17.2	8.3	5.8	10.4	8.3	13.9	10.8	8.0	10.9	26.0	13.6	11.6	11.7	12.3	17.3
T5	14.6	7.7	7.6	10.0	6.8	15.0	8.4	5.6	9.7	15.0	15.4	12.9	10.3	12.9	12.7	15.7	11.1	11.9	12.9	13.4
T6	13.2	7.4	7.5	9.4	12.3	16.2	8.5	5.5	10.1	11.6	15.3	13.6	9.5	12.8	13.3	16.4	11.1	11.2	12.9	13.2
T7	14.0	8.0	6.9	9.6	9.9	16.9	8.4	5.3	10.2	10.4	14.9	12.7	9.6	12.4	16.1	15.5	11.3	11.5	12.8	14.3
T8	13.4	7.6	7.1	9.4	12.3	15.7	8.7	5.5	10.0	12.3	16.0	12.3	11.4	13.2	10.4	15.1	11.5	11.0	12.5	15.8
T9	13.8	9.5	8.8	10.7	0.0	17.4	10.6	6.2	11.4	0.0	16.8	14.3	13.2	14.8	0.0	17.1	14.2	13.4	14.9	0.0
C.D.	N/A	0.96	N/A			N/A	1.08	N/A			N/A	N/A	2.79			2.19	1.29	1.33		
SE(m)	0.91	0.32	0.49			0.55	0.36	0.41			0.82	0.73	0.92			0.73	0.43	0.44		
SE(d)	1.28	0.45	0.69			0.78	0.51	0.58			1.15	1.03	1.30			1.03	0.6	0.62		
C.V.	11.55	7.09	11.35			5.81	7.23	12.50			9.37	10.15	17.06			8.29	6.44	6.69		

Table 93a: Integrated Management of CLCuD through its Vector Management (Faridkot)

No. of whitefly adults/3 leaves																				
IPM/ Biomodule	First spray					Second spray					Third spray					Fourth spray				
	BS	5 DAS	7 DAS	Mean	% Reduction	BS	5 DAS	7 DAS	Mean	% Reduction	BS	5 DAS	7 DAS	Mean	% Reduction	BS	5 DAS	7 DAS	Mean	% Reduction
IPM existing module	11.3 (3.5)	7.4 (3.3)	4.7 (3.4)	10.0	33.8	23.8 (5.0)	20.9 (4.7)	21.8 (4.8)	21.3	32.8	21.8 (4.8)	12.1 (3.6)	12.2 (3.6)	12.1	60.6	20.7 (4.7)	10 .0 (3.3)	9.0 (3.2)	9.5	66.5
IPM module-1	12.0 (3.6)	7.8 (3.2)	4.9 (3.5)	10.1	33	22.9 (4.9)	20.1 (4.6)	20.8 (4.7)	20.5	35.6	20.9 (4.7)	10.9 (3.4)	10.4 (3.4)	10.7	65.4	20.5 (4.6)	17.9 (4.3)	16 (4.1)	16.9	40.5
IPM module-2	12.2 (3.6)	7.9 (3.2)	4.9 (3.4)	10.1	32.9	23 (4.9)	21.5 (4.7)	20.7 (4.7)	21.1	33.7	23 (4.9)	12.5 (3.7)	10.9 (3.4)	11.7	62	23.7 (5)	17.6 (4.3)	16.8 (4.2)	17.2	39.6
IPM module- 3	11.2 (3.5)	7.3 (3.2)	4.7 (3.3)	9.8	34.8	23.2 (4.9)	21.2 (4.7)	21.7 (4.8)	21.4	32.5	22.2 (4.8)	11.4 (3.5)	10.6 (3.4)	11.0	64.2	24.5 (5)	18.2 (4.4)	15.8 (4.1)	17	40.1
Biomodule-1	11.6 (3.5)	7.6 (3.3)	4.8 (3.5)	10.6	29.8	22.3 (4.8)	21.3 (4.7)	23.1 (4.9)	22.2	30.1	22.7 (4.8)	21.1 (4.7)	16.8 (4.2)	19.0	38.4	22 (4.8)	17.7 (4.3)	15.4 (4)	16.5	41.9
Biomodule-2	12.2 (3.6)	7.9 (3.4)	5 (3.3)	10.0	33.3	23.7 (4.9)	20.4 (4.6)	22 (4.8)	21.2	33.2	23.6 (5.0)	20 (4.6)	17.3 (4.3)	18.6	39.5	21.4 (4.7)	16.7 (4.2)	17.8 (4.3)	17.3	39.3
Biomodule-3	12.3 (3.6)	8.0 (3.3)	5 (3.3)	10.0	33.7	22.3 (4.8)	20.3 (4.6)	21.2 (4.7)	20.8	34.6	24.8 (5.0)	19.3 (4.5)	18.5 (4.4)	18.9	38.6	22.6 (4.8)	18.2 (4.4)	15 (4)	16.6	41.6
Biomodule-4	12.5 (3.7)	8.1 (3.3)	5 (3.4)	10.1	32.8	24 (5.0)	21.3 (4.7)	20.9 (4.7)	21.1	33.6	25.3 (5.1)	19.8 (4.6)	18.8 (4.4)	19.3	37.3	22.1 (4.8)	18.8 (4.4)	17.2 (4.3)	18	36.7
Control	12.6 (3.7)	8.1 (3.9)	5.2 (4.1)	15.1	-	27.5 (5.3)	30.7 (5.6)	32.9 (8.5)	31.8	-	26.5 (5.2)	29.5 (5.5)	32.1 (5.8)	30.8	-	25.4 (5.1)	27.2 (5.3)	29.7 (5.5)	28.4	-
C.D.	N/A	0.24	0.21			N/A	0.4	0.28			N/A	0.35	0.31			N/A	0.36	0.21		
SE(m)	0.07	0.08	0.07			0.24	0.13	0.09			0.25	0.12	0.1			0.27	0.12	0.07		
SE(d)	0.1	0.11	0.1			0.34	0.19	0.13			0.35	0.16	0.15			0.38	0.17	0.1		
C.V.	3.4	4.05	3.46			8.38	4.83	3.27			8.7	4.75	4.35			9.68	4.82	2.79		

Table 93b: Integrated Management of CLCuD through its Vector Management (Faridkot)

IPM/ Biomodule	No. of whitefly numphs/3 leaves																			
	First spray					Second spray					Third spray					Fourth spray				
	BS	5DAS	7 DAS	Mean	% Reduction	BS	5 DAS	7 DAS	Mean	% Reduction	BS	5 DAS	7 DAS	Mean	% Reduction	BS	5DAS	7 DAS	Mean	% Reduction
IPM existing module	15.6 (4.1)	15.2 (4)	26.2 (5.2)	20.7	9.1	27.8 (5.4)	27.4 (5.3)	35.5 (6.0)	31.4	9.2	25.8 (5.2)	25.3 (5.1)	26.5 (5.2)	25.9	23.8	24.7 (5.1)	24.8 (5.1)	27.0 (5.3)	25.9	23.1
IPM module-1	16 (4.1)	15.2 (4.0)	26.5 (5.2)	20.9	8.3	26.9 (5.3)	26.6 (5.3)	34.4 (5.9)	30.5	11.8	24.9 (5.1)	25.6 (5.2)	26.9 (5.3)	26.2	22.9	24.5 (5.0)	26.3 (5.2)	31.0 (5.7)	28.7	14.9
IPM module-2	16.1 (4.1)	15.7 (4.1)	25.4 (5.1)	20.6	9.7	27.0 (5.3)	27.3 (5.3)	35.0 (9.0)	31.2	9.9	27 (5.3)	27.2 (5.3)	26.8 (5.3)	27	20.7	27.7 (5.3)	28.3 (5.4)	29.7 (5.5)	29	13.8
IPM module-3	15.6 (4.1)	15.0 (4.0)	26.9 (5.3)	21	8	27.2 (5.3)	28 (5.4)	35.0 (6.0)	31.5	8.9	26.2 (5.2)	27.1 (5.3)	26.1 (5.2)	26.6	21.9	28.5 (5.4)	29 (5.5)	29.6 (5.5)	29.3	13.1
Biomodule-1	15.8 (4.1)	15.6 (4.1)	25.9 (5.2)	20.7	8.9	26.3 (5.2)	27.6 (5.3)	34.2 (5.9)	30.9	10.7	26.7 (5.2)	29.6 (5.5)	29.5 (5.5)	29.5	13.2	26.0 (5.2)	28.1 (5.4)	30.7 (5.6)	29.4	12.7
Biomodule-2	16.4 (4.2)	15.3 (4.0)	25.7 (5.2)	20.5	10	27.7 (5.3)	26.9 (5.3)	33.8 (5.9)	30.4	12.2	27.6 (5.3)	28.5 (5.4)	31.3 (5.7)	29.9	12.2	25.4 (5.1)	27.9 (5.4)	30.0 (5.6)	29.0	14.0
Biomodule-3	16.4 (4.2)	16.1 (4.1)	25.4 (5.1)	20.8	8.9	26.3 (5.2)	26.8 (5.3)	34.8 (6.0)	30.8	10.8	28.8 (5.4)	29.8 (5.6)	30.2 (5.6)	30	11.8	26.6 (5.2)	29 (5.5)	29.8 (5.6)	29.4	12.7
Biomodule-4	16.1 (4.1)	15.6 (4.1)	26.0 (5.2)	20.8	8.6	28.0 (5.4)	28.9 (5.5)	34.3 (5.9)	31.6	8.7	29.3 (5.5)	29.7 (5.5)	31.2 (5.7)	30.4	10.6	26.1 (5.2)	28.3 (5.4)	31.2 (5.7)	29.7	11.7
Control	16.8 (4.2)	18.0 (4.4)	27.5 (5.3)	22.8		31.5 (5.7)	33.7 (5.9)	35.5 (6.0)	34.6		30.5 (5.6)	33.3 (5.9)	34.7 (6.0)	34		29.4 (5.5)	32.2 (5.8)	35.2 (6.0)	33.7	
C.D.	N/A	N/A	N/A			N/A	0.29	N/A			N/A	0.3	0.31			N/A	N/A	0.21		
SE(m)	0.06	0.12	0.15			0.22	0.1	0.09			0.23	0.1	0.1			0.25	0.13	0.07		
SE(d)	0.09	0.17	0.22			0.32	0.13	0.13			0.32	0.14	0.15			0.35	0.18	0.1		
C.V.	2.61	5.07	5.08			7.22	3.04	2.69			7.46	3.21	3.25			8.27	4.01	2.19		

Table 94a: Integrated Management of CLCuD through its Vector Management (Reduction in CLCuD PDI)

No.	CLCuD PDI (%)																			
	Bathinda				Faridkot				Sriganganagar				Sirsa				Hisar			
	60 DAS	75 DAS	90 DAS	115 DAS	60 DAS	75 DAS	90 DAS	115 DAS	60 DAS	75 DAS	90 DAS	115 DAS	60 DAS	75 DAS	90 DAS	115 DAS	60 DAS	75 DAS	90 DAS	115 DAS
T1	4.4	11.1	18.3	18.9	0.3	7.8	20.4	24.1	16.1 (23.6)	18.8 (25.6)	27.2 (31.4)	31.1 (33.9)	0.0	3.9 (9.3)	6.1 (14.3)	11.7 (19.8)	2.4	4.3	6.6	11.3
T2.	4.4	11.1	20.6	26.1	0.7	8.2	21.0	23.2	17.3 (24.6)	18.1 (24.9)	27.6 (31.7)	30.7 (33.6)	0.0	5.0 (12.8)	7.2 (15.6)	13.3 (21.0)	3.1	5.6	9.8	15.2
T3.	1.7	7.8	25.0	28.9	0.6	7.7	21.8	24.3	16.7 (24.1)	18.8 (25.6)	29.4 (32.8)	32.5 (34.7)	0.0	4.4 (10.0)	6.8 (51.1)	12.2 (20.1)	2.5	5.4	9.1	13.7
T4.	1.7	6.7	26.1	30.0	0.8	8.8	21.2	25.1	16.9 (24.2)	17.1 (24.4)	30.0 (33.2)	32.4 (34.6)	0.0	5.0 (12.6)	5.8 (13.9)	7.8 (15.6)	2.7	5.6	9.4	13.8
T5.	3.3	8.3	28.9	34.4	0.6	9.2	22.0	28.2	17.1 (24.4)	18.7 (25.5)	29.2 (32.6)	33.0 (34.9)	0.0	5.6 (13.5)	6.2 (14.4)	10.6 (18.6)	3.2	5.9	9.7	16.2
T6.	2.8	9.4	20.6	33.9	0.4	9.0	22.7	27.0	17.4 (24.6)	19.6 (26.3)	29.9 (33.1)	32.3 (34.7)	0.0	5.6 (13.4)	8.9 (17.4)	12.8 (20.6)	4.0	6.8	10.3	16.9
T7	2.8	10.0	30.6	33.3	0.8	9.3	20.9	27.8	17.2 (24.5)	19.2 (25.9)	30.3 (33.4)	32.0 (34.5)	0.0	6.1 (14.3)	6.9 (15.2)	8.3 (16.1)	3.1	5.8	9.8	15.3
T 8	5.0	14.4	24.4	37.2	0.4	9.6	22.9	28.3	16.3 (23.7)	17.2 (24.5)	29.8 (33.1)	31.8 (34.3)	0.0	5.6 (13.4)	6.1 (14.3)	7.8 (15.7)	2.9	5.6	10.7	14.8
T 9	4.4	16.7	29.4	39.4	0.8	10.0	23.8	33.4	16.9 (24.3)	18.8 (25.7)	31.2 (33.9)	35.7 (36.6)	0.3	6.1 (14.2)	11.2 (19.6)	15.6 (22.9)	4.4	7.0	15.2	19.3

Table 94b: Integrated Management of CLCuD through its Vector Management (Reduction in whitefly adults)

Treatment No.	Whitefly adults% reduction over control																			
	Bathinda				Faridkot				Sriganganagar				Hisar				Sirsa			
	1st spray	2nd spray	3rd spray	4th spray	1st spray	2nd spray	3rd spray	4th spray	1st spray	2nd spray	3rd spray	4th spray	1st spray	2nd spray	3rd spray	4th spray	1st spray	2nd spray	3rd spray	4th spray
T1	16.2	8.7	23.5	30.4	33.8	32.8	60.6	66.5	53.0	57.8	72.8	73.1	16.2	8.7	23.5	30.4	33.8	31.2	68.6	38.2
T2.	15.4	9.2	22.1	23.4	33.0	35.6	65.4	40.5	51.9	61.1	74.6	56.3	15.4	9.2	22.1	23.4	33.0	30.5	69.4	39.5
T3.	12.8	10.5	24.0	22.7	32.9	33.7	62.0	39.6	54.0	56.6	73.9	52.6	12.8	10.5	24.0	22.7	32.9	28.5	66.0	31.2
T4.	10.5	7.2	25.3	23.9	34.8	32.5	64.2	40.1	54.8	60.3	71.8	51.1	10.5	7.2	25.3	23.9	34.8	34.3	65.2	38.8
T5.	7.6	12.9	10.3	23.3	29.8	30.1	38.4	41.9	51.4	58.6	52.4	60.0	7.6	12.9	10.3	23.3	29.8	29.1	38.4	32.6
T6.	7.4	9.9	13.0	20.9	33.3	33.2	39.5	39.3	54.0	57.8	53.9	55.1	7.4	9.9	13.0	20.9	33.3	32.4	39.5	28.8
T7	8.0	9.7	16.3	22.2	33.7	34.6	38.6	41.6	53.2	59.8	52.2	53.7	8.0	9.7	16.3	22.2	33.7	37.7	38.6	37.7
T 8	9.3	10.2	12.3	14.5	32.8	33.6	37.3	36.7	52.3	60.5	51.2	48.0	9.3	10.2	12.3	14.5	32.8	33.4	32.3	31.9
T 9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 94c: Integrated Management of CLCuD through its Vector Management (Reduction in whitefly nymphs)

Treatment	Nymph % reduction over control															
	Bathinda				Faridkot				Sirsa				Hisar			
	1st spray	2nd spray	3rd spray	4th spray	1st spray	2nd spray	3rd spray	4th spray	1st spray	2nd spray	3rd spray	4th spray	1st spray	2nd spray	3rd spray	4th spray
T1	13.9	10.5	26.3	29.4	9.1	9.2	23.8	23.1	30.2	25.3	63.4	64.2	13.9	10.5	26.3	29.4
T2.	14.2	10.6	23.5	14.8	8.3	11.8	22.9	14.9	28.7	27.3	58.9	62.3	14.2	10.6	23.5	14.8
T3.	12.1	11.2	24.3	14.9	9.7	9.9	20.7	13.8	28.4	30.2	57.2	55.8	12.1	11.2	24.3	14.9
T4.	9.9	8.3	26.0	17.3	8.0	8.9	21.9	13.1	24.9	29.4	55.3	51.7	9.9	8.3	26.0	17.3
T5.	6.8	15.0	12.7	13.4	8.9	10.7	13.2	12.7	31.2	35.2	60.8	62.1	6.8	15.0	12.7	13.4
T6.	12.3	11.6	13.3	13.2	10.0	12.2	12.2	14.0	33.3	27.3	54.2	58.7	12.3	11.6	13.3	13.2
T7	9.9	10.4	16.1	14.3	8.9	10.8	11.8	12.7	31.5	32.1	48.8	55.4	9.9	10.4	16.1	14.3
T 8	12.3	12.3	10.4	15.8	8.6	8.7	10.6	11.7	34.2	33.7	43.2	49.0	12.3	12.3	10.4	15.8
T 9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 94d: Integrated Management of CLCuD through its Vector Management (Seed cotton yield)

Treatments	Faridkot			Bathinda			Sriganganagar			Hisar			Sirsa			Overall mean
	Plant height	Sympods	SCY(Q/ha)	Plant Height (cm)	Sympods	SCY(Q/ha)	Plant Height (cm)	Sympods	SCY(Q/ha)	Plant Height	Sympods	SCY (q/ha)	Plant height (cm)	Sympods	SCY (Q/ha)	
T1	152	23	32.3	196.7	34.6	35.2	192.2	19.8	29.6	180	30.0	24.1	182.5	17.5	19.5	28.1
T2	149	24	32.2	173.9	28.6	27.8	190.1	18.8	30.1	175	25.0	19.2	179.9	16.1	18.8	25.6
T3	155	24	33.6	168.9	30.1	23.4	183.4	19.6	29.6	174	27.0	22.1	189.2	17.5	16.9	25.1
T4	159	25	33.7	167.8	33.1	24.6	180.6	17.8	30.3	184	26.0	21.1	167.3	15.9	18.7	26.1
T5	160	25	31.5	161.7	29.2	25.5	181.8	17.8	29.2	176	24.0	17.5	175.6	16.4	17.5	24.2
T6	156	23	29.6	168.9	26.9	24.6	189	19.6	28.9	170	21.0	17.3	178.3	16.9	18.7	24.0
T7	153	25	30.1	162.8	30	24	187.8	19.2	28.9	171	25.0	19.8	176.2	16.5	16.6	23.9
T8	150	24	28.6	176.7	29.1	25.4	183.2	18.8	27.4	168	26.0	20.2	179.0	17.4	15.8	23.5
T9	152	24	27.9	160.6	25.3	23.3	189.8	18.4	27.2	171	20.0	16.1	179.4	17.9	19.5	22.8
CD P=0.5	17	3.9	6.99	NS	NS	6.2			2.4				NA	NA	0.88	
CV (%)	6	8.7	1.22	7.3	11.6	13.8			4.3				5.23	7.87	7.61	

Path 3(j): Management of boll rot and foliar diseases of Cotton through CIB&RC recommended new chemical pesticides and their Combinations (2020-21)

Table 95: Management of boll rot and foliar diseases of Cotton through CIB&RC recommended new chemical pesticides (Bathinda and Hisar)

Treatments	Bathinda				Hisar						
	DI After 100 DAS**	PDI FFS (15 DAS)	Reduction over control	Yield (Q./ha)	I Spray (% Incidence)		II Spray (% Incidence)		II Spray (% Incidence)		SCY (q/ha)
					15 DAS	Reduction over control	15 DAS	Reduction over control	15 DAS	Reduction over control	
T1-Kresoxim-methyl 44.3% SC @ 1 ml/litre of water	53.3	3.0 (9.9)*	66.7	23.8	9.3	10.2	12	20	14.1	30.9	23
T2-Propiconazole 25% EC EC @ 1ml/litre of water	70.0	7.5 (15.9)	16.7	20.5	9.1	12.3	11.4	23.5	13.04	36.1	24
T3-Propineb 70% WP @ 2.5 g/litre of water	46.7	5 (12.9)	44.4	21.5	8.9	14.4	10.6	29.3	12	40.9	24
T4-Fluxapyroxad 167 g/l + Pyraclostrobin 333g/l SC @ 0.6/litre of water	50.0	8.5 (16.9)	5.5	19.4	6.4	38.4	8.1	46	10.8	47.1	27
T5-Metiram 55% + Pyraclostrobin 5% WG @ 2g/ litre of water	66.7	6.5 (14.8)	27.8	21.4	7.9	23.2	9	40	11.9	41.6	27
T6-Azoxystrobin 18.2% W/W + Difenoconazole 11.4 w/w SC @ 1 ml litre of water	46.7	3.5 (10.8)	61.1	21.9	9.2	11.5	11.9	20.1	13.9	31.5	24
T7-Control (Water spray)	73.3	9.0 (17.4)	--	18.9	10.4		15		20.4		21
CD P=0.5		0.99		NS							
CV (%)		3.97		18.1							

Table 96: Management of boll rot and foliar diseases of Cotton through CIB&RC recommended new chemical pesticides (Surat)

Sr. No.	Treatment	Bacterial leaf blight (PDI)	Control (%)	Alternaria leaf spot (PDI)	Control (%)	Boll rot (%)	Control (%)	SCY (Q/ha)
T_1	Kresoxim methyl 44.3% SC @ 1 ml/litre of water	30.2 (33.2)	23.5	9.8 (18.2)	44.3	20.8 (27.0)	30.2	21.7
T_2	Propiconazole 25% EC @ 1 ml/litre of water	33.3 (35.1)	15.7	12. 8(21.0)	27.4	25.5 (30.3)	14.5	19.5
T_3	Propineb 70% WP @ 2.5 g/litre of water	31.5 (34.0)	20.3	10.7 (19.0)	39.6	24.0 (29.3)	19.6	20.4
T_4	Fluxapyroxad 167 g/litre + Pyroclostrobin 333 g/litre SC @ 0.6 g/litre of water	24.2 (29.1)	38.7	5.3 (13.2)	69.8	13.8 (21.7)	53.6	26.8
T_5	Metiram 55% + Pyraclostrobin 5% WG @ 2 g/litre of water	25.7 (30.1)	34.9	8.2 (16.5)	53.8	16.1 (23.6)	45.8	24.3
T_6	Azoxystrobin 18.2% w/w + Difenoconazole 11.4% w/w SC @ 1 ml/ litre of water	27.7 (31.6)	29.9	9.0 (17.4)	49.1	17.3 (24.5)	41.9	23.1
T_7	Control (Water spray)	39.5 (38.8)	-	17.7 (24.8)	-	29.8 (33.1)	-	18.12
	S. Em.± (T)	1.8		0.9		1.1		1.63
	C.D.at 5% (T)	5.5		2.7		3.5		5.01
	C.D. (Y x T)	-		-		-		-
	C.V. %	9.3		8.2		7.4		12.8

Table 97: Management of boll rot and foliar diseases of Cotton through CIB&RC recommended new chemical pesticides (CICR-Nagpur)

Treatments		% Incidence of boll rot (20 bolls/plot)		*Corynespora* leafspot (PDI Mean)		Grey mildew (PDI Mean)		Yield (Q/ha)
		I Spray	II spray	I Spray	II spray	I Spray	II spray	
T1	Kresoxim-methyl 44.3% SC @1 ml/litre of water	46.6(43.0)	71.7(57.8)	21.6	21.6	5.0	0.8	17.5
T2	Propiconazole 25% EC @1 ml/litre of water	60.0(48.9)	73.3(59.3)	28.9	36.6	14.2	6.7	21.3
T3	Propineb70%WP @ 2.5 g/litre of water	50.0(51.1)	68.3(56.0)	31.	40.0	11.7	3.3	19.4
T4	Fluxapyroxad 167 g/l + Pyraclostrobin 333 g/l SC @ 0.6g/litre of water.	53.34(46.9)	70.0(57.7)	23.3	26.7	10.7	3.3	25.7
T5	Metiram 55% + Pyraclostrobin 5% WG @2 g / litre of water	36.7(36.1)	63.3(52.7)	28.3	33.3	5.8	2.5	17.8
T6	Azoxystrobin 18.2% w/w + Difenoconazole 11.4% w/w SC @1 ml/ litre of water	53.3(46.9)	73.3(59.3)	17.2	23.0	11.7	3.3	19.1
T7	Control (Water spray)	63.3(52.7)	81.6(64.9)	33.9	41.6	22.5	25.0	9.0
	C.D.	N/A	N/A					N/A
	SE(m)	5.2	2. 8					3.2
	SE(d)	7.3	3.9					4.5
	C.V.	19.3	8.3					29.6

Table 98: Management of boll rot and foliar diseases of Cotton through CIB&RC recommended new chemical pesticides (Lam, Guntur)

Treatments		Corynespora leaf spot									Grey mildew			Rust			Yield (Q/ha)
		I spray (PDI)			II Spray			III spray			I spray (PDI)			I spray (PDI)			
		Before spray	After spray	% control	*Before spray*	After spray	% control	*Before spray*	After spray	% control	*Before spray*	After spray	% control	*Before spray*	After spray	% control	
T1	Kresoxim methyl 44.3% SC @1ml/l	4.0 (11.5)	14.7 (22.5)	29.0	14.7 (22.5)	11.6 (19.9	56.8	11.6 (19.9)	2.3 (8.7)	89.8	11.3 (19.6)	7.0 (15.3)	59.4	24.6 (29.7)	9.8 (18.24)	73.6	26.8
T2	Propiconazole 25%EC @ 1ml/l	3.5 (10.8)	13.2 (21.3)	36.3	13.2 (21.3)	9.2 (17.7)	65.8	9.2 (17.7)	1.08 (5.9)	95.3	8.0 (16.4)	4.6 (12.3)	73.5	22.1 (28.0)	9.8 (18.2)	73.8	26.5
T3	Propineb 70%WP @ 2.5g/l	5.0 (12.9)	15.3 (22.9)	26.2	15.3 (22.9)	9.4 (17.9)	64.9	9.4 (17.9)	1.9 (7.9)	91.6	8.0 (16.4)	1.8 (7.6)	89.9	25.3 (30.2)	11.8 (20.1)	68.2	26.4
T4	Fluxapyroxad 167g/l + Pyroclostrobin 333g/l SC @ 0.6l	4.8 (12.7)	14.9 (22.7)	27.8	14.9 (22.7)	10.8 (19.2)	59.6	10.8 (19.2)	1.4 (6.8)	93.8	3.8 (11.2)	5.2 (13.1)	70.0	13.5 (21.6)	9.4 (17.9)	74.7	24.9
T5	Metiram 55% + Pyroclostrobin 5%WG @2g/l	4.3 (11.9)	14.5 (22.4)	29.9	14.5 (22.38)	10.9 (19.3)	59.3	10.9 (19.3)	1.4 (6.8)	93.8	9.8 (18.2)	7.4 (15.8)	56.9	18.3 (25.3)	10.9 (19.3)	70.6	23.8
T6	Azoxystrobin 18.2% w/w +Difenconazole 11.5% w/w SC @ 1ml/l	4.3 (11.9)	14.6 (22.4)	29.5	14.6 (22.4)	11.3 (19.6)	58.0	11.3 (19.6)	1.3 (6.6)	94.2	5.8 (13.9)	4.5 (12.3)	73.9	21.6 (27.7)	9.3 (17.8)	74.9	26.5
T7	Control (Water spray)	5.0 (12.9)	20.7 (27.0)		20.7 (27.0)	26.8 (31.2)		26.8 (31.2)	22.9 (28.6)		14.6 (22.4)	17.3 (24.5)		29.4 (32.8)	37.2 (37.5)		19.5
	CD (p=0.05)	NS	2.24		2.24	2.34		2.34	1.63		2.99	2.05		4.06	3.72		
	CV (%)	16.8	8.2		8.2	10.2		10.2	19.0		19.2	16.9		10.3	15.1		

Table 99: Management of boll rot and foliar diseases of Cotton through CIB&RC recommended new chemical pesticides (Dharwad)

S. No.	Treatments	Alternaria blight		Grey mildew		Boll rot		SCY (Q/ha)
		PDI	% Control	PDI	% Control	PDI	% Control	
T_1	Kresoxim-methyl 44.3% SC @1 ml/litre of water	28.3 (32.1)	18.1	16.81 (24.2)	14.9	13.4 (21.5)	20.3	8.1
T_2	Propiconazole 25% EC @1 ml/litre of water	26.5 (30.9)	23.4	16.67 (24.1)	15.6	14.7 (22.5)	13.0	10.67
T_3	Propineb70%WP @ 2.5 g/litre of water	27.1 (31.4)	21.5	15.56 (23.2)	43.5	13.2 (21.3)	21.6	9.43
T_4	Fluxapyroxad 167 g/l + Pyraclostrobin 333 g/l SC @ 0.6g/litre of water	18.3 (25.3)	47.1	9.75 (18.2)	50.6	7.7 (16.2)	54.1	15.3
T5	Metiram 55% + Pyraclostrobin 5% WG @2 g / litre of water	20.9 (27.1)	39.7	11.23 (19.6)	43.2	9.1 (17.6)	45.9	15.0
T_6	Azoxystrobin 18.2% w/w + Difenoconazole 11.4% w/w SC @1 ml/ litre of water	21.3 (27.5)	38.2	12.34 (20.5)	37.5	10.7 (19.1)	36.5	12.2
T_7	Control (Water spray)	34.6 (36.0)	-	19.76 (26.4)	-	16.9 (24.2)	-	6.6
	CD at 5%	0.77		0.98		0.73		0.3
	S. Em.±	0.2		0.37		0.27		0.17
	cv	2.31		3.64		3.22		2.76

Path.4: Crop loss estimation

Path.4(e). Crop loss estimation due to CLCuD and distribution pattern of CLCuD in north zone.

Expt.1.To work out relationship between disease index and yield reduction due to CLCuD.

NORTH ZONE

Table 100: Number of boll reduction (%) grade wise in different Bt hybrids in North Zone.

Grades	US51				RCH 773 BGII				NCS 9013 BGII				ACH 177-2 BG II			
	HSR	FDK	SGR	Avg.	HSR	FDK	SGR	Avg.	HSR	FDK	SGR	Avg.	HSR	FDK	SGR	Avg.
0	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.0	-	0.0
1	10.3	-	0.0	10.3	0	-	0.0	0.0	0	-	0.0	0.0	0	-	0.0	0.0
2	15.7	6	11.5	11.1	9.5	17	8.9	11.8	0	12.3	15.8	9.4	0	6.4	7.2	4.5
3	24.1	17.8	45.5	29.1	28.7	25.3	28.2	27.4	27.8	21.3	37.4	28.8	28.1	11.6	35.2	25.0
4	20.3	25.5	58.5	34.8	21.8	31.5	63.8	39.0	34.1	30.4	56.9	40.5	31.9	26.3	48.7	35.6
5	24.5	33.3	-	28.9	24.3	40.2	-	32.3	31.1	34.8	70.3	45.4	27.5	32.6	-	30.1
6	40.7	-	-	40.7	39.4	-	-	39.4	38.7		-	38.7	38.3	-	-	38.3
Mixed		14.9	38.5	26.7		20.9	33.6	27.3		17.9	45.1	31.5		20.2	30.4	25.3

Table 101: Seed cotton yield (%) reduction disease grade wise in different Bt hybrids in North Zone.

Grades	US51				RCH 773 BGII				NCS 9013 BGII				ACH 177-2 BG II			
	HSR	FDK	SGR	Avg.	HSR	FDK	SGR	Avg.	HSR	FDK	SGR	Avg.	HSR	FDK	SGR	Avg.
0	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.0	-	0.0
1	7.5	-	0.0	7.5	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0
2	25.9	11.0	21.2	19.4	13.9	12.2	14.6	13.6	0.0	16.7	25.4	14.0	0.0	2.6	17.7	6.8
3	43.7	23.2	62.6	43.2	38.2	24.2	54.6	39.0	29.9	26.2	62.3	39.5	32.4	9.4	54.3	32.0
4	55.4	32.2	82.7	56.8	51.7	28.8	79.8	53.4	53.3	35.8	77.5	55.5	53.9	23.2	70.4	49.2
5	67.5	41.7	-	54.6	66.6	37.8	-	52.2	68.6	41.3	84.8	64.9	67.4	31.0	-	49.2
6	81.9	-	-	81.9	84.5	-	-	84.5	80.9	-	-	80.9	79.9	-	-	79.9
Mixed		19.4	55.5	37.5		15.5	49.7	32.6		19.9	62.5	41.2		12.2	47.5	29.9

Table 102: Boll weight reduction (%) grade wise in different Bt hybrids in North Zone.

Grades	US51				RCH 773 BGII				NCS 9013 BGII				ACH 177-2 BG II			
	HSR	FDK	SGR	Avg.	HSR	FDK	SGR	Avg.	HSR	FDK	SGR	Avg.	HSR	FDK	SGR	Avg.
0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	4.1	-	0.0	4.1	-	-	0.0			-	0.0			-	0.0	
2	9.0	-	10.4	9.7	4.6	-	2.7	3.7		-	10.8	10.8		-	6.6	6.6
3	9.0	-	32.7	20.9	4.6	-	36.4	20.5	0	-	41.4	20.7	5.8	-	29.3	17.6
4	9.4	-	62.8	36.1	4.6	-	51.2	27.9	-1.2	-	58.6	28.7	5.8	-	40.8	23.3
5	12.6	-	-	12.6	12.9	-	-	12.9	1.5	-	64.4	33.0	7.9	-	-	7.9
6	17.7	-	-	17.7	33.3	-	-	33.3	2.1	-	-	2.1	7.9	-	-	7.9
Mixed		-	26.5	26.5		-	22.7	22.7		-	35.1	35.1		-	19.4	19.4

Expt.2. Study on distribution pattern of cotton leaf curl virus disease on local popular Bt hybrid at farmer's fields in Punjab, Rajasthan and Haryana field.

Table 103: CLCuD incidence in different districts of the North Zone Punjab, Rajasthan and Haryana

Punjab		Rajasthan		Haryana	
Districts	Mean (PDI)	Districts	Mean (PDI)	Districts	Mean (PDI)
Faridkot	11.5	Sriganganagar	13.55	Sirsa	17.40
Fazilka	16.1	Hanumangarh	6.25	Fatehabad	16.20
Muktsar	8.83			Hisar	16.00
Bathinda	17.09			Jind	20.80
				Bhiwani	11.00
				Rohtak	10.40
				Mahendergarh	10.00
				Palwal	10.00

Agron. V: Technology for organic cotton production

Table 104: Intensity of diseases under organic cotton production: Junagarh

S. N.	Treatment's detail	PDI ALB	PDI BLB
T_1	Absolute control (No organic & Inorganic)	24.0*(32.79)	1.6**(1.7)
T_2	Control (STCR)	24.5 (32.99)	1.3 (1.3)
T_3	RD of Nutrient through organic based on P - equivalent basis. (No P recommended)	21.6 (31.72)	1.0 (1.0)
T_4	Seed treatment and soil application of rec. bio fertilisers and foliar application of PPFM @1 % at flowering and boll development. (Azotobacter, PSB, KSB 40-50 ml/10lit and PPFM 100ml/10 lit.)	21.6 (31.73)	1.1 (1.2)
T_5	Neem cake 250 kg/ha. (0.945 kg/plot)	24.0 (32.79)	1.3 (1.33)
T_6	Raising of Sunhemp between rows incorporated before flowering.	22.5 (32.16)	1.2 (1.2)
T_7	Intercropping with black gram crop residue has to be incorporated after harvesting insitu condition.	26.0(33.63)	1.0 (1.0)
T_8	T_4+T_5	26.5 (33.83)	1.0 (1.0)
T_9	T_4+T_6	21.6 (31.68)	1.3 (1.3)
T_{10}	$T_4+T_5+T_6$	22.5 (32.16)	1.3 (1.3)
T_{11}	$T_4+ T_5 + T_7$	22.5 (32.16)	1.0 (1.0)
	S.Em.±	0.77	0.11
	C.V. %	4.17	17.82
	C.D.	NS	NS

Table 105: Intensity of diseases under organic cotton production (G. Cot. 20) Surat

Sr. No.	Treatments	Bacterial leaf blight			Alternaria leaf spot		
		PDI	Max Grade	DR	PDI	Max Grade	DR
T_1	Absolute control (No organic & Inorganic)	30.0	2	MR	0.0	0	DF
T_2	Control (STCR)	27.2	2	MR	0.0	0	DF
T_3	RD of Nutrient through organic based on P - equivalent basis. (No P recommended)	23.7	1	R	0.0	0	DF
T_4	Seed treatment and soil application of rec. bio fertilisers and foliar application of PPFM @1 % at flowering and boll development. (Azotobacter, PSB, KSB 40-50 ml/10lit and PPFM 100ml/10 lit.)	25.5	2	MR	0.0	0	DF
T_5	Neem cake 250 kg/ha. (0.945 kg/plot)	16.5	1	R	0.0	0	DF
T_6	Raising of Sunhemp between rows incorporated before flowering.	32.7	2	MR	0.0	0	DF
T_7	Intercropping with black gram crop residue has to be incorporated after harvesting insitu condition.	21.7	1	R	0.0	0	DF
T_8	T_4+T_5	11.8	1	R	0.0	0	DF
T_9	T_4+T_6	23.8	1	R	0.0	0	DF
T_{10}	$T_4+T_5+T_6$	25.3	1	R	0.0	0	DF
T_{11}	$T_4+ T_5 + T_7$	20.2	1	R	0.0	0	DF

Table 106: Intensity of diseases under organic cotton production *(G. hirsutum)* Dharwad

Sl. No	Treatments	ALB PDI	GM PDI
T1	Absolute control (No organics & No inorganic)	36.6 (37.2)	33.3 (35.3)
T2	Control (RDN through inorganic)	26.8 (31.1)	28.84 (32.5)
T3	RD of Nutrient through organic based on P equivalent basis	34.4 (35.9)	29.8 (33.1)
T4	Seed treatment and soil application of rec. bio fertilizers and foliar application of PPFM @ 1% at flowering and boll development	29.7 (33.0)	27.7 (31.8)
T5	Neem cake 250kg/ha	31.3 (34.0)	30.0 (33.2)
T6	Raising of Sunnhemp /fodder cowpea between rows incorporated before flowering	32.6 (34.8)	28.8 (32.5)
T7	Intercropping with green gram/black gram/ground nut/soybean	30.1 (33.3)	29.1 (32.6)
T8	T4 + T5	25.6 (30.4)	24.4 (29.6)
T9	T4 +T6	26.8 (31.1)	26.0 (30.6)
T10	T4 + T5 + T6	24.6 (29.7)	25.7 (30.42)
T11	T4 + T5 + T7 (PPFM from TNAU)	22.9 (28.6)	20.9 (27.2)
T12	T4 + T5 + T7 (PPFM from UASD)	21.2 (27.4)	19.4 (26.1)
	SEm±	0.7	0.4
	CD at 5%	2.2	1.9

Concluded Experiment:

Table 107: Management of sooty mold (*Capnodium* spp.) in cotton (Field Experiment- Spray thrice): Coimbatore

Treatment	Reduction of sooty mold over control (%)						Seed cotton yield (Q/ha)			
	2017-18		2018-19		2020-21	Pooled	2017-18	2018-19	2020-21	Pooled
	PDI	Reduction	PDI	Reduction	Reduction	Reduction				
T_1 - Copper oxy chloride (COC) 50 WP @ 0.75 g/litre of water	6.0	27.3	14.5	17.6	12.1	19.0	10.0	9.5	16.0	11.8
T_2 - Copper oxy chloride (COC) 50 WP @ 1.25 g/litre of water	5.8	29.7	14	20.5	11.9	20.7	10.2	9.2	16.7	12.0
T_3- Copper oxy chloride (COC) 50 WP @ 1.75 g/litre of water	4.0	51.5	12	31.8	9.4	30.9	10.5	9.5	17.5	12.5
T_4- Copper oxy chloride (COC) 50 WP @ 2.25 g/litre of water	2.9	65.5	10	43.1	8.2	38.9	11.0	10.7	18.5	13.4
T_5- Propiconazole 25 EC @ 1 ml / litre of water	2.7	67.8	11.5	34.7	11.4	37.9	11.9	9.8	17.1	12.9
T_6 - Mancozeb 50 WP @2.0 g /litre of water	6.5	21.2	14.8	16.0	13.4	16.9	9.0	9.0	15.3	11.1
T_7- Detergent powder @ 5.0 g / litre of water	3.0	63.6	13.2	25.0	14.3	34.3	10.9	9.0	14.8	11.6
T_8- Water spray	7.6	7.6	16.5	6.3	15.5	9.8	8.1	8.8	14.1	10.3
T_9- Control	8.3	0.0	17.6	0.0	18.1	6.0	8.0	8.5	13.9	10.1
CD (0.05%)			1.29		0.6	0.6			0.7	0.7

Table 108: Effect of different treatments on the parawilt in Cotton (RCH 773) Hisar (Pooled 2017-18-2020-21)

Treatments	Kharif 2017-18		Kharif 2018-19		Kharif 2020-21							Pooled		
	DI (%)	Recovery (%)	DI (%)	Recovery (%)	% Recovery	No. Monopods	No. Sympods	Shoot length (cm)	No. open balls / plants	Boll weight (gm)	SCY (q/ha)	DI (%)	Recovery (%)	SCY(q/ha)
T1-Cobalt chloride @ 10 ppm foliar spray immediately after occurrence of disease	20.0	80.0	15.0 (22.5)	85.0	91.3 (72.9)	2.4	40.3	180	51	4.5	28.0	8.5	**85.4**	**28**
T2-Sodium benzoate @ 50ppm foliar spray immediately after occurrence of disease	55.0	45.0	60.0 (34.6)	30.0	32.0 (34.4)	1.8	32.0	175	53	4.2	24.0	32.8	**35.7**	24
T3-Salicylic acid (Commercial grade) @ 250ppm foliar spray immediately after occurrence of disease	95.0	5.0	100.0 (90.0)	0.0	30.0 (33.2)	2.4	35.0	174	45	4.0	24.0	54.8	11.7	24
T4-*Pseudomonas fluorescens*@ 10gm or ml/litre of water	95.0	5.0	100.0 (90.0)	0.0	34.7 (36.0)	2.3	28.7	184	44	4.0	26.0	50.3	13.2	**26**
T5-Drench plants with a mixture of Copper oxychloride@ 25g and 200g Urea in 10 ltr of water	70.0	30.0	75.0 (60.1)	25.0	32.3 (34.6)	2.0	31.0	176	30	3.9	26.0	41.0	**29.1**	**26**
T6-Drench plants with Carbendazim@1g/L	90.0	10.0	90.0 (71.5)	10.0	14.0 (21.9)	1.9	31.0	170	35	3.1	23.0	49.5	11.3	23
T7-Control	100.0	0.0	100.0 (90.0)	0.0	9.7 (18.1)	1.6	28.0	171	30	3.0	21.0	**55.0**	3.2	21
CD @ 0.05 %	1.95		6.40		2.30	NS	4.57	NS	5.21	NS				
CV %	5.0		3.8		3.6	18.8	7.9	5.2	7.1	16.3				

Table 109: Management of parawilt of cotton at Bathinda (RCH 773) (Pooled 2017-18-2020-21)

Treatment	Total root mass (gm.)			Boll Wt. (gm)			Shoot length(cm)			Per cent (Recovery of Plants)				Seed Cotton yield(Q/ha)			
	2018-19	2019-20	Pooled	2018-19	2019-20	Pooled	2018-19	2019-20	Pooled	2018-19	2019-20	2020-21	Pooled	2018-19	2019-20	2020-21	Pooled
T_1	25.9	25.0	25.4	5.0	4.3	4.6	172.2	161.1	166.7	91.5 (73.0)	91.7 (80.0)	91.7 (80.0)	91.6	28.5	29.6	22.1	26.8
T_2	20.4	22.2	21.3	5.1	3.7	4.4	164.4	143.9	154.2	25.0 (30.0)	33.3 (35.0)	25.0 (30.0)	27.8	26.9	27.0	20.3	24.7
T_3	18.8	25.4	22.1	4.9	4.0	4.4	171.7	154.5	163.1	33.25 (35.2)	41.7 (40.0)	41.7 (40.0)	38.9	26.0	25.8	20.1	23.9
T_4	22.7	20.9	21.8	5.0	3.8	4.4	169.4	154.4	161.9	16.8 (24.13)	25.0 (30.0)	33.3 (35.0)	25.0	24.9	22.8	20.3	22.7
T_5	29.0	23.5	26.3	5.1	4.1	4.6	172.9	160.6	166.7	99.0 (85.4)	83.3 (70.0)	75.0 (60.0)	85.8	29.3	27.7	21.5	26.2
T_6	21.9	21.3	21.6	4.9	3.9	4.4	162.2	152.2	157.2	16.8 (24.1)	25.0 (30.0)	16.7 (20.0)	19.5	25.7	20.1	20.6	22.1
T_7	21.8	17.8	19.8	4.8	3.6	4.2	144.9	136.7	140.8	8.3 (16.7)	16.7 (20.0)	8.3 (10.0)	11.1	23.1	18.8	18.3	20.0
CD @ 0.05%	4.3	NS	4.3	NS	0.4	0.4	NS	11.5	11.5	2.5	20.5	19.9		1.3	0.6	NS	
CV %	10.6	10.6	10.6	3.6	3.6	3.6	9.2	9.2	9.2	3.4	26.2	28.5		2.7	1.4	15.8	

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ANNUAL GROUP MEETING

ICAR-ALL INDIA CO-ORDINATED RESEARCH PROJECT ON COTTON

(AICRP – on Cotton)

COTTON TECHNOLOGICAL REPORT

(2020-21)

Date: Apr 8-9, 2021 Venue: Video Conferencing, ICAR-CICR, Nagpur



ICAR-CENTRAL INSTITUTE FOR RESEARCH ON COTTON TECHNOLOGY

(Indian Council of Agricultural Research)

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Dr. Sujata Saxena

Director (Acting), ICAR-CIRCOT, Mumbai

Edited and compiled by:

Dr. P.K. Mandhyan, PI (Quality Research)
Dr A. Arputharaj, Scientist
Dr. P. Jagajanantha, Scientist
Dr. Kirti Jalgaonkar, Scientist
Dr.Sharmila Patil, Scientist
Shri S. Banerjee , Chief Technical Officer

Note: No part of this Data/Report shall be used without prior permission from Director, ICAR-CIRCOT.

Address: **ICAR-Central Institute for Research on Cotton Technology**
(Indian Council of Agricultural Research)
Adenwala Road, Matunga, Mumbai-400019

Tel.No.022-24127273/76, 24184274/75 **Fax No.022-24130835**

E-mail: director.circot@icar.gov.in **Website: www.circot.res.in**

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Quality Analysis of ICAR-AICRP on Cotton samples

The Indian Council of Agricultural Research (ICAR) launched the All India Coordinated Cotton Improvement Project (AICCIP) in the year 1967 with its Headquarters at Coimbatore (Tamil Nadu). Since then the cotton has moved a great deal from varieties to genetically modified cotton cultivars. Presently the future of genetically modified cotton is being discussed widely in the country along with the change in the weather pattern. Therefore, the importance of the project has received a thrust in terms of multi-disciplinary and multi-centre approaches with the active involvement of State Agricultural Universities across cotton growing states for the development of better varieties suiting to different agro climatic conditions. Currently, the AICCIP Project, now All India Co-ordinated Research Project on Cotton (ICAR-AICRP on Cotton) is in operation with its headquarters at Coimbatore and spread over 21 participating centres involving 16 State Agricultural Universities. The ICAR-Central Institute for Research on Cotton Technology (ICAR-CIRCOT), Mumbai and its Regional units at Nagpur, Coimbatore, Sirsa, Guntur, Dharwad and Surat are closely associated with ICAR-AICRP on Cotton in assessing the fibre quality parameters of cotton cultures under trial. It is heartening to note that vide letter no. F.No. A.Engg.17(13)/2014-AE dated 30.08.2016 from SMD, a new discipline, **Quality Research**, has been added in AICRP-on Cotton and ICAR-CIRCOT has been included as Principal Investigator. This letter was issued with approval of DDG (CS).

Since the quality plays an important role in varietal improvement research and it takes several years to evolve a variety endowed with good yield and desired fibre quality parameters. Starting with a few seeds initially obtained either from Germ Plasm collection or from a new cross, the cotton breeder has to select good plants during several successive generations until a strain which gives consistent results is evolved, year after year, as regards yield, quality and other characteristics.

The successful development of a new variety involves close collaboration of scientists from various disciplines, *viz.* the cotton breeder, agronomist, physiologist, pathologist, entomologist and technologist. The work of developing new varieties can be speeded up if an integrated approach covering all these aspects is made. The multi location evaluation of the new varieties for various characteristics in each cotton growing zone is necessarily to be carried out on the promising varieties.

India has become the world's largest producer and exporter of cotton. Indian cotton also typically trades at a discount upto the extent of 7 %, in the international market, compared to cotton from other countries due to practices followed in market yards and other

subsequent processes. Opportunities may exist to improve the income of cotton producers in India and of global cotton consumers by improving the communication of consumer's quality needs to the farm level researchers.

The quality of the cotton fibre is dependent on the pedigree or genetic composition of the variety as well as on the conditions under which the plant is grown. Although fibre quality parse cannot be improved during processing however improper handling or processing can adversely affect the quality.

ICAR-CIRCOT undertakes the fibre and yarn quality assessment of ICAR-AICRP on Cotton samples and presented in the Annual Technological Report. Quality parameter data was generated on the cotton samples received from the cotton breeders throughout the country from breeders pertaining to the ICAR-AICRP on Cotton Zonal Trials (North Zone, Central Zone and South Zone) and National Trials. In all, the technological data on 3496 samples have been reported of which 1163 samples belong to National trials. Out of the zonal trials, 110 cotton samples belong to North zone, 449 cotton samples belong to Central zone and 415 belong to South zone. Under ICAR-Bt Trials 1297 samples were received and analysed for fibre quality parameters. Under Agronomy trial 62 samples were received for spinning performance along with fibre quality assessment. The quality parameters of all cotton fiber samples were measured by using the High Volume Instrument operated in the HVI Mode. The data was analysed and reported.

ICAR-AICRP on Cotton is mandated to give new thrust and direction in terms of multidisciplinary and multi-centre approaches with the active involvement of State Agricultural Universities. It is pertinent to mention about the collaborative efforts of AICRP on Cotton in evaluating the suitability of private sector Bt Cotton hybrids (the only commercial transgenic crop approved for cultivation by GEAC) for major cotton growing states in the country from the year 2002 onwards. ICAR submitted its recommendation to Genetic Engineering Appraisal Committee suggesting that Bt cotton hybrid events has to be tested as per norms of AICRP system before releasing for commercial cultivation . Out of the 17 parameters to be evaluated ICAR-CIRCOT has been designated to analyse Upper Half Mean Length (mm) under HVI Mode, Uniformity index under HVI Mode, Micronaire under HVI Mode, Tenacity under HVI Mode. ICAR-CIRCOT with its huge expertise in fibre quality analysis has been doing this analysis for the past two years succesfully.

--

HVI and ICC Mode Comparison

Since last season onwards the testing of all the lint samples under the AICRP-on Cotton is being carried out in HVI mode of testing. This has brought the fibre attributes data at par with international method of testing. While most institutions in India use either International Calibration Cotton (ICC) or HVI tenacity, many foreign cottons, especially those from the US and Australia, are labeled with only HVI tenacity values which are much higher. Cotton exporters in India are also familiar with HVI mode of testing as they have to submit HVI mode values to get their produce sold in international markets. In international markets, the transaction occur mainly using HVI mode fibre properties. The comparisons with foreign cottons have led to the misnomer that Indian cottons are weaker compared to their foreign counterparts in a given category.

In order to get acquainted with the different parameters obtained in HVI mode following explanation is given. The comparison between ICC and HVI mode parameters are also explained.

Fibre length: The 2.5 per cent span length (ICC mode) is the distance up to which 2.5 per cent of the fibres caught in the sample holding comb are found to extend. On the other hand, Upper Half Mean Length (UHML), obtained in HVI mode, is the average length by number of the longer half (50 per cent) of the fibres distributed by weight. Though different by definition, the two length measures are nearly equal. Hence, there is no difficulty in switching over from the old set of parameters to the new.

Fibre length variation: The length variability index in the ICC mode is the uniformity ratio of span length at 50 per cent and 2.5 per cent density levels.

$$UR\ \% = (L50 / L2.5) \times 100$$

The UR per cent for all varieties of cotton lies in the 40-54 range.

The uniformity index (UI) determined in the HVI mode is the ratio of the mean length and the UHML:

$$UI = (\text{Mean length}/UHML) \times 100$$

As mean length is very close to, though smaller than, UHML, the ratio is much larger than the UR per cent. Generally, the UI per cent is in the 70-98 range, the theoretical limit being 100 when the fibres are all of constant length.

Tenacity: The fibre tenacity in the ICC mode is available at the Stelo level. These are adjusted to agree with the tenacity obtained with conventional mechanical machines known as the Stelometer. In the HVI mode, the tenacity given by the machine is much higher than the measures obtained in the ICC mode. The HVI tenacity is about 25-30 per cent higher than the tenacity obtained in the ICC mode.

A relationship between ICC & HVI Modes of testing is given below in the form of a regression equation is given. ***It is cautioned that one should not use the equations/thumb rule as an alternate to actual testing.***

ICC Mode	**HVI mode**	**Conversion (ICAR-CIRCOT)**	**Thumb rule**
2.5% Span Length (SL)	Upper Half Mean Length (UHML)	UHML=0.98 x 2.5 SL+0.1827	**2.5% SL is equal to UHML**
Uniformity Ratio (UR)	Uniformity Index (UI)	UI% = -0.1841xUR% + 91.17	**UI is 1.8 times UR**
Tenacity (g/tex) T(ICC)	Tenacity (g/tex) T(HVI)	T(HVI) = 1.0395 x T(ICC) + 4.967	**T (HVI) is 1.25 times of T (ICC)**
Note: Other fibre properties like micronaire, elongation and short fibre index remain the same in both the modes of HVI testing			

The Quality Norms in HVI mode of testing

Over the past 55 years, USTER® STATISTICS has earned legendary status throughout textiles – and its value is more significant than ever in the globalized trading environment today and in the future.Therefore, it is pertinent to take into the account the Uster statistics while formulating the norms for the AICRP- on cotton system. In order to get the realistic scenario, the statistical analysis was carried out on samples of cotton fibre received during the season 2015-16 from all over the country under AICRP-on cotton. These samples were tested on HVI mode on different makes of HVI systems following relevant standard procedures. As per prevailing system the UHML was categorized into 9 groups. The UHML below 24 mm

was not considered since fibres with this attribute mostly utilized either by Open end spinning Industry or other purposes such as absorbent cottons. The Uster statistics 2013 values for different parameters were taken as base, since these data are based on the cottons from different part of world. An attempt was made to find out the position of samples received under AICRP-on cotton with respect to world average. Uster statistics gives the value of the fibre attributes for 5 %, 25 %, 50 %, 75 % and 95 % percentiles. These percentiles may be labeled as Excellent, Good, Average, Fair and poor respectively. The case may be reversed in case of micronaire values. The percentages of samples under these labels were determined by calculating the frequencies of samples in these categories. After statistical analysis of the fibre attributes data norms are proposed for HVI mode of testing. The analysis of data will be carried out for the current season and norms will be finalized.

Highest Spinnability Count Index

The commercial value of a cotton variety is related to its spinning performance, which, in turn, is dependent on the yarn count that can be spun from the given cotton and the yarn quality obtained for that count. The quality of any yarn spun from cotton depends on its fibre quality, particularly length, strength, fineness, uniformity ratio, short fibre content and breaking elongation. The prediction of yarn quality and spinnability of a particular cotton is necessary for a better product design. Presently, the test for yarn quality is done by processing a small quantity of a cotton sample to a particular count and ascertaining the quality of yarn so produced. As Initial Evaluation Trials are having very small sample size, it is not possible to spin the cotton by mechanical processing to decide its spinning potential.

An integrated index called highest standard cotton (HSC) was developed by ICAR-CIRCOT long back and it was mainly for used comparing cottons after actual spinning of cottons into 2 to 3 counts. HSC is the finest count of yarn that can be spun economically with a standard optimum twist and has a certain standard lea CSP. The counts that are spun higher than HSC will have less CSP and counts that are spun lower than HSC will have more CSP than the standard. Thus, the HSC of cotton is a single integrated index, which provides an easy way for comparing the quality of cottons. This is a time consuming as well as labour and machine intensive process apart from requiring minimum sample size of 6.0 kg. To overcome these problems, ICAR-CIRCOT has developed regression equations. HSC being an integrated index reflecting the spinnability of cotton is more suitable index to compare cottons than FQI.

Abbreviations

Abbreviation	Description
Mic	Micronaire (micrograms/inch)
Str	Bundle tenacity in grams/tex
E%	Bundle elongation in %
HSC	Highest Standard Count Index
Mean HSC	Mean of HSC of different locations of particular entry
Count1	Under spun count in English count (Ne)
CSP1	Corrected count strength product of under spun count
Count2	Over spun count in English count (Ne)
CSP2	Corrected count strength product of over spun count
UHML	Upper Half Mean length in mm (HVI mode)
Tenacity	Bundle tenacity in grams/tex (HVI mode)
UI	Uniformity Index (HVI mode)

Research highlights

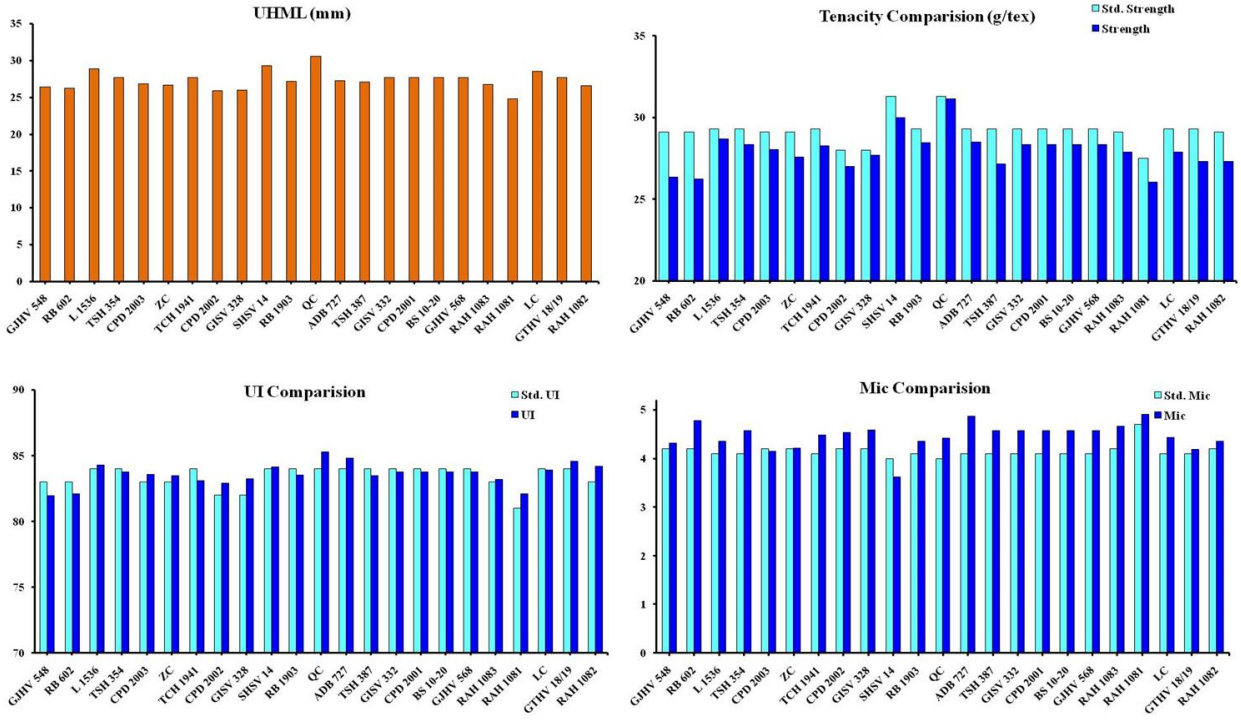
National Trials

The samples under different National trials, were segregated and analysed on basis of UHML ranges. Mean values of entry of different centers was taken into account for the analysis. The X-axis of all the graphical presentations represents different entries.

Br. 02a initial evaluation trial of G. hirsutum under irrigated condition

Observations

- ❖ Majority of the samples were in UHML range of 24-29 mm.
- ❖ The samples were having UI equal to the minimum requirement
- ❖ The tenacity of the samples was marginally lower than the minimum requirement.
- ❖ The micronaire value of most of the samples was higher than the maximum allowed.



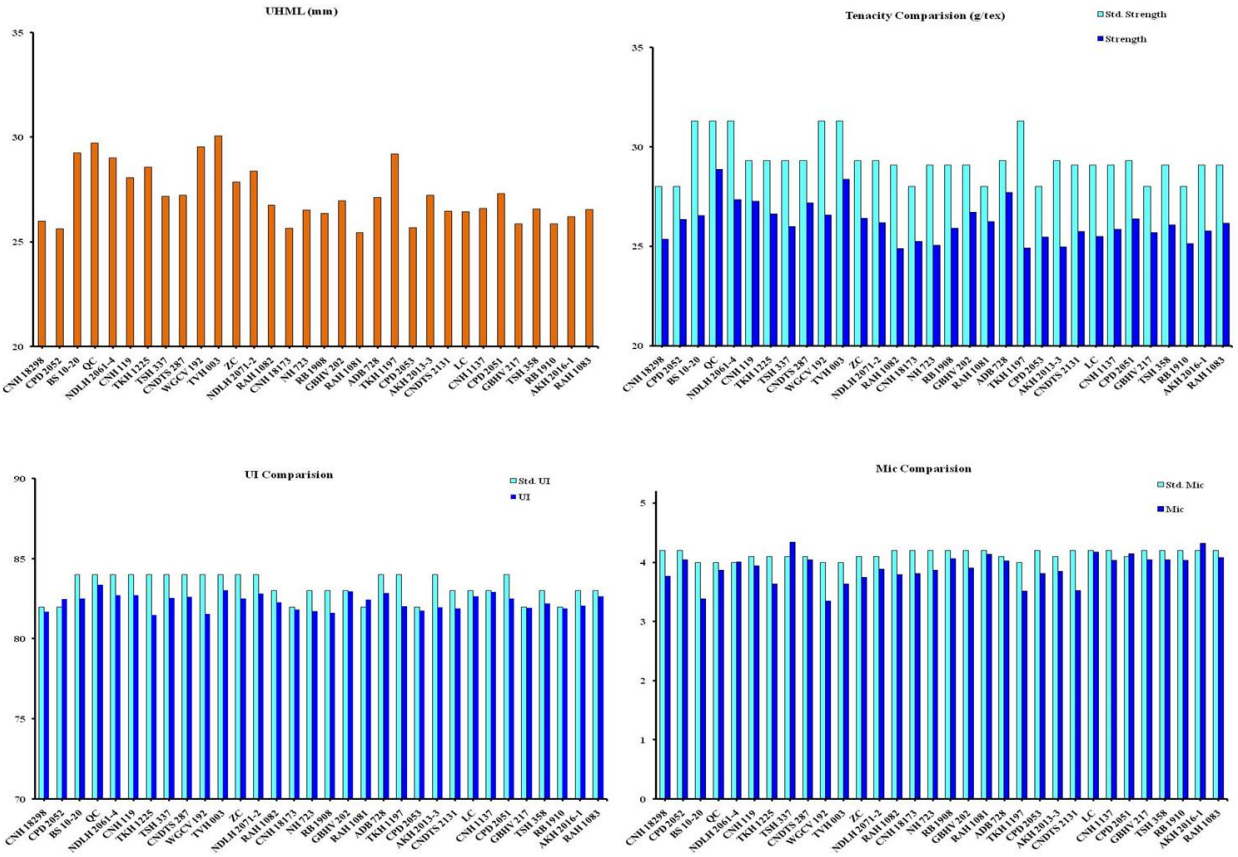
Recommendations

- ❖ No entry has been recommended

Br. 02b initial evaluation trial of G. hirsutum rainfed

Observations

- ❖ Majority of the samples were in UHML range of 27-28 mm with broad distribution.
- ❖ The samples were having UI as equal as to the minimum requirement.
- ❖ The tenacity of the all samples was lower than compared to the minimum requirement.
- ❖ The micronaire values of most the samples were little higher than the maximum allowed micronaire.



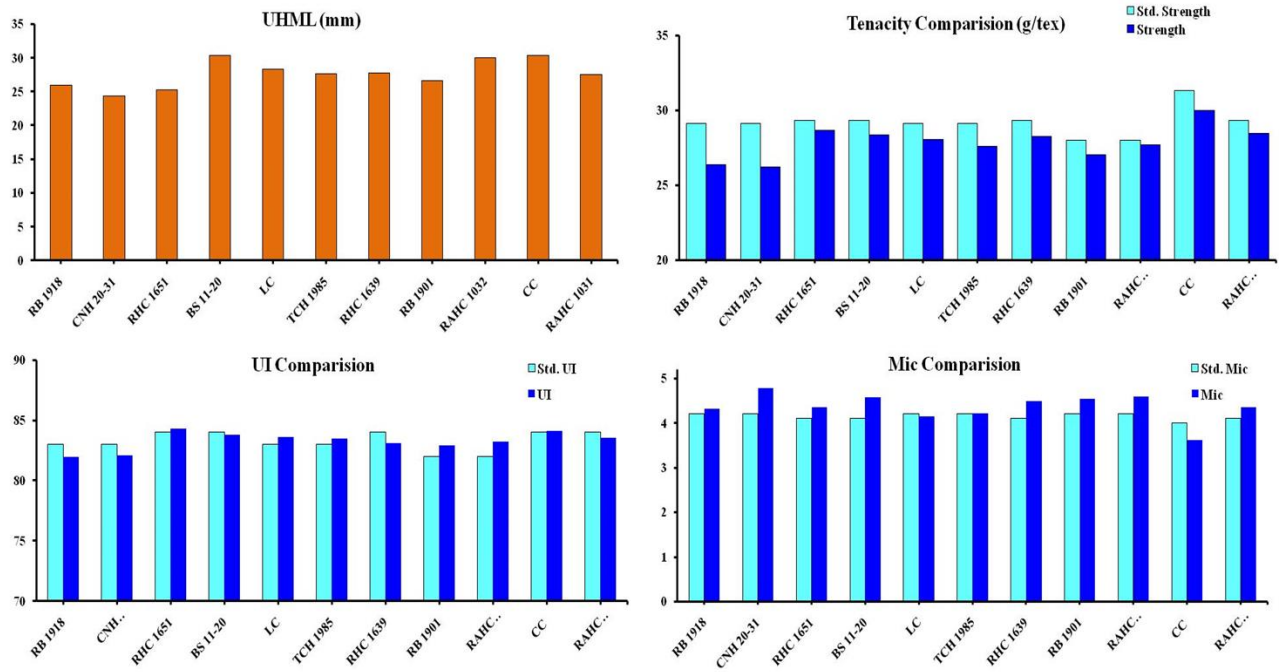
Recommendations

- ❖ Entry TVH 003 (30.1 mm UHML, Tenacity 28.4 g/tex, Mic 3.6, Uniformity Index 83), has performed well.

Br06a compact genotypes trial under irrigated conditions

Observations

- ❖ Majority of the samples were in UHML range of 26-29 mm.
- ❖ The samples were having UI at par with the minimum requirement of UI.
- ❖ The tenacity of the samples were marginally low compared to the minimum requirement.
- ❖ The micronaire values of most the samples at par with the maximum required micronaire.



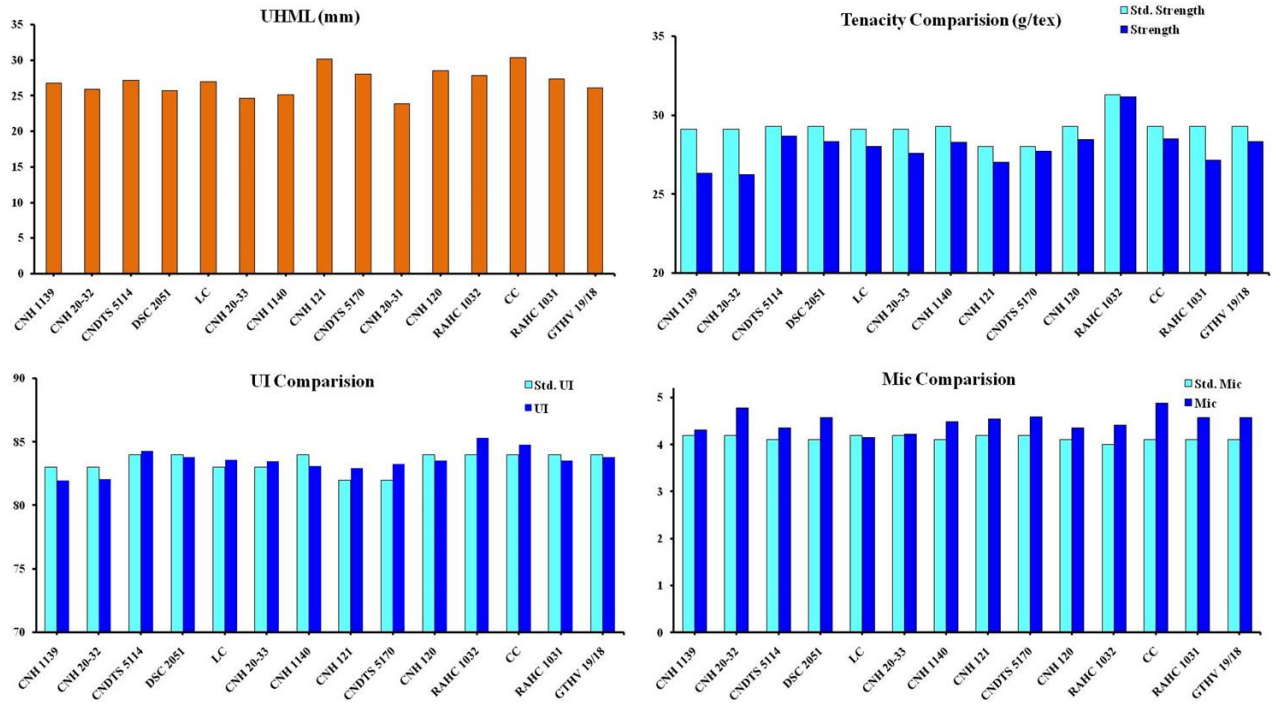
Recommendations

- ❖ Entry BS 11-20 (30.4 mm UHML, Tenacity 28.8 g/tex, Mic 3.8, Uniformity Index 84), Entry RAHC (30.0 mm UHML, Tenacity 28.0 g/tex, Mic 4.0, Uniformity Index 82), and has performed well.

Br06b IET compact genotypes under rain fed conditions

Observations

- Majority of the samples were in UHML range of 26-30 mm.
- The samples were having UI at par with the minimum requirement of UI.
- The tenacity of the samples were either at par or marginally lower compared to the minimum requirement
- The micronaire values of most the samples at par with the maximum required micronaire.



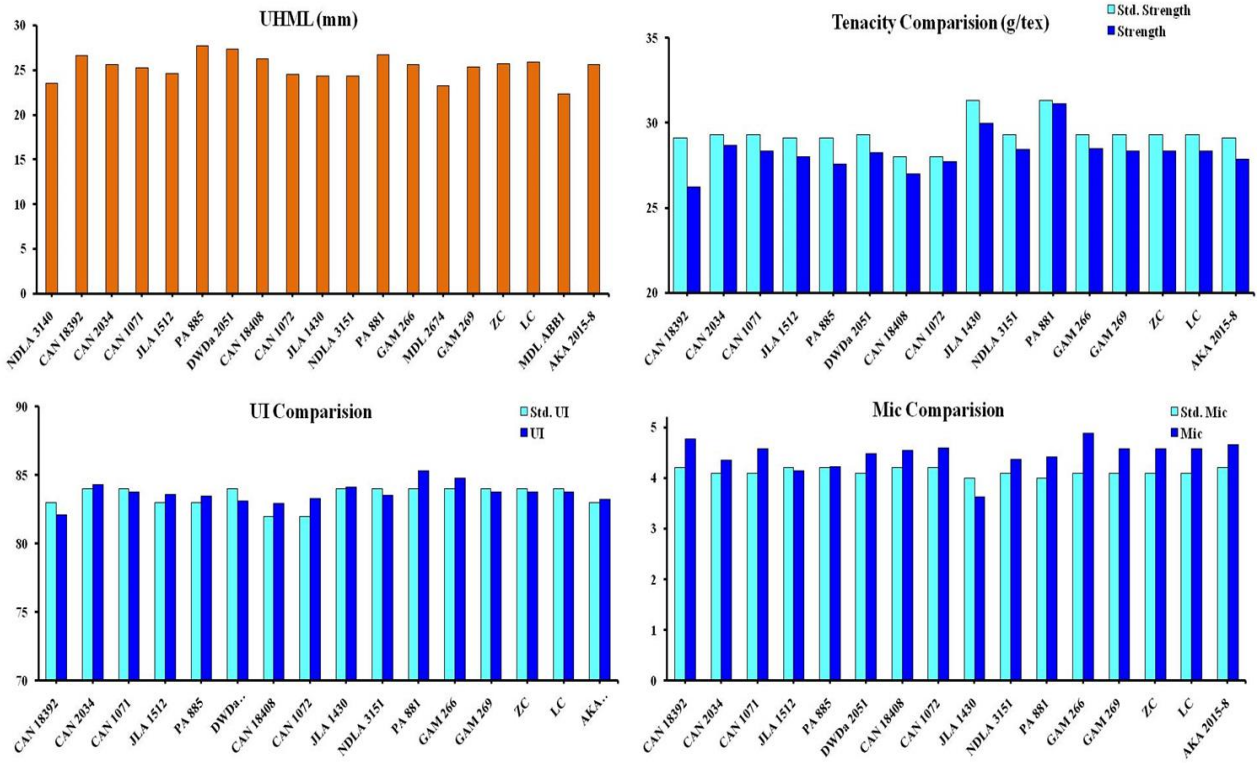
Recommendations

- Entry CNH 121 (30.2 mm UHML, Tenacity 28.7 g/tex, Mic 3.8, Uniformity Index 83), has performed well.

Br22a/b G. arboreum cultures

Observations

- Under this trial samples were received in the ranges of UHML 24-26 mm value.
- The samples were having UI marginally below the minimum requirement.
- The tenacity of the samples was either lower compared to the minimum requirement.
- The micronaire values of most the samples were higher than maximum required micronaire.



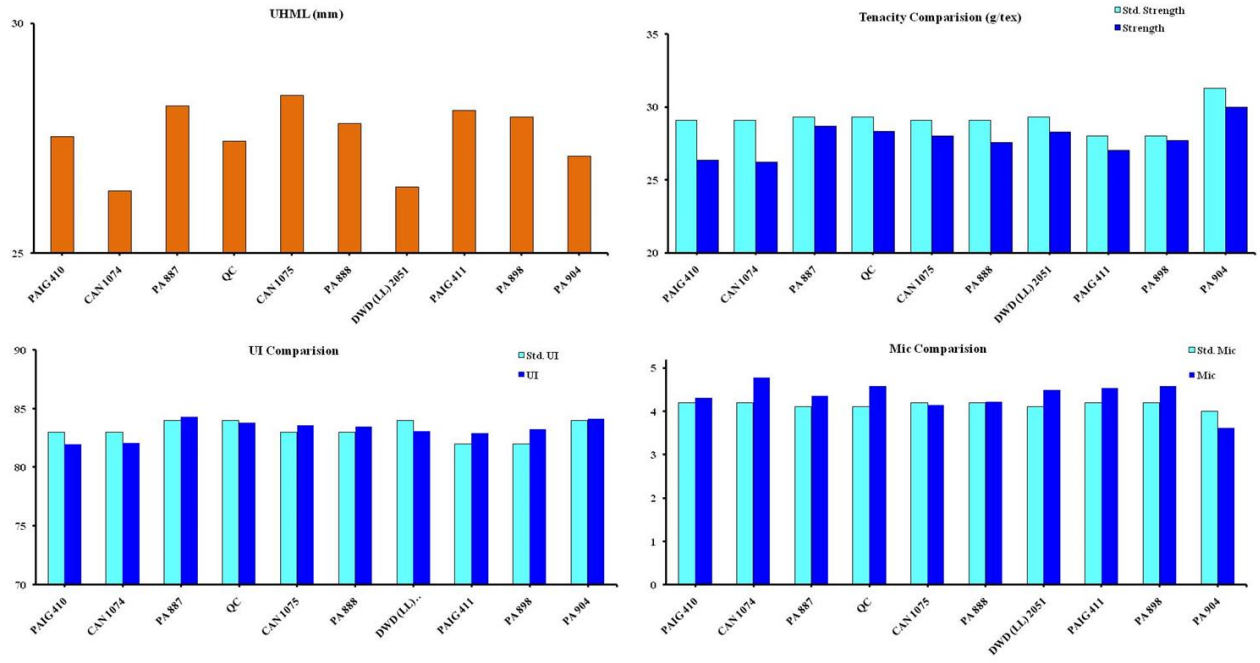
Recommendations

- Entry PA 885 (27.7 mm UHML, Tenacity 27.4 g/tex, Mic 4.7, Uniformity Index 82), hasperformed well.

Br22a/b IET of Long linted G. arboreum cultures

Observations

- Samples were received in all the ranges of UHML and majority of the samples were in UHML range of 25-29 mm.
- The UI was below the minimum requirement.
- The tenacity of the samples was lower than compared to the minimum requirement.
- The micronaire values of most the samples were higher than maximum required micronaire.



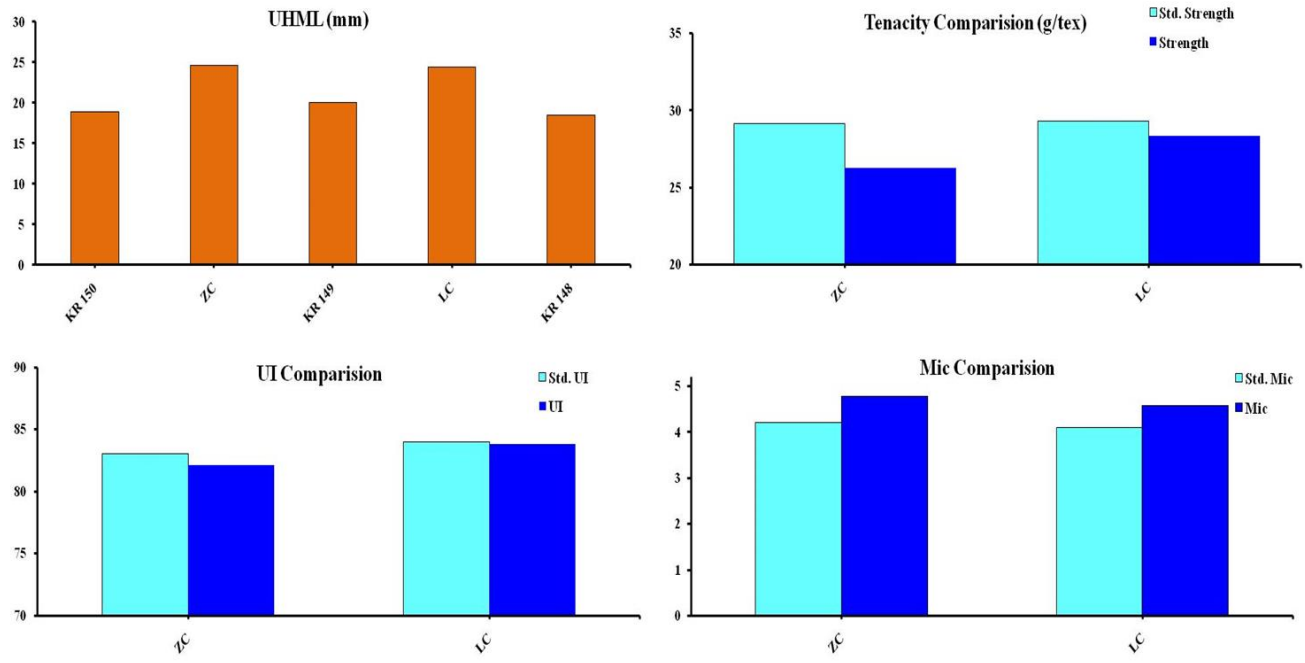
Recommendations

- Entry CAN 1075 (28.4 mm UHML, Tenacity 29.3 g/tex, Mic 4.0, Uniformity Index 84), has performed well.

Br25a/b – PHT of Desi hybrids

Observations

- Samples were received in wide of the range of UHML.
- Majority of the samples have UHML in the range of less than or equal to 20 mm.
- The tenacity of the samples was lower than compared to the minimum requirement.
- The samples were having UI below the minimum requirement.
- The micronaire values of most the samples were higher than maximum required micronaire.



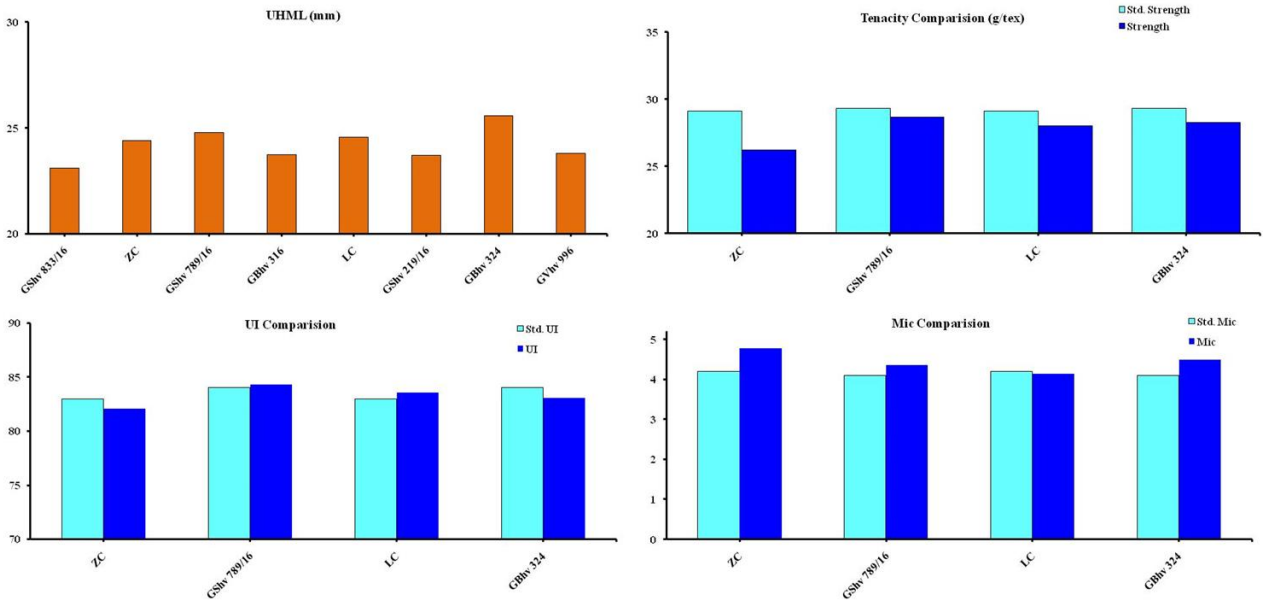
Recommendations

- Not recommended.

Br32a/b IET of G. herbaceum cultures

Observations

- The samples were in UHML range of 24-27mm.
- The tenacity of the samples was low compared to the minimum requirement.
- The samples were having UI at par with the minimum requirement.
- The micronaire values of most the samples were higher than maximum required micronaire.



Recommendations

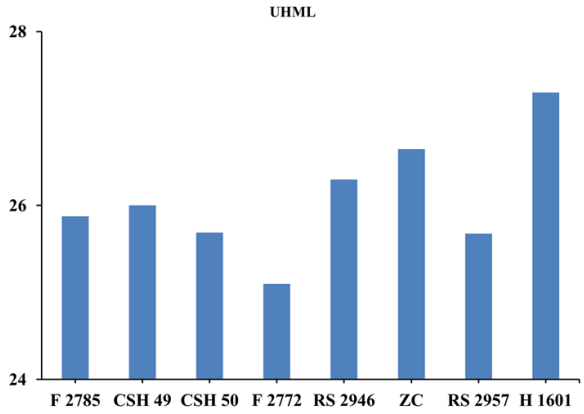
- EntryGShv 916 (26.7 mm UHML, Tenacity 25.0 g/tex, Mic 4.6, Uniformity Index 81), hasperformed well.

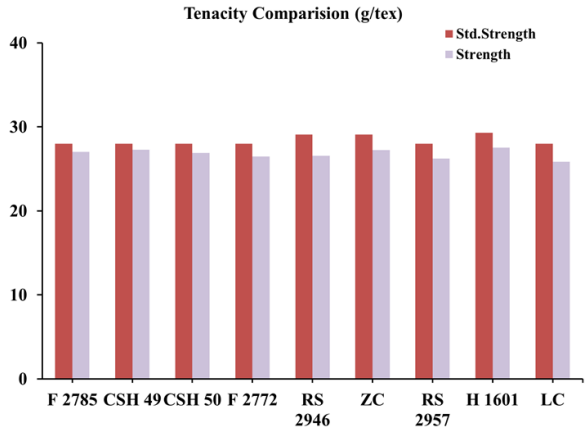
North Zone Trials

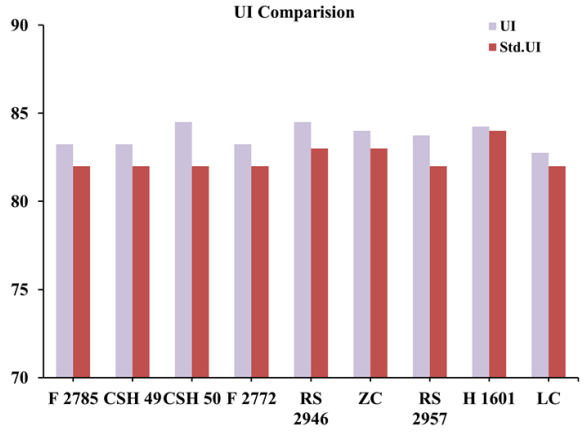
Br-06a trial

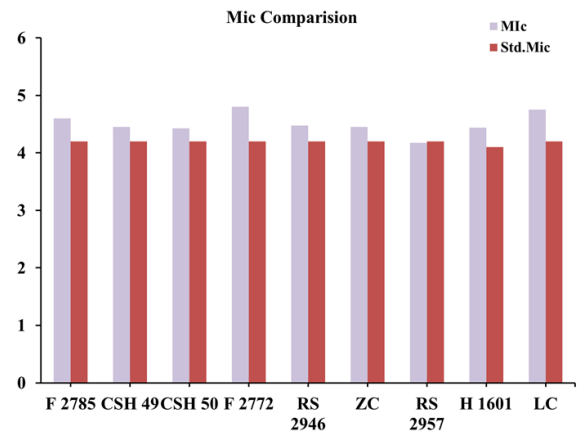
Observations

- ❖ Majority of the samples were in the UHML range of 25-27 mm.
- ❖ The UI was better than the minimum requirement for most of the samples.
- ❖ The tenacity values were at par with the minimum required.
- ❖ The micronaire values was marginally higher than the maximum required for most of the samples









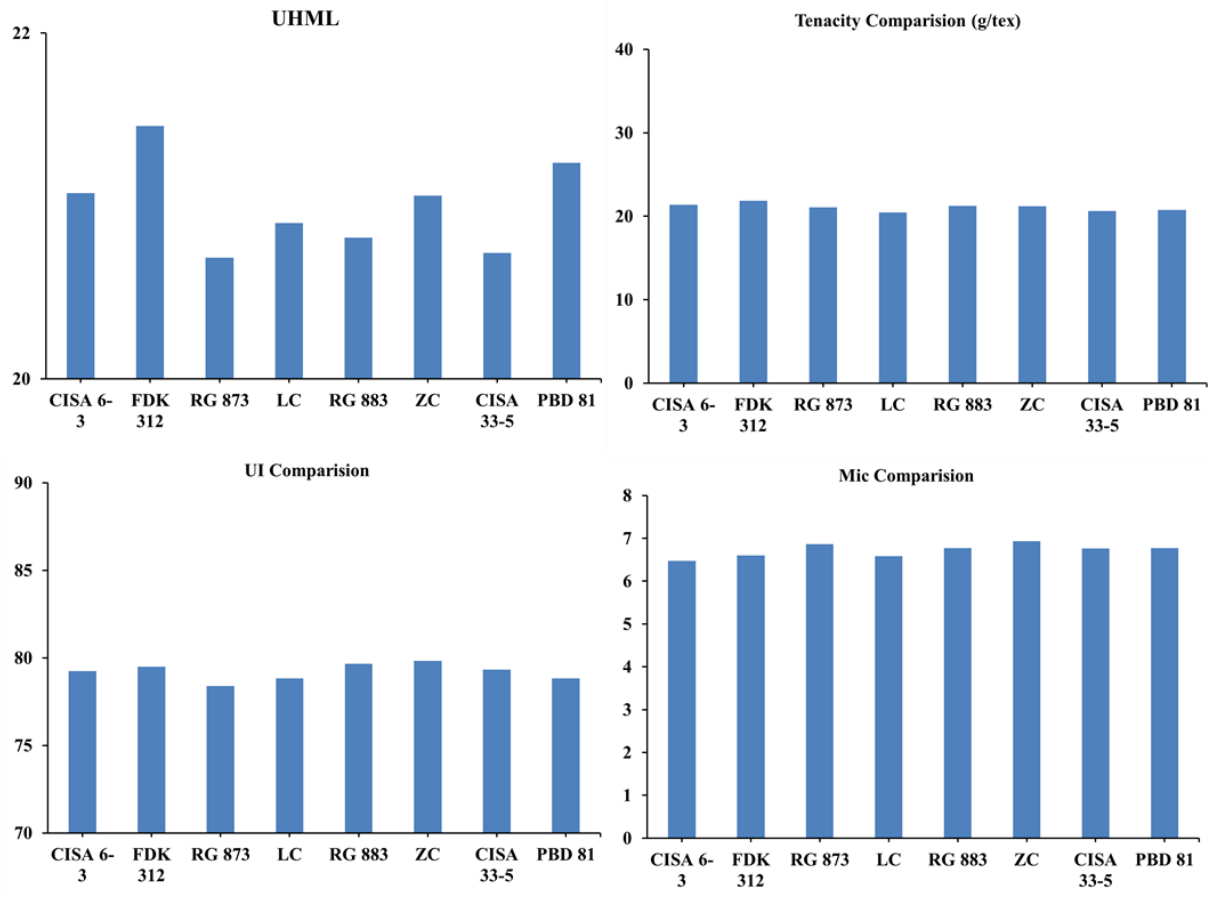
Recommendations

- ❖ Entry H 1601 (27.3 mm UHML, Tenacity 27.5 g/tex, Mic 4.4, Uniformity Index 84), has performed well.

Br-22ab trial

Observations

- ❖ Majority of samples were in UHML range of below 21 mm.
- ❖ Samples with UHML below 22 mm are useful for absorbent cotton production



Recommendations

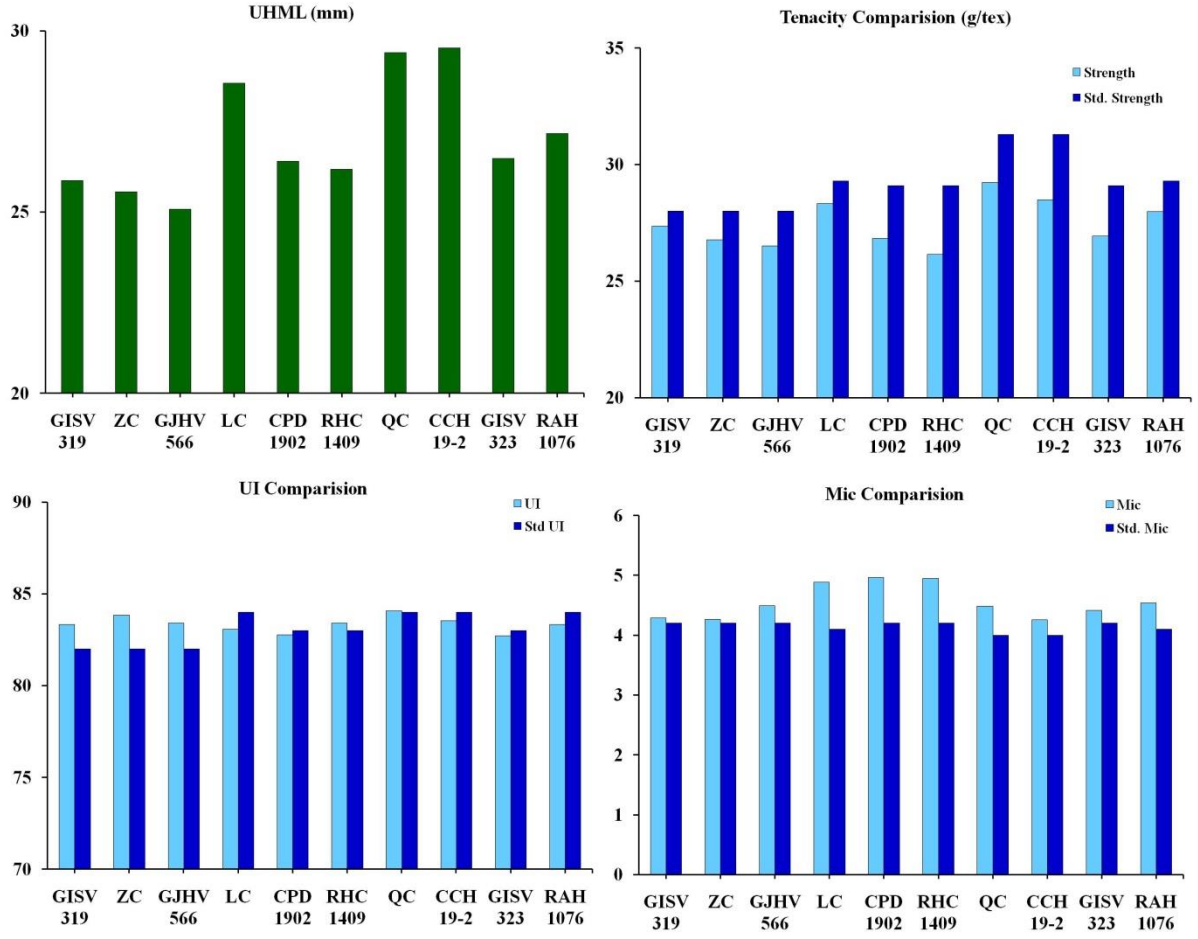
- ❖ Entry FDK 312 (21.5 mm UHML, Tenacity 21.9 g/tex, Mic 6.6, Uniformity Index 80), has performed well.

Central Zone Trials

Br03a

Observations

- Samples were having UHML from 25 mm to 30 mm.
- The tenacity of the samples under the trials were lower than the minimum requirement.
- The UI were either better or at par to the required minimum.
- The micronaire values were higher than the minimum required.



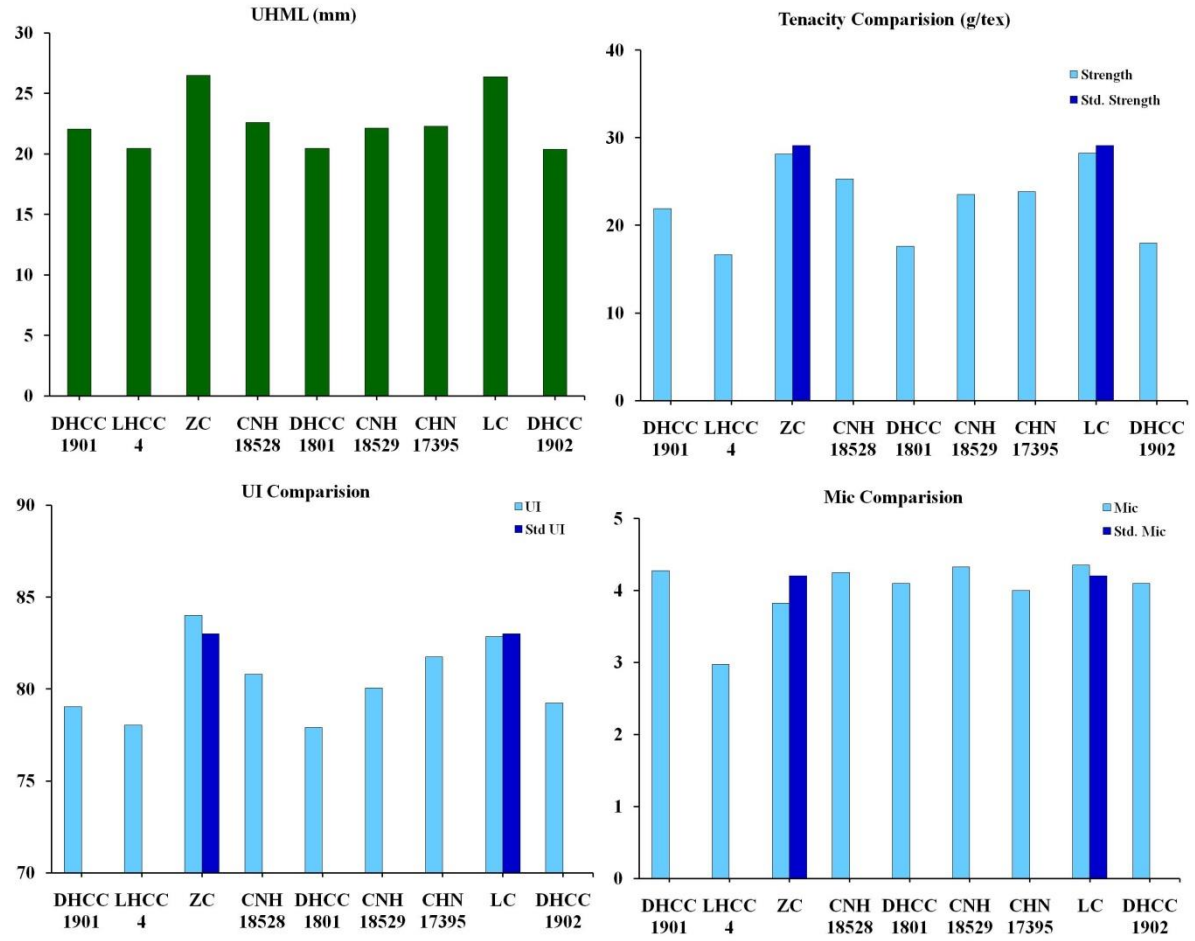
Recommendations

- Entry CCH 19-2 (UHML 29.5 mm, Tenacity 28.5 g/tex, Uniformity Index 84, Micronaire 4.3) have performed well.

Br03a - CC

Observations

- Samples were having UHML from 20 mm to 26 mm.



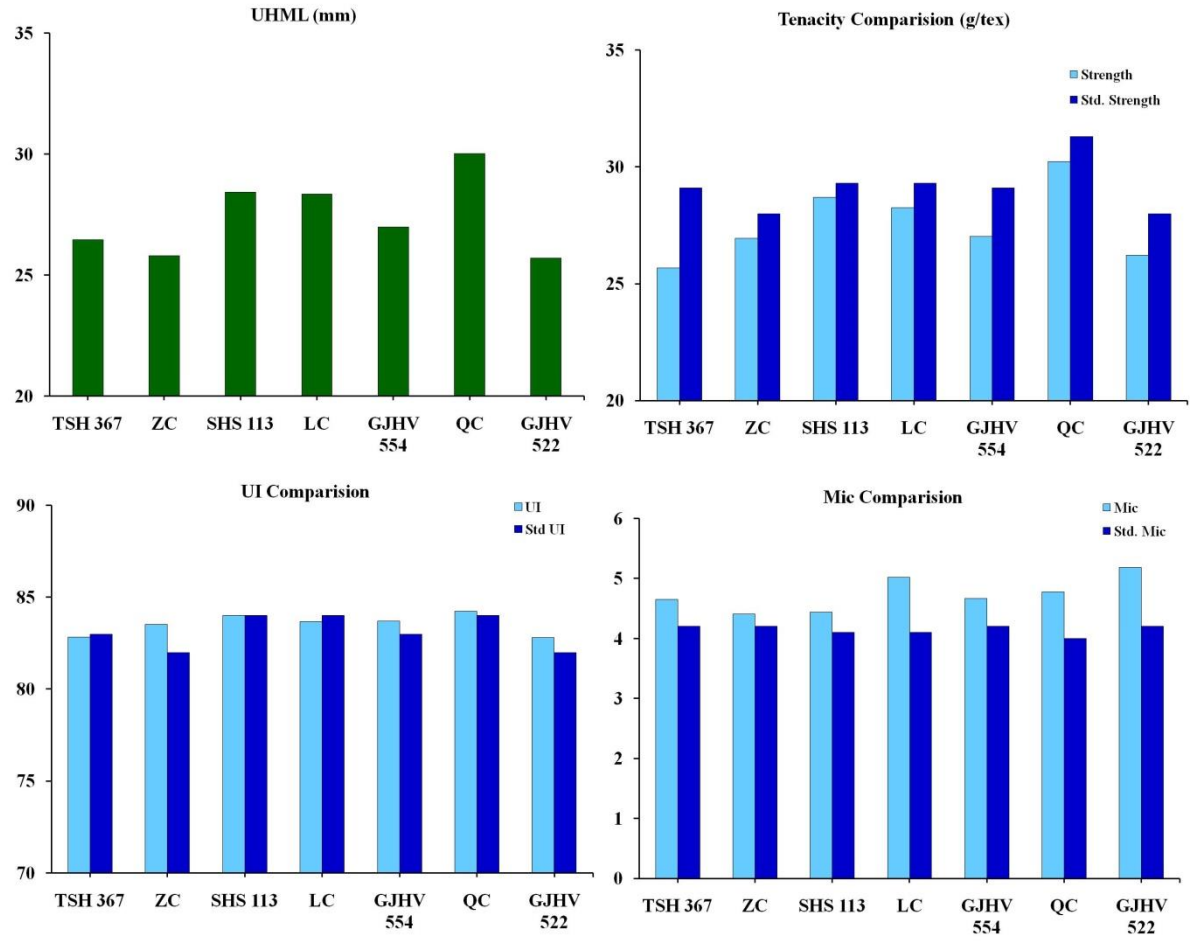
Recommendations

- Not recommended.

Br04a

Observations

- Samples were having UHML from 26 mm to 30 mm.
- The tenacity of the samples were lower than the minimum requirement as shown below with the help of charts.
- The UI of the samples across the UHML ranges were either better or at par compared to the minimum requirement.
- The micronaire values were higher than the minimum required.



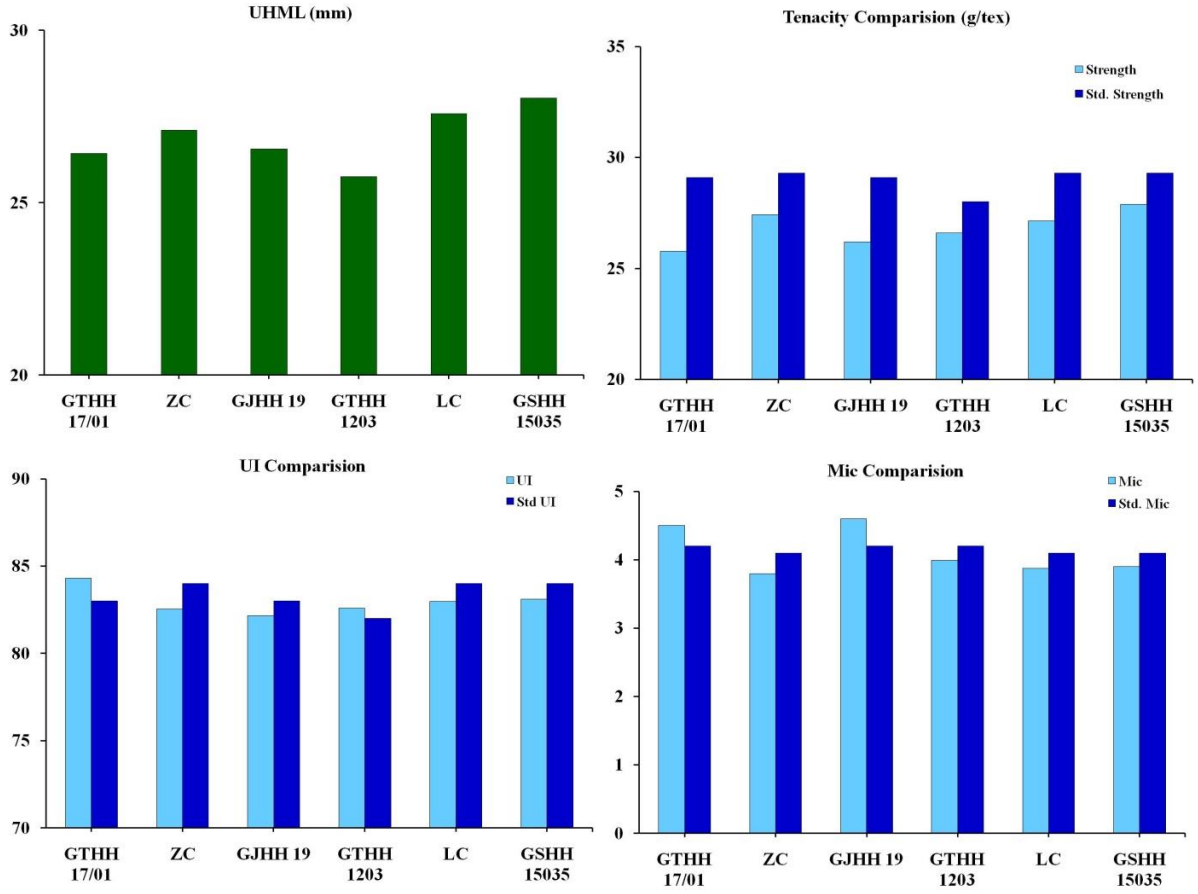
Recommendations

- Entry SHS 113 (UHML 28.4 mm, Tenacity 28.7 g/tex, Uniformity Index 84, Micronaire 4.4) has performed well.

Br05a

Observations

- In this trial, majority of the samples were having UHML ranging from 26 mm to 28 mm.
- The tenacity values were lower than the minimum requirement as shown below with the help of charts.
- The UI of the samples were better for two entries GTHH 17/01 and GTHH 1203 whereas other entries showed less values for UI compared to the minimum requirement.
- The micronaire values for two entries GTHH 17/01 and GJHH 19 were higher than minimum requirement while other entries showed lesser value to the minimum required.



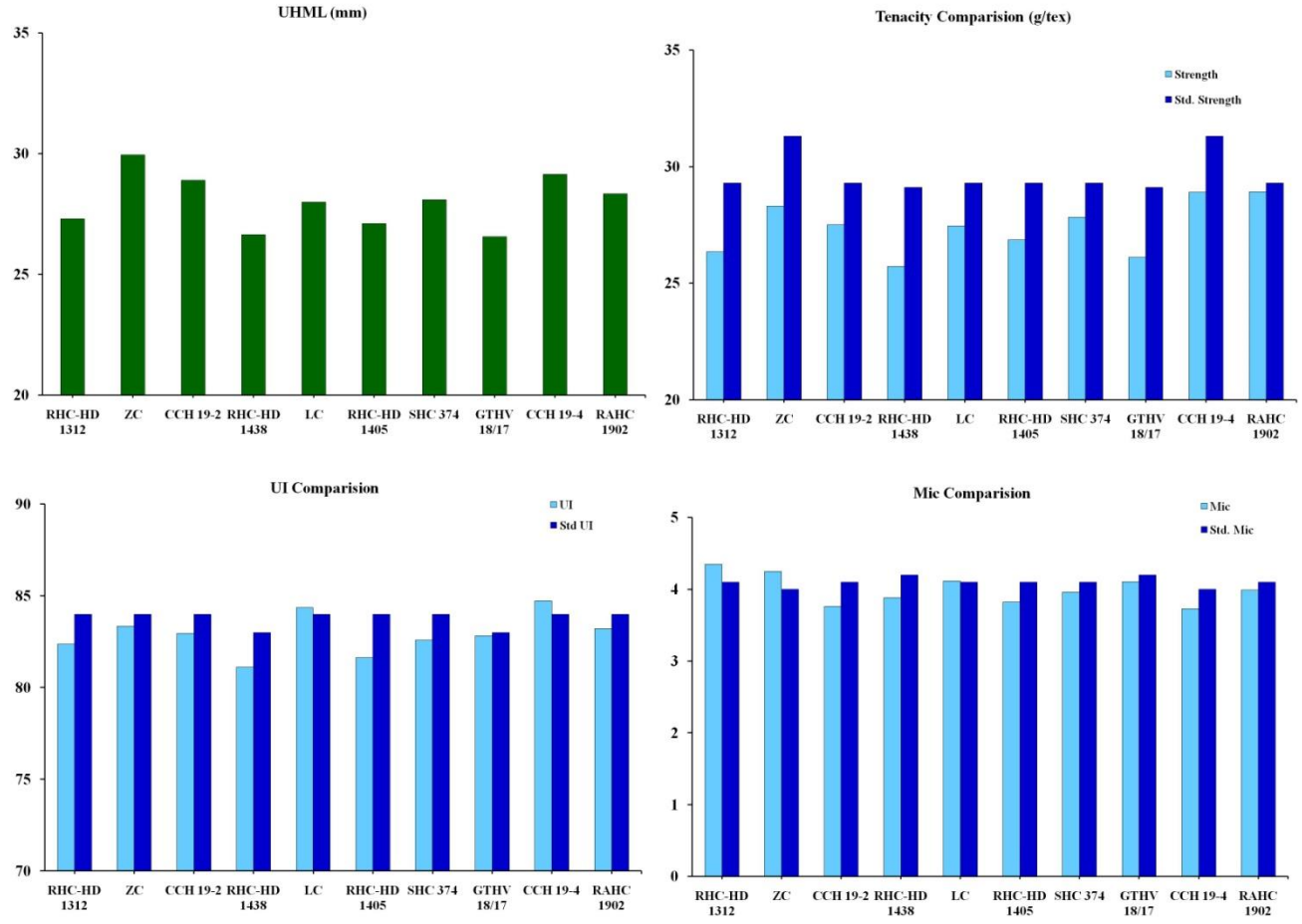
Recommendations

- Entry GSHH 15035 (UHML 28.0 mm, Tenacity 27.9 g/tex, Uniformity Index 83, Micronaire 3.9) has performed well.

Br06a

Observations

- The samples were having UHML ranging from 27 mm to 30 mm.
- The tenacity values were lower than the minimum requirement in most of the samples.
- The UI of the samples were lesser than minimum requirement of UI except the entries LC and CCH 19-4.
- The micronaire values for two entries RHC-HD 1312 and ZC were higher than minimum requirement while other entries showed lesser than the minimum requirement.



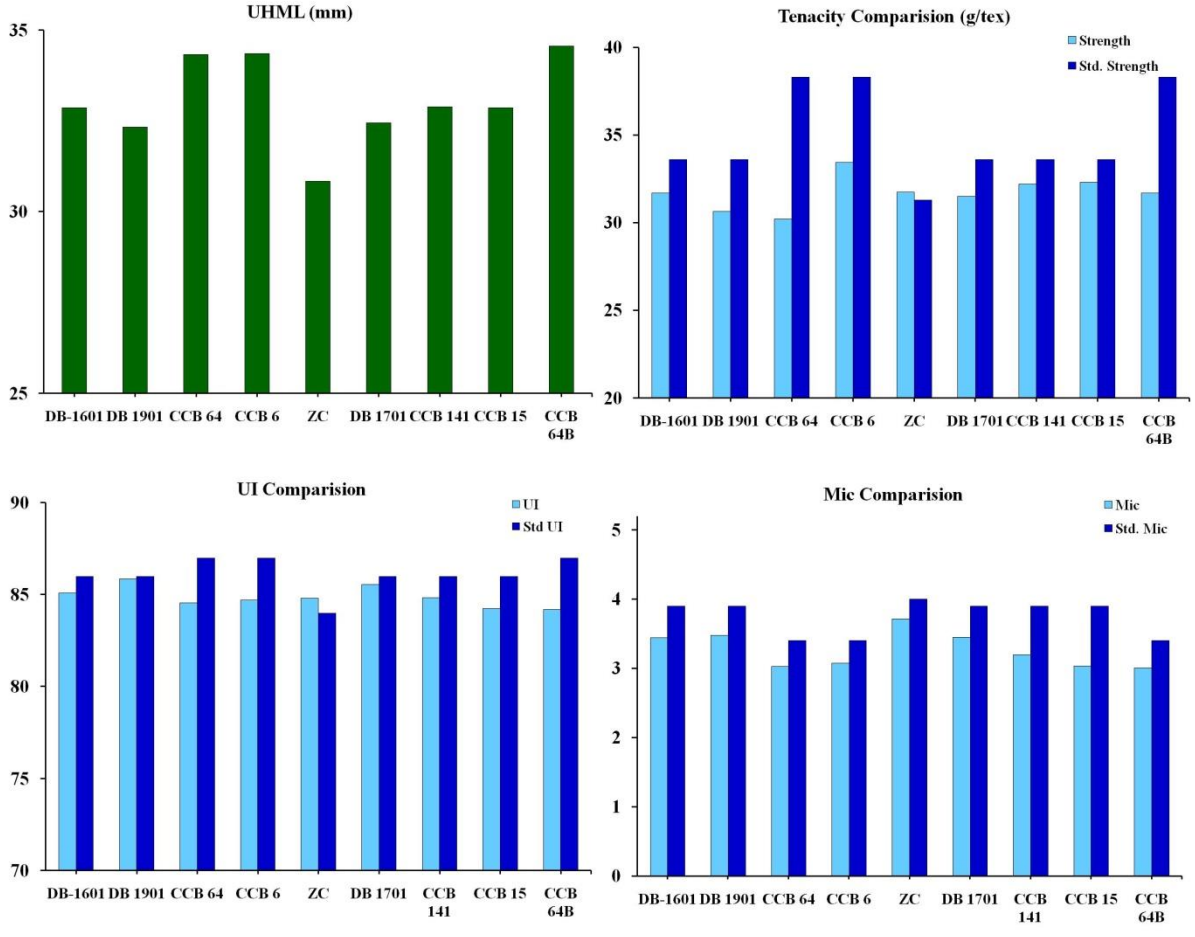
Recommendations

- Entry CCH 19-4 (UHML 29.1 mm, Tenacity 28.9 g/tex, Uniformity Index 85, Micronaire 3.7) has performed well.

Br13a

Observations

- Majority of the samples were having UHML ranging from 31 mm to 35 mm.
- The tenacity values were lower than the minimum requirement in most of the samples.
- The UI of the samples were lesser than minimum requirement of UI except the entries ZC.
- The micronaire values of the samples across the UHML ranges showed lesser value compared to the minimum requirement.



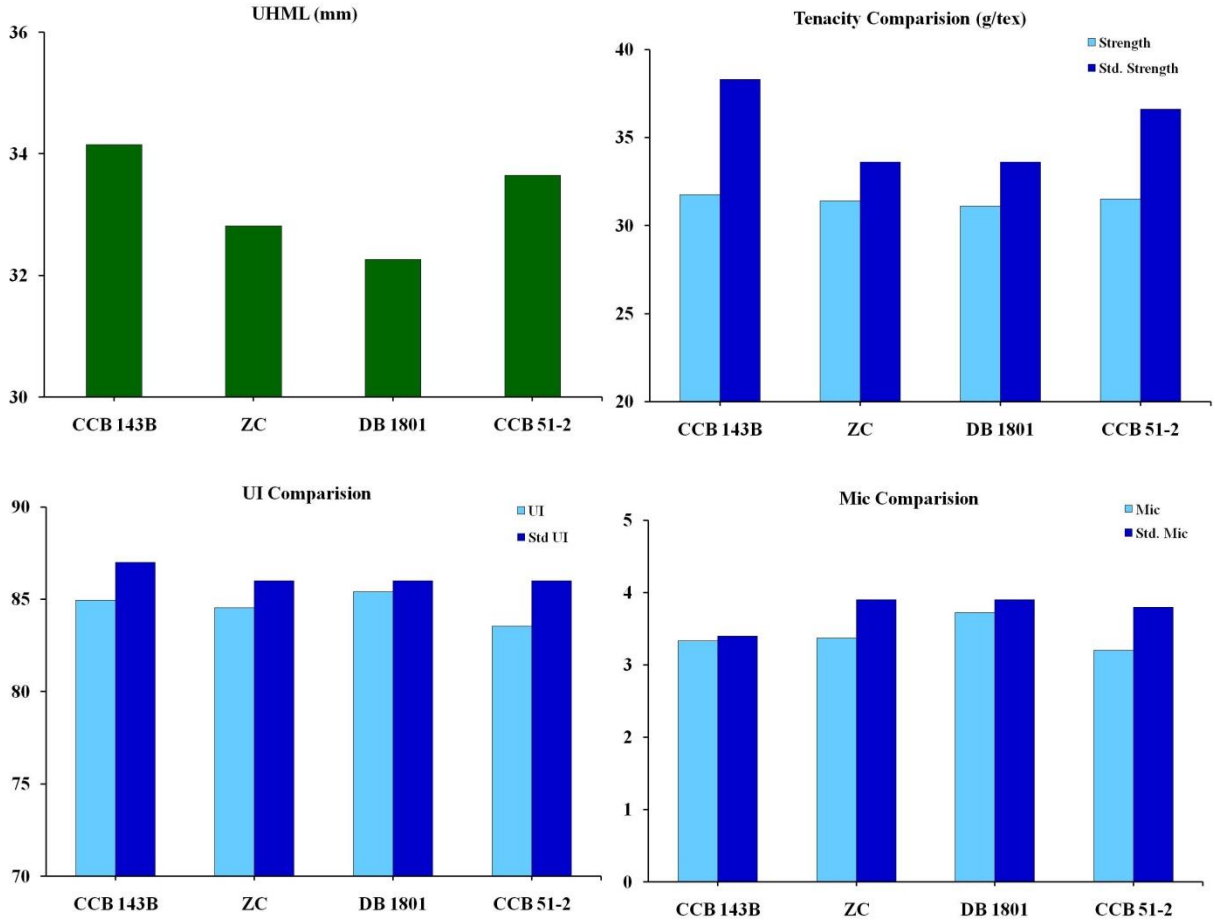
Recommendations

- Entry CCB 6 (UHML 34.4 mm, Tenacity 33.5 g/tex, Uniformity Index 85, Micronaire 3.1) has performed well.

Br14a

Observations

- In this trial, most of the samples were having UHML varying from 32 mm to 34 mm.
- The tenacity values were lower than the minimum requirement.
- The UI of the samples across the UHML ranges were lesser than minimum requirement.
- The micronaire values of the samples were lower to the minimum requirement.



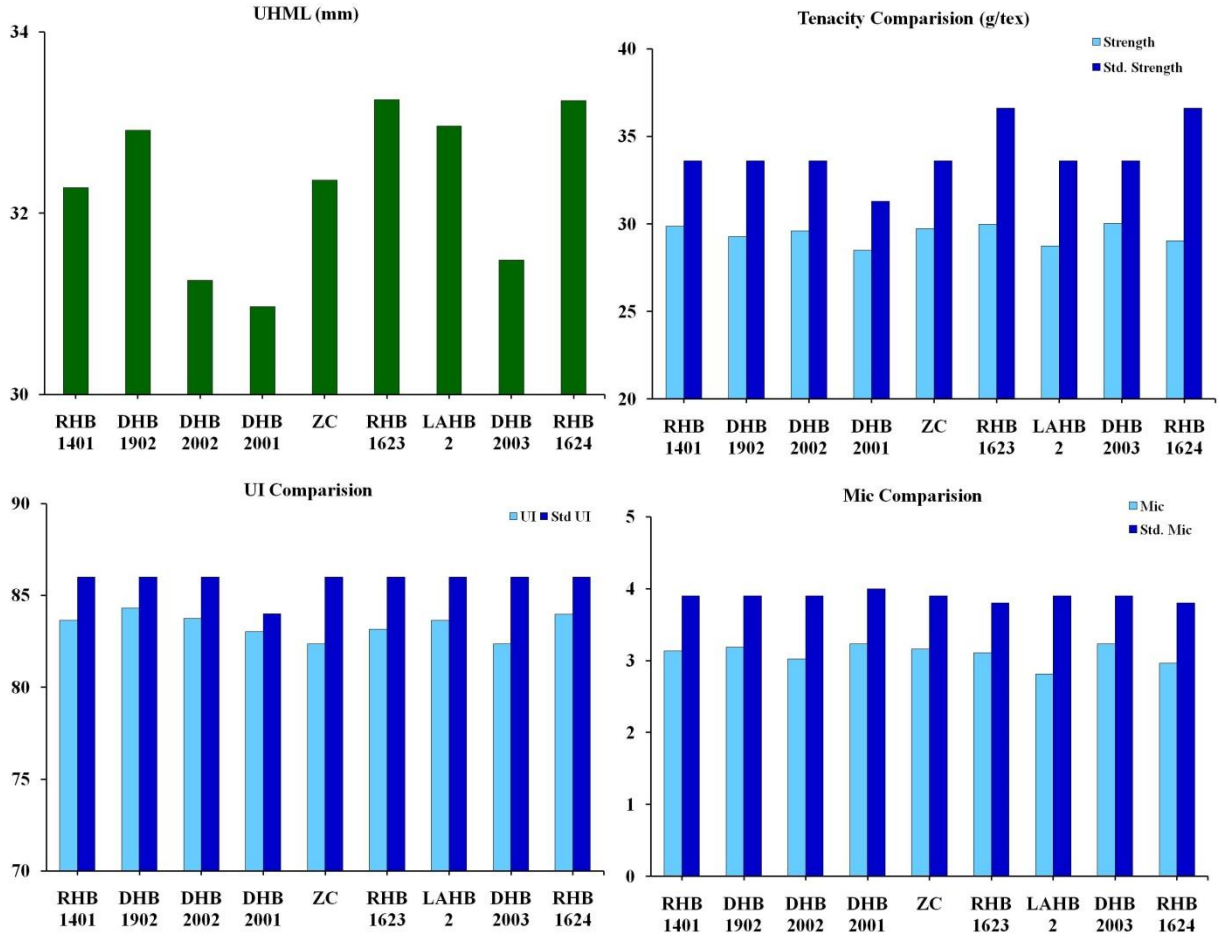
Recommendations

- Entry CCB 143B (UHML 34.2 mm, Tenacity 31.8 g/tex, Uniformity Index 85, Micronaire 3.3) has performed well.

Br15a

Observations

- In this trial, most of the samples were having UHML varying from 31 mm to 33 mm.
- The tenacity values were lower than the minimum requirement.
- The UI of the samples across the UHML ranges were lesser than minimum requirement.
- The micronaire values of the samples were lower to the minimum requirement.



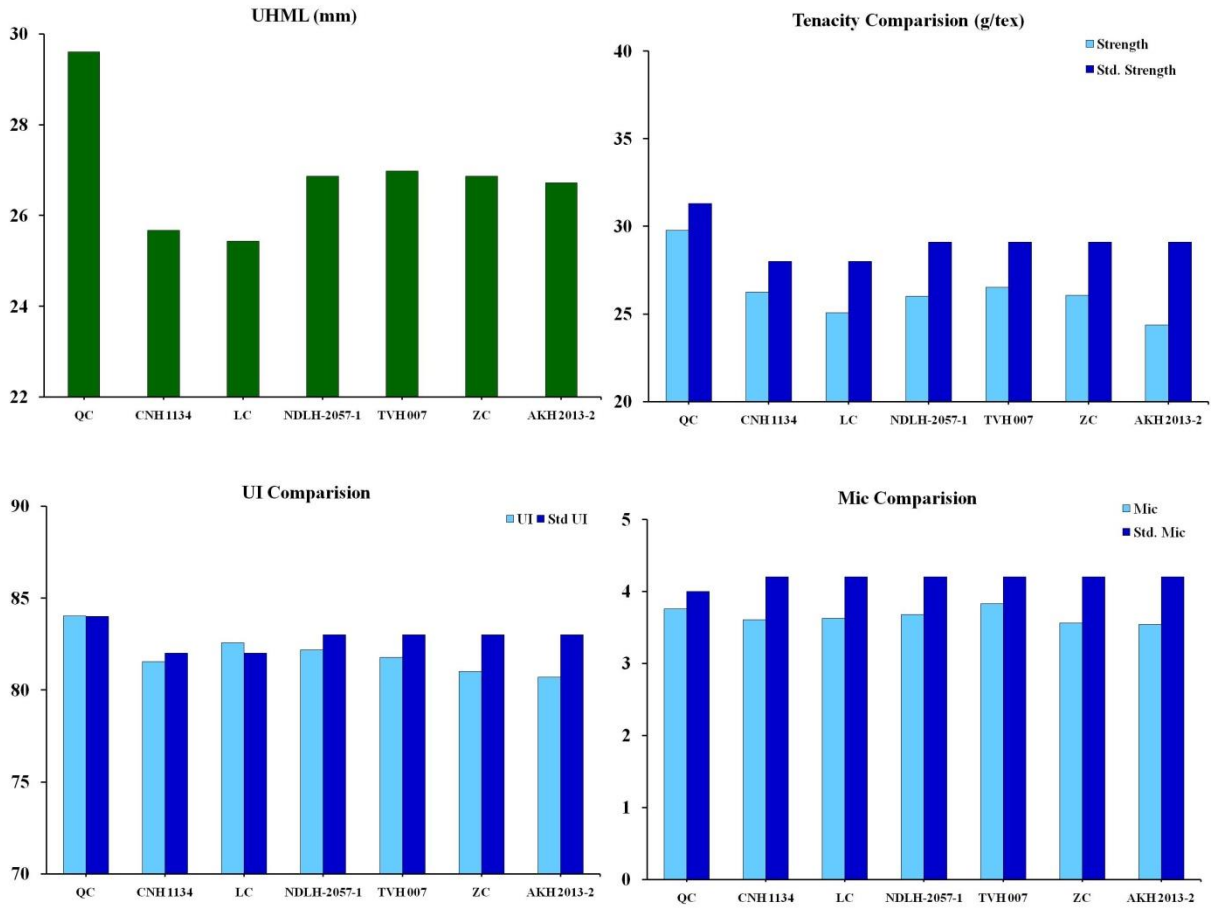
Recommendations

- Entry RHB 162 (UHML 33.3 mm, Tenacity 30.0 g/tex, Uniformity Index 83, Micronaire 3.1) has performed well.

Br03b

Observations

- In this trial, most of the samples were having UHML varying from 25 mm to 30 mm.
- The tenacity, uniformity index and micronaire values across the UHML ranges were less compared to the minimum requirement.



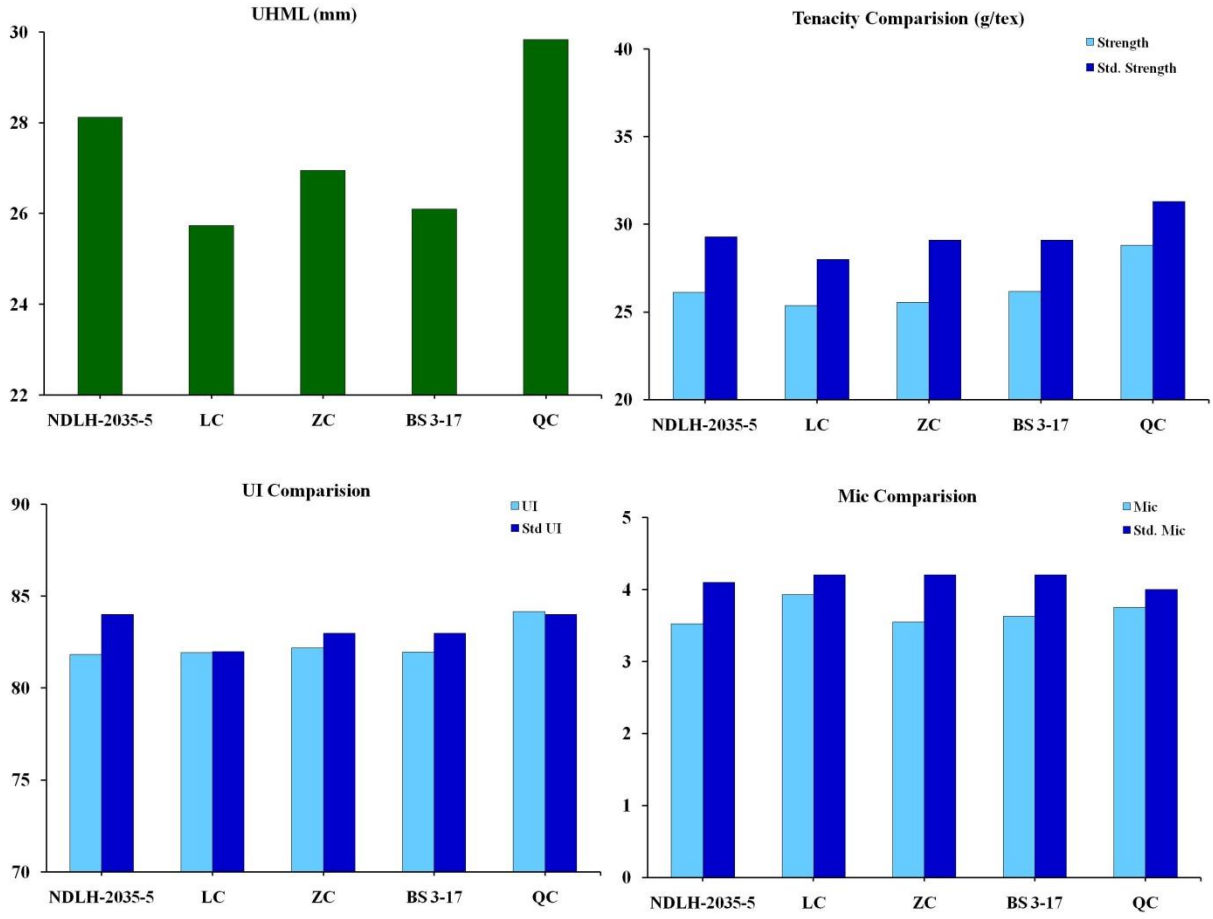
Recommendations

- Not recommended.

Br04b

Observations

- The samples were having UHML varying from 26 mm to 30 mm.
- The tenacity, uniformity index and micronaire values were lower than the minimum requirement.



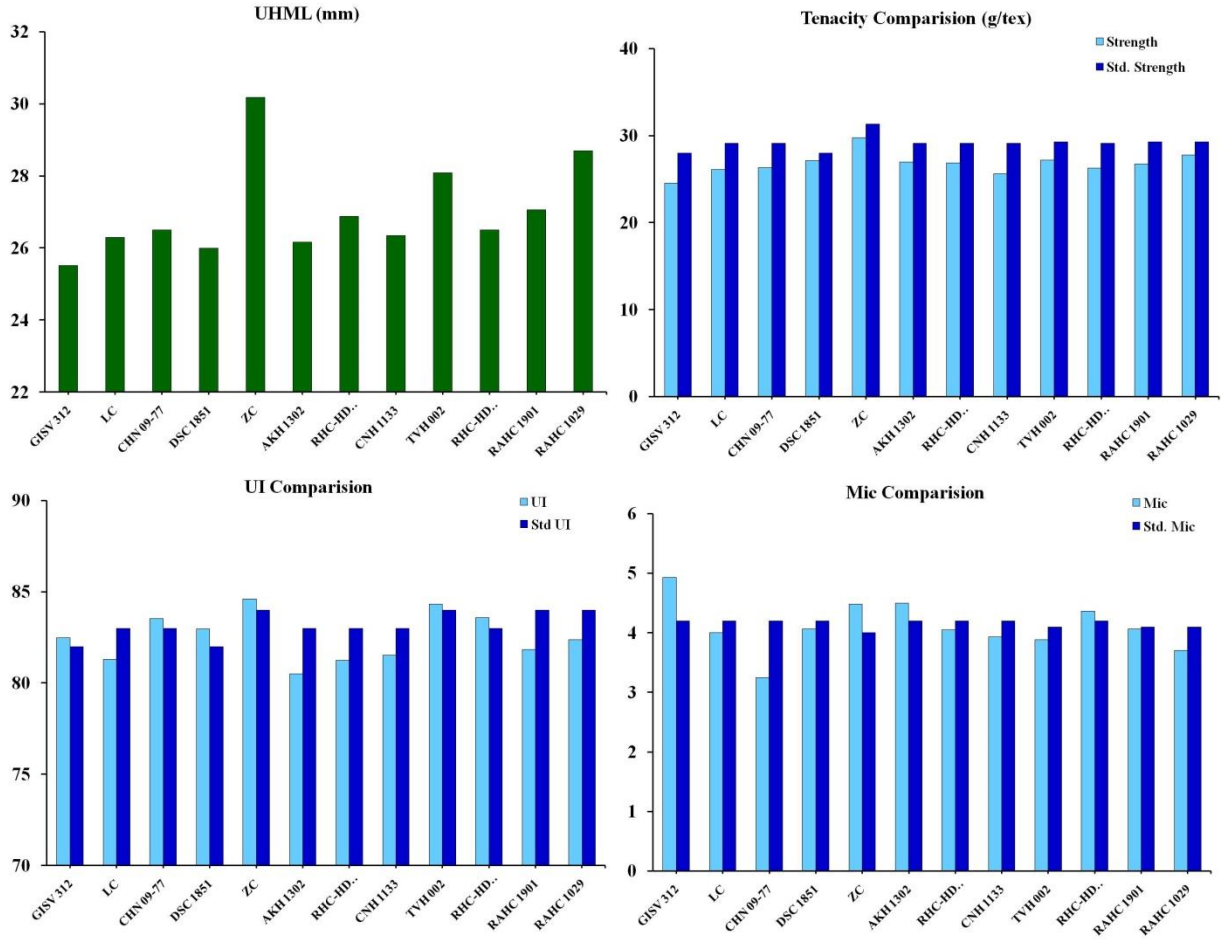
Recommendations

- Not recommended.

Br06b

Observations

- Samples were having UHML varying from 26 mm to 30 mm.
- The tenacity values were lower than the minimum requirement in most of the samples.
- The UI of the samples were lesser than minimum requirement of UI except the entries GISV 312, CHN 09-77, DSC 1851, ZC, TVH002, RHC-HD 1312 which showed opposite trend.
- The micronaire values were lower to the minimum requirement while other entries such as GISV 312, ZC, AKH 1302, RHC-HD 1312 showed higher values than the minimum requirement.



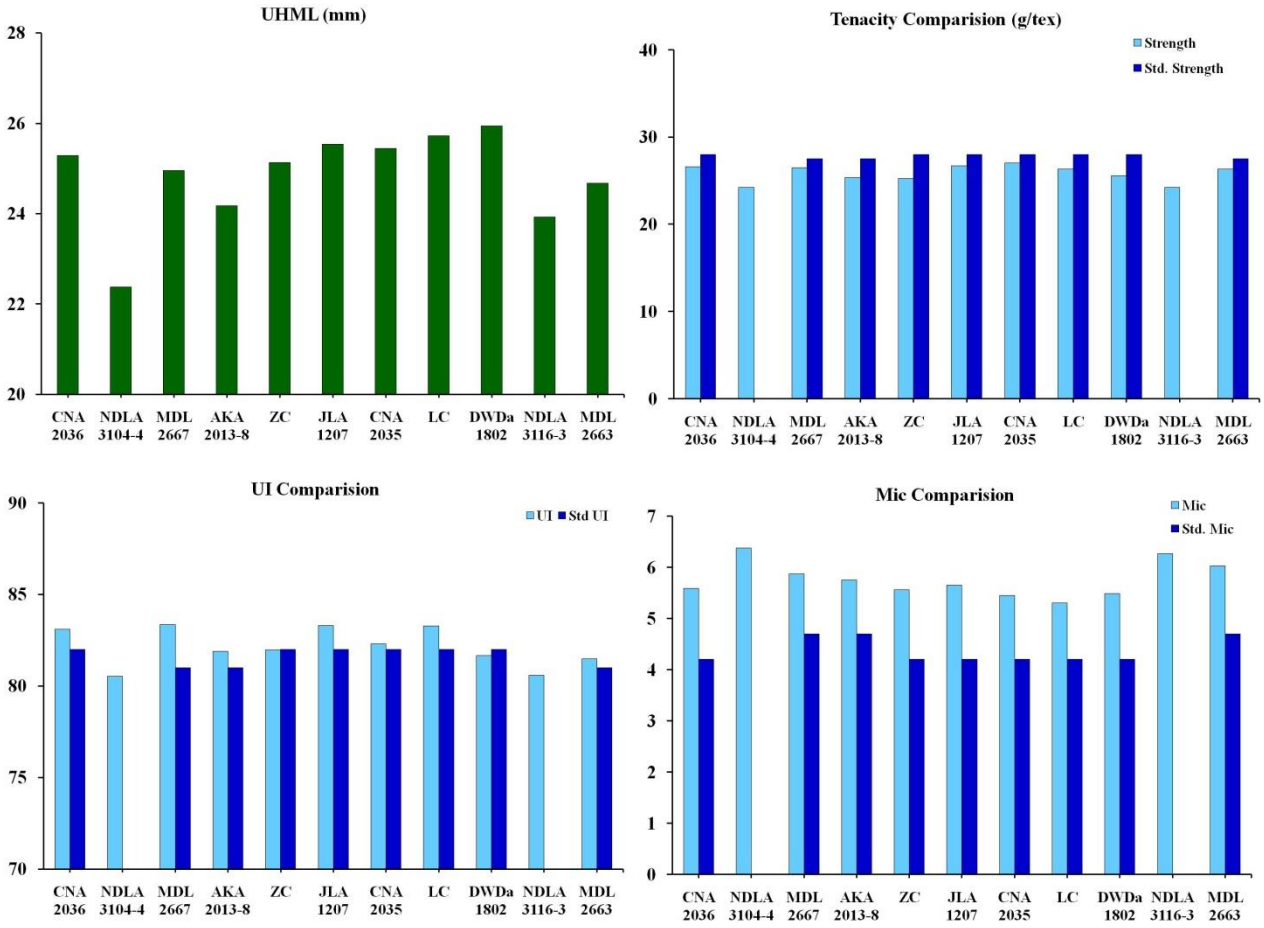
Recommendations

- Not recommended.

Br24b

Observations

- Samples were having UHML varying from 22 mm to 26 mm.
- The tenacity, uniformity index and micronaire values were lower than the minimum requirement.



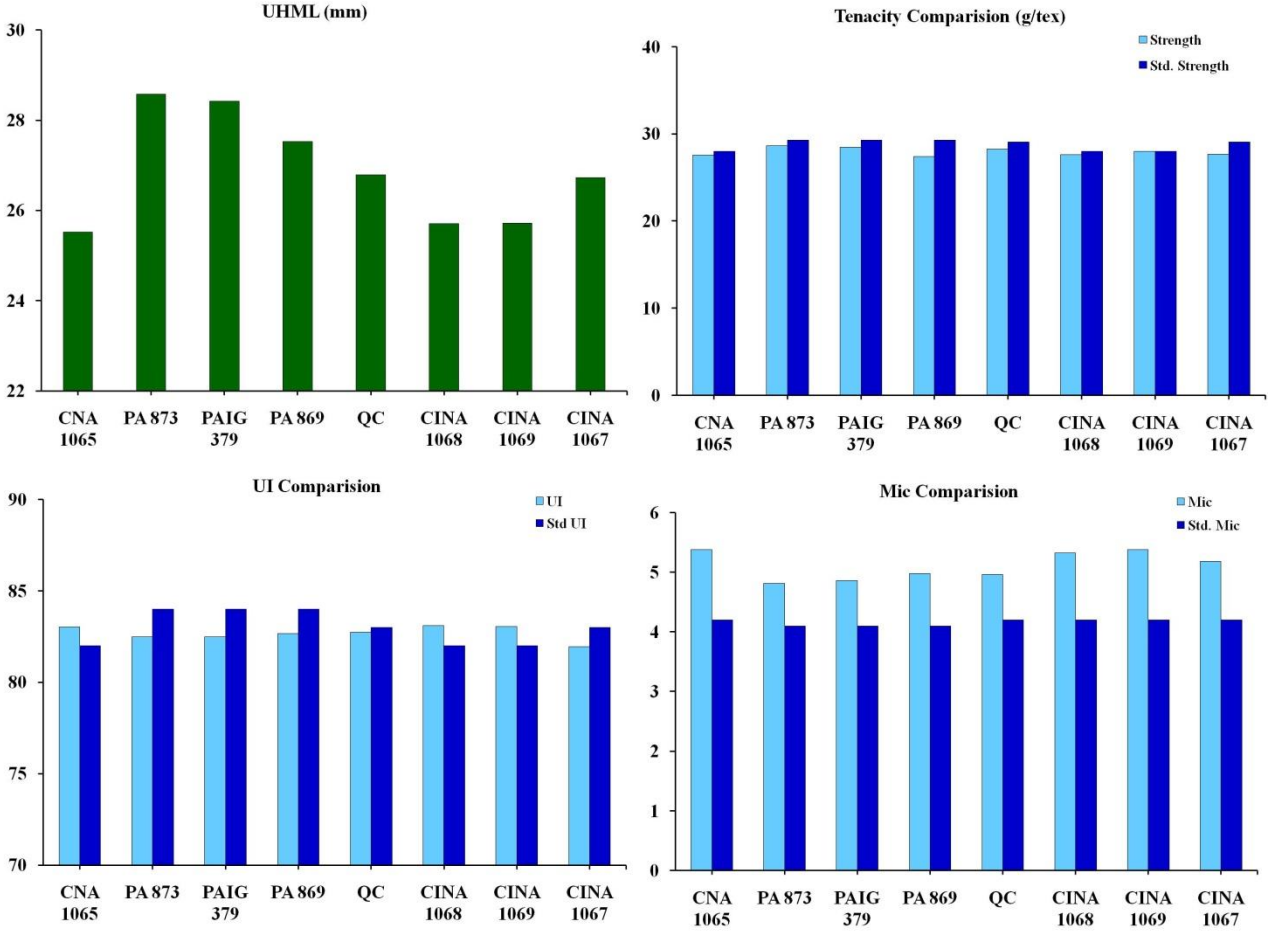
Recommendations

- Entry CAN 2035 (UHML 25.4 mm, Tenacity 27.0 g/tex, Uniformity Index 82, Micronaire 5.5) and entry JLA 1207 (UHML 25.5 mm, Tenacity 26.70 g/tex, Uniformity Index 83, Micronaire 5.7) have performed well.

Br24b LL

Observations

- Samples were having UHML varying from 26 mm to 29 mm.
- The tenacity values were lower than or at par with the minimum requirement.
- The UI of the samples were lesser than minimum requirement of UI except the entries CAN 1065, CINA 1068, CINA 1069.
- The micronaire values were higher than the minimum requirement.



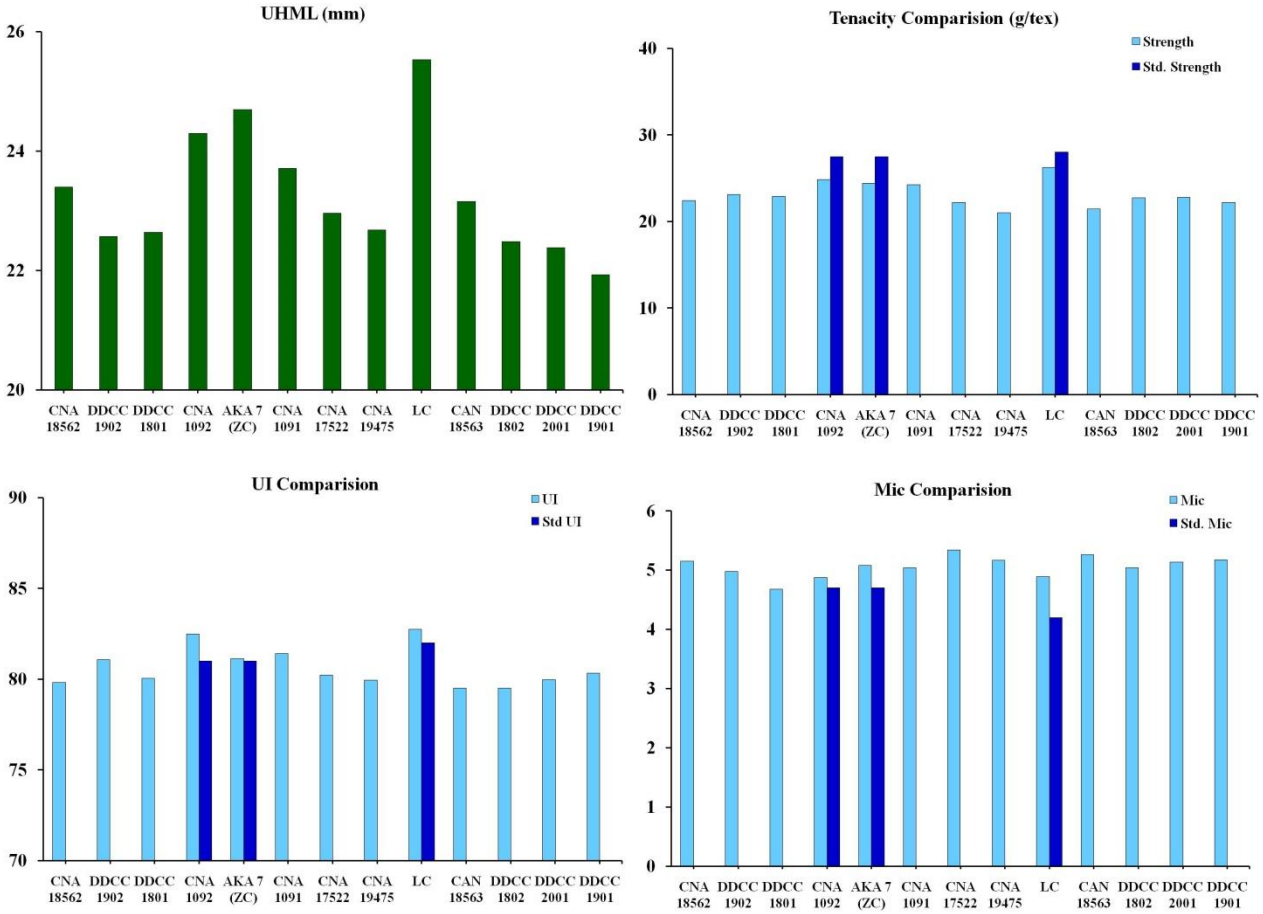
Recommendations

- Entry PA 873 (UHML 28.6 mm, Tenacity 28.7 g/tex, Uniformity Index 83, Micronaire 4.8) has performed well.

Br24b-CVT CC

Observations

- Samples were having UHML varying from 22 mm to 26 mm.
- The tenacity values were lower than with the minimum requirement.
- The UI of the samples were lesser than minimum requirement of UI.
- The micronaire values were higher than the minimum requirement.



Recommendations

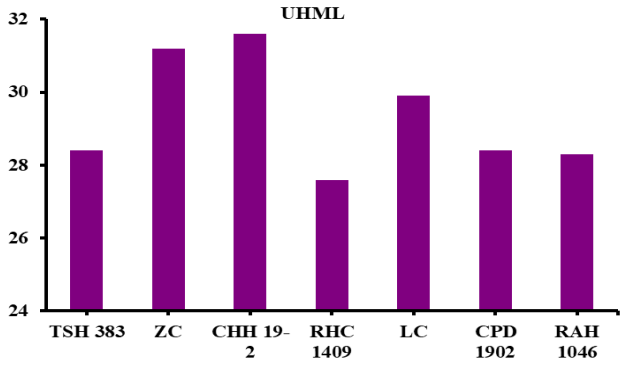
- Not recommended.

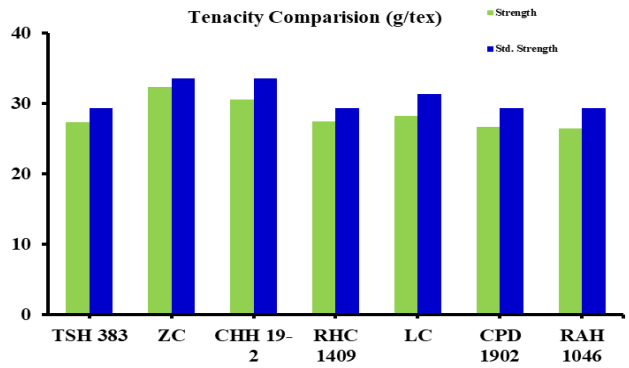
South Zone Trials

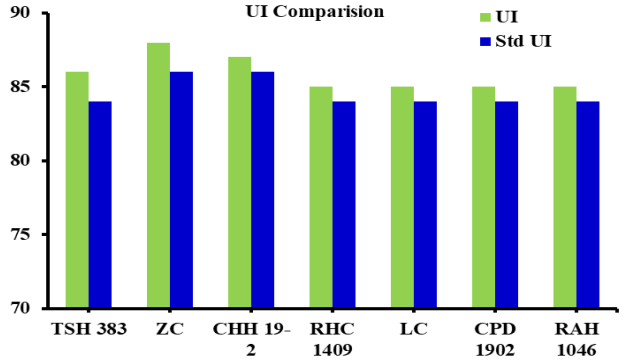
Br03a - PVT – Irrigated

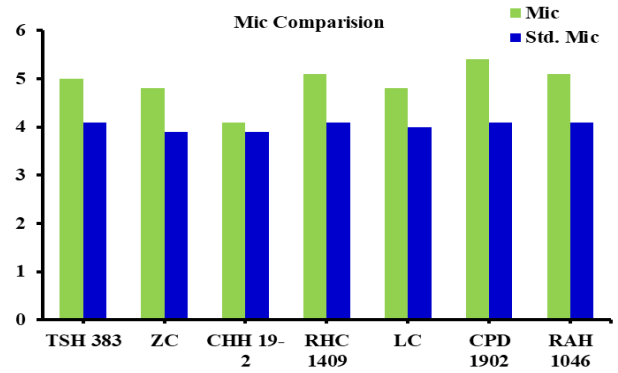
Observations

- Samples were having UHML from 28 mm to 32 mm.
- The tenacity of the samples under the trial were lower than with the minimum requirement.
- The UI of all samples under this trail were better than the minimum required.
- The micronaire values were higher than the minimum required.









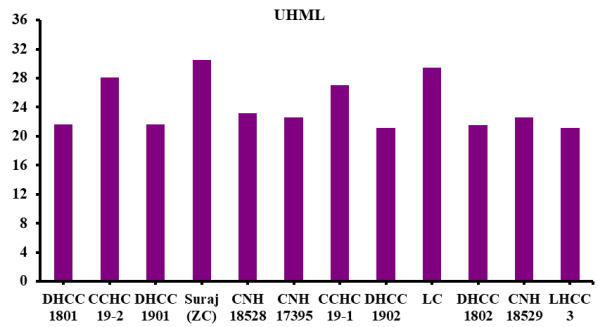
Recommendations

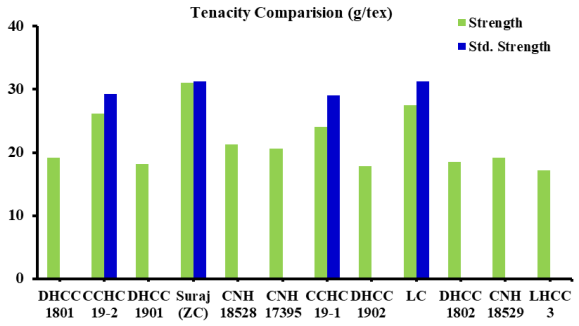
- Entry CCH 19-2 (UHML 31.6 mm, Tenacity 30.5 g/tex, Uniformity Index 87, Micronaire 4.1) has performed well.

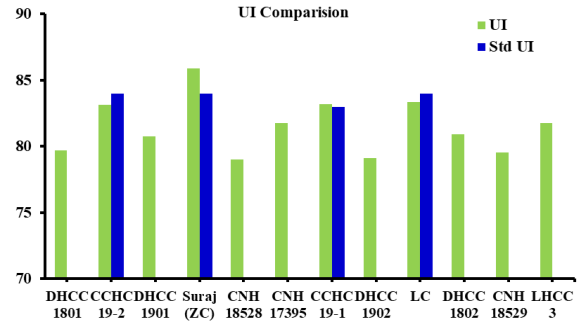
Br03 a/b (CC) - PVT Colour Cotton - Irrigated/Rainfed

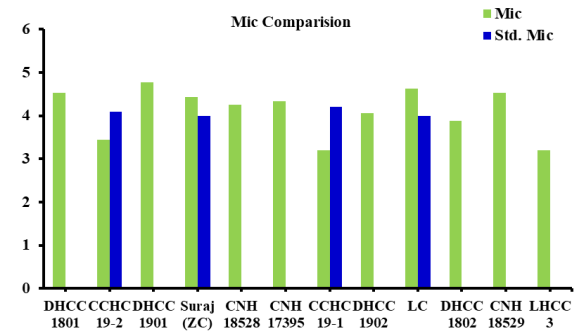
Observations

- Samples were having UHML from 21 mm to 31 mm.
- Majority of samples having UHML below 24.









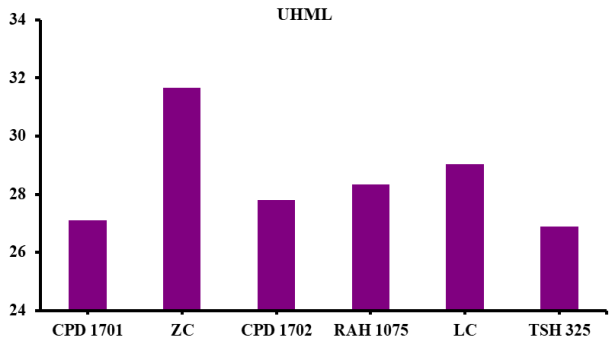
Recommendations

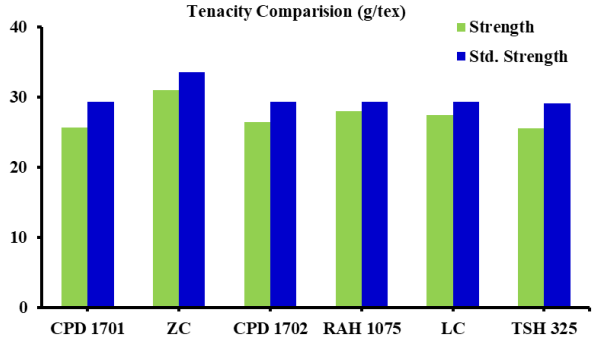
- Not recommended.

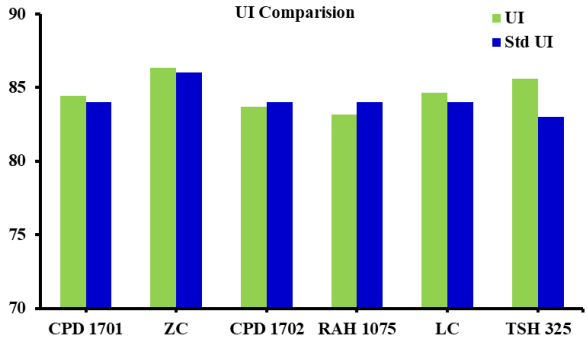
Br04a - CVT irrigated

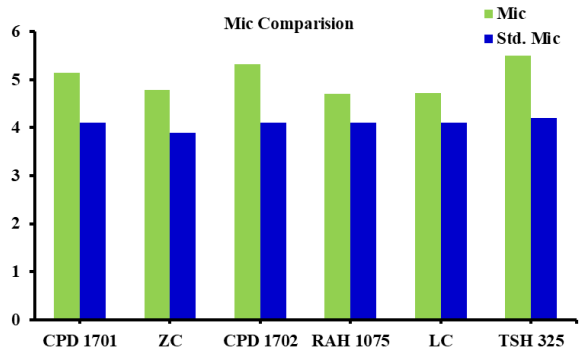
Observations

- Samples were having UHML from 27 mm to 32 mm.
- The tenacity of the samples were lower or at par with the minimum requirement.
- The UI of the samples all samples was at par with the minimum requirement expect for TSH 325, wherein it was higher than the minimum requirement.
- The micronaire values were higher than the minimum required.









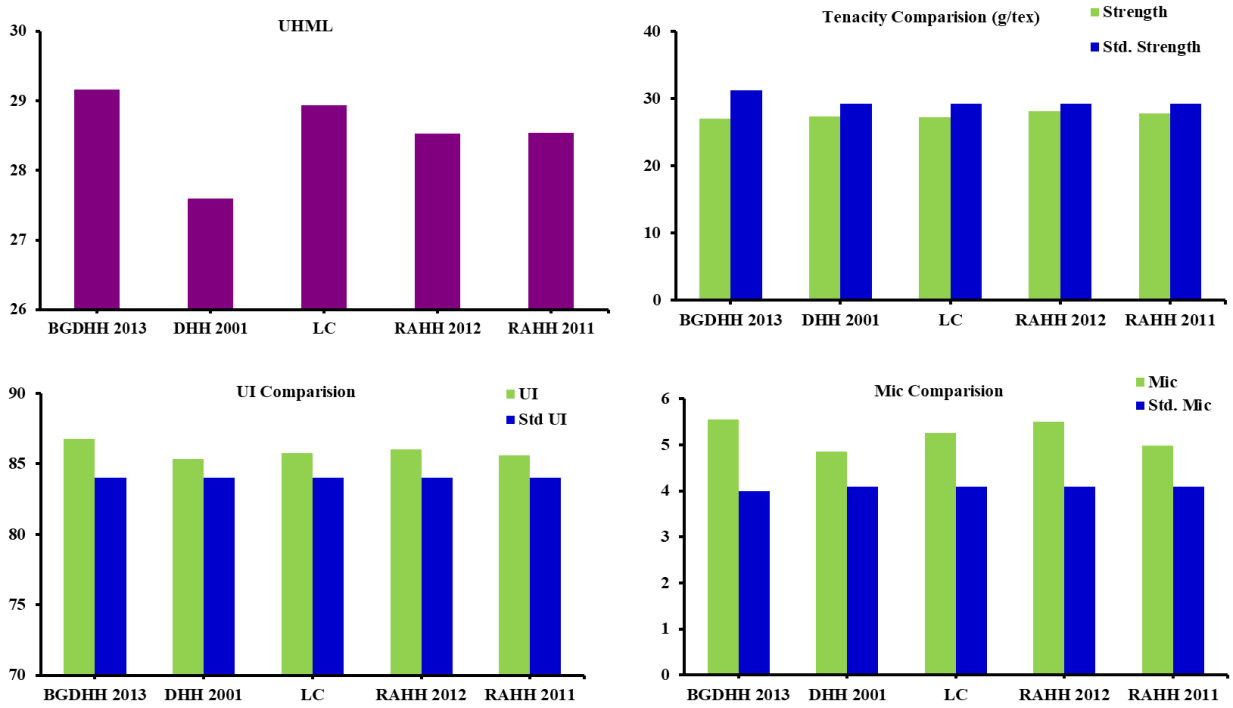
Recommendations

- Not recommended.

Br05a - CHT HxH

Observations

- Majority of the samples were having UHML range from 28 mm to 29 mm.
- The tenacity values of samples were lower than the minimum requirement.
- The UI of the samples were higher than the minimum requirement.
- The micronaire values of all samples were significantly higher than minimum requirement.



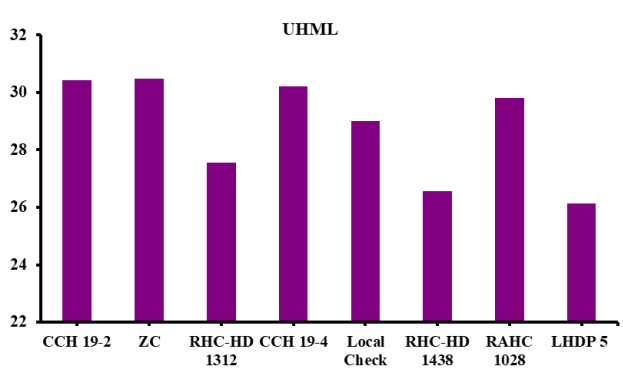
Recommendations

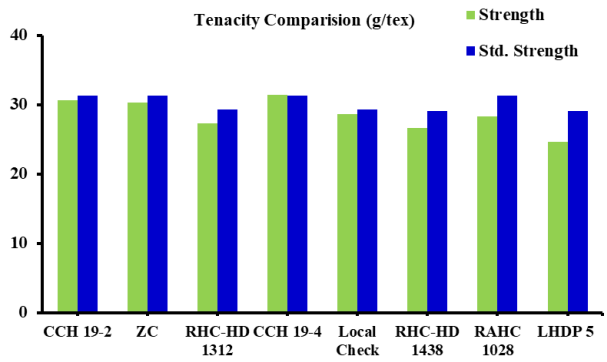
- Entry BGDHH 2013 (UHML 29.2 mm, Tenacity 27.1 g/tex, Uniformity Index 87, Mic 5.6) has performed well.

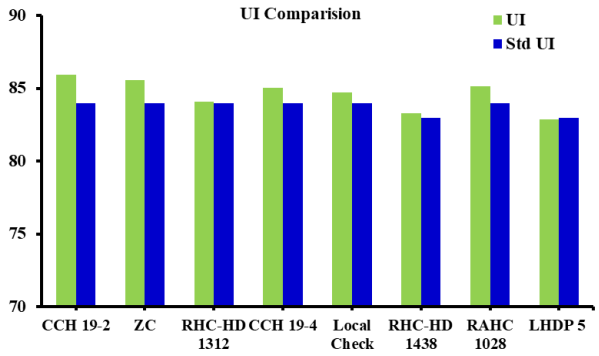
Br06a - CVT Compact Cultures - Irrigated

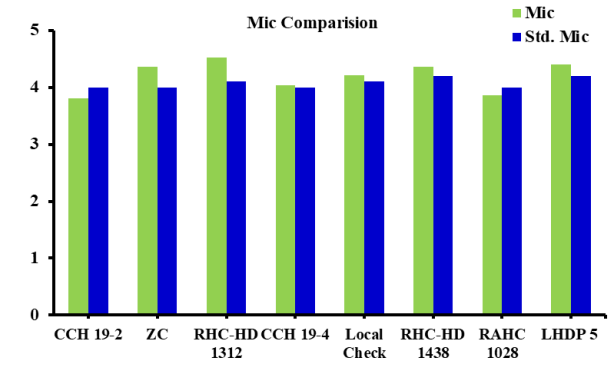
Observations

- The samples were having UHML ranging from 26 mm to 30 mm.
- The tenacity values were lower than with the minimum requirement except for the 2 entries; CCH 19-2 and CCH 19-4, where it was at par with the minimum required.
- The UI of the samples was either better or equal to the minimum requirement.
- The micronaire values of majority of samples were higher than minimum requirement. The two entries CCH 19-2 and RAHC 1028 showed lower Mic value than the minimum required.









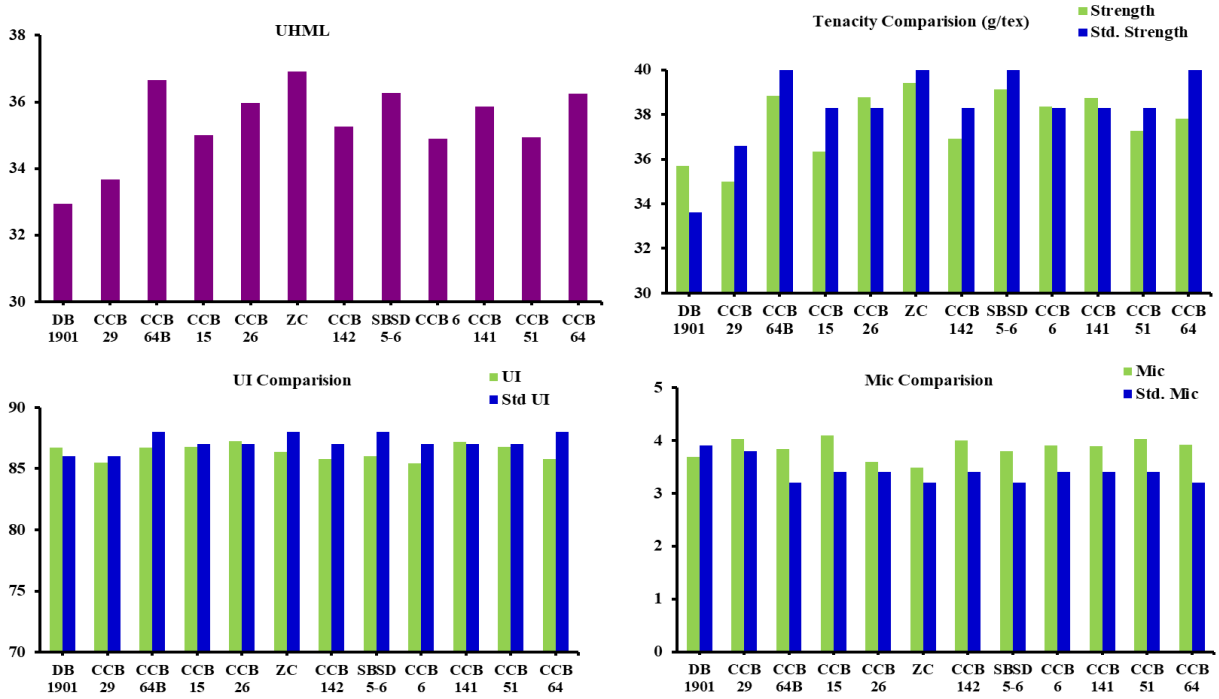
Recommendations

- Entry CCH 19-2 (UHML 30.4 mm, Tenacity 30.7 g/tex, Uniformity Index 86, Mic 3.8) has performed well.

Br13a PVT G. *barbadense*

Observations

- The samples were having higher UHML range from 33mm to 37 mm.
- The tenacity values of the three samples namely DB 1901, CCB 26 and CCB 141 were higher than with the minimum requirement whereas, other entries had lower tenacity than the minimum required.
- The UI of the samples was either better or equal to the minimum requirement.
- The micronaire values of majority of samples were higher than minimum requirement. The two entries CCH 19-2 and RAHC 1028 showed lower Mic value than the minimum required.
- The samples were having either equal or marginally below UI than the minimum requirement except for the entry DB1901, where it was higher.



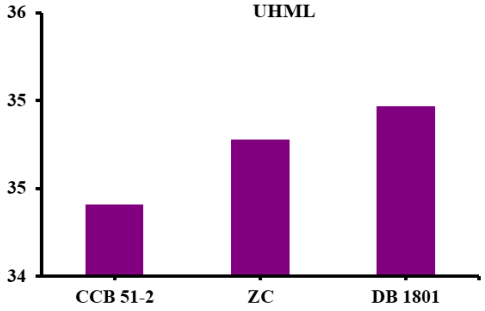
Recommendations

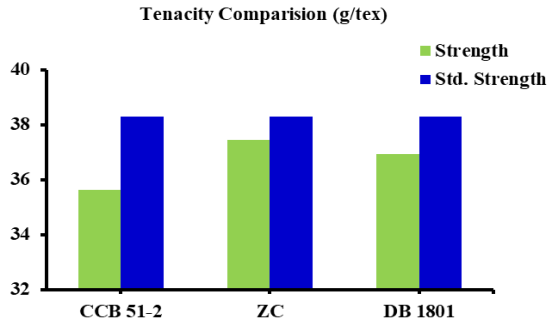
- Entry CCB 64B (UHML 36.7 mm, Tenacity 38.8 g/tex, Uniformity Index 87, Mic 3.8) and CCB 26 (UHML 36 mm, Tenacity 38.8 g/tex, Uniformity Index 87, Mic 3.6) have performed well.

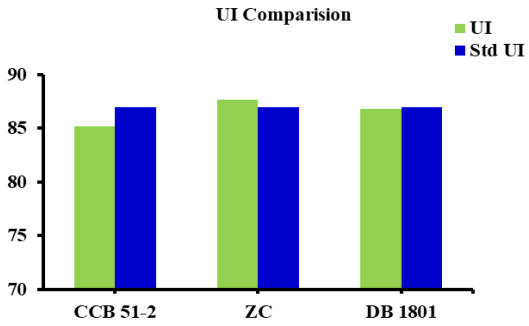
Br14a CVT G. *barbadense*

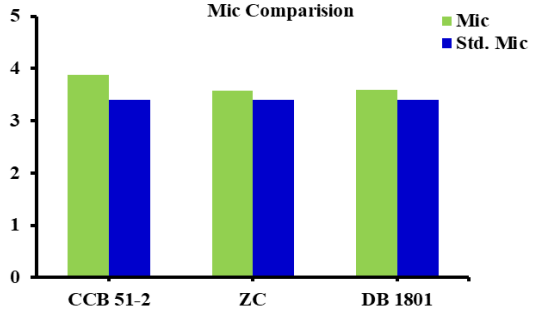
Observations

- The samples were having UHML ranging from 34 mm to 35 mm.
- The tenacity values of all samples were lower than the minimum requirement.
- The UI of the samples was either at par with or lower than the minimum requirement.
- The micronaire values were higher than the minimum required values.









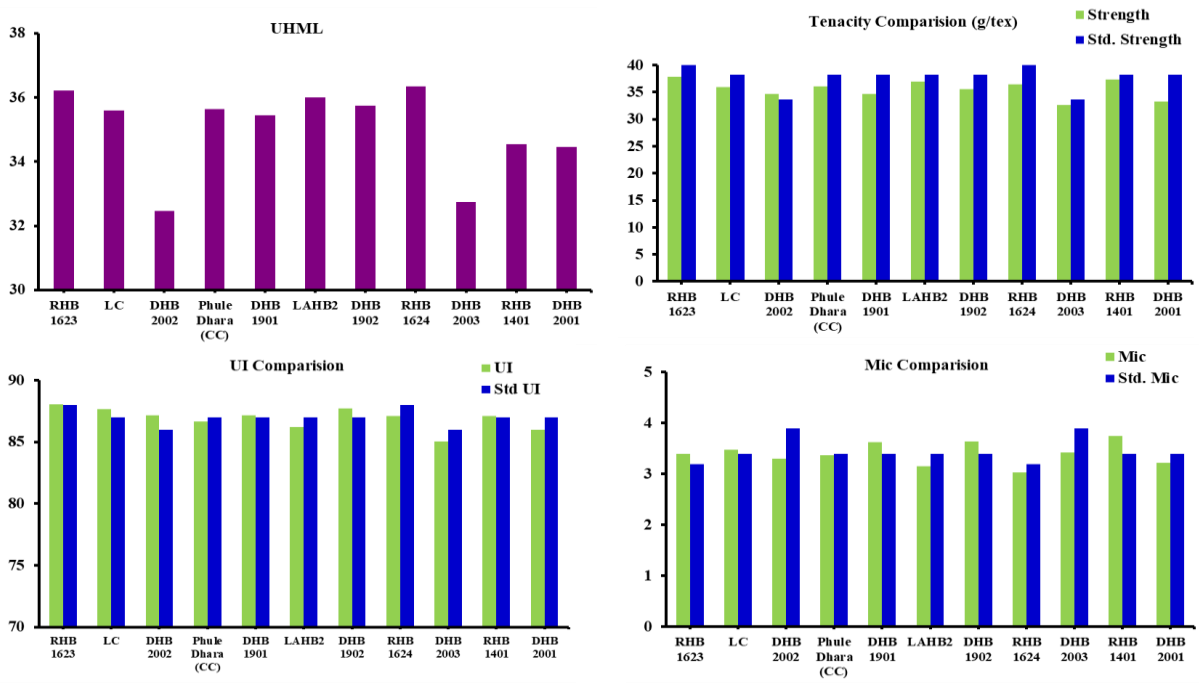
Recommendations

- Not recommended.

Br15a CHT H X B

Observations

- The samples were having higher UHML range from 32 mm to 36 mm.
- The tenacity values were marginally lower than minimum requirement for all samples.
- The UI of the samples was either equal or lower than the minimum requirement, except for the two entries DHB 2002 and DHB 1902, which showed higher UI than the minimum required.
- The micronaire values of majority of samples were at par with the minimum requirement. DHB 2002 and DHB 2003 showed marginally lower Mic values than the minimum required.



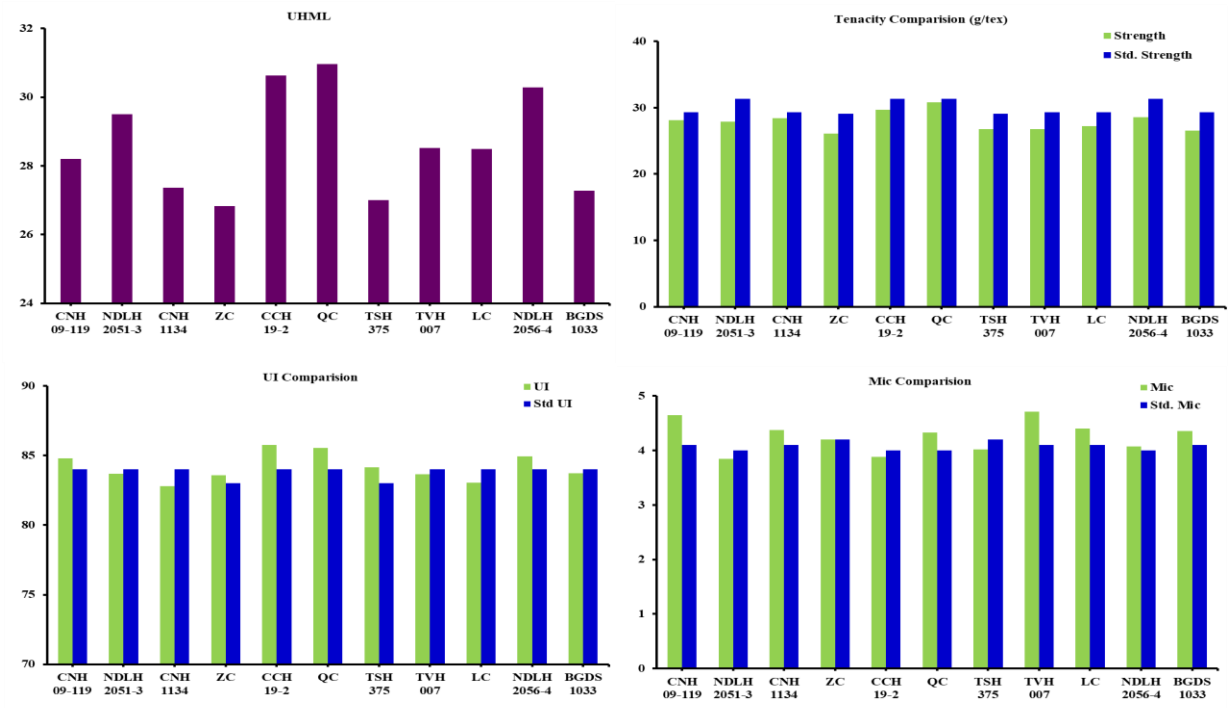
Recommendations

- Entry RHB 1623 (UHML 36.2 mm, Tenacity 37.9 g/tex, Uniformity Index 88, Mic 3.4) and RHB 1624 (UHML 36.4 mm, Tenacity 36.4 g/tex, Uniformity Index 87, Mic 3.2 have performed well.

Br03b - PVT – Rainfed

Observations

- ❖ The samples were in UHML range of 27 mm to 31 mm.
- ❖ The tenacity values were marginally lower than minimum requirement for all samples.
- ❖ The UI of the samples were either better or par with the minimum requirement.
- ❖ The micronaire values of the samples were at par with or higher than the minimum required values.



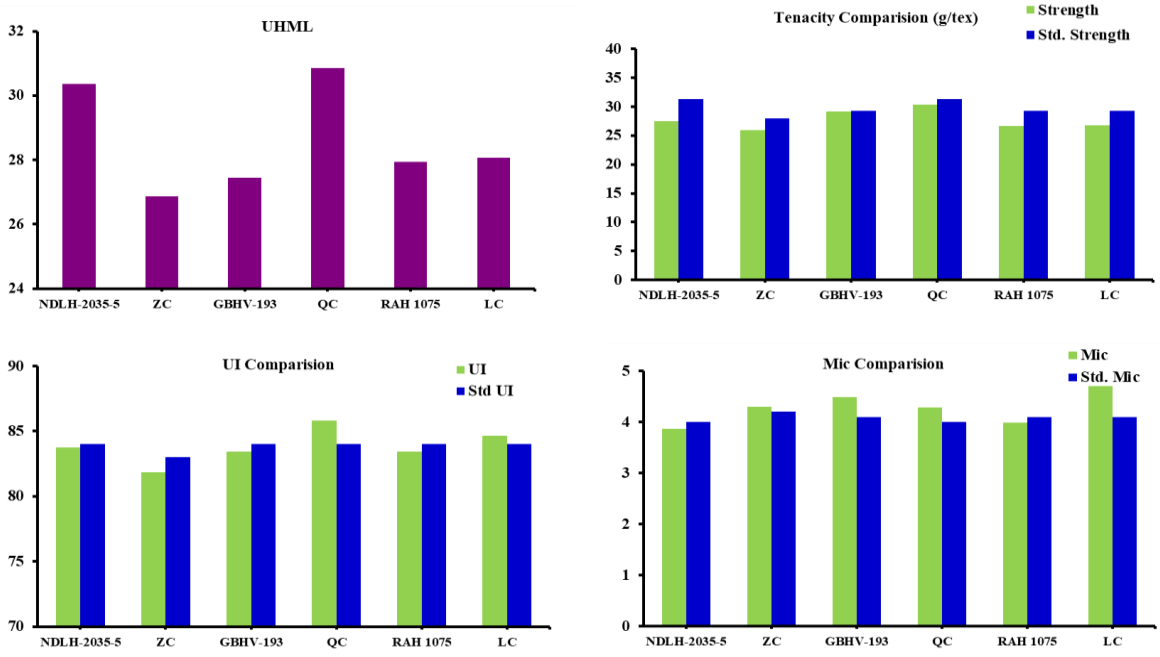
Recommendations

- ❖ Entry CCH 19-2 (UHML 30.6 mm, Tenacity 29.7 g/tex, Uniformity Index 86, Mic 3.9) has performed well.

Br04b - CVT – Rainfed

Observations

- The samples were in UHML range of 27 mm to 31 mm.
- The samples were having lower tenacity than the minimum requirement.
- The UI of the samples were at par with the minimum requirement.
- The micronaire values of most of samples were either equal or higher than the minimum required values.



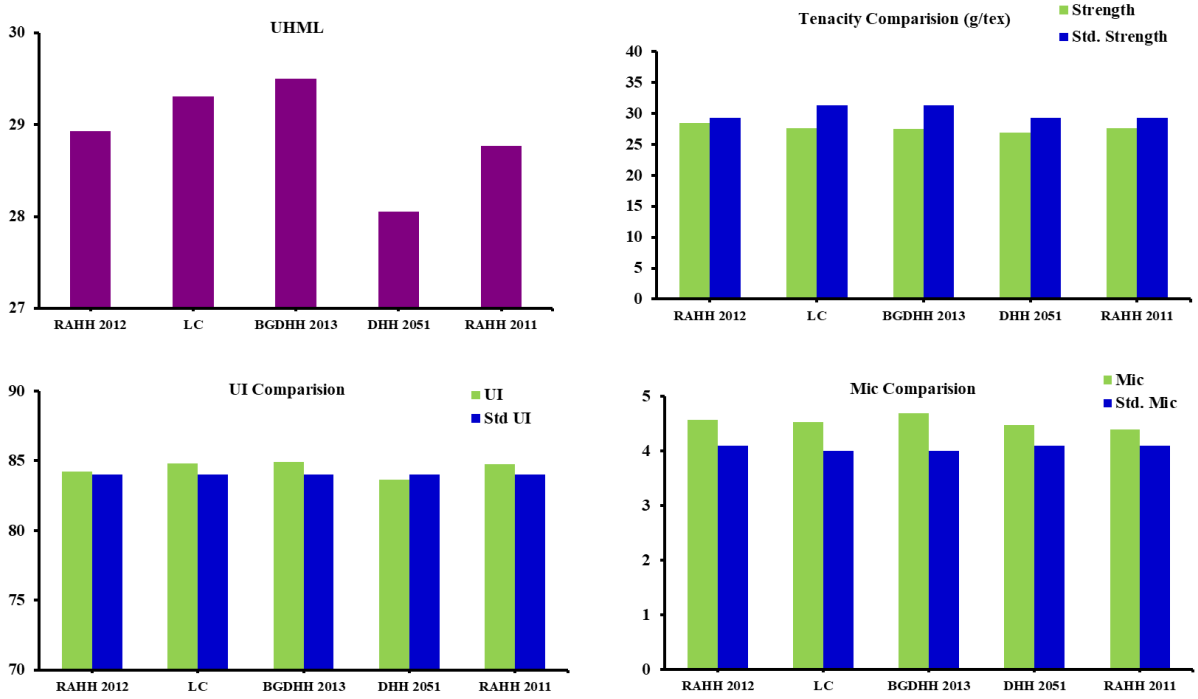
Recommendations

- Entry NDLH 2035-5 (UHML 30.4 mm, Tenacity 27.5 g/tex, Uniformity Index 84, Mic 3.9) has performed well.

Br05b - CHT – HXH

Observations

- The samples were in UHML range of 28 mm to 30 mm.
- For all samples, the tenacity values were marginally lower than minimum requirement.
- The samples were having UI at par with the minimum requirement.
- The micronaire values of the samples were higher than the minimum required values.



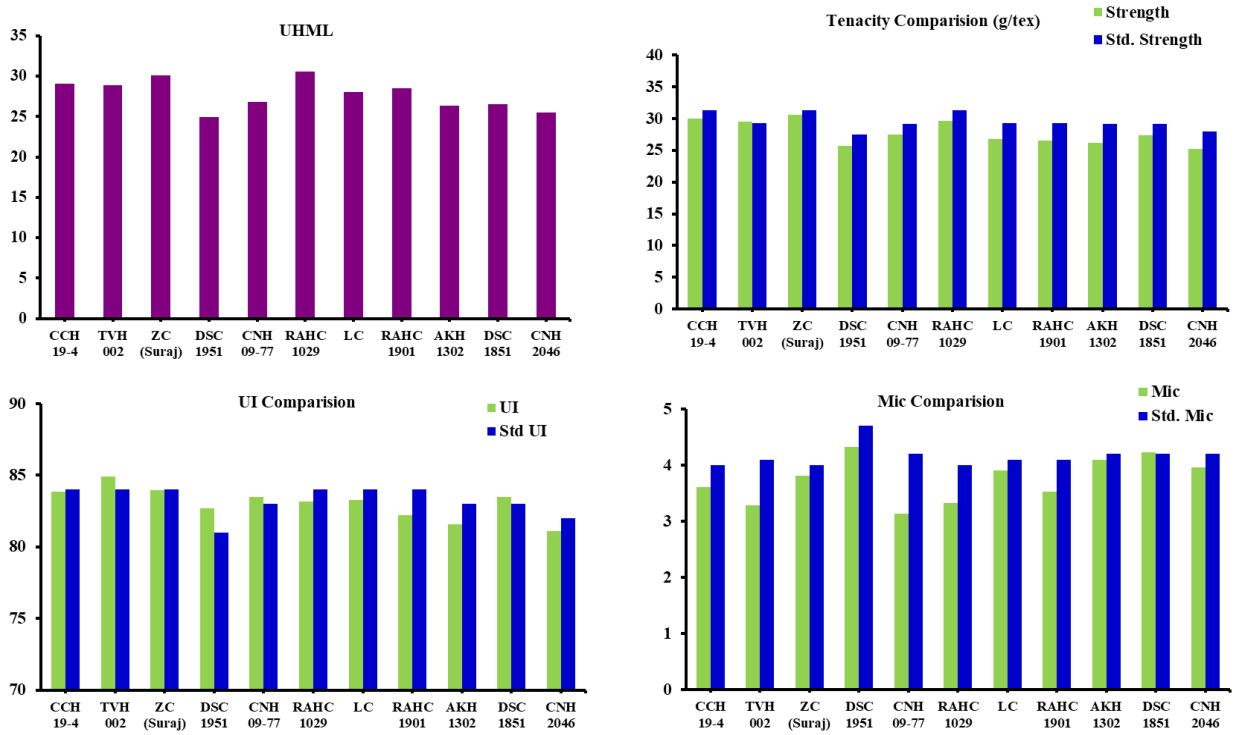
Recommendations

- Entry BGDHH 2013 (UHML 29.5 mm, Tenacity 27.5 g/tex, Uniformity Index 85, Mic 4.7) has performed well.

Br06b - CVT Compact Cultures - Rainfed

Observations

- ❖ The samples were having UHML range from 25 mm to 31 mm.
- ❖ Majority of samples showed tenacity values equal to or lower than the minimum requirement.
- ❖ The UI of samples were at par with the minimum requirement.
- ❖ The micronaire values of the samples were marginally lower than the minimum required values.



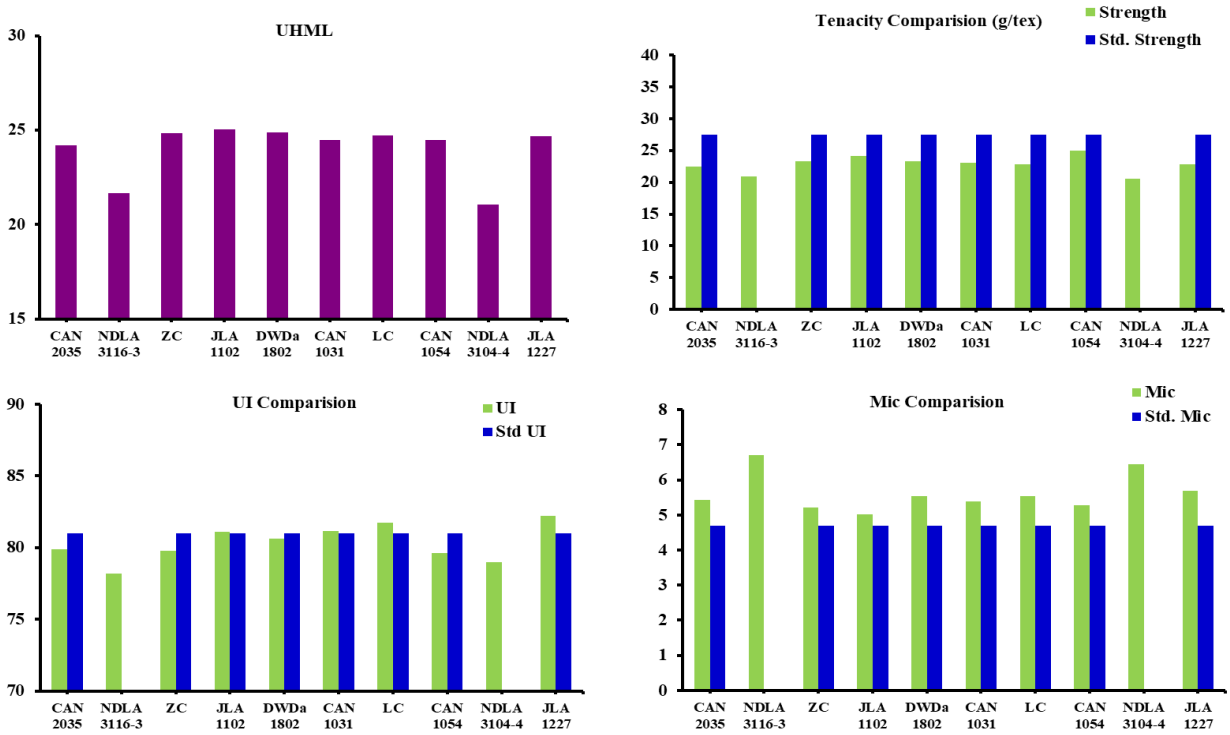
Recommendations

- ❖ Entry RAHC 1029 (UHML 30.5 mm, Tenacity 29.7 g/tex, Uniformity Index 83, Mic 3.3) has performed well.

Br24b: CVT - *G. arboreum*

Observations

- The samples were having low UHML range from 21 mm to 25 mm.
- The tenacity values were significantly lower than with the minimum requirement for all samples.
- Entry JLA 1227 showed higher UI, whereas all other entries were having low UI than the minimum requirement.
- The micronaire values of samples were higher than minimum required values.



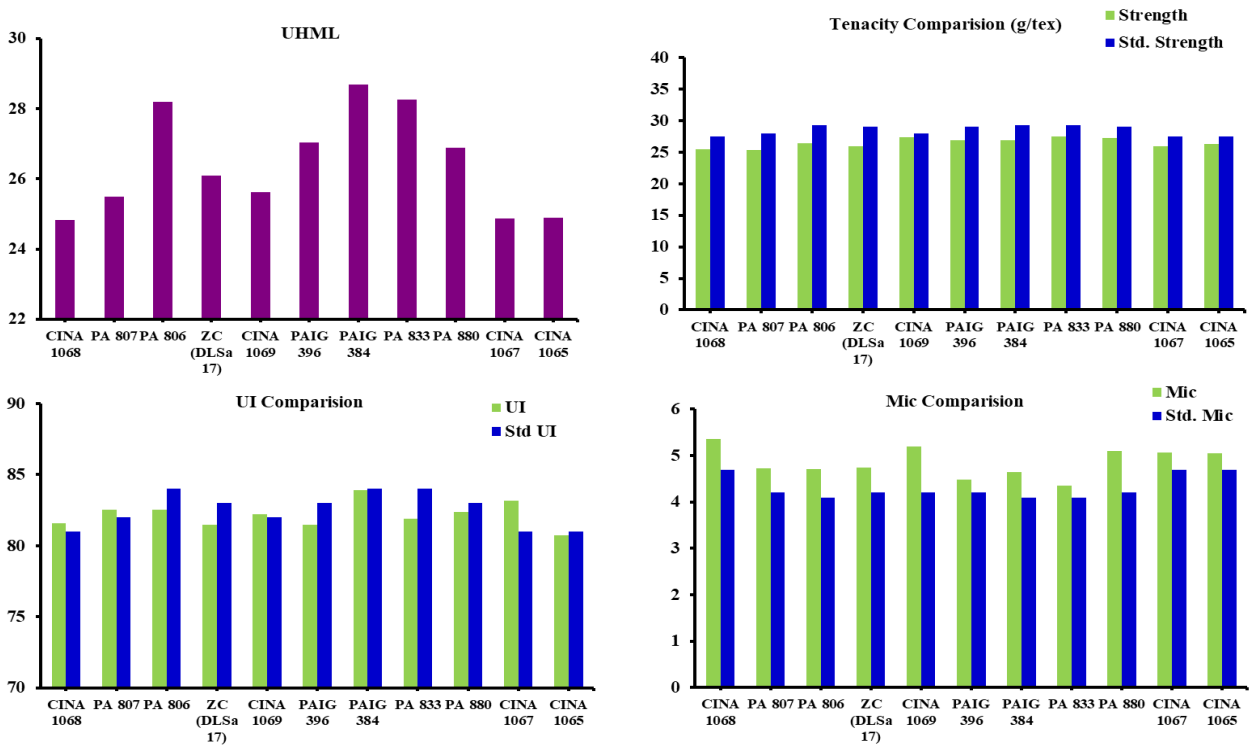
Recommendations

- Entry JLA 1102 (UHML 25 mm, Tenacity 24.1 g/tex, Uniformity Index 81, Mic 5) has performed well.

Br24b: CVT Long Linted *G. arboreum*

Observations

- The samples were having UHML range from 25 mm to 29 mm.
- The tenacity values of the samples under the trial were lower than the minimum requirement.
- The UI of samples were at par with the minimum requirement. The entry CINA 1067 showed higher UI than the minimum required.
- All the samples were having marginally higher micronaire values than the minimum required.



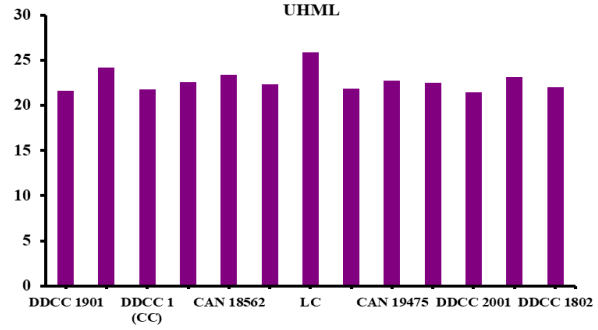
Recommendations

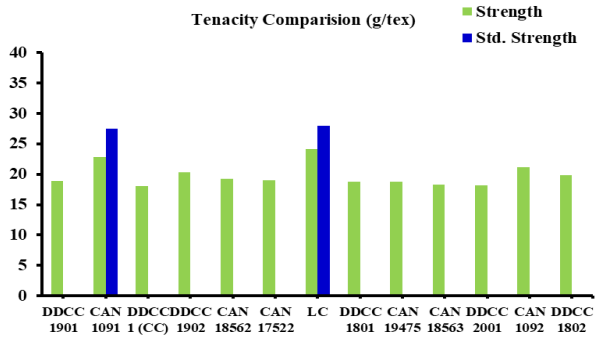
- Entry PAIG 384 (UHML 28.7 mm, Tenacity 26.9 g/tex, Uniformity Index 84, Mic 4.6) and entry PA 833 (UHML 28.3 mm, Tenacity 27.5 g/tex, Uniformity Index 82, Mic 4.3) has performed well.

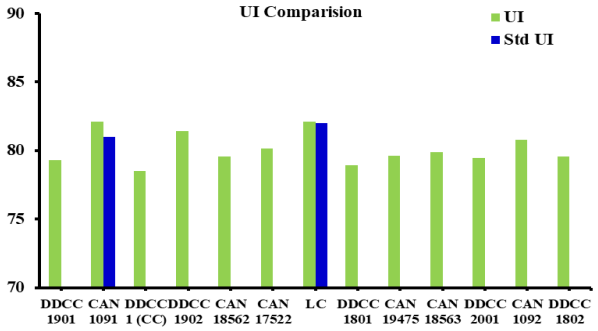
Br24 a/b - CVT *Arboreum* (CC) – Rainfed

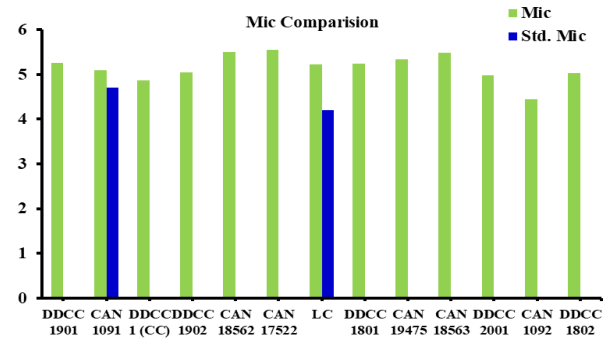
Observations

- The samples were having low UHML range from 21 mm to 26 mm.









Recommendations

- Not recommended.

Agronomy IA: Agronomic requirements of promising pre-release/ recently released *hirsutum/arboreum* genotypes/ hybrids of cotton

Agronomy IA: Agronomic requirements of promising pre-release/ recently released *hirsutum/arboreum*genotypes/ hybrids of cotton

Agronomy Trials North Zone (Irrigated) - Full Spinning Results												
Sr. No.	**Sample No.**	**Entry**	**Location**	**UHML (mm)**	**UI**	**Mic**	**Str (g/tex)**	**E %**	**Count 1**	**CSP 1**	**Count 2**	**CSP 2**
1.	210062	F-2662	Bhatinda	26.6	85	4.2	26.5	5.6	20s	2372	30s	2133
2.	210063	PBH 116	Bhatinda	25.8	82	5.2	26.2	5.6	20s	2370	30s	2084
3.	210064	PBH 115	Bhatinda	26.8	83	4.7	25.0	5.6	20s	3158	30s	1980
4.	210051	F-2662	Faridkot	27.7	83	4.5	27.8	5.7	30s	2393	40s	2348
5.	210052	PBH-116	Faridkot	25.0	82	5.7	26.7	5.7	30s	2152	40s	2109
6.	210053	PAU BT-1	Faridkot	27.1	83	4.3	29.1	5.6	30s	2384	40s	2262
7.	210054	PAU BT-2	Faridkot	26.9	82	4.6	27.6	5.6	30s	2195	40s	2113
8.	210055	PAU BT-3	Faridkot	27.0	83	4.7	27.4	5.6	30s	2349	40s	2282
9.	210056	CICR BT-6	Faridkot	26.1	81	4.4	27.2	5.6	30s	2406	40s	2264

Agronomy Trials Central Zone (Irrigated) - Full Spinning Results												
Sr.No.	**Sample No.**	**Entry**	**Location**	**UHML (mm)**	**UI**	**Mic**	**Str (g/tex)**	**E %**	**Count 1**	**CSP 1**	**Count 2**	**CSP 2**
1	210046	CNA-1054	Akola	24.8	83	4.9	26.2	5.6	20s	2342	30s	2090
2	210047	CNA-1031	Akola	25.4	83	5.5	25.8	5.6	20s	2324	30s	2073
3	210048	NACH-556	Akola	20.0	80	7.0	20.5	5.3	12s	1722	16s	1469
4	210049	RHC HD-1433	Akola	26.3	82	4.0	25.3	5.6	20s	2271	30s	2033
5	210050	RHC hd-1406	Akola	27.7	83	3.8	26.0	5.6	20s	2573	30s	2228
6	210039	PBH-115 (HDPS)	Hissar	23.9	81	4.6	27.3	5.5	20s	2239	30s	1993
7	210040	F-2662	Hissar	24.0	81	4.0	27.1	5.4	30s	2279	40s	2119
8	210084	RHC-1217	Junagadh	30.5	82.	3.6	27.4	5.6				
9	210085	GISV-310	Junagadh	30.4	82	3.7	32.4	5.8				
10	210001	CNA 1054	Nagpur	26.3	84	5.0	29.4	5.7	20s	2368	30s	2102
11	210002	CNA 1031	Nagpur	25.2	84	5.2	28.2	5.6	20s	2331	30s	2140

12	210003	NDLH 205-11	Nagpur	27.4	85	4.5	28.2	5.6	20s	2503	30s	2085
13	210004	CNH 11-11	Nagpur	26.6	84	4.5	29.1	5.7	20s	2301	30s	2199
14	210065	NDLH 20511	Nanded	25.9	81	4.2	25.9	5.6	30s	2163	40s	1939
15	210066	RHC HD 1433	Nanded	25.6	82	4.2	24.5	5.6	16s	2044	20s	1928
16	210067	RHC HD 1406	Nanded	25.6	80	4.0	24.7	5.5	20s	2070	30s	1939
17	210068	CNH 11-11	Nanded	25.2	80	4.2	25.2	5.5	20s	2215	--	--
18	210069	NACH 556	Nanded	21.1	81	7.2	22.6	5.5	12s	1687	16s	1262
19	210075	Surat Bt.	Rahuri	25.9	83	3.5	26.8	5.5	30s	2309	40s	2262
20	210076	PKV-081 Bt.	Rahuri	23.6	78	3.4	24.2	5.4	30s	2353	40s	2265
21	210077	Rajat Bt.	Rahuri	25.7	86	4.4	25.5	5.6	30s	2379	40s	2429
22	210078	GJHV-374 Bt	Rahuri	26.8	83	3.8	25.5	5.5				
23	210079	RCH 1897	Rahuri	25.8	84	3.1	25.2	5.5	30s	2429	40s	2316
24	210080	RHC-HD 1406	Rahuri	28.2	83	3.4	25.1	5.6	30s	2397	--	--
25	210081	RCH 1828	Rahuri	26.0	83	2.8	23.6	5.4	30s	2422	--	--
26	210082	SIMA 05	Rahuri	23.6	81	2.8	23.4	5.4				
27	210083	RHC-688	Rahuri	24.4	83	2.7	24.4	5.5				
28	210041	RHC HD-1406	Surat	25.7	80	3.8	27.9	5.6	**Highly sticky fibre Not spinnable**			
29	210042	TCH-1897	Surat	25.8	80	3.2	26.0	5.5	**Highly sticky fibre Not spinnable**			

Agronomy Trials South Zone (Irrigated) - Full Spinning Results

Sr. No.	Sample No.	Entry	Location	UHML (mm)	UI	Mic	Str (g/tex)	E %	Count 1	CSP 1	Count 2	CSP 2
1	210086	RHB 1002	Coimbatore	32.3	81	2.5	29.6	5.9				
2	210087	DB 1701	Coimbatore	31.5	84	3.0	28.6	5.9				
3	210088	CCB 143B	Coimbatore	32.4	83	3.0	29.9	5.9				
4	210089	RHC HD 1433	Coimbatore	27.2	82	3.6	25.4	5.6				
5	210057	NDLH-2051-1	Dharwad	27.5	81	3.8	27.5	5.5	30s	2199	40s	1851
6	210058	CNH-1128	Dharwad	26.9	84	4.5	27.1	5.7	20s	2394	30s	2127
7	210059	DB 16301 (CC)	Dharwad	22.7	81	3.5	21.9	5.4	12s	1879	--	--
8	210060	CNA-405 (CC)	Dharwad	22.3	81	5.6	23.4	5.5	12s	1880	16s	1785
9	210061	DDCC-1 (CC)	Dharwad	21.4	77	5.0	22.5	5.3	12s	1906	16s	1790
10	210094	RHB 1002	Guntur	31.6	84	2.3	31.3	5.9				
11	210095	VI-CCB 143B	Guntur	32.3	81	2.3	28.0	5.8				
12	210096	Vs-DB 1701	Guntur	33.1	81	2.3	28.9	5.8				
13	210043	RHC-1217	Raichur	24.7	84	4.1	25.7	5.5	30s	2145	40s	1423
14	210044	SIMA-5	Raichur	31.1	84	2.8	28.6	5.7	50s	2532	60s	2468
15	210045	RHC HD-1433	Raichur	27.4	85	3.2	25.9	5.6	30s	2633	40s	2217
16	210070	NDLH-2051-1	Nandyal	26.5	82	4.2	26.3	5.5	30s	2617	40s	1781
17	210071	DB 16301	Nandyal	20.8	81	4.3	20.3	5.1	16s	2143	20s	1879
18	210072	CNH 1129	Nandyal	24.2	80	4.2	25.6	5.5	20s	2408	30s	2085
19	210090	PA 837	Nandyal	27.3	82	4.0	27.6	5.6				
20	210091	PAIG 380	Nandyal	27.6	83	4.1	28.4	5.7				

21	210092	DDCC 1	Nandyal	22.2	80	4.7	22.3	5.4				
22	210093	CNA 405	Nandyal	22.3	80	4.6	22.3	5.4				
23	210073	V1-Sima 5	Srivalliputur	25.0	83	4.8	26.8	5.7	40s	2631	50s	2269
24	210074	V2-RHC 1217	Srivalliputur	25.4	83	5.0	25.6	5.6	20s	2644	30s	2292
		Mean										

Fibre Quality Data

National Trials

National Trial

Br02b - IET G. hirsutum (Rainfed)

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
1	301	GJHV 548	Central	Banswara	26.1	79	3.5	22.9	5.8
2				Bhawanipatna	25.9	84	4.3	27.6	5.7
3				Junagadh	24.8	81	4.9	26.4	5.6
4				Surat	27.5	82	4.5	28.5	5.6
5				Taold	25.1	83	4.0	23.5	5.4
6			South	Adilabad	23.7	80	3.3	23.4	4.1
7				Coimbatore	28.9	83	4.7	31.3	4.6
8				Lam Guntur	24.8	79	4.6	24.6	5.5
9				Raichur	25.7	82	3.8	26.7	5.7
10				Srivalliputtur	29.1	85	4.6	25.5	5.8
		Mean			**26.2**	**82**	**4.2**	**26.0**	**5.4**
11	302	RB 602	Central	Banswara	24.2	78	3.9	23.7	5.8
12				Bhawanipatna	26.3	83	4.9	27.0	5.7
13				Junagadh	25.9	82	5.1	27.5	5.7
14				Surat	26.3	84	4.8	25.3	5.3
15				Taold	24.8	82	4.8	23.8	5.4
16			South	Adilabad	24.8	81	3.7	25.5	4.6
17				Coimbatore	26.9	79	4.8	28.6	4.2
18				Lam Guntur	25.0	82	5.1	26.1	5.6
19				Raichur	27.5	85	4.4	29.4	5.8
20				Srivalliputtur	29.2	84	5.3	24.6	5.7
		Mean			**26.1**	**82**	**4.7**	**26.2**	**5.4**
21	303	L 1536	Central	Banswara	25.7	79	3.9	22.1	6.0
22				Bhawanipatna	28.9	85	4.3	28.0	5.8
23				Junagadh	29.1	86	4.4	30.6	6.0
24				Surat	28.4	87	4.4	27.7	5.6
25				Taold	28.5	84	4.6	28.9	5.8
26			South	Adilabad	27.0	83	3.2	27.1	5.5
27				Coimbatore	29.4	83	4.2	33.6	4.7
28				Lam Guntur	28.0	82	4.6	29.3	5.8
29				Raichur	30.3	87	4.1	29.7	5.8
30				Srivalliputtur	31.4	86	4.7	28.2	5.9
		Mean			**28.7**	**84**	**4.2**	**28.5**	**5.7**
31	304	TSH 354	Central	Banswara	25.7	79	4.3	24.2	5.8
32				Bhawanipatna	26.4	84	4.4	27.5	5.6
33				Junagadh	26.4	82	4.2	28.0	5.6

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
34				Surat	27.1	86	4.9	27.4	5.5
35				Taold	26.6	85	5.4	28.1	5.6
36			South	Adilabad	26.1	81	3	25.1	4.3
37				Coimbatore	29.1	83	5.0	32.3	4.3
38				Lam Guntur	26.7	82	4.2	28.9	5.6
39				Raichur	32.4	87	4.0	29.9	5.9
40				Srivalliputtur	28.6	86	4.8	28.7	5.8
		Mean			**27.5**	**84**	**4.4**	**28.0**	**5.4**
41	305	CPD 2003	Central	Banswara	26.0	79	3.3	24.3	5.4
42				Bhawanipatna	26.1	83	4.3	29.4	5.6
43				Junagadh	26.6	84	3.9	27.5	5.7
44				Surat	25.6	86	4.3	27.7	5.5
45				Taold	27.8	83	4.4	27.8	5.5
46			South	Adilabad	25.5	80	2.9	25.4	5.4
47				Coimbatore	27.5	82	4.4	32.9	4.0
48				Lam Guntur	25.4	83	4.6	27.7	5.5
49				Raichur	28.5	87	3.5	27.8	5.7
50				Srivalliputtur	28.4	86	4.6	27.1	5.7
		Mean			**26.7**	**83**	**4.0**	**27.8**	**5.4**
51	306	ZC	Central	Banswara	25.7	79	3.2	23.8	5.6
52				Bhawanipatna	25.3	85	3.7	27.0	5.8
53				Junagadh	25.1	82	4.3	25.8	5.8
54				Surat	25.3	84	4.6	27.3	5.6
55				Taold	26.6	84	3.5	28.1	5.6
56			South	Adilabad	Missing				
57				Coimbatore	27.7	83	4.5	30.5	4.3
58				Lam Guntur	25.1	83	4.6	26.5	5.5
59				Raichur	29.6	86	5.0	31.6	5.9
60				Srivalliputtur	30.1	86	4.6	27.6	5.8
		Mean			**26.7**	**83**	**4.2**	**27.6**	**5.5**
61	307	TCH 1941	Central	Banswara	26.0	79	3.7	27.1	5.5
62				Bhawanipatna	27.1	81	4.6	25.5	5.6
63				Junagadh	27.6	83	4.6	29.7	5.8
64				Surat	28.2	87	4.7	28.2	5.6
65				Taold	29.5	84	4.0	31.6	5.7
66			South	Adilabad	28.4	82	3.5	29.3	5.6
67				Coimbatore	26.5	82	5.1	29.2	4.6
68				Lam Guntur	26.8	84	5.0	28.3	5.7
69				Raichur	26.5	85	4.2	26.4	5.7
70				Srivalliputtur	31.3	83	4.6	28.4	5.8
		Mean			**27.8**	**83**	**4.4**	**28.4**	**5.6**
71	308	CPD 2002	Central	Banswara	24.7	78	4.0	23.6	5.7
72				Bhawanipatna	26.0	84	4.8	26.2	5.7

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
73				Junagadh	25.0	83	5.0	26.0	5.7
74				Surat	24.9	85	4.8	26.4	5.4
75				Taold	25.9	84	4.7	26.5	5.5
76			South	Adilabad	26.8	81	2.8	25.3	4.9
77				Coimbatore	26.3	81	4.4	31.1	4.3
78				Lam Guntur	25.0	82	4.6	26.6	5.5
79				Raichur	27.1	85	4.2	28.8	5.7
80				Srivalliputtur	28.3	85	4.4	27.9	5.7
		Mean			**26.0**	**83**	**4.4**	**26.8**	**5.4**
81	309	GISV 328	Central	Banswara	25.2	79	4.0	24.9	6.3
82				Bhawanipatna	25.8	85	4.4	27.5	5.7
83				Junagadh	27.4	83	4.7	28.7	5.8
84				Surat	25.0	86	5.0	26.7	5.6
85				Taold	24.9	84	4.9	26.0	5.7
86			South	Adilabad	22.5	82	3.1	23.9	3.8
87				Coimbatore	26.4	80	4.5	33.1	4.5
88				Lam Guntur	25.6	83	4.6	26.2	5.6
89				Raichur	27.4	85	4.2	28.3	5.7
90				Srivalliputtur	26.2	85	5.0	27.9	5.8
		Mean			**25.6**	**83**	**4.4**	**27.3**	**5.5**
91	310	SHSV 14	Central	Banswara	30.4	80	2.9	29.9	5.6
92				Bhawanipatna	28.3	84	3.7	27.4	5.7
93				Junagadh	28.9	85	3.8	31.4	5.9
94				Surat	29.9	88	4.0	32.6	5.9
95				Taold	29.0	84	3.5	28.5	5.6
96			South	Adilabad	27.4	83	2.8	26.4	5.1
97				Coimbatore	28.2	83	3.5	32.1	4.6
98				Lam Guntur	28.9	83	3.8	30.8	5.8
99				Raichur	29.8	83	3.5	28.3	5.7
100				Srivalliputtur	30.6	87	3.9	28.8	5.8
		Mean			**29.1**	**84**	**3.5**	**29.6**	**5.6**
101	311	RB 1903	Central	Banswara	25.7	79	4.3	24.7	5.8
102				Bhawanipatna	26.1	84	4.1	28.8	5.6
103				Junagadh	26.8	83	4.0	28.8	5.7
104				Surat	27.0	85	4.4	28.0	5.5
105				Taold	27.8	85	5.0	27.2	5.6
106			South	Adilabad	25.5	80	3.1	25.4	5.5
107				Coimbatore	27.2	83	4.0	33.3	4.5
108				Lam Guntur	26.2	82	4.4	28.3	5.7
109				Raichur	28.9	85	3.8	29.8	5.8
110				Srivalliputtur	29.0	86	5.3	27.2	5.8
		Mean			**27.0**	**83**	**4.2**	**28.2**	**5.6**
111	312	QC	Central	Banswara	30.2	80	3.7	29.7	6.0

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
112				Bhawanipatna	30.7	85	4.0	31.7	5.9
113				Junagadh	30.1	87	4.7	31.7	6.0
114				Surat	31.1	87	4.3	32.6	6.0
115				Taold	29.4	85	4.3	28.9	5.7
116			South	Adilabad	29.4	88	3	31.5	6.2
117				Coimbatore	30.5	84	5.1	34.1	4.3
118				Guntur	29.7	85	4.6	31.6	5.8
119				Raichur	31.9	88	4.3	30.7	5.9
120				Srivalliputtur	31.6	87	4.8	29.3	5.9
		Mean			**30.5**	**86**	**4.3**	**31.2**	**5.8**
121	313	ADB 727	Central	Banswara	25.9	79	3.7	25.0	5.9
122				Bhawanipatna	27.5	86	4.9	28.1	5.8
123				Junagadh	27.0	86	4.6	29.3	5.8
124				Surat	27.2	87	5.3	28.7	5.7
125				Taold	27.2	84	5.5	29.1	5.7
126			South	Adilabad	26.3	83	3.6	27.3	5.6
127				Coimbatore	28.2	83	5.0	31.6	4.1
128				Lam Guntur	26.6	84	4.9	28.1	5.6
129				Raichur	27.8	87	5.0	28.5	5.7
130				Srivalliputtur	27.7	87	5.0	27.9	5.7
		Mean			**27.1**	**85**	**4.8**	**28.4**	**5.6**
131	314	TSH 387	Central	Banswara	25.7	79	3.9	24.9	6.0
132				Bhawanipatna	28.8	83	4.4	27.2	5.8
133				Junagadh	26.2	82	4.5	28.0	5.7
134				Surat	26.0	86	4.6	27.4	5.5
135				Taold	26.1	84	4.7	25.2	5.5
136			South	Adilabad	27.9	84	4.2	27.9	5.8
137				Coimbatore	27.7	83	4.8	30.8	4.5
138				Lam Guntur	26.8	85	4.8	26.2	5.7
139				Raichur	28.4	85	4.4	28.3	5.7
140				Srivalliputtur	28.1	85	5.1	26.3	5.8
		Mean			**27.2**	**84**	**4.5**	**27.2**	**5.6**
141	315	GISV 332	Central	Banswara	26.2	79	3.5	27.1	6.2
142				Bhawanipatna	27.4	85	4.6	26.4	5.7
143				Junagadh	27.5	86	4.5	28.7	5.8
144				Surat	25.8	85	5.3	27.1	5.5
145				Taold	25.2	84	4.8	25.3	5.4
146			South	Adilabad	24.6	81	3.6	24.1	5.5
147				Coimbatore	26.5	82	4.8	32.1	4.5
148				Lam Guntur	26.0	83	4.6	26.5	5.6
149				Raichur	27.6	85	4.5	28.3	5.8
150				Srivalliputtur	27.6	85	5.3	27.1	5.8
		Mean			**26.4**	**83**	**4.5**	**27.3**	**5.6**

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
151	316	CPD 2001	Central	Banswara	26.4	79	2.7	25.4	5.6
152				Bhawanipatna	26.1	83	4.0	26.5	5.7
153				Junagadh	27.2	82	3.5	28.5	5.6
154				Surat	27.1	82	3.8	26.5	5.4
155				Taold	25.8	83	5.0	25.2	5.4
156			South	Adilabad	25.4	81	2.6	23.2	4.1
157				Coimbatore	28.0	83	4.0	30.9	4.6
158				Lam Guntur	27.1	81	3.9	27.6	5.6
159				Raichur	29.5	85	4.2	26.8	5.7
160				Srivalliputtur	28.0	84	5.4	26.9	5.7
		Mean			**27.1**	**82**	**3.9**	**26.8**	**5.3**
161	317	BS 10-20	Central	Banswara	29.6	80	3.2	28.4	5.8
162				Bhawanipatna	28.0	83	3.9	27.3	5.8
163				Junagadh	30.6	85	3.6	33.3	6.1
164				Surat	32.3	87	3.8	28.8	5.9
165				Taold	29.6	85	3.8	30.0	5.8
166			South	Adilabad	26.8	81	3.0	26.3	5.6
167				Coimbatore	30.2	84	4.0	33.0	4.6
168				Lam Guntur	29.6	83	3.8	31.6	5.8
169				Raichur	32.5	86	3.5	29.3	5.9
170				Srivalliputtur	33.9	87	3.8	28.5	5.8
		Mean			**30.3**	**84**	**3.6**	**29.7**	**5.7**
171	318	GJHV 568	Central	Banswara	24.7	79	3.3	22.3	5.6
172				Bhawanipatna	24.8	83	4.3	24.2	5.6
173				Junagadh	25.5	79	4.4	24.9	5.5
174				Surat	26.2	85	4.6	26.7	5.5
175				Taold	26.6	83	4.2	27.6	5.6
176			South	Adilabad	24.4	83	3.4	25.5	4.6
177				Coimbatore	28.8	83	4.5	31.4	4.7
178				Lam Guntur	25.8	82	4.7	24.8	5.6
179				Raichur	27.6	85	3.4	29.8	5.8
180				Srivalliputtur	27.5	86	5.0	26.9	5.7
		Mean			**26.2**	**83**	**4.2**	**26.4**	**5.4**
181	319	RAH 1083	Central	Banswara	26.3	79	4.3	27.4	5.7
182				Bhawanipatna	25.3	83	4.8	27.3	5.7
183				Junagadh	25.0	82	4.4	26.3	5.4
184				Surat	30.3	83	4.5	29.1	5.8
185				Taold	26.3	86	4.8	28.0	5.6
186			South	Adilabad	26.2	83	3.6	27.7	5.7
187				Coimbatore	26.7	81	4.8	30.0	4.5
188				Lam Guntur	25.2	83	4.7	26.9	5.6
189				Raichur	28.2	86	4.7	29.8	5.8
190				Srivalliputtur	27.8	86	5.0	26.1	5.6

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
		Mean			**26.7**	**83**	**4.6**	**27.9**	**5.5**
191	320	RAH 1081	Central	Banswara	23.2	79	3.4	24.1	6.0
192				Bhawanipatna	24.7	81	4.4	26.7	5.8
193				Junagadh	23.5	83	5.3	24.5	5.6
194				Surat	23.9	83	5.4	25.4	5.5
195				Taold	25.4	83	5.0	26.9	5.0
196			South	Adilabad	22.6	79	3.4	22.7	5.3
197				Coimbatore	25.5	81	5.3	26.9	5.3
198				Lam Guntur	24.3	81	5.4	26.9	5.6
199				Raichur	25.8	83	4.8	27.1	5.7
200				Srivalliputtur	27.0	85	5.2	26.0	5.7
		Mean			**24.6**	**82**	**4.8**	**25.7**	**5.6**
201	321	LC	Central	Banswara	26.7	79	3.1	24.8	5.9
202				Bhawanipatna	31.6	86	4.1	30.3	5.9
203				Junagadh	26.7	85	4.8	26.2	5.6
204				Surat	28.2	83	5.0	27.7	5.8
205				Taold	28.0	85	5.0	28.0	5.8
206			South	Adilabad	27.8	81	3.6	27.5	5.6
207				Coimbatore	29.1	84	4.5	30.5	4.5
208				Lam Guntur	26.7	81	4.3	28.9	5.7
209				Raichur	30.6	87	4.5	30.1	5.9
210				Srivalliputtur	29.3	85	4.6	24.4	5.6
		Mean			**28.5**	**84**	**4.4**	**27.8**	**5.6**
211	322	GTHV 18/19	Central	Banswara	26.6	79	3.2	24.5	5.5
212				Bhawanipatna	28.3	86	3.7	27.6	5.8
213				Junagadh	27.0	85	4.8	25.4	5.6
214				Surat	27.2	86	4.5	26.3	5.5
215				Taold	27.5	86	4.4	28.8	5.7
216			South	Adilabad	24.5	81	2.6	24.9	4.8
217				Coimbatore	29.3	84	4.1	31.8	4.1
218				Lam Guntur	26.7	84	4.5	27.5	5.6
219				Raichur	28.0	87	3.7	27.6	5.7
220				Srivalliputtur	28.5	84	4.8	26.3	5.6
		Mean			**27.4**	**84**	**4.0**	**27.1**	**5.4**
221	323	RAH 1082	Central	Banswara	25.1	79	4.0	26.0	5.6
222				Bhawanipatna	26.4	85	4.0	27.1	5.7
223				Junagadh	24.8	84	4.5	26.4	5.5
224				Surat	26.7	86	4.6	26.9	5.5
225				Taold	26.7	85	4.2	27.2	5.5
226			South	Adilabad	25.3	83	3.6	26.3	4.8
227				Coimbatore	27.6	83	4.4	29.9	4.4
228				Lam Guntur	28.4	84	4.7	29.5	5.8
229				Raichur	26.8	86	3.7	26.5	5.5

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
230				Srivalliputtur	27.0	86	5.1	26.4	5.6
		Mean			**26.5**	**84**	**4.3**	**27.2**	**5.4**

Br02b - IET G. hirsutum (Rainfed)

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
1	351	CNH 18298	Central	Akola	26.0	82	3.0	24.1	5.3
2				Banswara	24.3	78	3.7	22.2	5.8
3				Bharuch	26.6	83	3.6	29.8	5.5
4				Nagpur	26.2	84	3.4	25.4	5.5
5				Nanded	25.6	79	4.0	24.4	5.4
6			South	Adilabad	23.7	81	3.2	24.6	4.0
7				Dharwad	25.8	82	4.1	24.0	5.5
8				Nandyal	25.5	83	4.6	26.6	5.5
9				Veppanthattai	27.8	83	3.9	26.4	5.4
		Mean			**25.7**	**82**	**3.7**	**25.3**	**5.3**
10	352	CPD 2052	Central	Akola	24.8	82	3.3	26.0	5.4
11				Banswara	23.4	78	3.8	21.9	5.4
12				Bharuch	26.6	83	4.2	28.3	5.5
13				Nagpur	26.7	85	4.2	27.7	5.6
14				Nanded	25.2	82	4.2	25.7	5.4
15			South	Adilabad	24.3	80	3.5	25.8	4.4
16				Dharwad	25.9	83	4.4	25.0	5.4
17				Nandyal	25.5	83	4.3	27.4	5.5
18				Veppanthattai	26.4	84	4.3	29.9	5.3
		Mean			**25.4**	**82**	**4.0**	**26.4**	**5.3**
19	353	BS 10-20	Central	Akola	28.8	81	2.7	26.2	5.5
20				Banswara	27.9	79	3.1	26.1	5.6
21				Bharuch	30.8	84	3.4	28.6	5.7
22				Nagpur	31.9	85	2.9	27.1	5.8
23				Nanded	29.3	82	3.8	24.9	5.6
24			South	Adilabad	25.4	81	3.1	25.2	4.7
25				Dharwad	30.7	84	3.4	24.2	5.6
26				Nandyal	28.7	84	4.0	26.9	5.6
27				Veppanthattai	29.6	82	3.1	28.5	6.2
		Mean			**29.2**	**82**	**3.3**	**26.4**	**5.6**
28	354	QC	Central	Akola	28.7	85	3.4	28.2	5.7
29				Banswara	29.1	80	4.0	30.0	6.2
30				Bharuch	29.6	83	3.6	33.4	5.8
31				Nagpur	29.6	84	3.2	28.1	5.8
32				Nanded	29.2	82	4.3	27.9	5.7

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
33			South	Adilabad	28.1	84	2.8	27.3	5.4
34				Dharwad	32.0	84	4.1	27.7	5.8
35				Nandyal	28.7	85	4.8	28.2	5.8
36				Veppanthattai	31.4	84	4.0	29.8	6.1
		Mean			**29.6**	**84**	**3.8**	**29.0**	**5.8**
37	355	NDLH 2061-4	Central	Akola	Sample not received				
38				Banswara	27.3	79	3.4	25.2	5.6
39				Bharuch	28.5	82	4.2	30.1	5.6
40				Nagpur	27.9	85	3.8	26.1	5.6
41				Nanded	28.6	81	4.4	26.0	5.6
42			South	Adilabad	27.0	82	3.6	27.5	5.5
43				Coimbatore	29.9	85	4.1	27.0	5.7
44				Nandyal	27.6	83	4.3	27.4	5.5
45				Veppanthattai	32.5	84	4.0	28.2	4.9
		Mean			**28.7**	**83**	**4.0**	**27.2**	**5.5**
46	356	CNH 119	Central	Akola	26.3	82	3.1	26.2	5.5
47				Banswara	27.7	79	4.1	29.7	6.2
48				Bharuch	27.0	83	4.2	28.5	5.7
49				Nagpur	29.5	86	3.7	27.7	5.8
50				Nanded	27.0	82	4.1	24.8	5.5
51			South	Adilabad	26.4	80	3.1	23.7	5.5
52				Dharwad	28.9	85	3.8	26.4	5.8
53				Nandyal	26.5	82	4.3	26.5	5.5
54				Veppanthattai	30.6	84	4.2	28.2	6.4
		Mean			**27.8**	**82**	**3.8**	**26.9**	**5.8**
55	357	TKH 1225	Central	Akola	29.1	82	3.0	26.1	5.5
56				Banswara	Sample not received				
57				Bharuch	28.3	80	3.2	27.5	5.6
58				Nagpur	28.7	82	3.5	26.5	5.6
59				Nanded	27.9	80	3.8	26.1	5.6
60			South	Adilabad	26.2	81	2.9	25.2	4.9
61				Dharwad	28.3	80	3.7	25.5	5.7
62				Nandyal	26.9	81	4.2	26.8	5.6
63				Veppanthattai	31.3	85	3.8	27.3	6.0
		Mean			**28.3**	**81**	**3.5**	**26.4**	**5.6**
64	358	TSH 337	Central	Akola	Sample not received				
65				Banswara	25.2	79	4.4	24.9	5.5
66				Bharuch	26.4	83	4.7	25.0	5.4
67				Nagpur	29.0	84	3.8	26.2	5.7
68				Nanded	25.9	81	4.1	25.2	5.5
69			South	Adilabad	26.5	84	3.5	26.7	5.2
70				Dharwad	27.2	85	4.2	25.0	5.6
71				Nandyal	26.4	84	5.4	25.9	5.6

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
72				Veppanthattai	28.6	84	4.5	29.1	4.9
		Mean			**26.9**	**83**	**4.3**	**26.0**	**5.4**
73	359	CNDTS 287	Central	Akola	24.9	81	3.5	26.2	5.4
74				Banswara	26.5	79	3.9	25.5	5.7
75				Bharuch	28.2	82	3.6	30.3	5.6
76				Nagpur	28.3	85	3.6	26.8	5.7
77				Nanded	26.6	82	4.3	25.2	5.5
78			South	Adilabad	25.1	82	3.4	26.5	4.9
79				Dharwad	28.6	85	4.0	27.6	5.7
80				Nandyal	26.6	83	4.6	27.3	5.6
81				Veppanthattai	28.2	84	4.6	29.7	5.6
		Mean			**27.0**	**83**	**3.9**	**27.2**	**5.5**
82	360	WGCV 192	Central	Akola	29.4	82	2.9	26.2	5.5
83				Banswara	27.7	78	3.1	22.5	7.2
84				Bharuch	30.3	82	3.4	28.3	5.6
85				Nagpur	30.8	82	3.4	29.0	5.8
86				Nanded	31.0	82	3.7	27.4	5.6
87			South	Adilabad	30.3	84	3.2	28.4	5.7
88				Dharwad	31.8	82	3.2	25.6	5.6
89				Nandyal	29.8	83	3.8	28.1	5.6
90				Veppanthattai	27.9	81	2.6	24.9	5.5
		Mean			**29.9**	**82**	**3.3**	**26.7**	**5.8**
91	361	TVH 003	Central	Akola	29.0	82	3.1	29.3	5.7
92				Banswara	27.4	79	3.4	26.5	6.0
93				Bharuch	32.0	85	3.6	30.4	5.8
94				Nagpur	31.9	85	3.4	28.9	5.8
95				Nanded	29.1	82	3.8	28.4	5.6
96			South	Adilabad	27.9	82	3.0	27.7	5.7
97				Dharwad	31.3	85	3.9	28.8	5.8
98				Nandyal	29.6	85	4.3	29.5	5.7
99				Veppanthattai	30.7	84	3.9	26.9	4.9
		Mean			**29.9**	**83**	**3.6**	**28.5**	**5.7**
100	362	ZC	Central	Akola	26.8	82	3.2	25.4	5.5
101				Banswara	25.0	79	3.5	22.7	5.5
102				Bharuch	27.7	81	3.0	26.5	5.4
103				Nagpur	26.6	83	3.4	25.4	5.5
104				Nanded	27.8	82	4.2	25.5	5.6
105			South	Adilabad	27.3	84	3.8	28.3	5.5
106				Dharwad	29.3	84	4.0	27.6	5.7
107				Nandyal	27.8	84	4.6	26.8	5.6
108				Veppanthattai	29.6	84	4.3	29.4	4.5
		Mean			**27.5**	**83**	**3.8**	**26.4**	**5.4**
109	363	NDLH	Central	Akola	26.0	81	4.1	25.9	5.4

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
110		2071-2		Banswara	26.7	79	3.4	23.7	5.4
111				Bharuch	29.0	85	4.4	27.5	5.6
112				Nagpur	29.4	85	3.5	28.6	5.7
113				Nanded	28.6	81	4.4	25.7	5.6
114			South	Adilabad	28.4	84	3.6	26.9	5.1
115				Dharwad	29.4	84	4.0	26.4	5.6
116				Nandyal	27.6	84	4.4	26.1	5.5
117				Veppanthattai	31.0	84	3.1	25.3	5.1
		Mean			**28.5**	**83**	**3.9**	**26.2**	**5.4**
118	364	RAH 1082	Central	Akola	27.1	83	3.6	25.9	5.5
119				Banswara	25.7	79	3.8	24.7	5.6
120				Bharuch	27.2	84	3.5	25.2	5.5
121				Nagpur	26.2	84	3.3	23.0	5.6
122				Nanded	25.6	81	4.5	24.6	5.5
123			South	Adilabad	25.0	80	3.4	25.1	5.4
124				Dharwad	29.4	84	4.0	26.4	5.6
125				Nandyal	25.2	82	4.4	25.8	5.4
126				Veppanthattai	26.0	81	3.2	22.2	6.0
		Mean			**26.4**	**82**	**3.7**	**24.8**	**5.6**
127	365	CNH 18173	Central	Akola	sample not received				
128				Banswara	23.8	78	3.4	25.1	5.9
129				Bharuch	26.6	86	4.2	25.1	5.5
130				Nagpur	26.1	84	3.8	27.3	5.6
131				Nanded	26.2	81	3.8	24.9	5.5
132			South	Adilabad	23.4	80	3.4	25.1	4.3
133				Dharwad	26.2	83	4.1	25.1	5.5
134				Nandyal	24.1	81	4.4	26.7	5.4
135				Veppanthattai	25.4	80	3.0	22.9	5.9
		Mean			**25.2**	**82**	**3.8**	**25.3**	**5.5**
136	366	NH 723	Central	Akola	25.6	80	3.6	24.2	5.4
137				Banswara	27.7	78	3.2	21.1	7.6
138				Bharuch	27.7	84	3.6	29.7	5.6
139				Nagpur	26.0	84	3.2	25.7	5.6
140				Nanded	26.5	82	4.2	24.3	5.5
141			South	Adilabad	26.8	80	3.5	27.3	5.1
142				Dharwad	26.6	84	4.3	24.7	5.7
143				Nandyal	25.5	81	4.7	24.2	5.4
144				Veppanthattai	27.6	80	4.2	26.2	5.8
		Mean			**26.7**	**82**	**3.8**	**25.3**	**5.7**
145	367	RB 1908	Central	Akola	25.4	82	3.7	25.0	5.4
146				Banswara	27.5	80	3.8	26.5	8.4
147				Bharuch	26.8	81	4.0	25.6	5.4
148				Nagpur	26.5	82	3.6	27.0	5.5

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
149				Nanded	24.7	81	4.4	23.8	5.5
150			South	Adilabad	25.2	79	3.0	25.1	4.4
151				Dharwad	26.9	84	4.1	25.8	5.6
152				Nandyal	25.2	80	4.7	25.9	5.4
153				Veppanthattai	27.7	83	4.4	28.5	5.8
		Mean			**26.2**	**81**	**4.0**	**25.9**	**5.7**
154	368	GBHV 202	Central	Akola	26.9	82	3.0	27.4	5.5
155				Banswara	25.7	81	3.5	24.6	9.3
156				Bharuch	27.8	85	3.6	27.6	5.5
157				Nagpur	27.4	83	3.4	27.3	5.6
158				Nanded	26.4	83	4.0	26.5	5.5
159			South	Adilabad	27.7	83	3.5	28.6	5.6
160				Dharwad	27.9	85	4.0	25.9	5.7
161				Nandyal	25.5	83	4.7	27.3	5.5
162				Veppanthattai	28.7	83	4.9	27.8	5.2
		Mean			**27.1**	**83**	**3.8**	**27.0**	**5.9**
163	369	RAH 1081	Central	Akola	24.5	79	3.5	25.8	5.5
164				Banswara	25.5	81	3.7	24.7	8.9
165				Bharuch	25.0	84	4.2	27.6	5.5
166				Nagpur	25.8	84	4.2	26.8	5.7
167				Nanded	24.6	82	4.6	25.1	5.5
168			South	Adilabad	24.1	82	3.6	24	5.4
169				Dharwad	26.6	84	4.4	25.0	5.6
170				Nandyal	23.7	82	4.5	26.8	5.5
171				Veppanthattai	26.3	83	4.2	27.7	5.6
		Mean			**25.1**	**82**	**4.1**	**25.9**	**5.9**
172	370	ADB 728	Central	Akola	26.2	81	3.4	26.6	5.4
173				Banswara	30.3	80	3.6	29.5	8.4
174				Bharuch	26.9	85	4.2	28.6	5.6
175				Nagpur	26.7	83	4.1	28.4	5.6
176				Nanded	27.1	83	4.4	26.1	5.5
177			South	Adilabad	25.8	84	3.0	24.1	5.4
178				Dharwad	27.2	84	4.2	26.1	5.5
179				Nandyal	25.7	83	3.9	28.4	5.4
180				Veppanthattai	28.5	84	4.3	29.5	5.1
		Mean			**27.1**	**83**	**3.9**	**27.5**	**5.8**
181	371	TKH 1197	Central	Akola	sample not received				
182				Banswara	27.9	81	3.3	22.2	9.0
183				Bharuch	29.7	83	3.2	26.2	5.6
184				Nagpur	29.6	81	3.5	25.5	5.7
185				Nanded	29.1	81	3.6	25.5	5.7
186			South	Adilabad	26.3	81	2.5	22.8	5.4
187				Dharwad	29.6	83	3.5	24.2	5.7

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
188				Nandyal	29.9	83	4.1	26.2	5.7
189				Veppanthattai	30.5	81	2.9	21.8	6.4
		Mean			**29.1**	**82**	**3.3**	**24.3**	**6.2**
190	372	CPD 2053	Central	Akola	25.5	82	3.3	26.3	5.4
191				Banswara	24.8	80	3.7	23.7	5.4
192				Bharuch	25.3	82	4.0	26.0	5.5
193				Nagpur	26.2	81	3.3	25.1	5.5
194				Nanded	25.5	81	4.2	25.6	5.5
195			South	Adilabad	24.7	82	3.0	25.3	4.5
196				Dharwad	26.3	84	4.2	25.1	5.5
197				Nandyal	24.5	82	4.2	27.5	5.5
198				Veppanthattai	23.7	81	3.9	25.1	5.7
		Mean			**25.2**	**82**	**3.8**	**25.5**	**5.4**
199	373	AKH 2013-3	Central	Akola	27.4	82	3.5	24.8	5.4
200				Banswara	24.4	81	3.5	21.7	5.2
201				Bharuch	28.5	83	4.4	26.0	5.6
202				Nagpur	27.6	83	3.8	26.3	5.6
203				Nanded	26.0	79	4.0	23.7	5.5
204			South	Adilabad	24.4	80	2.9	22.9	3.9
205				Dharwad	27.2	82	4.0	23.8	5.5
206				Nandyal	27.7	83	4.2	26.6	5.5
207				Veppanthattai	30.4	83	3.5	26.4	5.8
		Mean			**27.1**	**82**	**3.8**	**24.7**	**5.3**
208	374	CNDTS 2131	Central	Akola	27.3	82	3.2	29.8	5.7
209				Banswara	24.7	79	3.8	22.3	4.9
210				Bharuch	26.3	82	2.7	26.1	5.5
211				Nagpur	27.4	83	2.8	27.0	5.6
212				Nanded	25.1	80	3.4	23.4	5.5
213			South	Adilabad	24.3	80	3.0	22.8	5.4
214				Dharwad	26.7	84	3.6	24.3	5.6
215				Nandyal	25.6	81	3.5	25.3	5.4
216				Veppanthattai	27.9	84	4.9	28.4	5.4
		Mean			**26.1**	**82**	**3.4**	**25.5**	**5.4**
217	375	LC	Central	Akola	25.0	80	3.7	25.2	5.4
218				Banswara	26.5	81	3.6	23.4	4.7
219				Bharuch	27.6	85	4.2	27.2	5.6
220				Nagpur	25.6	82	4.1	25.2	5.5
221				Nanded	24.9	82	4.5	23.8	5.5
222			South	Adilabad	26.5	81	3.6	26.4	5.6
223				Dharwad	26.0	84	4.1	24.6	5.5
224				Nandyal	27.8	85	4.8	26.8	5.6
225				Veppanthattai	28.1	83	5.0	27.6	5.6
		Mean			**26.5**	**83**	**4.2**	**25.6**	**5.4**

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
226	376	CNH 1137	Central	Akola	25.8	82	3.3	26.4	5.4
227				Banswara	26.7	81	3.5	23.2	4.4
228				Bharuch	27.2	84	4.4	25.7	5.5
229				Nagpur	27.1	84	3.6	27.0	5.7
230				Nanded	26.0	83	4.4	25.6	5.5
231			South	Adilabad	24.9	81	3.0	24.5	4.9
232				Dharwad	26.9	85	4.2	25.6	5.7
233				Nandyal	25.6	83	4.6	27.0	5.5
234				Veppanthattai	27.5	83	4.2	26.8	5.2
		Mean			**26.4**	**83**	**3.9**	**25.8**	**5.3**
235	377	CPD 2051	Central	Akola	24.6	80	3.6	24.6	5.3
236				Banswara	27.0	80	3.9	21.8	4.2
237				Bharuch	27.0	83	4.1	25.6	5.5
238				Nagpur	29.0	85	4.0	30.9	5.8
239				Nanded	27.0	82	4.5	25.9	5.5
240			South	Adilabad	24.2	81	2.9	24.2	4.2
241				Dharwad	28.4	84	4.6	26.5	5.8
242				Nandyal	27.0	83	4.2	28.4	5.6
243				Veppanthattai	29.2	83	4.4	27.9	5.9
		Mean			**27.0**	**82**	**4.0**	**26.2**	**5.3**
244	378	GBHV 217	Central	Akola	24.1	80	3.5	24.2	5.4
245				Banswara	26.3	81	3.8	22.3	4.3
246				Bharuch	26.4	83	4.8	25.9	5.6
247				Nagpur	27.4	84	3.8	27.1	5.6
248				Nanded	25.0	81	4.4	25.8	5.4
249			South	Adilabad	24.6	80	3.4	25	5.5
250				Dharwad	25.3	83	3.9	24.8	5.5
251				Nandyal	25.6	82	4.5	27.3	5.5
252				Veppanthattai	25.4	82	3.7	27.4	5.9
		Mean			**25.6**	**82**	**4.0**	**25.5**	**5.4**
253	379	TSH 358	Central	Akola	Sample not received				
254				Banswara	25.6	80	4.0	22.4	4.1
255				Bharuch	28.2	83	4.6	32.1	5.8
256				Nagpur	26.7	83	3.7	26.0	5.5
257				Nanded	26.9	81	4.4	26.2	5.5
258			South	Adilabad	26.6	80	3.2	25.6	5.5
259				Dharwad	26.9	83	3.8	24.8	5.5
260				Nandyal	25.8	83	4.4	27.4	5.6
261				Veppanthattai	26.6	82	3.4	23.9	5.7
		Mean			**26.7**	**82**	**3.9**	**26.1**	**5.4**
262	380	RB 1910	Central	Akola	23.7	80	3.4	24.2	5.3
263				Banswara	26.6	79	3.7	21.3	4.2
264				Bharuch	25.2	80	3.8	26.6	5.4

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
265				Nagpur	27.6	84	3.8	27.2	5.7
266				Nanded	24.5	81	4.0	24.9	5.4
267			South	Adilabad	23.3	82	3.2	25.4	4.0
268				Dharwad	26.8	84	4.4	25.0	5.5
269				Nandyal	26.1	84	4.0	26.8	5.6
270				Veppanthattai	25.6	83	5.2	24.2	5.8
		Mean			**25.5**	**82**	**3.9**	**25.1**	**5.2**
271	381	AKH 2016-1	Central	Akola	25.8	82	3.9	24.5	5.4
272				Banswara	26.2	80	3.9	22.5	4.2
273				Bharuch	26.2	82	4.6	27.9	5.6
274				Nagpur	27.3	83	4.0	26.7	5.6
275				Nanded	24.9	81	4.7	24.5	5.4
276			South	Adilabad	25.2	84	3.7	26.3	5.5
277				Dharwad	26.4	84	4.8	24.7	5.7
278				Nandyal	24.9	81	4.7	24.7	5.4
279				Veppanthattai	28.2	84	4.3	31.3	5.6
		Mean			**26.1**	**82**	**4.3**	**25.9**	**5.4**
280	382	RAH 1083	Central	Akola	Sample not received				
281				Banswara	26.3	80	4.1	24.6	4.3
282				Bharuch	26.7	82	4.2	28.9	5.6
283				Nagpur	26.7	84	3.7	26.0	5.5
284				Nanded	24.9	81	3.6	24.6	5.4
285			South	Adilabad	25.2	82	3.4	25.5	5.5
286				Dharwad	26.6	85	4.1	25.6	5.6
287				Nandyal	26.7	84	4.2	26.1	5.6
288				Veppanthattai	28.2	83	4.4	27.6	5.3
		Mean			**26.4**	**83**	**4.0**	**26.1**	**5.4**

Br02 a/b CC - IET - G.hirsutum - Coloured Cotton (Irrigated/Rainfed)

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
1	391	CNH 19325	Central	Nagpur	23.2	84	3.8	23.8	5.4
2				Surat	22.1	83	5.0	24.5	5.2
3			South	Dharwad	22.6	81	3.6	20.3	5.3
4				Lam Guntur	21.8	82	4.8	22.2	5.3
		Mean			**22.4**	**82**	**4.3**	**22.7**	**5.3**
5	392	DHCC 2002	Central	Nagpur	22.8	82	3.4	23.2	5.3
6				Surat	20.8	81	4.5	20.6	5.0
7			South	Dharwad	22.8	81	3.5	21.2	5.3
8				Lam, Guntur	22.9	83	4.4	23.2	5.3
		Mean			**22.3**	**82**	**3.9**	**22.1**	**5.2**
9	393	ZC	Central	Nagpur	27.7	86	3.5	29.2	5.7

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
10				Surat	26.6	85	4.1	27.2	5.6
11			South	Dharwad	30.7	84	3.8	27.8	5.7
12				Lam Guntur	31.3	85	4.8	28.1	5.8
		Mean			**29.1**	**85**	**4.1**	**28.1**	**5.7**
13	394	CNH 19480	Central	Nagpur	24.2	83	3.5	23.7	5.5
14				Surat	23.0	83	4.2	24.9	5.2
15			South	Dharwad	23.7	80	2.9	19.8	5.3
16				Lam Guntur	23.6	83	4.4	23.6	5.4
		Mean			**23.6**	**82**	**3.8**	**23.0**	**5.4**
17	395	DHCC 2001	Central	Nagpur	21.4	80	4.2	21.9	5.2
18				Surat	22.4	76	3.8	23.3	5.1
19			South	Dharwad	21.5	81	4.4	19.5	5.3
20				Lam Guntur	20.9	81	4.4	19.1	5.2
		Mean			**21.6**	**79**	**4.2**	**21.0**	**5.2**
21	396	LC	Central	Nagpur	26.1	83	4.3	25.5	5.6
22				Surat	26.2	83	4.1	27.3	5.4
23			South	Dharwad	26.9	81	3.6	25.6	5.5
24				Lam Guntur	28.7	85	4.4	29.1	5.8
		Mean			**27.0**	**83**	**4.1**	**26.9**	**5.6**
25	397	SHSCC 5	Central	Nagpur	24.2	81	3.1	21.6	5.3
26				Surat	22.8	80	4.0	21.1	4.8
27			South	Dharwad	23.3	80	3.4	20.5	5.3
28				Lam Guntur	24.4	80	4.0	23.7	5.5
		Mean			**23.7**	**80**	**3.6**	**21.7**	**5.2**

Br06a - IET of Compact Genotypes under irrigated condition

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
1	401	RB 1918	Central	Banswara	26.6	79	3.8	26.5	6.1
2				Bhawanipatna	24.7	84	5.2	25.5	5.6
3				Junagadh	24.4	82	4.7	25.0	5.5
4				Taold	24.0	84	4.5	25.2	5.6
5			South	Coimbatore	26.9	81	5.2	28.3	5.2
6				Lam, Guntur	27.5	84	4.4	27.2	5.8
7				Raichur	27.5	85	4.6	28.4	5.7
		Mean			**25.9**	**83**	**4.6**	**26.6**	**5.6**
8	402	CNH 20-31	Central	Banswara	22.8	78	3.2	22.3	5.6
9				Bhawanipatna	23.1	85	5.0	24.9	5.6
10				Junagadh	21.4	80	4.8	22.3	5.4
11				Taold	26.4	79	4.2	27.1	5.6
12			South	Coimbatore	25.1	81	5.3	27.3	5.3
13				Lam, Guntur	27.3	82	5.0	27.5	5.8

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
14				Raichur	24.4	83	4.7	25.5	5.5
		Mean			**24.4**	**81**	**4.6**	**25.3**	**5.5**
15	403	RHC 1651	Central	Banswara	25.3	79	3.4	25.7	6.0
16				Bhawanipatna	25.9	86	4.0	27.9	5.7
17				Junagadh	22.1	82	4.4	23.3	5.3
18				Taold	24.9	85	3.9	26.4	5.6
19			South	Coimbatore	24.8	83	4.6	28.2	4.6
20				Lam, Guntur	26.9	85	4.4	27.3	5.7
21				Raichur	27.2	82	4.2	28.5	5.7
		Mean			**25.3**	**83**	**4.1**	**26.8**	**5.5**
22	404	BS 11-20	Central	Banswara	28.4	79	2.8	29.0	6.2
23				Bhawanipatna	29.7	86	4.1	26.2	5.9
24				Junagadh	29.1	85	3.8	27.5	5.6
25				Taold	30.4	85	4.0	29.0	5.8
26			South	Coimbatore	30.9	84	4.2	30.3	4.9
27				Lam, Guntur	32.6	83	3.8	28.8	5.9
28				Raichur	31.8	85	3.8	30.9	6.0
		Mean			**30.4**	**84**	**3.8**	**28.8**	**5.8**
29	405	LC	Central	Banswara	27.8	79	3.1	25.2	5.7
30				Bhawanipatna	31.3	85	4.6	29.7	5.9
31				Junagadh	24.7	84	4.6	26.3	5.5
32				Taold	25.3	83	4.9	26.6	5.6
33			South	Coimbatore	30.7	84	4.8	33.9	4.5
34				Lam, Guntur	28.2	84	4.6	28.6	5.6
35				Raichur	30.1	83	4.4	27.1	5.7
		Mean			**28.3**	**83**	**4.4**	**28.2**	**5.5**
36	406	TCH 1985	Central	Banswara	26.2	79	3.5	27.3	6.0
37				Bhawanipatna	28.0	84	4.4	28.1	5.8
38				Junagadh	25.6	83	4.5	27.0	5.6
39				Taold	26.0	85	3.8	27.0	5.5
40			South	Coimbatore	29.5	84	4.8	30.2	4.3
41				Lam, Guntur	28.8	86	4.7	26.4	5.6
42				Raichur	29.3	84	4.3	28.5	5.8
		Mean			**27.6**	**84**	**4.3**	**27.8**	**5.5**
43	407	RHC 1639	Central	Banswara	26.7	79	3.4	25.5	5.9
44				Bhawanipatna	27.6	85	4.0	27.3	5.8
45				Junagadh	26.1	83	3.7	27.1	5.5
46				Taold	28.0	86	3.7	27.7	5.6
47			South	Coimbatore	29.1	85	5.1	30.8	4.1
48				Lam, Guntur	28.4	85	4.0	26.6	5.6
49				Raichur	28.5	85	4.0	30.4	5.8
		Mean			**27.8**	**83.9**	**4.0**	**27.9**	**5.5**
50	408	RB 1901	Central	Banswara	26.0	79	4.1	25.8	6.0

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
51				Bhawanipatna	25.0	83	5.0	26.9	5.6
52				Junagadh	25.6	80	5.0	26.8	5.6
53				Taold	24.7	81	4.3	25.9	5.5
54			South	Coimbatore	26.8	83	5.1	27.2	4.3
55				Lam, Guntur	29.2	85	4.8	28.1	5.8
56				Raichur	28.7	86	4.3	30.8	5.8
		Mean			**26.6**	**82**	**4.6**	**27.4**	**5.5**
57	409	RAHC 1032	Central	Banswara	28.0	80	3.6	25.6	5.6
58				Bhawanipatna	30.5	82	4.3	28.4	5.7
59				Junagadh	29.0	85	3.8	26.6	5.5
60				Taold	30.0	81	4.0	28.6	5.7
61			South	Coimbatore	29.5	83	4.7	28.9	4.3
62				Lam, Guntur	31.6	82	4.1	28.0	5.7
63				Raichur	31.6	84	3.8	30.2	5.8
		Mean			**30.0**	**82**	**4.0**	**28.0**	**5.5**
64	410	CC	Central	Banswara	28.8	80	3.6	26.6	6.2
65				Bhawanipatna	32.6	86	4.4	30.0	6.0
66				Junagadh	29.6	84	4.3	27.9	5.8
67				Taold	29.3	85	4.0	31.8	5.8
68			South	Coimbatore	30.0	84	5.0	32.5	4.1
69				Lam, Guntur	32.5	84	4.3	30.0	5.9
70				Raichur	29.8	85	4.6	30.7	5.9
		Mean			**30.4**	**84**	**4.3**	**29.9**	**5.7**
71	411	RAHC 1031	Central	Banswara	25.0	79	3.1	22.9	5.5
72				Bhawanipatna	28.4	85	4.6	29.7	5.7
73				Junagadh	27.5	83	4.3	27.4	5.6
74				Taold	24.6	81	4.7	23.6	5.4
75			South	Coimbatore	29.3	82	4.5	29.7	4.3
76				Lam, Guntur	31.0	83	3.9	28.0	5.7
77				Raichur	26.7	81	4.4	26.8	5.5
		Mean			**27.5**	**82**	**4.2**	**26.9**	**5.4**

Br06b - Initial Evaluation of Compact genotypes under rainfed condition

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
1	421	CNH 1139	Central	Akola	26.6	83	4.7	24.6	5.4
2				Bharuch	27.4	84	3.4	28.8	5.6
3				Nagpur	27.6	82	3.9	27.1	5.6
4				Nanded	25.8	80	4.8	25.4	5.5
5			South	Adilabad	25.3	80	3.6	24.9	4.3
6				Dharwad	27.3	83	4.6	27.0	5.7
7				Nandyal	26.0	82	4.7	24.9	5.5

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
8				Veppanthattai	26.4	82	4.5	25.6	5.5
		Mean			**26.6**	**82**	**4.3**	**26.0**	**5.4**
9	422	CNH 20-32	Central	Akola	26.0	82	3.6	27.1	5.5
10				Bharuch	24.4	78	4.2	23.4	5.3
11				Nagpur	27.4	83	4.2	26.2	5.7
12				Nanded	26.1	81	4.7	24.2	5.6
13			South	Adilabad	22.6	75	3.2	21.6	5.2
14				Dharwad	27.8	85	4.3	26.4	5.7
15				Nandyal	24.7	82	4.7	24.3	5.5
16				Veppanthattai	25.3	82	4.6	23.0	5.9
		Mean			**25.5**	**81**	**4.2**	**24.5**	**5.6**
17	423	CNDTS 5114	Central	Akola	26.0	82	3.9	26.5	5.5
18				Bharuch	28.6	83	3.4	28.1	5.6
19				Nagpur	27.5	82	3.9	27.8	5.6
20				Nanded	26.3	82	4.8	26.9	5.6
21			South	Adilabad	24.4	81	3.5	25.6	4.6
22				Dharwad	27.8	85	4.2	27.4	5.7
23				Nandyal	25.6	83	4.6	26.4	5.5
24				Veppanthattai	28.4	83	4.5	29.1	5.0
		Mean			**26.8**	**83**	**4.1**	**27.2**	**5.4**
25	424	DSC 2051	Central	Akola	25.5	82	4.2	26.5	5.6
26				Bharuch	26.9	81	3.4	28.4	5.6
27				Nagpur	27.5	85	3.7	28.3	5.7
28				Nanded	25.4	82	4.4	26.7	5.5
29			South	Adilabad	22.4	81	3.4	24.2	3.6
30				Dharwad	26.2	85	4.1	26.6	5.6
31				Nandyal	23.5	82	4.0	24.0	5.4
32				Veppanthattai	24.8	81	3.7	22.7	5.5
		Mean			**25.3**	**82**	**3.9**	**25.9**	**5.3**
33	425	LC	Central	Akola	25.3	80	3.8	24.1	5.5
34				Bharuch	25.7	82	4.1	27.0	5.6
35				Nagpur	26.3	82	4.6	25.6	5.6
36				Nanded	27.5	83	4.5	25.0	5.5
37			South	Adilabad	28.2	84	4.1	27.4	5.3
38				Dharwad	28.1	84	3.6	27.6	5.7
39				Nandyal	27.3	82	4.6	27.1	5.6
40				Veppanthattai	28.9	81	3.4	25.2	6.1
		Mean			**27.2**	**82**	**4.1**	**26.1**	**5.6**
41	426	CNH 20-33	Central	Akola	23.5	80	4.7	22.4	5.5
42				Bharuch	24.4	79	4.3	24.4	5.4
43				Nagpur	27.0	84	4.5	26.2	5.7
44				Nanded	24.4	79	5.2	22.4	5.5
45			South	Adilabad	23.2	81	3.8	24.6	4.3

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
46				Dharwad	24.4	85	4.7	24.3	5.6
47				Nandyal	23.5	80	4.8	23.9	5.4
48				Veppanthattai	25.5	81	3.9	22.4	6.1
		Mean			**24.5**	**81**	**4.5**	**23.8**	**5.4**
49	427	CNH 1140	Central	Akola	25.2	82	3.3	26.5	5.5
50				Bharuch	25.0	82	3.6	25.3	5.4
51				Nagpur	25.1	84	4.4	26.0	5.7
52				Nanded	25.4	83	4.4	25.3	5.5
53			South	Adilabad	22.2	80	3.4	21.7	3.4
54				Dharwad	25.3	84	3.6	25.4	5.6
55				Nandyal	23.9	83	5.0	24.9	5.5
56				Veppanthattai	26.2	82	3.2	24.4	5.9
		Mean			**24.8**	**82**	**3.8**	**24.9**	**5.3**
57	428	CNH 121	Central	Akola	Sample not received				
58				Bharuch	30.3	83	3.2	30.0	5.7
59				Nagpur	31.7	84	3.5	29.8	5.8
60				Nanded	30.0	83	4.4	28.3	5.7
61			South	Adilabad	29.7	84	3.2	25.7	4.9
62				Dharwad	28.5	84	3.5	29.2	5.7
63				Nandyal	29.4	82	4.6	26.7	5.7
64				Veppanthattai	31.1	83	3.4	28.3	5.2
		Mean			**30.1**	**83**	**3.7**	**28.3**	**5.5**
65	429	CNDTS 5170	Central	Akola	Sample not received				
66				Bharuch	27.2	80	3.4	25.5	5.5
67				Nagpur	29.0	84	3.7	27.9	5.7
68				Nanded	27.9	83	4.2	27.0	5.6
69			South	Adilabad	23.4	78	3.6	22.9	5.3
70				Dharwad	28.8	82	3.6	27.0	5.7
71				Nandyal	27.7	83	4.2	26.7	5.7
72				Veppanthattai	27.4	80	2.8	24.0	5.6
		Mean			**27.4**	**81**	**3.6**	**25.9**	**5.6**
73	430	CNH 20-31	Central	Akola	22.7	81	4.8	22.2	5.4
74				Bharuch	24.9	80	4.2	25.0	5.5
75				Nagpur	25.6	85	4.8	25.1	5.7
76				Nanded	22.6	81	5.2	22.1	5.4
77			South	Adilabad	21.3	80	3.6	22.2	5.2
78				Dharwad	26.1	82	4.3	26.5	5.6
79				Nandyal	22.3	82	4.4	22.7	5.3
80				Veppanthattai	23.3	81	3.5	24.3	6.6
		Mean			**23.6**	**81**	**4.4**	**23.8**	**5.6**
81	431	CNH 120	Central	Akola	Sample not received				
82				Bharuch	27.3	82	3.2	27.5	5.6
83				Nagpur	29.8	85	3.4	29.4	5.8

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
84				Nanded	27.0	80	3.6	26.8	5.5
85			South	Adilabad	27.6	79	3.0	26.4	5.5
86				Dharwad	28.4	84	3.4	27.0	5.7
87				Nandyal	28.9	83	4.2	27.8	5.7
88				Veppanthattai	29.6	80	2.7	21.2	5.9
		Mean			**28.4**	**82**	**3.4**	**26.6**	**5.7**
89	432	RAHC 1032	Central	Akola	26.6	81	4.2	26.3	5.6
90				Bharuch	27.6	81	3.3	26.0	5.5
91				Nagpur	30.4	84	3.3	28.7	5.8
92				Nanded	26.6	82	3.8	25.0	5.5
93			South	Adilabad	26.3	81	3.0	25.8	4.8
94				Dharwad	28.7	84	3.4	26.5	5.7
95				Nandyal	28.4	83	3.3	28.8	5.7
96				Veppanthattai	26.4	80	2.9	20.3	5.8
		Mean			**27.6**	**82**	**3.4**	**25.9**	**5.6**
97	433	CC	Central	Akola	29.8	84	3.7	27.7	5.7
98				Bharuch	30.3	83	3.8	30.2	5.7
99				Nagpur	31.1	85	3.8	29.6	5.8
100				Nanded	29.6	83	4.8	28.2	5.8
101			South	Adilabad	28.6	84	3.2	28.3	5.4
102				Dharwad	31.6	85	3.9	28.9	5.8
103				Nandyal	29.1	84	4.4	28.8	5.7
104				Veppanthattai	30.9	81	2.7	24.3	6.1
		Mean			**30.1**	**84**	**3.8**	**28.3**	**5.8**
105	434	RAHC 1031	Central	Akola	26.4	82	3.5	25.0	5.5
106				Bharuch	27.7	81	3.4	27.2	5.5
107				Nagpur	28.3	85	3.8	27.5	5.7
108				Nanded	26.6	82	4.2	24.6	5.5
109			South	Adilabad	26.3	83	3.8	26.1	4.4
110				Dharwad	25.6	83	3.7	26.1	5.5
111				Nandyal	28.1	82	4.4	27.4	5.6
112				Veppanthattai	28.7	77	2.8	24.3	6.0
		Mean			**27.2**	**82**	**3.7**	**26.0**	**5.5**
113	435	GTHV 19/18	Central	Akola	26.0	83	3.9	26.5	5.6
114				Bharuch	26.0	82	4.3	27.8	5.7
115				Nagpur	26.0	83	4.2	28.6	5.7
116				Nanded	27.2	83	4.3	26.9	5.6
117			South	Adilabad	23.9	80	3.6	25.4	4.3
118				Dharwad	26.3	86	3.5	27.3	5.7
119				Nandyal	25.2	83	4.4	26.6	5.5
120				Veppanthattai	25.7	82	3.3	26.1	6.5
		Mean			**25.8**	**83**	**3.9**	**26.9**	**5.6**

Br022 a/b - IET G. arboreum

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
1	441	NDLA 3140	Central	Akola	23.5	80	4.2	24.4	5.5
2				Amreli	23.7	81	5.9	25.8	5.5
3				Nagpur	23.2	83	5.0	27.8	5.6
4				Parbhani	24.9	81	5.7	25.4	5.6
5			South	Dharwad	22.0	81	5.7	23.4	5.4
6				Raichur	Sample not received				
7				Nandyal	23.8	81	4.9	24.1	5.5
8				Mudhol	23.1	81	4.2	23.9	5.4
		Mean			**23.5**	**81**	**5.1**	**25.0**	**5.5**
9	442	CAN 18392	Central	Akola	27.0	83	5.3	24.6	5.6
10				Amreli	26.7	81	5.3	28.1	5.6
11				Nagpur	27.7	84	5.1	29.7	5.8
12				Parbhani	27.1	83	5.8	25.6	5.7
13			South	Dharwad	24.8	82	5.1	25.8	5.5
14				Raichur	Sample not received				
15				Nandyal	26.2	82	5.3	25.3	5.6
16				Mudhol	26.8	81	4.8	27.3	5.7
		Mean			**26.6**	**82**	**5.2**	**26.6**	**5.6**
17	443	CAN 2034	Central	Akola	26.3	80	4.2	24.5	5.5
18				Amreli	26.4	82	5.7	30.0	5.7
19				Nagpur	26.3	83	4.7	31.3	5.7
20				Parbhani	25.5	84	5.4	25.7	5.6
21			South	Dharwad	24.3	81	4.8	25.6	5.5
22				Raichur	Sample not received				
23				Nandyal	25.2	81	4.2	29.0	5.5
24				Mudhol	26.1	81	4.8	25.4	5.6
		Mean			**25.7**	**82**	**4.8**	**27.4**	**5.6**
25	444	CAN 1071	Central	Akola	24.6	83	5.1	26.3	5.6
26				Amreli	25.6	82	5.5	30.1	5.6
27				Nagpur	25.1	83	5.0	28.8	5.7
28				Parbhani	25.6	81	5.4	26.8	5.6
29			South	Dharwad	24.3	82	5.2	25.3	5.5
30				Raichur	Sample not received				
31				Nandyal	26.2	83	5.4	25.3	5.7
32				Mudhol	25.7	82	5.6	26.5	5.8
		Mean			**25.3**	**82**	**5.3**	**27.0**	**5.6**
33	445	JLA 1512	Central	Akola	23.9	81	4.9	24.1	5.5
34				Amreli	24.4	81	5.8	27.5	5.6
35				Nagpur	26.1	85	5.0	27.7	5.7
36				Parbhani	25.8	82	5.6	26.0	5.7

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
37			South	Dharwad	23.1	82	5.4	24.5	5.5
38				Raichur	Sample not received				
39				Nandyal	24.4	81	5.0	26.4	5.5
40				Mudhol	25.9	82	5.2	26.8	5.7
		Mean			**24.8**	**82**	**5.3**	**26.1**	**5.6**
41	446	PA 885	Central	Akola	25.3	79	4.7	24.5	5.6
42				Amreli	29.0	81	5.1	30.3	5.7
43				Nagpur	29.4	84	4.4	28.9	5.7
44				Parbhani	29.2	83	4.7	26.9	5.7
45			South	Dharwad	26.1	83	4.8	26.3	5.5
46				Raichur	Sample not received				
47				Nandyal	27.5	81	4.6	27.3	5.6
48				Mudhol	27.9	82	4.7	27.4	5.8
		Mean			**27.8**	**82**	**4.7**	**27.4**	**5.7**
49	447	DWDa 2051	Central	Akola	27.8	81	3.9	25.7	5.5
50				Amreli	28.0	82	5.0	29.8	5.7
51				Nagpur	28.1	83	4.0	27.7	5.6
52				Parbhani	27.7	82	4.9	27.8	5.7
53			South	Dharwad	26.8	83	5.2	25.6	5.5
54				Raichur	Sample not received				
55				Nandyal	25.6	81	5.0	27.0	5.6
56				Mudhol	26.0	83	5.2	25.5	5.6
		Mean			**27.1**	**82**	**4.7**	**27.0**	**5.6**
57	448	CAN 18408	Central	Akola	25.3	81	4.5	26.1	5.6
58				Amreli	27.4	83	5.8	28.9	5.8
59				Nagpur	27.0	83	4.9	27.4	5.6
60				Parbhani	26.0	82	6.0	24.9	5.6
61			South	Dharwad	25.2	83	5.0	25.5	5.5
62				Raichur	Sample not received				
63				Nandyal	26.7	82	5.0	24.8	5.5
64				Mudhol	26.8	83	5.6	26.1	5.8
		Mean			**26.3**	**82**	**5.2**	**26.2**	**5.6**
65	449	CAN 1072	Central	Akola	24.8	83	5.0	25.7	5.6
66				Amreli	24.0	82	5.8	27.7	5.6
67				Nagpur	24.6	84	4.8	29.0	5.6
68				Parbhani	24.9	83	5.9	26.1	5.6
69			South	Dharwad	23.6	83	5.6	26.3	5.5
70				Raichur	Sample not received				
71				Nandyal	25.4	82	5.2	25.6	5.6
72				Mudhol	24.3	82	5.8	26.8	5.7
		Mean			**24.5**	**83**	**5.4**	**26.7**	**5.6**
73	450	JLA 1430	Central	Akola	23.8	81	4.6	25.0	5.5
74				Amreli	25.0	82	6.1	27.6	5.6

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
75				Nagpur	24.7	82	5.3	28.8	5.6
76				Parbhani	25.0	83	6.1	24.3	5.6
77			South	Dharwad	23.4	81	5.2	25.6	5.5
78				Raichur	Sample not received				
79				Nandyal	24.1	82	5.2	26.4	5.5
80				Mudhol	24.4	82	6.0	24.9	5.7
		Mean			**24.3**	**82**	**5.5**	**26.1**	**5.6**
81	451	NDLA 3151	Central	Akola	Sample not received				
82				Amreli	24.8	81	5.8	28.8	5.7
83				Nagpur	23.5	82	5.7	29.1	5.7
84				Parbhani	24.2	82	6.2	25.3	5.6
85			South	Dharwad	24.0	81	5.8	26.2	5.5
86				Raichur	Sample not received				
87				Nandyal	25.2	84	5.6	25.6	5.6
88				Mudhol	24.1	82	5.7	26.6	5.8
		Mean			**24.3**	**82**	**5.8**	**26.9**	**5.7**
89	452	PA 881	Central	Akola	27.1	83	4.7	26.2	5.6
90				Amreli	27.4	83	5.1	28.9	5.7
91				Nagpur	26.1	82	4.4	30.0	5.7
92				Parbhani	27.4	81	4.6	27.4	5.7
93			South	Dharwad	26.5	82	4.9	27.0	5.7
94				Raichur	Sample not received				
95				Nandyal	25.6	81	3.8	28.9	5.5
96				Mudhol	27.0	82	4.8	27.3	5.8
		Mean			**26.7**	**82**	**4.6**	**28.0**	**5.7**
97	453	GAM 266	Central	Akola	25.8	81	4.2	24.7	5.6
98				Amreli	25.0	82	5.5	26.5	5.6
99				Nagpur	26.2	84	5.1	32.0	5.8
100				Parbhani	26.6	82	5.6	26.1	5.7
101			South	Dharwad	23.8	82	5.4	25.1	5.6
102				Raichur	Sample not received				
103				Nandyal	26.6	83	4.9	27.3	5.6
104				Mudhol	25.3	83	5.7	25.5	5.7
		Mean			**25.6**	**82**	**5.2**	**26.7**	**5.7**
105	454	MDL 2674	Central	Akola	23.4	81	5.4	24.5	5.6
106				Amreli	23.3	83	6.2	24.4	5.6
107				Nagpur	23.8	84	6.0	32.9	5.7
108				Parbhani	23.9	83	6.3	24.1	5.6
109			South	Dharwad	22.7	81	6.6	25.1	5.5
110				Raichur	Sample not received				
111				Nandyal	22.4	81	5.4	26.4	5.4
112				Mudhol	21.7	80	6.5	22.7	5.5
		Mean			**23.0**	**82**	**6.1**	**25.7**	**5.6**

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
113	455	GAM 269	Central	Akola	26.0	82	4.6	26.4	5.6
114				Amreli	25.2	82	5.8	26.8	5.7
115				Nagpur	26.3	83	4.9	30.4	5.7
116				Parbhani	25.7	83	5.8	25.5	5.7
117			South	Dharwad	23.3	81	5.4	25.3	5.5
118				Raichur	Sample not received-				
119				Nandyal	25.4	81	5.2	25.8	5.6
120				Mudhol	25.5	82	4.6	27.0	5.7
		Mean			**25.3**	**82**	**5.2**	**26.7**	**5.6**
121	456	ZC	Central	Akola	25.7	83	4.7	25.7	5.7
122				Amreli	25.6	82	5.4	26.3	5.7
123				Nagpur	25.2	83	5.0	29.3	5.7
124				Parbhani	25.5	82	5.4	24.8	5.6
125			South	Dharwad	26.2	82	5.2	25.7	5.6
126				Raichur	Sample not received				
127				Nandyal	26.1	82	4.8	26.7	5.5
128				Mudhol	26.7	83	5.2	26.7	5.7
		Mean			**25.8**	**82**	**5.1**	**26.5**	**5.6**
129	457	LC	Central	Akola	25.6	82	4.0	27.6	5.7
130				Amreli	25.4	82	5.2	26.8	5.7
131				Nagpur	27.5	84	4.5	28.7	5.8
132				Parbhani	27.2	82	5.2	26.6	5.6
133			South	Dharwad	25.2	81	5.0	25.8	5.5
134				Raichur	Sample not received				
135				Nandyal	24.6	82	5.2	25.8	5.5
136				Mudhol	25.4	82	6.1	25.2	5.7
		Mean			**25.8**	**82**	**5.0**	**26.6**	**5.6**
137	458	MDL ABB1	Central	Akola	22.9	80	5.4	23.2	5.4
138				Amreli	22.1	81	6.6	23.1	5.5
139				Nagpur	22.4	80	6.3	24.1	5.4
140				Parbhani	21.8	79	6.5	21.8	5.4
141			South	Dharwad	22.5	80	6.4	25.9	5.5
142				Raichur	Sample not received				
143				Nandyal	22.5	80	6.6	22.3	5.4
144				Mudhol	21.1	81	6.9	22.4	5.4
		Mean			**22.2**	**80**	**6.4**	**23.3**	**5.4**
145	459	AKA 2015-8	Central	Akola	24.8	82	5.2	25.1	5.6
146				Amreli	26.2	84	5.5	25.0	5.6
147				Nagpur	25.7	84	5.3	28.3	5.7
148				Parbhani	25.8	82	5.8	24.0	5.6
149			South	Dharwad	25.6	82	5.7	26.4	5.7
150				Raichur	Sample not received				
151				Nandyal	25.8	82	5.4	25.4	5.6

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
152				Mudhol	25.3	82	5.6	26.4	5.8
		Mean			**25.6**	**83**	**5.5**	**25.8**	**5.7**

Br.22 a/b IET - Long Linted G.arboreum

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
1	461	PAIG 410	Central	Amreli	27.7	85	5.2	27.2	5.7
2				Bharuch	27.3	83	4.2	30.6	5.6
3				Nagpur	26.9	83	4.6	28.4	5.7
4				Parbhani	28.1	82	5.7	25.0	5.7
5			South	Nandyal	27.7	82	4.8	26.5	5.6
		Mean			**27.5**	**83**	**4.9**	**27.5**	**5.7**
6	462	CAN 1074	Central	Amreli	26.3	85	5.2	28.3	5.8
7				Bharuch	26.0	82	4.3	31.8	5.7
8				Nagpur	26.4	84	4.8	28.2	5.7
9				Parbhani	27.1	83	5.5	28.1	5.8
10			South	Nandyal	26.0	83	5.2	27.4	5.6
		Mean			**26.3**	**83**	**5.0**	**28.8**	**5.7**
11	463	PA 887	Central	Amreli	28.0	84	5.2	26.7	5.7
12				Bharuch	27.9	85	4.0	29.3	5.7
13				Nagpur	29.1	84	4.5	27.9	5.7
14				Parbhani	28.7	82	4.5	24.6	5.6
15			South	Nandyal	27.3	80	4.4	24.6	5.4
		Mean			**28.2**	**83**	**4.5**	**26.6**	**5.6**
16	464	QC	Central	Amreli	26.8	82	5.1	28.5	5.8
17				Bharuch	27.3	84	4.3	29.4	5.7
18				Nagpur	27.7	83	4.8	28.8	5.7
19				Parbhani	28.9	82	4.8	27.7	5.7
20			South	Nandyal	26.4	82	4.6	27.7	5.6
		Mean			**27.4**	**83**	**4.7**	**28.4**	**5.7**
21	465	CAN 1075	Central	Amreli	27.0	83	4.0	28.7	5.6
22				Bharuch	29.0	84	3.6	31.7	5.7
23				Nagpur	29.8	86	3.4	31.3	5.8
24				Parbhani	28.8	84	4.8	26.0	5.7
25			South	Nandyal	27.6	85	4.3	28.7	5.6
		Mean			**28.4**	**84**	**4.0**	**29.3**	**5.7**
26	466	PA 888	Central	Amreli	27.6	83	5.0	27.8	5.7
27				Bharuch	28.1	84	3.6	29.6	5.7
28				Nagpur	27.6	82	3.8	30.4	5.7
29				Parbhani	29.0	81	4.8	27.9	5.8
30			South	Nandyal	26.9	80	4.5	27.5	5.6

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
		Mean			**27.8**	**82**	**4.3**	**28.6**	**5.7**
31	467	DWD (LL) 2051	Central	Amreli	26.8	84	5.0	28.5	5.8
32				Bharuch	26.2	83	3.9	31.8	5.7
33				Nagpur	26.9	84	4.2	29.7	5.7
34				Parbhani	26.0	79	5.0	27.1	5.7
35			South	Nandyal	26.3	83	4.6	27.0	5.6
		Mean			**26.4**	**83**	**4.5**	**28.8**	**5.7**
36	468	PAIG 411	Central	Amreli	27.7	83	5.2	27.2	5.7
37				Bharuch	28.2	83	3.6	30.4	5.7
38				Nagpur	28.6	83	4.3	29.3	5.7
39				Parbhani	28.9	83	4.9	27.5	5.8
40			South	Nandyal	27.1	83	5.2	27.7	5.7
		Mean			**28.1**	**83**	**4.6**	**28.4**	**5.7**
41	469	PA 898	Central	Amreli	28.0	82	5.0	28.6	5.8
42				Bharuch	27.0	82	4.0	29.7	5.7
43				Nagpur	28.4	83	5.0	28.8	5.7
44				Parbhani	29.0	84	4.6	28.7	5.8
45			South	Nandyal	27.5	83	5.4	26.3	5.7
		Mean			**28.0**	**83**	**4.8**	**28.4**	**5.7**
46	470	PA 904	Central	Amreli	27.2	85	5.2	26.2	5.7
47				Bharuch	27.2	84	4.4	28.2	5.7
48				Nagpur	27.0	84	4.6	27.5	5.7
49				Parbhani	28.0	83	4.4	27.9	5.7
50			South	Nandyal	26.2	84	4.8	28.2	5.7
		Mean			**27.1**	**84**	**4.7**	**27.6**	**5.7**

Br.25 a/b PHT- Desi Hybrid

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
1	471	KR 150	Central	Amreli	18.7	77	7.0	19.2	
2				Akola	19.0	78	6.0	20.7	5.8
3				Parbhani	18.9	72	7.1	19.7	
		Mean			**18.9**	**75**	**6.7**	**19.9**	**5.8**
4	472	ZC	Central	Amreli	23.6	79	5.8	26.0	5.5
5				Akola	24.5	79	5.5	23.2	5.5
6				Parbhani	25.8	82	6.0	24.8	5.7
		Mean			**24.6**	**80**	**5.8**	**24.7**	**5.6**
7	473	KR 149	Central	Amreli	19.5	75	6.6	16.8	5.0
8				Akola	19.0	78	5.4	21.8	5.7
9				Parbhani	21.4	74	6.8	19.4	5.3
		Mean			**20.0**	**76**	**6.3**	**19.3**	**5.3**
10	474	LC	Central	Amreli	23.4	80	5.9	24.7	5.5

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
11				Akola	25.0	81	4.4	26.2	5.6
12				Parbhani	24.8	83	5.4	26.1	5.6
		Mean			**24.4**	**81**	**5.2**	**25.7**	**5.6**
13	475	KR 148	Central	Amreli	17.7	77	7.6	19.2	
14				Akola	19.2	76	6.3	25.3	5.7
15				Parbhani	18.4	73	7.4	19.6	
		Mean			**18.4**	**75**	**7.1**	**21.4**	**5.7**

Br.32b IET of G.herbaceum

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
1	481	GShv 833/16	Central	Anand	22.5	82	4.3	22.1	5.3
2				Bharuch	23.9	81	4.7	24.7	5.4
3				Surat	24.2	80	4.0	22.6	5.9
4				Viramgaon	22.9	80	4.1	22.4	5.1
		Mean			**23.4**	**81**	**4.3**	**23.0**	**5.4**
5	482	ZC	Central	Anand	23.6	81	4.8	23.5	5.5
6				Bharuch	25.4	82	4.0	25.1	5.4
7				Surat	24.8	80	3.6	22.7	5.9
8				Viramgaon	24.2	79	4.1	25.8	5.4
		Mean			**24.5**	**81**	**4.1**	**24.3**	**5.6**
9	483	GShv 789/16	Central	Anand	24.6	82	4.4	24.9	5.5
10				Bharuch	25.2	81	4.6	24.4	5.4
11				Surat	27.1	80	4.6	25.0	5.8
12				Viramgaon	24.5	80	4.2	26.2	5.5
		Mean			**25.4**	**81**	**4.5**	**25.1**	**5.6**
13	484	GBhv 316	Central	Anand	24.0	81	4.8	23.2	5.5
14				Bharuch	24.3	80	3.3	23.1	5.4
15				Surat	24.4	80	3.8	22.2	5.8
16				Viramgaon	22.9	80	4.1	24.1	5.2
		Mean			**23.9**	**80**	**4.0**	**23.2**	**5.5**
17	485	LC	Central	Anand	24.0	81	4.0	24.0	5.3
18				Bharuch	25.1	81	4.1	25.2	5.4
19				Surat	24.5	80	4.0	23.5	5.9
20				Viramgaon	24.6	81	3.6	26.5	5.4
		Mean			**24.6**	**81**	**3.9**	**24.8**	**5.5**
21	486	GShv 219/16	Central	Anand	23.1	80	4.2	22.7	5.4
22				Bharuch	24.5	81	4.8	25.7	5.5
23				Surat	23.0	80	4.7	20.7	5.9
24				Viramgaon	23.5	80	3.7	24.6	5.3
		Mean			**23.5**	**80**	**4.4**	**23.4**	**5.5**
25	487	GBhv	Central	Anand	25.9	85	3.7	27.6	5.6

Sr.No.	Code No.	Entry	Zone	Location	UHML	UI	Mic	Str (g/tex)	E%
26		324		Bharuch	25.8	81	4.0	25.5	5.4
27				Surat	25.8	81	4.4	24.1	5.9
28				Viramgaon	25.0	79	3.8	26.4	5.5
		Mean			**25.6**	**82**	**4.0**	**25.9**	**5.6**
29	488	GVhv 996	Central	Anand	23.4	81	5.2	23.3	5.5
30				Bharuch	23.2	81	4.3	21.4	5.3
31				Surat	23.5	79	4.6	21.0	5.8
32				Viramgaon	24.8	80	4.1	25.4	5.5
		Mean			**23.7**	**80**	**4.6**	**22.8**	**5.5**

Br02a

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
1	101	F 2732	Bhatinda	26.2	85	5.3	26.1	5.7
2			Faridkot	27.0	83	4.8	26.5	5.6
3			Hisar	26.5	84	4.0	26.5	5.6
4			Sirsa	27.3	85	4.3	29.6	5.7
5			Sriganganagar	28.2	86	4.8	27.3	5.8
		Mean		**27.0**	**85**	**4.6**	**27.2**	**5.7**
6	102	PBH 197	Bhatinda	24.3	83	5.5	25.7	5.6
7			Faridkot	26.8	84	4.8	29.9	5.7
8			Hisar	26.1	81	3.7	29.8	5.6
9			Sirsa	26.5	83	4.4	25.8	5.4
10			Sriganganagar	26.8	84	4.9	28.4	5.8
		Mean		**26.1**	**83**	**4.7**	**27.9**	**5.6**
11	103	HS 310	Bhatinda	26.0	82	4.9	26.8	5.5
12			Faridkot	25.8	82	5.2	27.9	5.6
13			Hisar	21.5	78	4.2	21.5	5.5
14			Sirsa	24.0	82	4.1	24.3	5.5
15			Sriganganagar	26.0	82	4.6	26.2	5.8
		Mean		**24.7**	**81**	**4.6**	**25.3**	**5.6**
16	104	CSH 90	Bhatinda	25.8	84	4.6	27.1	5.5
17			Faridkot	26.7	85	4.4	27.6	5.6
18			Hisar	23.8	81	3.7	25.1	5.5
19			Sirsa	24.1	82	4.1	25.5	5.4
20			Sriganganagar	26.8	84	5.0	27.9	5.8
		Mean		**25.4**	**83**	**4.4**	**26.6**	**5.6**
21	105	QC	Bhatinda	26.7	85	4.3	27.6	5.6
22			Faridkot	28.4	85	4.6	27.6	5.7
23			Hisar	25.9	81	3.5	26.3	5.6
24			Sirsa	26.6	85	3.8	28.6	5.5
25			Sriganganagar	29.1	86	4.5	28.8	5.9

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
		Mean		**27.3**	**84**	**4.1**	**27.8**	**5.7**
26	106	RS 2958	Bhatinda	25.9	85	4.8	26.0	5.6
27			Faridkot	26.8	85	5.0	25.5	5.6
28			Hisar	24.7	82	3.8	26.6	5.5
29			Sirsa	24.9	82	4.2	26.6	5.4
30			Sriganganagar	25.9	84	4.4	27.9	5.8
		Mean		**25.6**	**84**	**4.4**	**26.5**	**5.6**
31	107	F 2743	Bhatinda	27.9	83	4.9	26.3	5.6
32			Faridkot	28.2	87	5.1	28.4	5.8
33			Hisar	25.9	82	3.6	25.5	5.5
34			Sirsa	27.4	85	4.4	28.4	5.7
35			Sriganganagar	28.1	83	5.1	28.9	5.8
		Mean		**27.5**	**84**	**4.6**	**27.5**	**5.7**
36	108	H 1569	Bhatinda	26.1	82	5.2	28.0	5.7
37			Faridkot	28.3	83	4.6	27.8	5.7
38			Hisar	25.4	80	4.1	26.8	5.6
39			Sirsa	28.3	84	4.8	27.2	5.6
40			Sriganganagar	28.2	85	4.6	28.1	5.8
		Mean		**27.3**	**83**	**4.7**	**27.6**	**5.7**
41	109	CSH 89	Bhatinda	24.8	82	4.8	25.6	5.6
42			Faridkot	26.1	85	4.4	26.6	5.6
43			Hisar	24.8	83	3.9	26.1	5.6
44			Sirsa	25.0	84	4.0	26.0	5.3
45			Sriganganagar	25.8	82	4.8	27.3	5.7
		Mean		**25.3**	**83**	**4.4**	**26.3**	**5.6**
46	110	LC	Bhatinda	27.3	84	4.8	28.7	5.7
47			Faridkot	28.1	86	4.7	28.2	5.8
48			Hisar	25.3	83	3.8	27.5	5.6
49			Sirsa	27.0	83	3.8	29.3	5.6
50			Sriganganagar	27.1	84	4.6	29.1	5.8
		Mean		**27.0**	**84**	**4.3**	**28.6**	**5.7**
51	111	PBH 79	Bhatinda	28.0	86	4.5	27.5	5.7
52			Faridkot	28.4	86	4.4	27.1	5.6
53			Hisar	27.4	82	3.7	29.0	5.7
54			Sirsa	26.9	85	4.1	28.3	5.6
55			Sriganganagar	27.1	84	4.5	27.0	5.7
		Mean		**27.6**	**85**	**4.2**	**27.8**	**5.7**
56	112	H 1480	Bhatinda	26.6	85	4.8	26.6	5.6
57			Faridkot	28.8	87	4.9	28.4	5.8
58			Hisar	25.4	81	3.6	26.7	5.6
59			Sirsa	27.5	85	4.0	27.4	5.5
60			Sriganganagar	26.3	84	4.8	26.4	5.8
		Mean		**26.9**	**84**	**4.4**	**27.1**	**5.7**

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
61	113	RS 2943	Bhatinda	26.2	83	4.4	27.5	5.7
62			Faridkot	27.8	85	4.3	28.3	5.7
63			Hisar	23.5	80	4.3	26.5	5.5
64			Sirsa	24.2	83	3.9	25.4	5.5
65			Sriganganagar	25.4	82	5.0	23.5	5.9
		Mean		**25.4**	**83**	**4.4**	**26.2**	**5.7**
66	114	ZC (F 2228)	Bhatinda	26.3	86	5.0	28.4	5.8
67			Faridkot	26.8	83	5.1	29.5	5.7
68			Hisar	24.7	81	3.6	26.5	5.5
69			Sirsa	27.8	87	4.4	29.1	5.6
70			Sriganganagar	27.8	86	5.0	27.8	5.8
		Mean		**26.7**	**85**	**4.6**	**28.3**	**5.7**

Br. 06 a – Initial Evaluation Trial of Compact genotypes under irrigated condition

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
1	2601	F 2785	Bhatinda	24.9	83	4.4	24.1	5.5
2			Faridkot	27.2	84	4.8	27.9	5.7
3			Hisar	25.2	82	4.2	27.4	5.6
4			Sriganganagar	26.2	84	5.0	28.7	5.7
		Mean		**25.9**	**83**	**4.6**	**27.0**	**5.6**
5	2602	CSH 49	Bhatinda	26.2	85	4.6	26.3	5.6
6			Faridkot	26.5	84	4.4	26.9	5.6
7			Hisar	25.6	82	3.6	28.8	5.6
8			Sriganganagar	25.7	82	5.2	27.1	5.6
		Mean		**26.0**	**83**	**4.5**	**27.3**	**5.6**
9	2603	CSH 50	Bhatinda	26.0	85	4.6	25.2	5.6
10			Faridkot	26.1	86	4.4	26.9	5.6
11			Hisar	24.8	84	4.3	26.3	5.5
12			Sriganganagar	25.9	83	4.4	29.1	5.7
		Mean		**25.7**	**85**	**4.4**	**26.9**	**5.6**
13	2604	F 2772	Bhatinda	24.8	84	4.7	24.5	5.5
14			Faridkot	25.8	84	4.9	26.9	5.7
15			Hisar	23.9	82	4.4	27.4	5.5
16			Sriganganagar	25.9	83	5.2	27.1	5.6
		Mean		**25.1**	**83**	**4.8**	**26.5**	**5.6**
17	2605	RS 2946	Bhatinda	27.1	85	4.3	26.5	5.6
18			Faridkot	26.5	85	4.7	26.2	5.7
19			Hisar	26.3	84	4.2	26.8	5.6
20			Sriganganagar	25.3	84	4.7	26.8	5.6
		Mean		**26.3**	**85**	**4.5**	**26.6**	**5.6**
21	2606	ZC (CSH	Bhatinda	26.4	86	4.5	27.1	5.6

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
22		3075)	Faridkot	26.8	85	4.5	27.4	5.7
23			Hisar	26.8	82	4.3	27.5	5.7
24			Sriganganagar	26.6	83	4.5	26.9	5.6
		Mean		**26.7**	**84**	**4.5**	**27.2**	**5.7**
25	2607	RS 2957	Bhatinda	25.5	84	4.2	23.4	5.4
26			Faridkot	26.6	85	4.3	27.5	5.7
27			Hisar	24.4	82	4.0	26.1	5.5
28			Sriganganagar	26.2	84	4.2	27.9	5.7
		Mean		**25.7**	**84**	**4.2**	**26.2**	**5.6**
29	2608	H 1601	Bhatinda	26.9	84	4.6	25.7	5.6
30			Faridkot	27.7	86	4.6	28.6	5.8
31			Hisar	27.2	85	4.0	27.1	5.6
32			Sriganganagar	27.4	82	4.6	28.7	5.7
		Mean		**27.3**	**84**	**4.4**	**27.5**	**5.7**
33	2609	Local Check	Bhatinda	25.4	83	4.4	25.0	5.4
34			Faridkot	25.7	82	5.0	26.2	5.6
35			Hisar	24.0	81	4.6	25.4	5.0
36			Sriganganagar	26.0	85	5.0	26.7	5.6
		Mean		**25.3**	**83**	**4.8**	**25.8**	**5.4**

Br. 22 a/b Initial Evaluation Trial -*G. arboreum*

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
1	2201	PBD 130	Bhatinda	19.7	80	7.1	19.2	5.1
2			Faridkot	19.5	79	7.4	19.3	5.7
3			Hisar	18.9	79	6.9	20.1	5.9
4			Sirsa	19.4	77	7.7	15.1	4.8
5			Sriganganagar	19.9	79	7.0	20.6	5.3
		Mean		**19.5**	**79**	**7.2**	**18.9**	**5.4**
6	2202	CISA 6-3	Bhatinda	19.8	80	7.0	19.9	5.4
7			Faridkot	20.6	80	7.0	21.5	5.5
8			Hisar	19.8	80	6.2	19.6	5.7
9			Sirsa	20.2	80	7.6	18.2	5.2
10			Sriganganagar	21.6	80	6.8	23.7	5.5
		Mean		**20.4**	**80**	**6.9**	**20.6**	**5.5**
11	2203	FDK 312	Bhatinda	21.9	81	6.8	23.1	5.5
12			Faridkot	20.9	79	7.0	21.1	5.4
13			Hisar	19.8	80	6.6	20.3	5.4
14			Sirsa	20.7	79	6.9	19.2	5.2
15			Sriganganagar	22.6	80	6.3	26.3	5.6
		Mean		**21.2**	**80**	**6.7**	**22.0**	**5.4**
16	2204	RG 873	Bhatinda	18.7	79	7.5	19.9	5.7

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
17			Faridkot	19.6	76	7.4	19.7	5.3
18			Hisar	20.1	80	6.2	20.3	5.5
19			Sirsa	Sample not received				
20			Sriganganagar	21.4	79	7.2	23.8	5.4
		Mean		**20.0**	**79**	**7.1**	**20.9**	**5.5**
21	2205	LC	Bhatinda	20.1	79	6.6	19.6	5.4
22			Faridkot	20.1	79	6.8	19.7	5.6
23			Hisar	19.9	80	6.4	19.3	5.4
24			Sirsa	19.9	78	7.4	17.1	5.0
25			Sriganganagar	23.3	80	6.4	26.4	5.6
		Mean		**20.7**	**79**	**6.7**	**20.4**	**5.4**
26	2206	RG 883	Bhatinda	20.5	81	6.8	21.4	5.3
27			Faridkot	20.7	80	7.1	21.8	5.4
28			Hisar	20.5	80	6.8	20.4	5.4
29			Sirsa	20.2	79	7.2	20.2	5.3
30			Sriganganagar	20.3	80	7.1	22.3	5.3
		Mean		**20.4**	**80**	**7.0**	**21.2**	**5.3**
31	2207	FDK 324	Bhatinda	19.4	77	6.8	19.0	5.5
32			Faridkot	20.2	77	7.0	20.0	5.6
33			Hisar	19.9	77	6.2	19.1	5.3
34			Sirsa	19.7	76	7.2	17.1	5.0
35			Sriganganagar	21.3	80	6.8	23.6	5.4
		Mean		**20.1**	**77**	**6.8**	**19.8**	**5.4**
36	2208	HD 555	Bhatinda	19.8	79	6.7	19.0	5.2
37			Faridkot	20.7	78	6.8	21.2	5.4
38			Hisar	20.0	79	6.4	19.3	5.9
39			Sirsa	20.2	78	7.2	18.1	5.2
40			Sriganganagar	19.8	78	7.1	20.9	5.3
		Mean		**20.1**	**78**	**6.8**	**19.7**	**5.4**
41	2209	ZC (FDK 124)	Bhatinda	20.4	81	7.1	21.2	5.4
42			Faridkot	21.0	79	7.5	21.9	5.4
43			Hisar	20.8	82	6.8	20.0	5.4
44			Sirsa	20.3	78	7.3	19.1	5.3
45			Sriganganagar	21.1	82	7.0	24.1	5.4
		Mean		**20.7**	**80**	**7.1**	**21.3**	**5.4**
46	2210	CISA 33-5	Bhatinda	20.0	79	7.0	19.7	5.3
47			Faridkot	21.5	82	6.8	22.7	5.4
48			Hisar	19.7	80	6.2	19.7	5.7
49			Sirsa	20.7	79	7.7	19.1	5.2
50			Sriganganagar	20.9	79	7.1	22.1	5.4
		Mean		**20.6**	**80**	**7.0**	**20.7**	**5.4**
51	2211	PBD 81	Bhatinda	21.1	80	6.7	21.4	5.4

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
52			Faridkot	20.8	77	7.0	20.8	5.3
53			Hisar	21.5	80	6.8	20.5	5.4
54			Sirsa	20.7	78	7.4	18.3	5.1
55			Sriganganagar	20.7	80	7.0	22.2	5.4
		Mean		**21.0**	**79**	**7.0**	**20.6**	**5.3**
56	2212	HD 556	Bhatinda	19.9	81	7.6	19.5	5.7
57			Faridkot	20.1	78	7.3	20.2	5.4
58			Hisar	19.8	79	6.4	19.7	5.5
59			Sirsa	19.7	79	7.9	16.5	5.7
60			Sriganganagar	21.4	80	7.0	22.0	5.4
		Mean		**20.2**	**79**	**7.2**	**19.6**	**5.5**

Br. 25 a/b Preliminary Hybrid Trial - Desi Hybrid

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
1	2501	ZC (KR 64-NZ)	Bhatinda	*	*	7.4	*	*
2			Hisar	19.1	77	6.3	20.6	4.3
3			Sirsa	22.9	72	6.9	23.6	5.6
4			Sriganganagar	19.6	76	7.6	19.3	5.7
		Mean		**20.5**	**75**	**6.9**	**21.2**	**5.2**
5	2502	CISAA 19-4	Bhatinda	20.1	79	6.6	19.7	5.5
6			Hisar	21.6	81	6.3	22.7	5.0
7			Sirsa	21.2	78	6.6	21.7	5.4
8			Sriganganagar	21.6	80	6.8	22.9	5.3
		Mean		**21.1**	**80**	**6.6**	**21.8**	**5.3**
9	2503	KR 148	Bhatinda	18.9	77	7.2	20.5	5.7
10			Hisar	20.6	80	6.7	21.6	4.3
11			Sirsa	20.3	78	5.2	20.0	5.2
12			Sriganganagar	19.2	77	7.2	19.8	5.1
		Mean		**19.7**	**78**	**6.6**	**20.5**	**5.1**
13	2504	KR 150	Bhatinda	19.2	79	7.2	20.1	5.8
14			Hisar	19.0	78	6.8	18.7	5.7
15			Sirsa	19.5	77	6.7	17.1	5.1
16			Sriganganagar	19.4	78	7.4	19.4	5.3
		Mean		**19.3**	**78**	**7.0**	**18.8**	**5.5**
17	2505	CISAA 19-3	Bhatinda	25.2	81	5.8	26.4	5.7
18			Hisar	24.5	81	5.9	25.0	5.3
19			Sirsa	24.8	82	5.6	27.5	5.7
20			Sriganganagar	19.9	77	7.0	20.3	5.3
		Mean		**23.6**	**80**	**6.1**	**24.8**	**5.5**
21	2506	KR 149	Bhatinda	19.5	77	7.1	20.4	5.4
22			Hisar	19.6	79	7.1	18.8	5.5
23			Sirsa	20.3	79	6.9	18.5	5.2

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
24			Sriganganagar	19.2	76	7.3	19.2	5.5
		Mean		**19.7**	**78**	**7.1**	**19.2**	**5.4**
25	2507	LC	Bhatinda	21.8	78	6.5	22.9	5.5
26			Hisar	20.0	80	6.1	20.1	4.5
27			Sirsa	21.7	80	6.3	21.0	5.4
28			Sriganganagar	20.1	80	6.9	20.8	5.0
		Mean		**20.9**	**80**	**6.5**	**21.2**	**5.1**
29	2508	AAH 43	Bhatinda	19.0	77	7.2	20.8	5.8
30			Hisar	19.2	77	5.8	18.7	6.0
31			Sirsa	20.8	79	5.9	21.3	5.3
32			Sriganganagar	20.9	78	7.0	21.8	5.2
		Mean		**20.0**	**78**	**6.5**	**20.7**	**5.6**

* Instrument (HVI Art2) failed to test the Length Strength

North Zone

Br06 a - Coordinated Variety Trial of compact G.hirsutum

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
1	2621	RS 2928	Bhatinda	28.0	80	4.6	28.3	6.5
2			Faridkot	28.6	81	4.5	30.4	6.8
3			Hisar	27.3	80	4.0	29.7	6.7
4			Sirsa	27.6	80	4.7	30.6	7.0
5			Sriganganagar	28.4	81	4.0	29.4	6.4
		Mean		**28.0**	**80**	**4.4**	**29.7**	**6.7**
6	2622	PBH 174	Bhatinda	27.6	80	4.8	28.1	6.9
7			Faridkot	27.4	80	5.1	27.8	6.7
8			Hisar	26.7	80	5.0	26.7	6.7
9			Sirsa	28.0	80	5.0	29.0	6.9
10			Sriganganagar	28.6	85	5.1	29.5	6.7
		Mean		**27.7**	**81**	**5.0**	**28.2**	**6.8**
11	2623	F 2757	Bhatinda	28.1	81	4.6	31.2	7.0
12			Faridkot	29.2	81	4.5	32.7	6.8
13			Hisar	27.3	80	4.4	29.9	6.7
14			Sirsa	28.3	81	4.8	28.6	6.7
15			Sriganganagar	28.1	81	4.4	30.3	6.2
		Mean		**28.2**	**81**	**4.5**	**30.5**	**6.7**
16	2624	H 1530	Bhatinda	26.0	79	5.0	26.8	7.0
17			Faridkot	27.6	80	5.1	29.6	7.2
18			Hisar	25.3	79	5.2	27.1	7.2
19			Sirsa	27.1	80	4.8	30.8	7.0
20			Sriganganagar	27.8	80	4.9	29.4	7.0
		Mean		**26.8**	**80**	**5.0**	**28.7**	**7.1**
21	2625	F 2560	Bhatinda	27.7	80	4.3	31.7	6.6
22			Faridkot	28.9	81	4.4	30.9	6.5
23			Hisar	28.8	81	4.6	30.6	6.5
24			Sirsa	27.2	80	4.4	28.4	6.5
25			Sriganganagar	29.1	81	4.0	33.0	6.9
		Mean		**28.3**	**81**	**4.3**	**30.9**	**6.6**
26	2626	ZC	Bhatinda	28.0	80	4.4	30.7	6.9
27			Faridkot	27.9	80	4.4	31.2	6.8
28			Hisar	27.5	80	4.2	29.7	6.7
29			Sirsa	27.4	80	4.7	29.7	6.8
30			Sriganganagar	28.8	81	4.7	32.7	7.0
		Mean		**27.9**	**80**	**4.5**	**30.8**	**6.8**
31	2627	CSH 100	Bhatinda	27.2	80	4.6	29.7	6.6
32			Faridkot	28.7	81	4.4	31.6	6.8
33			Hisar	28.6	81	4.3	31.9	7.0
34			Sirsa	27.6	80	4.6	30.4	6.8

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
35			Sriganganagar	28.7	81	4.3	32.8	7.0
		Mean		**28.2**	**81**	**4.4**	**31.3**	**6.8**
36	2628	RS 2914	Bhatinda	28.0	80	4.6	29.3	6.6
37			Faridkot	27.9	80	4.8	30.4	7.0
38			Hisar	26.3	80	4.2	29.4	6.9
39			Sirsa	28.3	81	4.6	30.8	6.6
40			Sriganganagar	28.2	81	4.5	32.1	7.0
		Mean		**27.7**	**80**	**4.5**	**30.4**	**6.8**
41	2629	RS 2913	Bhatinda	27.5	80	4.6	29.8	6.7
42			Faridkot	27.4	80	4.6	30.9	6.9
43			Hisar	27.0	80	4.1	29.7	6.6
44			Sirsa	27.1	80	4.4	28.2	6.4
45			Sriganganagar	27.0	80	4.4	30.7	6.9
		Mean		**27.2**	**80**	**4.4**	**29.9**	**6.7**
46	2630	LC	Bhatinda	26.9	80	4.5	28.4	6.4
47			Faridkot	27.1	80	4.8	28.5	6.6
48			Hisar	27.0	80	4.2	28.6	6.8
49			Sirsa	26.5	80	4.4	28.2	6.7
50			Sriganganagar	26.9	80	4.9	26.3	6.2
		Mean		**26.9**	**80**	**4.6**	**28.0**	**6.5**

Br24 a - Coordinated Variety Trial of G.arboreum

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
1	2401	PBD 88	Bhatinda	20.7	76	6.2	22.7	6.8
2			Faridkot	21.5	76	6.3	23.0	7.1
3			Hisar	20.8	76	5.8	22.7	7.0
4			Sriganganagar	21.1	76	6.3	22.9	6.9
		Mean		**21.0**	**76**	**6.2**	**22.8**	**7.0**
5	2402	PBD 35	Bhatinda	21.8	77	6.4	23.7	6.9
6			Faridkot	21.4	76	6.6	23.0	7.0
7			Hisar	20.8	76	6.0	22.8	7.0
8			Sriganganagar	21.6	76	6.2	23.0	6.8
		Mean		**21.4**	**76**	**6.3**	**23.1**	**6.9**
9	2403	PBD 92	Bhatinda	21.2	76	6.3	23.2	6.9
10			Faridkot	22.6	77	6.4	24.2	7.0
11			Hisar	21.6	76	6.2	23.2	7.0
12			Sriganganagar	21.6	76	6.0	23.3	6.7
		Mean		**21.8**	**76**	**6.2**	**23.5**	**6.9**
13	2404	FDK 124 (ZC)	Bhatinda	21.9	77	6.4	24.0	6.9
14			Faridkot	22.3	77	6.5	24.0	7.0
15			Hisar	22.0	77	6.0	24.2	6.8

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
16			Sriganganagar	22.8	77	6.1	24.8	7.0
		Mean		**22.3**	**77**	**6.3**	**24.3**	**6.9**
17	2405	LC	Bhatinda	21.5	76	6.2	23.5	6.8
18			Faridkot	22.1	77	6.3	23.7	7.1
19			Hisar	21.9	77	5.7	23.7	6.7
20			Sriganganagar	21.9	77	6.2	23.6	7.0
		Mean		**21.9**	**77**	**6.1**	**23.6**	**6.9**
21	2406	PBD 36	Bhatinda	20.6	76	6.5	22.4	6.6
22			Faridkot	22.3	77	6.4	24.2	7.1
23			Hisar	21.8	77	6.0	23.2	6.9
24			Sriganganagar	22.9	77	6.2	23.9	6.9
		Mean		**21.9**	**77**	**6.3**	**23.4**	**6.9**
25	2407	FDK 281	Bhatinda	22.2	77	6.2	24.5	7.0
26			Faridkot	23.5	78	6.2	25.1	7.0
27			Hisar	22.6	77	6.0	24.7	7.2
28			Sriganganagar	23.0	78	6.1	25.1	7.4
		Mean		**22.8**	**78**	**6.1**	**24.9**	**7.2**

Br25 a - Coordinated Desi Hybrid Trial

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
1	2511	KR 155	Arynanagar	20.9	76	6.4	22.7	7.2
2			Bhatinda	21.2	76	6.7	23.2	6.9
3			Faridkot	22.7	77	6.6	24.6	7.0
4			Hisar	21.0	76	6.3	23.4	7.1
5			Sriganganagar	21.8	77	6.4	23.7	7.2
		Mean		**21.5**	**76**	**6.5**	**23.5**	**7.1**
6	2512	KR 147	Arynanagar	20.3	75	6.2	22.8	7.1
7			Bhatinda	21.0	76	6.4	22.7	6.7
8			Faridkot	21.5	76	6.4	23.5	7.0
9			Hisar	20.9	76	6.2	23.2	7.0
10			Sriganganagar	22.0	77	6.3	23.2	6.8
		Mean		**21.1**	**76**	**6.3**	**23.1**	**6.9**
11	2513	KR 139	Arynanagar	20.5	75	6.3	22.9	6.6
12			Bhatinda	21.2	76	6.2	22.9	6.9
13			Faridkot	22.2	77	6.3	24.5	6.9
14			Hisar	20.4	75	6.0	22.4	6.8
15			Sriganganagar	20.7	76	6.4	22.9	7.3
		Mean		**21.0**	**76**	**6.2**	**23.1**	**6.9**
16	2514	ZC	Arynanagar	19.0	74	6.3	22.2	7.0
17			Bhatinda	20.1	75	6.6	22.4	7.2
18			Faridkot	20.5	75	6.8	23.1	6.7
19			Hisar	21.8	77	6.1	24.2	7.0

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
20			Sriganganagar	21.0	76	6.4	22.9	7.2
		Mean		**20.5**	**75**	**6.4**	**23.0**	**7.0**
21	2515	LC	Arynanagar	19.3	74	6.4	22.4	6.6
22			Bhatinda	22.7	77	6.2	24.0	7.0
23			Faridkot	22.9	78	6.0	24.4	6.8
24			Hisar	25.5	79	6.2	25.4	6.3
25			Sriganganagar	21.8	77	6.2	24.1	7.0
		Mean		**22.4**	**77**	**6.2**	**24.1**	**6.7**
26	2516	KR 136	Arynanagar	20.6	75	6.1	23.1	7.2
27			Bhatinda	21.3	76	6.4	23.1	6.8
28			Faridkot	21.3	76	6.4	23.9	6.6
29			Hisar	21.2	76	6.2	23.3	6.7
30			Sriganganagar	21.6	76	6.3	23.8	7.0
		Mean		**21.2**	**76**	**6.3**	**23.4**	**6.9**
31	2517	KR 133	Arynanagar	20.7	76	6.3	23.0	6.9
32			Bhatinda	20.4	75	6.5	22.6	7.0
33			Faridkot	21.7	77	6.6	23.8	7.1
34			Hisar	21.6	76	6.4	23.7	7.1
35			Sriganganagar	22.2	77	6.4	24.2	7.0
		Mean		**21.3**	**76**	**6.4**	**23.5**	**7.0**

Central Zone

Br03a - PVT - Irrigated

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
1	2001	GISV 319	Bhawanipatna	25.2	83	4.4	24.9	5.6
2			Jungadha	25.5	83	4.5	27.8	5.6
4			Rahuri	25.4	82	3.6	26.2	5.6
5			Surart	26.6	84	4.3	30.2	5.8
6			Talod	26.6	84	4.7	27.7	5.6
		Mean		**25.9**	**83**	**4.3**	**27.4**	**5.6**
7	2002	ZC	Bhawanipatna	25.0	84	4.1	25.8	5.7
8			Jungadha	24.4	82	4.4	26.0	5.5
10			Rahuri	25.7	84	3.5	26.3	5.6
11			Surart	26.2	85	4.8	28.7	5.7
12			Talod	26.4	85	4.6	27.1	5.7
		Mean		**25.6**	**84**	**4.3**	**26.8**	**5.6**
13	2003	GJHV 566	Bhawanipatna	24.5	82	4.4	25.6	5.6
14			Jungadha	22.9	86	4.2	25.6	5.4
16			Rahuri	25.9	83	4.0	26.8	5.6
17			Surart	25.6	83	5.0	28.2	5.7
18			Talod	26.4	83	4.9	26.4	5.6
		Mean		**25.1**	**83**	**4.5**	**26.5**	**5.6**
19	2004	LC	Bhawanipatna	30.4	83	4.2	30.1	5.8
20			Jungadha	27.4	82	4.8	28.0	5.7
22			Rahuri	Missing				
23			Surart	27.9	84	5.2	28.8	5.9
24			Talod	28.6	83	5.4	26.4	5.7
		Mean		**28.6**	**83**	**4.9**	**28.3**	**5.8**
25	2005	CPD 1902	Bhawanipatna	26.8	83	5.0	26.8	5.6
26			Jungadha	25.8	82	4.9	27.9	5.6
28			Rahuri	26.8	83	4.6	27.1	5.7
29			Surart	26.7	83	5.1	27.4	5.6
30			Talod	26.0	83	5.2	25.0	5.4
		Mean		**26.4**	**83**	**5.0**	**26.8**	**5.6**
31	2006	RHC 1409	Bhawanipatna	25.9	84	4.8	26.4	5.7
32			Jungadha	25.7	83	5.5	24.3	5.6
34			Rahuri	27.1	83	4.2	27.4	5.7
35			Surart	26.4	83	5.0	28.2	5.7
36			Talod	25.9	83	5.2	24.4	5.5
		Mean		**26.2**	**83**	**4.9**	**26.1**	**5.6**
37	2007	QC	Bhawanipatna	31.2	85	4.0	30.2	5.9

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
38			Jungadha	27.6	82	4.6	28.2	5.6
40			Rahuri	27.6	85	4.3	28.1	5.8
41			Surart	29.7	84	4.8	30.3	5.8
42			Talod	30.9	84	4.8	29.4	5.8
		Mean		**29.4**	**84**	**4.5**	**29.2**	**5.8**
43	2008	CCH 19-2	Bhawanipatna	29.0	84	4.6	26.7	5.8
44			Jungadha	28.2	81	4.1	29.2	5.6
46			Rahuri	29.6	83	3.5	29.7	5.8
47			Surart	30.2	86	4.6	29.3	5.9
48			Talod	30.6	85	4.5	27.5	5.7
		Mean		**29.5**	**84**	**4.3**	**28.5**	**5.8**
49	2009	GISV 323	Bhawanipatna	26.8	83	4.4	26.7	5.6
50			Jungadha	24.7	81	4.4	26.7	5.5
52			Rahuri	27.0	83	3.8	27.5	5.6
53			Surart	26.2	84	4.7	27.0	5.5
54			Talod	27.7	83	4.8	26.8	5.6
		Mean		**26.5**	**83**	**4.4**	**26.9**	**5.6**
55	2010	RAH 1076	Bhawanipatna	27.5	83	4.0	28.3	5.6
56			Jungadha	26.1	82	4.6	28.1	5.5
58			Rahuri	28.4	85	4.4	29.2	5.7
59			Surart	27.1	83	5.2	28.1	5.7
60			Talod	26.8	84	4.6	26.2	5.6
		Mean		**27.2**	**83**	**4.5**	**28.0**	**5.6**

Br03a - PVT Colour Cotton – Irrigated

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
1	2011	DHCC 1901	Nagpur	22.3	80	4.0	23.7	5.3
2			Surart	21.9	78	4.6	20.1	5.2
		Mean		**22.1**	**79**	**4.3**	**21.9**	**5.3**
3	2012	LHCC 4	Nagpur	20.4	79	2.9	15.7	4.8
4			Surart	20.5	77	3.1	17.6	5.0
		Mean		**20.5**	**78**	**3.0**	**16.7**	**4.9**
5	2013	ZC	Nagpur	26.0	83	3.1	27.7	5.6
6			Surart	27.0	85	4.6	28.6	5.7
		Mean		**26.5**	**84**	**3.8**	**28.2**	**5.7**
7	2014	CNH 18528	Nagpur	23.2	81	3.9	24.9	5.4
8			Surart	22.0	81	4.6	25.7	5.4
		Mean		**22.6**	**81**	**4.3**	**25.3**	**5.4**
9	2015	DHCC 1801	Nagpur	20.3	78	3.8	16.9	4.9
10			Surart	20.6	78	4.4	18.3	5.1
		Mean		**20.5**	**78**	**4.1**	**17.6**	**5.0**
11	2016	CNH 18529	Nagpur	22.0	80	3.9	23.4	5.3

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
12			Surart	22.3	81	4.8	23.6	5.3
		Mean		**22.1**	**80**	**4.3**	**23.5**	**5.3**
13	2017	CHN 17395	Nagpur	22.3	81	3.8	24.6	5.4
14			Surart	22.3	82	4.2	23.1	5.3
		Mean		**22.3**	**82**	**4.0**	**23.9**	**5.4**
15	2018	LC	Nagpur	25.8	83	3.7	26.6	5.6
16			Surart	26.9	83	5.0	29.9	5.7
		Mean		**26.4**	**83**	**4.4**	**28.3**	**5.7**
17	2019	DHCC 1902	Nagpur	20.6	79	3.9	19.8	5.1
18			Surart	20.2	80	4.3	16.2	5.2
		Mean		**20.4**	**79**	**4.1**	**18.0**	**5.2**

Br04a - CVT - Irrigated

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
1	2031	TSH 367	Bhawanipatna	28.1	84	4.8	24.1	5.8
2			Jungadha	23.9	82	4.9	25.2	5.5
3			Rahuri	27.2	83	4.0	27.1	5.7
4			Surart	26.7	83	5.0	26.3	5.6
		Mean		**26.5**	**83**	**4.7**	**25.7**	**5.7**
5	2032	ZC	Bhawanipatna	24.8	84	4.3	25.5	5.6
6			Jungadha	25.2	83	4.8	26.8	5.5
7			Rahuri	26.5	83	3.4	26.9	5.8
8			Surart	26.7	85	5.2	28.6	5.7
		Mean		**25.8**	**84**	**4.4**	**27.0**	**5.7**
9	2033	SHS 113	Bhawanipatna	28.7	85	4.8	26.4	5.7
10			Jungadha	27.5	83	4.4	28.8	5.6
11			Rahuri	28.9	83	3.8	29.0	5.8
12			Surart	28.7	85	4.8	30.6	5.8
		Mean		**28.4**	**84**	**4.4**	**28.7**	**5.7**
13	2034	LC	Bhawanipatna	30.2	84	4.6	28.6	5.8
14			Jungadha	25.9	82	4.9	27.2	5.6
15			Rahuri	Missing				
16			Surart	28.9	85	5.6	29.0	5.9
		Mean		**28.3**	**84**	**5.0**	**28.3**	**5.8**
17	2035	GJHV-554	Bhawanipatna	27.1	84	5.0	25.6	5.7
18			Jungadha	25.8	82	4.7	26.3	5.5
19			Rahuri	27.8	84	3.9	28.1	5.8
20			Surart	27.2	85	5.1	28.1	5.7
		Mean		**27.0**	**84**	**4.7**	**27.0**	**5.7**
21	2036	QC	Bhawanipatna	29.4	85	5.0	28.4	5.8
22			Jungadha	28.4	84	5.0	28.4	5.7
23			Rahuri	31.2	83	4.0	32.3	5.9

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
24			Surart	31.1	85	5.1	31.8	6.0
		Mean		**30.0**	**84**	**4.8**	**30.2**	**5.9**
25	2037	GJHV 522	Bhawanipatna	25.0	83	5.4	26.3	5.5
26			Jungadha	25.1	82	5.3	25.2	5.4
27			Rahuri	27.2	84	4.4	26.8	5.7
28			Surart	25.5	83	5.7	26.6	5.5
		Mean		**25.7**	**83**	**5.2**	**26.2**	**5.5**

Br05a - CHT HXH

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
1	2041	GTHH 17/01	Banswara	27.2	82	3.8	25.3	5.4
2			Jungadha	25.4	85	5.0	27.8	5.6
3			Rahuri	25.4	84	3.5	27.0	5.7
4			Surart	26.4	85	5.1	28.0	5.7
5			Talod	27.8	86	5.1	20.8	5.8
		Mean		**26.4**	**84**	**4.5**	**25.8**	**5.6**
6	2042	ZC	Banswara	25.5	81	3.2	24.8	5.3
7			Jungadha	27.4	83	4.4	28.8	5.6
8			Rahuri	25.7	82	3.1	26.3	5.5
-9			Surart	28.0	84	3.7	30.1	5.6
10			Talod	28.9	83	4.6	27.1	5.6
		Mean		**27.1**	**83**	**3.8**	**27.4**	**5.5**
11	2043	GJHH 19	Banswara	24.8	81	4.0	24.9	5.8
12			Jungadha	27.4	84	4.7	27.8	5.6
13			Rahuri	26.5	80	4.0	27.0	5.6
14			Surart	26.2	84	5.1	27.3	5.6
15			Talod	27.8	82	5.2	24.0	5.7
		Mean		**26.6**	**82**	**4.6**	**26.2**	**5.7**
16	2044	GTHH 1203	Banswara	23.6	80	3.1	23.4	5.9
17			Jungadha	26.7	83	4.4	28.2	5.6
18			Rahuri	25.0	84	3.4	26.0	5.6
19			Surart	26.2	83	4.3	27.6	5.6
20			Talod	27.2	84	4.8	27.8	5.6
		Mean		**25.8**	**83**	**4.0**	**26.6**	**5.7**
21	2045	LC	Banswara	25.0	81	3.0	23.7	5.9
22			Jungadha	28.8	84	4.0	30.3	5.8
23			Rahuri	Missing				
24			Surart	27.8	84	4.2	28.1	5.7
25			Talod	28.7	83	4.4	26.5	5.6
		Mean		**27.6**	**83**	**3.9**	**27.2**	**5.8**
26	2046	GSHH 15035	Banswara	27.4	81	2.9	26.0	6.0

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
27			Jungadha	28.0	82	4.2	29.3	5.7
28			Rahuri	26.9	84	3.5	27.3	5.7
29			Surart	27.9	85	4.3	28.8	5.7
30			Talod	29.9	83	4.6	28.0	5.7
		Mean		**28.0**	**83.1**	**3.9**	**27.9**	**5.8**

Br06a - CVT Compact Cultures - Irrigated

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
1	2051	RHC-HD 1312	Banaswara	26.8	80	3.9	25.5	4.4
2			Bhawanipatna	27.6	82	4.7	24.5	5.6
3			Jungadha	26.8	83	5.0	25.8	5.6
4			Rahuri	28.6	84	3.8	29.3	5.8
5			Talod	26.7	83	4.4	26.6	5.6
		Mean		**27.3**	**82**	**4.4**	**26.3**	**5.4**
6	2052	ZC	Banaswara	28.5	80	4.1	23.0	4.2
7			Bhawanipatna	32.4	87	4.4	30.3	5.9
8			Jungadha	27.2	83	4.6	27.9	5.6
9			Rahuri	30.3	83	4.0	31.1	5.8
10			Talod	31.3	84	4.2	29.2	5.8
		Mean		**29.9**	**83**	**4.3**	**28.3**	**5.5**
11	2053	CCH 19-2	Banaswara	26.4	80	3.8	22.0	4.3
12			Bhawanipatna	31.6	86	4.0	28.2	5.8
13			Jungadha	26.0	81	4.4	27.0	5.5
14			Rahuri	30.5	84	3.5	31.0	5.9
15			Talod	30.1	84	3.2	29.3	5.8
		Mean		**28.9**	**83**	**3.8**	**27.5**	**5.5**
16	2054	RHC-HD 1438	Banaswara	25.4	79	4.0	21.8	4.1
17			Bhawanipatna	27.3	82	3.7	26.4	5.6
18			Jungadha	26.3	83	4.4	27.9	5.5
19			Rahuri	27.5	81	3.4	28.1	5.6
20			Talod	26.7	82	4.0	24.4	5.5
		Mean		**26.6**	**81**	**3.9**	**25.7**	**5.3**
21	2055	LC	Banaswara	25.8	83	2.9	23.0	8.7
22			Bhawanipatna	32.6	85	4.2	30.3	5.9
23			Jungadha	26.3	85	4.4	28.6	5.6
24			Rahuri	Missing				
25			Talod	27.3	84	5.0	27.9	5.7
		Mean		**28.0**	**84**	**4.1**	**27.5**	**6.5**
26	2056	RHC-HD 1405	Banaswara	25.3	81	3.0	25.2	
27			Bhawanipatna	28.5	82	4.4	27.9	5.7
28			Jungadha	27.4	83	4.2	28.3	5.6
29			Rahuri	26.3	81	3.7	27.9	5.6

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
30			Talod	28.0	81	3.8	25.0	5.4
		Mean		**27.1**	**82**	**3.8**	**26.9**	**6.6**
31	2057	SHC 374	Banaswara	26.0	82	3.3	24.7	
32			Bhawanipatna	30.5	82	4.3	28.3	5.8
33			Jungadha	27.1	83	4.0	29.0	5.6
34			Rahuri	28.7	83	3.9	29.6	5.8
35			Talod	28.2	82	4.3	27.5	5.6
		Mean		**28.1**	**83**	**4.0**	**27.8**	**6.5**
36	2058	GTHV 18/17	Banaswara	23.7	80	3.3	22.7	
37			Bhawanipatna	27.4	85	4.8	27.3	5.7
38			Jungadha	27.8	85	4.4	28.6	5.7
39			Rahuri	27.3	84	3.7	27.6	5.7
40			Talod	26.6	81	4.3	24.3	5.4
		Mean		**26.6**	**83**	**4.1**	**26.1**	**7.6**
41	2059	CCH 19-4	Banaswara	26.0	82	3.2	27.1	
42			Bhawanipatna	28.5	84	4.2	28.2	5.7
43			Jungadha	28.8	84	4.3	28.7	5.7
44			Rahuri	30.7	86	3.2	30.9	5.9
45			Talod	31.8	87	3.8	29.6	5.9
		Mean		**29.1**	**85**	**3.7**	**28.9**	**6.4**
46	2060	RAHC 1902	Banaswara	25.2	82	3.5	29.5	
47			Bhawanipatna	30.6	83	4.2	28.8	5.7
48			Jungadha	29.0	83	4.6	28.9	5.8
49			Rahuri	29.6	84	3.5	30.1	5.7
50			Talod	27.3	84	4.1	27.3	5.5
		Mean		**28.3**	**83**	**4.0**	**28.9**	**6.4**

Br-13 a PVT G.barbadense

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
1	2061	DB-1601	Anand	33.9	86	4.1	32.8	6.3
2			Rahuri	31.8	84	2.8	30.6	6.0
		Mean		**32.9**	**85**	**3.4**	**31.7**	**6.2**
3	2062	DB 1901	Anand	33.7	86	3.9	31.2	6.1
4			Rahuri	30.9	85	3.1	30.1	6.0
		Mean		**32.3**	**86**	**3.5**	**30.7**	**6.1**
5	2063	CCB 64	Anand	36.4	85	3.6	33.0	6.1
6			Rahuri	32.3	84	2.5	27.4	5.8
		Mean		**34.3**	**85**	**3.0**	**30.2**	**6.0**
7	2064	CCB 6	Anand	36.1	85	3.6	36.0	6.2
8			Rahuri	32.6	84	2.6	30.9	6.0
		Mean		**34.4**	**85**	**3.1**	**33.5**	**6.1**
9	2065	ZC	Anand	31.4	85	4.2	32.3	6.2

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
10			Rahuri	30.3	84	3.2	31.2	6.1
		Mean		**30.8**	**85**	**3.7**	**31.8**	**6.2**
11	2066	DB 1701	Anand	34.0	86	4.0	33.1	6.3
12			Rahuri	30.9	85	2.9	29.9	6.0
		Mean		**32.5**	**86**	**3.5**	**31.5**	**6.2**
13	2067	CCB 141	Anand	33.7	85	3.8	32.8	6.1
14			Rahuri	32.1	85	2.6	31.6	6.0
		Mean		**32.9**	**85**	**3.2**	**32.2**	**6.1**
15	2068	CCB 15	Anand	35.0	85	3.6	33.6	6.1
16			Rahuri	30.7	83	2.5	31.0	5.9
		Mean		**32.9**	**84**	**3.0**	**32.3**	**6.0**
17	2069	CCB 64B	Anand	36.6	85	3.6	35.1	6.1
18			Rahuri	32.5	84	2.5	28.3	5.8
		Mean		**34.6**	**84**	**3.0**	**31.7**	**6.0**

Br-14 a CVT G.barbadense

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
1	2071	CCB 143B	Anand	35.5	85	3.9	32.8	6.1
2			Rahuri	32.8	85	2.8	30.7	6.0
		Mean		**34.2**	**85**	**3.3**	**31.8**	**6.1**
3	2072	ZC	Anand	32.5	85	4.0	31.7	6.2
4			Rahuri	33.1	84	2.8	31.1	6.0
		Mean		**32.8**	**85**	**3.4**	**31.4**	**6.1**
5	2073	DB 1801	Anand	33.8	86	4.2	31.5	6.3
6			Rahuri	30.8	85	3.3	30.7	6.1
		Mean		**32.3**	**85**	**3.7**	**31.1**	**6.2**
7	2074	CCB 51-2	Anand	34.3	84	3.8	32.0	6.1
8			Rahuri	33.0	84	2.6	31.0	5.9
		Mean		**33.6**	**84**	**3.2**	**31.5**	**6.0**

Br15a - CHT H X B

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
1	2081	RHB 1401	Anand	35.0	85	3.8	32.6	6.0
2			Banswara	29.6	82	2.9	28.4	6.6
3			Rahuri	32.3	84	2.7	28.6	6.0
		Mean		**32.3**	**84**	**3.1**	**29.9**	**6.2**
4	2082	DHB 1902	Anand	34.1	86	4.0	31.7	6.0
5			Banswara	30.6	82	2.9	26.8	5.4
6			Rahuri	34.0	85	2.7	29.3	6.0

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
		Mean		**32.9**	**84**	**3.2**	**29.3**	**5.8**
7	2083	DHB 2002	Anand	33.2	84	3.6	31.3	6.0
8			Banswara	29.8	83	2.9	30.2	6.0
9			Rahuri	30.8	84	2.6	27.3	5.9
		Mean		**31.3**	**84**	**3.0**	**29.6**	**6.0**
10	2084	DHB 2001	Anand	33.4	84	3.4	29.2	5.9
11			Banswara	29.2	82	3.4	27.5	6.5
12			Rahuri	30.4	84	2.9	28.8	5.8
		Mean		**31.0**	**83**	**3.2**	**28.5**	**6.1**
13	2085	ZC	Anand	35.0	84	3.4	32.4	6.0
14			Banswara	29.3	80	3.2	29.1	5.2
15			Rahuri	32.8	83	2.9	27.7	5.9
		Mean		**32.4**	**82**	**3.2**	**29.7**	**5.7**
16	2086	RHB 1623	Anand	34.6	85	3.6	33.6	6.1
17			Banswara	30.6	81	2.9	27.7	6.2
18			Rahuri	34.6	83	2.8	28.6	6.0
		Mean		**33.3**	**83**	**3.1**	**30.0**	**6.1**
19	2087	LAHB 2	Anand	34.7	86	3.2	31.3	6.1
20			Banswara	30.9	83	2.6	28.9	6.3
21			Rahuri	33.3	82	2.7	26.0	5.8
		Mean		**33.0**	**84**	**2.8**	**28.7**	**6.1**
22	2088	DHB 2003	Anand	32.8	80	3.8	32.4	5.9
23			Banswara	29.6	82	3.0	30.7	6.1
24			Rahuri	32.0	85	2.9	27.0	5.9
		Mean		**31.5**	**82**	**3.2**	**30.0**	**6.0**
25	2089	RHB 1624	Anand	34.9	86	3.4	32.7	6.1
26			Banswara	31.3	82	3.0	27.8	6.0
27			Rahuri	33.5	84	2.5	26.6	5.9
		Mean		**33.2**	**84**	**3.0**	**29.0**	**6.0**

Br03 b - PVT - Rainfed

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
1	2091	QC	Akola	29.5	85	3.2	30.5	6.1
2			Banswara	27.8	83	4.1	27.2	5.4
3			Bharuch	29.7	84	3.8	31.5	5.8
4			Nagpur	31.4	85	3.6	31.1	5.8
5			Nanded	29.6	83	4.1	28.6	5.8
		Mean		**29.6**	**84**	**3.8**	**29.8**	**5.8**
6	2092	CNH 1134	Akola	26.0	81	2.8	27.0	5.6
7			Banswara	23.3	79	3.6	22.2	5.0
8			Bharuch	26.4	83	3.6	29.5	5.6

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
9			Nagpur	27.2	84	4.5	27.4	5.6
10			Nanded	25.5	81	3.6	25.1	5.4
		Mean		**25.7**	**82**	**3.6**	**26.2**	**5.4**
11	2093	LC	Akola	23.8	86	3.4	25.5	5.4
12			Banswara	26.1	81	2.9	21.7	5.0
13			Bharuch	27.1	84	3.8	28.0	5.8
14			Nagpur	25.3	81	4.3	25.7	5.5
15			Nanded	24.9	81	3.8	24.4	5.4
		Mean		**25.4**	**83**	**3.6**	**25.1**	**5.4**
16	2094	NDLH-2057-1	Akola	27.6	82	2.9	25.7	5.6
17			Banswara	23.9	79	4.1	22.0	4.7
18			Bharuch	26.4	83	4.0	28.3	5.5
19			Nagpur	29.3	84	3.8	26.8	5.7
20			Nanded	27.1	83	3.6	27.3	5.5
		Mean		**26.9**	**82**	**3.7**	**26.0**	**5.4**
21	2095	TVH 007	Akola	26.8	84	3.5	27.8	5.8
22			Banswara	25.4	80	3.6	24.0	4.8
23			Bharuch	27.9	81	4.1	26.9	5.6
24			Nagpur	28.0	82	3.8	27.5	5.6
25			Nanded	26.8	82	4.2	26.4	5.6
		Mean		**27.0**	**82**	**3.8**	**26.5**	**5.5**
26	2096	ZC	Akola	26.2	80	3.6	26.4	5.4
27			Banswara	24.3	78	2.9	22.0	5.2
28			Bharuch	26.8	82	4.3	28.0	5.6
29			Nagpur	29.3	82	3.4	29.0	5.7
30			Nanded	27.7	83	3.6	24.9	5.6
		Mean		**26.9**	**81**	**3.6**	**26.1**	**5.5**
31	2097	AKH 2013-2	Akola	27.2	81	3.0	25.8	5.5
32			Banswara	26.0	80	3.6	21.5	5.2
33			Bharuch	27.2	81	3.9	26.9	5.4
34			Nagpur	27.4	82	3.9	25.4	5.6
35			Nanded	25.8	80	3.3	22.3	5.4
		Mean		**26.7**	**81**	**3.5**	**24.4**	**5.4**

Br04 b - CVT - Rainfed

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
1	2101	NDLH-2035-5	Akola	27.8	83	3.4	25.4	5.5
2			Banswara	26.5	79	3.4	24.3	5.0
3			Bharuch	29.9	84	3.3	28.4	5.7
4			Nanded	28.3	81	4.0	26.4	5.6
		Mean		**28.1**	**82**	**3.5**	**26.1**	**5.5**

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
5	2102	LC	Akola	25.3	80	3.9	25.3	5.4
6			Banswara	23.4	81	3.6	23.3	5.6
7			Bharuch	28.1	85	3.7	27.6	5.8
8			Nanded	26.2	82	4.5	25.3	5.6
		Mean		**25.7**	**82**	**3.9**	**25.4**	**5.6**
9	2103	ZC	Akola	27.9	82	3.5	27.1	5.7
10			Banswara	25.7	80	3.1	24.3	4.8
11			Bharuch	26.9	84	3.3	26.1	5.4
12			Nanded	27.3	83	4.3	24.7	5.6
		Mean		**26.9**	**82**	**3.6**	**25.6**	**5.4**
13	2104	BS 3-17	Akola	27.8	84	4.0	29.1	5.9
14			Banswara	26.3	81	3.0	25.2	5.2
15			Bharuch	26.1	82	2.9	26.1	5.4
16			Nanded	24.2	81	4.6	24.3	5.5
		Mean		**26.1**	**82**	**3.6**	**26.2**	**5.5**
17	2105	QC	Akola	29.6	84	3.6	28.4	5.8
18			Banswara	28.9	83	3.5	28.1	5.0
19			Bharuch	31.2	85	3.3	29.7	5.8
20			Nanded	29.6	85	4.6	29.0	5.8
		Mean		**29.8**	**84**	**3.8**	**28.8**	**5.6**

Br06b - CVT Compact Cultures - Rainfed

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
1	2111	GISV 312	Akola	27.6	83	5.1	25.0	5.7
2			Nanded	25.2	82	4.3	24.2	5.6
3			Surart	23.8	82	5.4	24.4	5.4
		Mean		**25.5**	**82**	**4.9**	**24.5**	**5.6**
4	2112	LC	Akola	25.0	80	3.5	24.7	5.3
5			Nanded	27.4	82	4.2	25.8	5.5
6			Surart	26.5	82	4.4	27.8	5.5
		Mean		**26.3**	**81**	**4.0**	**26.1**	**5.4**
7	2113	CHN 09-77	Akola	26.6	83	2.7	26.4	5.5
8			Nanded	26.0	83	3.5	25.5	5.4
9			Surart	26.9	85	3.6	27.1	5.4
		Mean		**26.5**	**84**	**3.3**	**26.3**	**5.4**
10	2114	DSC 1851	Akola	25.7	82	3.5	26.9	5.5
11			Nanded	25.6	82	4.3	26.3	5.5
12			Surart	26.7	85	4.4	28.2	5.6
		Mean		**26.0**	**83**	**4.1**	**27.1**	**5.5**
13	2115	ZC	Akola	30.7	86	4.8	28.9	6.1
14			Nanded	29.8	84	4.5	28.9	5.8

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
15			Surart	30.0	84	4.2	31.5	5.8
		Mean		**30.2**	**85**	**4.5**	**29.8**	**5.9**
16	2116	AKH 1302	Akola	27.1	80	4.4	28.2	5.8
17			Nanded	25.1	81	4.4	25.2	5.5
18			Surart	26.3	81	4.7	27.4	5.5
		Mean		**26.2**	**81**	**4.5**	**26.9**	**5.6**
19	2117	RHC-HD 1405	Akola	27.6	82	3.5	26.8	5.6
20			Nanded	26.8	80	4.0	26.0	5.5
21			Surart	26.3	82	4.7	27.8	5.6
		Mean		**26.9**	**81**	**4.1**	**26.9**	**5.6**
22	2118	CNH 1133	Akola	27.6	82	3.4	25.6	5.6
23			Nanded	25.8	81	4.0	25.5	5.4
24			Surart	25.7	81	4.4	25.7	5.4
		Mean		**26.3**	**82**	**3.9**	**25.6**	**5.5**
25	2119	TVH 002	Akola	27.6	85	3.8	26.5	5.7
26			Nanded	28.1	83	4.1	25.8	5.6
27			Surart	28.6	85	3.8	29.3	5.7
		Mean		**28.1**	**84**	**3.9**	**27.2**	**5.7**
28	2120	RHC-HD 1312	Akola	26.5	84	4.5	26.1	5.7
29			Nanded	26.0	83	4.3	25.1	5.6
30			Surart	27.0	84	4.3	27.5	5.6
		Mean		**26.5**	**84**	**4.4**	**26.2**	**5.6**
31	2121	RAHC 1901	Akola	26.0	83	4.9	25.6	5.7
32			Nanded	27.2	80	3.6	25.5	5.5
33			Surart	28.0	82	3.7	29.1	5.6
		Mean		**27.1**	**82**	**4.1**	**26.7**	**5.6**
34	2122	RAHC 1029	Akola	29.4	82	3.6	27.5	5.7
35			Nanded	28.4	83	3.6	26.5	5.6
36			Surart	28.3	83	3.9	29.3	5.6
		Mean		**28.7**	**82**	**3.7**	**27.8**	**5.6**

Br-24 b CVT - G.arboreum

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
1	2131	CNA 2036	Akola	24.8	83	5.7	25.7	5.7
2			Amreli	24.8	83	5.8	26.9	5.7
3			Nagpur	25.4	84	5.2	27.0	5.7
4			Parbhani	26.2	82	5.7	26.8	5.7
		Mean		**25.3**	**83**	**5.6**	**26.6**	**5.7**
5	2132	NDLA 3104-4	Akola	21.7	79	6.5	23.5	5.3
6			Amreli	22.3	80	6.6	24.6	5.5
7			Nagpur	23.8	82	5.8	26.3	5.6

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
8			Parbhani	21.7	81	6.6	22.6	5.5
		Mean		**22.4**	**81**	**6.4**	**24.3**	**5.5**
9	2133	MDL 2667	Akola	24.5	83	5.7	26.7	5.8
10			Amreli	24.1	82	6.4	26.8	5.7
11			Nagpur	25.3	84	5.4	26.0	5.7
12			Parbhani	25.9	84	6.0	26.4	5.7
		Mean		**25.0**	**83**	**5.9**	**26.5**	**5.7**
13	2134	AKA 2013-8	Akola	25.5	82	5.1	25.1	5.6
14			Amreli	23.7	83	6.0	26.4	5.6
15			Nagpur	25.8	84	5.2	27.1	5.7
16			Parbhani	21.7	79	6.7	22.8	5.4
		Mean		**24.2**	**82**	**5.8**	**25.4**	**5.6**
17	2135	ZC	Akola	25.7	82	5.5	25.4	5.7
18			Amreli	24.8	81	5.8	26.1	5.7
19			Nagpur	24.9	83	5.2	25.4	5.6
20			Parbhani	25.1	82	5.8	24.2	5.6
		Mean		**25.1**	**82**	**5.6**	**25.3**	**5.7**
21	2136	JLA 1207	Akola	25.2	83	5.6	26.4	5.8
22			Amreli	23.7	83	6.1	26.2	5.7
23			Nagpur	25.4	83	5.3	25.8	5.7
24			Parbhani	27.8	84	5.6	28.5	5.8
		Mean		**25.5**	**83**	**5.7**	**26.7**	**5.8**
25	2137	CNA 2035	Akola	26.0	81	5.4	25.9	5.8
26			Amreli	24.3	82	5.9	26.7	5.8
27			Nagpur	25.4	83	4.8	26.6	5.6
28			Parbhani	26.1	83	5.7	28.9	5.7
		Mean		**25.4**	**82**	**5.5**	**27.0**	**5.7**
29	2138	LC	Akola	26.9	83	4.8	26.3	5.8
30			Amreli	24.4	82	5.4	26.7	5.7
31			Nagpur	26.0	84	5.1	26.1	5.6
32			Parbhani	25.6	84	5.9	26.3	5.7
		Mean		**25.7**	**83**	**5.3**	**26.4**	**5.7**
33	2139	DWDa 1802	Akola	25.9	80	5.6	24.4	5.5
34			Amreli	25.6	82	5.6	27.1	5.7
35			Nagpur	26.7	83	5.2	25.3	5.4
36			Parbhani	25.6	82	5.6	25.5	5.5
		Mean		**25.9**	**82**	**5.5**	**25.6**	**5.5**
37	2140	NDLA 3116-3	Akola	24.9	82	6.1	25.5	5.8
38			Amreli	24.2	78	6.8	25.5	5.6
39			Nagpur	22.0	80	6.4	21.7	5.3
40			Parbhani	24.6	82	5.8	24.3	5.5
		Mean		**23.9**	**81**	**6.3**	**24.3**	**5.6**
41	2141	MDL 2663	Akola	25.4	80	6.2	26.2	5.7

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
42			Amreli	23.0	80	6.2	26.3	5.7
43			Nagpur	25.9	83	5.5	27.3	5.7
44			Parbhani	24.4	83	6.2	25.6	5.6
		Mean		**24.7**	**81**	**6.0**	**26.4**	**5.7**

Br24b CVT - Long Linted G.arboreum

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
1	2151	CNA 1065	Akola	25.0	82	5.1	26.6	5.8
2			Amreli	25.3	82	6.0	28.0	5.9
3			Nagpur	26.4	83	5.5	26.4	5.7
4			Parbhani	25.6	84	5.6	27.6	5.7
5			Viramgaon	25.3	84	4.7	29.2	5.7
		Mean		**25.5**	**83**	**5.4**	**27.6**	**5.8**
6	2152	PA 873	Akola	28.9	83	5.2	26.2	5.8
7			Amreli	28.6	82	5.4	28.1	5.8
8			Nagpur	30.1	85	4.3	31.3	5.8
9			Parbhani	28.7	82	4.8	28.3	5.8
10			Viramgaon	26.6	81	4.4	29.4	5.7
		Mean		**28.6**	**83**	**4.8**	**28.7**	**5.8**
11	2153	PAIG 379	Akola	28.2	81	4.8	26.5	5.8
12			Amreli	27.0	82	5.2	27.3	5.7
13			Nagpur	29.6	84	4.5	29.8	5.8
14			Parbhani	29.8	84	5.0	29.7	5.8
15			Viramgaon	27.5	82	4.8	29.3	5.8
		Mean		**28.4**	**83**	**4.9**	**28.5**	**5.8**
16	2154	PA 869	Akola	28.7	83	5.0	26.6	5.8
17			Amreli	25.5	82	5.6	26.7	5.6
18			Nagpur	28.0	83	4.7	27.2	5.7
19			Parbhani	28.4	82	5.2	26.2	5.7
20			Viramgaon	27.1	83	4.4	30.5	5.8
		Mean		**27.5**	**83**	**5.0**	**27.4**	**5.7**
21	2155	QC	Akola	26.1	82	4.4	29.8	5.9
22			Amreli	26.8	82	5.4	27.8	5.8
23			Nagpur	27.2	84	5.0	27.9	5.7
24			Parbhani	27.4	84	5.4	26.3	5.7
25			Viramgaon	26.5	82	4.6	29.5	5.7
		Mean		**26.8**	**83**	**5.0**	**28.3**	**5.8**
26	2156	CINA 1068	Akola	25.7	83	5.2	27.0	5.9
27			Amreli	24.7	81	6.0	26.6	5.7
28			Nagpur	26.5	85	5.0	28.7	5.7
29			Parbhani	25.9	84	5.9	25.2	5.7
30			Viramgaon	25.8	83	4.5	30.6	5.8

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
		Mean		**25.7**	**83**	**5.3**	**27.6**	**5.8**
31	2157	CINA 1069	Akola	25.2	82	5.5	26.3	5.8
32			Amreli	25.7	82	5.6	28.6	5.8
33			Nagpur	26.6	85	5.3	27.5	5.7
34			Parbhani	25.4	84	5.5	27.3	5.7
35			Viramgaon	25.7	82	5.0	30.4	5.8
		Mean		**25.7**	**83**	**5.4**	**28.0**	**5.8**
36	2158	CINA 1067	Akola	27.0	81	5.1	26.4	5.8
37			Amreli	26.1	79	5.7	27.6	5.8
38			Parbhani	29.5	84	5.1	27.9	5.6
39			Rahuri	25.9	83	5.6	26.7	5.7
40			Viramgaon	25.1	83	4.4	29.7	5.8
		Mean		**26.7**	**82**	**5.2**	**27.7**	**5.7**

Br24b-CVT Coloured Cotton - Arboreum

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
1	2161	CNA 18562	Nagpur	23.5	80	5.3	23.2	5.4
2			Nanded	22.6	79	5.1	20.3	5.3
3			Parbhani	24.2	80	5.4	22.2	5.5
4			Surart	23.2	80	4.9	24.0	5.4
		Mean		**23.4**	**80**	**5.2**	**22.4**	**5.4**
5	2162	DDCC 1902	Nagpur	22.8	82	4.9	23.3	5.4
6			Nanded	22.0	80	4.7	20.1	5.2
7			Parbhani	22.4	81	5.0	25.0	5.4
8			Surart	23.1	81	5.3	24.1	5.3
		Mean		**22.6**	**81**	**5.0**	**23.1**	**5.3**
9	2163	DDCC 1801	Nagpur	22.9	81	4.8	23.1	5.4
10			Nanded	21.7	80	4.2	19.7	5.1
11			Parbhani	22.8	79	5.2	23.5	5.5
12			Surart	23.2	81	4.5	25.3	5.3
		Mean		**22.6**	**80**	**4.7**	**22.9**	**5.3**
13	2164	CNA 1092	Nagpur	24.2	83	5.2	25.2	5.5
14			Nanded	23.5	81	4.6	22.3	5.3
15			Parbhani	25.4	84	4.8	26.0	5.6
16			Surart	24.1	82	4.9	25.9	5.6
		Mean		**24.3**	**83**	**4.9**	**24.9**	**5.5**
17	2165	AKA 7 (ZC)	Nagpur	25.5	82	5.2	25.5	5.6
18			Nanded	25.3	80	5.0	23.0	5.5
19			Parbhani	24.6	81	5.4	24.4	5.6
20			Surart	23.4	81	4.7	24.8	5.3
		Mean		**24.7**	**81**	**5.1**	**24.4**	**5.5**

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
21	2166	CNA 1091	Nagpur	23.7	82	5.2	24.2	5.5
22			Nanded	23.7	80	4.5	23.0	5.4
23			Parbhani	23.7	82	5.8	24.6	5.5
24			Surart	23.8	81	4.7	25.2	5.5
		Mean		**23.7**	**81**	**5.0**	**24.3**	**5.5**
25	2167	CNA 17522	Nagpur	23.6	82	5.4	24.0	5.5
26			Nanded	22.3	79	4.9	19.8	5.2
27			Parbhani	23.8	79	5.8	22.1	5.4
28			Surart	22.2	81	5.3	22.8	5.1
		Mean		**23.0**	**80**	**5.3**	**22.2**	**5.3**
29	2168	CNA 19475	Nagpur	23.1	80	5.0	22.0	5.4
30			Nanded	22.6	80	4.8	19.9	5.2
31			Parbhani	22.9	79	5.9	21.3	5.4
32			Surart	22.1	81	5.0	20.8	4.8
		Mean		**22.7**	**80**	**5.2**	**21.0**	**5.2**
33	2169	LC	Nagpur	25.7	83	4.7	25.7	5.6
34			Nanded	25.4	83	5.0	27.2	5.6
35			Parbhani	26.4	83	5.2	26.3	5.7
36			Surart	24.6	82	4.7	25.7	5.7
		Mean		**25.5**	**83**	**4.9**	**26.2**	**5.7**
37	2170	CAN 18563	Nagpur	23.6	80	5.3	21.7	5.4
38			Nanded	23.0	80	5.0	20.3	5.3
39			Parbhani	22.8	79	6.0	20.7	5.4
40			Surart	23.2	79	4.8	23.0	5.3
		Mean		**23.2**	**80**	**5.3**	**21.4**	**5.4**
41	2171	DDCC 1802	Nagpur	22.9	81	5.2	24.7	5.4
42			Nanded	21.8	80	4.4	21.0	5.2
43			Parbhani	23.2	79	5.6	21.8	5.4
44			Surart	22.0	78	5.0	23.4	5.1
		Mean		**22.5**	**80**	**5.0**	**22.7**	**5.3**
45	2172	DDCC 2001	Nagpur	22.1	81	5.2	24.1	5.3
46			Nanded	21.9	80	4.8	20.0	5.2
47			Parbhani	22.7	80	5.4	22.5	5.4
48			Surart	22.8	79	5.2	24.6	5.4
		Mean		**22.4**	**80**	**5.1**	**22.8**	**5.3**
49	2173	DDCC 1901	Nagpur	22.0	81	5.2	22.5	5.3
50			Nanded	21.1	80	4.8	19.6	5.1
51			Parbhani	22.9	80	5.6	23.6	5.4
52			Surart	21.7	80	5.1	23.0	5.2
		Mean		**21.9**	**80**	**5.2**	**22.2**	**5.3**

South Zone

Bro3a – PVT irrigated

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Str (g/tex)	E%
1	2501	TSH 383	Lam	25.8	85	4.9	25.8	6.3
2			UAS Raichur	30.3	87	5.0	27.8	6.5
3			Srivilliputtur	29.2	85	5.2	28.3	6.1
		Mean		**28.4**	**86**	**5.0**	**27.3**	**6.3**
4	2502	ZC	Lam	30.0	87	5.0	32.3	6.5
5			UAS Raichur	32.3	88	4.6	31.2	6.6
6			Srivilliputtur	31.2	88	4.6	33.5	6.2
		Mean		**31.2**	**88**	**4.8**	**32.3**	**6.4**
7	2503	CHH 19-2	Lam, Guntur	29.0	86	4.2	31.6	6.4
8			UAS Raichur	33.0	86	3.8	29.7	6.4
9			Srivilliputtur	32.7	89	4.3	30.3	5.9
		Mean		**31.6**	**87**	**4.1**	**30.5**	**6.2**
10	2504	RHC 1409	Lam	26.0	84	5.2	26.7	6.3
11			UAS Raichur	28.2	87	5.0	28.0	6.4
12			Srivilliputtur	28.6	85	5.2	27.7	5.8
		Mean		27.6	85	5.1	27.4	6.2
13	2505	LC	Lam	28.8	84	4.8	28.2	6.4
14			UAS Raichur	30.6	86	5.0	29.5	6.5
15			Srivilliputtur	30.1	87	4.6	26.9	5.9
		Mean		**29.9**	**85**	**4.8**	**28.2**	**6.3**
16	2506	CPD 1902	Lam	27.6	84	5.3	26.0	6.2
17			UAS Raichur	27.9	87	5.1	26.8	6.3
18			Srivilliputtur	29.6	85	5.7	27.2	6.1
		Mean		**28.4**	**85**	**5.4**	**26.7**	**6.2**
19	2507	RAH 1046	Lam	26.4	83	4.9	24.9	6.2
20			UAS Raichur	29.1	87	4.7	27.7	6.4
21			Srivilliputtur	29.3	86	5.7	27.0	5.9
		Mean		**28.3**	**85**	**5.1**	**26.5**	**6.2**

Br03 a/b (CC) – PVT Colour Cotton – Irrigated/ Rainfed

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Strength (g/tex)	E%
1	2511	DHCC 1801	Dharward	21.8	79	4.5	18.6	5.9
2			Lam	20.5	80	5.0	17.2	6.3
3			Nandyal	21.8	78	4.4	19.3	5.7
4			UAS Raichur	22.5	81	4.2	21.5	5.9
		Mean		**21.7**	**80**	**4.5**	**19.1**	**5.9**
5	2512	CCHC 19-2	Dharward	27.1	82	3.3	25.2	6.2
6			Lam	27.9	82	3.5	26.0	6.2
7			Nandyal	27.2	83	3.4	26.4	5.8
8			UAS Raichur	30.1	86	3.6	27.3	6.3
		Mean		**28.1**	**83**	**3.4**	**26.2**	**6.1**
9	2513	DHCC 1901	Dharward	21.2	81	4.8	18.5	5.8
10			Lam	21.0	80	5.3	17.2	5.6
11			Nandyal	20.6	81	4.4	16.7	6.0
12			UAS Raichur	23.6	82	4.6	20.5	6.0
		Mean		**21.6**	**81**	**4.8**	**18.2**	**5.8**
13	2514	Suraj (ZC)	Dharward	31.1	84	3.9	29.8	6.3
14			Lam	30.0	86	4.8	31.0	6.5
15			Nandyal	28.8	84	4.1	30.7	6.4
16			UAS Raichur	32.2	89	4.8	32.9	6.6
		Mean		**30.5**	**86**	**4.4**	**31.1**	**6.4**
17	2515	CNH 18528	Dharward	23.3	80	3.8	20.5	6.0
18			Lam	23.0	79	4.8	19.2	5.8
19			Nandyal	23.0	76	4.3	23.0	6.0
20			UAS Raichur	23.6	81	4.1	22.6	6.1
		Mean		**23.2**	**79**	**4.2**	**21.3**	**6.0**
21	2516	CNH 17395	Dharward	23.3	82	3.8	21.1	5.9
22			Lam	21.3	82	4.8	19.0	5.8
23			Nandyal	21.7	80	4.6	20.0	5.8
24			UAS Raichur	24.0	83	4.2	22.5	6.1
		Mean		**22.6**	**82**	**4.3**	**20.6**	**5.9**
25	2517	CCHC 19-1	Dharward	26.4	83	3.1	22.9	6.2
26			Lam	26.8	83	3.4	24.0	6.1
27			Nandyal	25.3	82	3.0	23.1	5.7
28			UAS Raichur	29.6	85	3.4	26.2	6.2
		Mean		**27.0**	**83**	**3.2**	**24.0**	**6.0**
29	2518	DHCC 1902	Dharward	21.4	79	3.9	18.1	5.6
30			Lam	21.0	79	4.5	18.0	5.6
31			Nandyal	20.8	77	3.8	17.6	5.5
32			UAS Raichur	21.3	81	4.1	17.9	5.4
		Mean		**21.1**	**79**	**4.1**	**17.9**	**5.5**
33	2519	LC	Dharward	29.6	80	3.8	26.8	6.3

34			Lam	28.5	84	4.9	27.1	6.3
35			Nandyal	27.0	82	5.0	26.5	5.4
36			UAS Raichur	32.9	88	4.9	29.6	6.5
		Mean		**29.5**	**83**	**4.6**	**27.5**	**6.1**
37	2520	DHCC 1802	Dharward	22.1	81	3.7	19.3	5.8
38			Lam	20.6	81	4.1	16.9	6.8
39			Nandyal	21.5	80	3.8	18.0	5.6
40			UAS Raichur	21.8	82	3.9	19.9	5.6
		Mean		**21.5**	**81**	**3.9**	**18.5**	**5.9**
41	2521	CNH 18529	Dharward	21.5	80	4.3	17.0	6.2
42			Lam	22.7	80	4.9	20.1	5.9
43			Nandyal	22.2	78	4.2	19.2	5.7
44			UAS Raichur	24.0	80	4.7	20.7	5.9
		Mean		**22.6**	**80**	**4.5**	**19.2**	**5.9**
45	2522	LHCC 3	Dharward	21.9	82	3.0	17.2	6.0
46			Lam	21.2	82	3.6	16.9	6.7
47			Nandyal	20.4	81	3.0	16.5	5.9
48			UAS Raichur	21.0	82	3.2	18.4	6.1
		Mean		**21.1**	**82**	**3.2**	**17.2**	**6.1**

Br04a - CVT irrigated

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Strength (g/tex)	E%
1	2531	CPD 1701	Lam	25.9	82	5.0	24.7	6.2
2			UAS Raichur	27.1	85	5.3	24.9	6.2
3			Srivilliputtur	28.3	86	5.1	27.6	5.8
		Mean		**27.1**	**84**	**5.1**	**25.7**	**6.1**
4	2532	ZC	Lam	29.4	85	4.9	29.5	6.5
5			UAS Raichur	33.8	88	4.8	30.4	6.6
6			Srivilliputtur	31.8	86	4.7	33.2	5.9
		Mean		**31.7**	**86**	**4.8**	**31.0**	**6.3**
7	2533	CPD 1702	Lam	25.8	82	5.6	24.1	6.3
8			UAS Raichur	28.0	83	5.1	27.6	6.3
9			Srivilliputtur	29.6	86	5.2	27.8	6.2
		Mean		**27.8**	**84**	**5.3**	**26.5**	**6.3**
10	2534	RAH 1075	Lam	26.9	82	4.7	24.9	6.3
11			UAS Raichur	28.4	84	4.5	29.0	6.5
12			Srivilliputtur	29.7	83	4.9	30.2	6.3
		Mean		**28.3**	**83**	**4.7**	**28.0**	**6.4**
13	2535	LC	Lam	27.8	83	4.7	26.7	6.2
14			UAS Raichur	30.1	86	5.1	27.3	6.4
15			Srivilliputtur	29.2	85	4.5	28.6	6.2
		Mean		**29.0**	**85**	**4.7**	**27.5**	**6.3**
16	2536	TSH 325	Lam	26.7	83	5.3	24.2	6.3
17			UAS Raichur	27.0	87	5.6	25.1	6.3

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Strength (g/tex)	E%
18			Srivilliputtur	27.0	87	5.7	27.4	6.3
		Mean		**26.9**	**86**	**5.5**	**25.6**	**6.3**

Br05a - CHT HxH

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Strength (g/tex)	E%
1	2541	BGDHH 2013	B Guddi	30.8	87	5.3	28.4	6.5
2			Lam	27.4	85	5.6	24.7	6.2
3			UAS Raichur	29.4	88	5.4	28.7	6.4
4			Srivilliputhur	29.1	87	5.9	26.6	6.4
		Mean		**29.2**	**87**	**5.6**	**27.1**	**6.4**
5	2542	DHH 2001	B Guddi	26.6	86	4.8	27.2	6.3
6			Lam	26.5	84	4.6	27.6	6.3
7			UAS Raichur	28.1	85	4.9	27.2	6.3
8			Srivilliputhur	29.1	87	5.0	27.8	6.4
		Mean		**27.6**	**85**	**4.9**	**27.4**	**6.3**
9	2543	LC	B Guddi	29.7	87	5.2	27.6	6.5
10			Lam	26.8	82	4.5	25.9	6.2
11			UAS Raichur	30.5	87	5.2	27.9	6.4
12			Srivilliputhur	28.8	87	6.1	27.6	6.5
		Mean		**28.9**	**86**	**5.3**	**27.2**	**6.4**
13	2544	RAHH 2012	B Guddi	28.2	88	5.3	27.8	6.5
14			Lam	27.7	84	5.7	27.5	6.3
15			UAS Raichur	30.2	87	5.2	30.4	6.5
16			Srivilliputhur	28.0	85	5.8	27.2	6.4
		Mean		**28.5**	**86**	**5.5**	**28.2**	**6.4**
17	2545	RAHH 2011	B Guddi	28.0	85	4.6	26.8	6.3
18			Lam	27.4	84	5.0	27.3	6.3
19			UAS Raichur	29.0	87	4.7	28.9	6.3
20			Srivilliputhur	29.7	87	5.7	28.5	6.5
		Mean		**28.5**	**86**	**5.0**	**27.9**	**6.3**

Br06a - CVT Compact Cultures - Irrigated

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Strength (g/tex)	E%
1	2551	CCH 19-2	Lam	30.3	86	4.2	29.9	6.5
2			UAS Raichur	32.3	88	3.6	34.7	6.5
3			Mudhol	28.7	83	3.2	28.0	5.7
4			Srivilliputtur	30.4	87	4.3	30.1	6.5
		Mean		**30.4**	**86**	**3.8**	**30.7**	**6.3**
5	2552	ZC	Lam	30.8	86	4.2	31.5	6.4
6			UAS Raichur	31.8	86	4.3	30.3	6.4

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Strength (g/tex)	E%
7			Mudhol	29.0	84	3.6	28.2	5.8
8			Srivilliputtur	30.3	86	5.3	31.4	6.6
		Mean		**30.5**	**86**	**4.4**	**30.3**	**6.3**
9	2553	RHC-HD 1312	Lam	27.1	82	4.2	28.9	6.4
10			UAS Raichur	29.7	87	4.7	28.6	6.4
11			Mudhol	25.5	82	3.7	25.0	5.5
12			Srivilliputtur	27.9	85	5.5	26.6	6.4
		Mean		27.5	84	4.5	27.3	6.2
13	2554	CCH 19-4	Lam	31.0	86	3.7	33.2	6.4
14			UAS Raichur	33.3	87	3.9	32.2	6.6
15			Mudhol	28.8	83	3.6	29.8	5.8
16			Srivilliputtur	27.8	85	4.9	30.3	6.5
		Mean		**30.2**	**85**	**4.0**	**31.4**	**6.3**
17	2555	Local Check	Lam	27.8	85	4.2	29.3	6.3
18			UAS Raichur	31.0	85	4.4	27.5	6.4
19			Mudhol	26.2	84	3.6	25.9	5.6
20			Srivilliputtur	31.0	84	4.7	32.0	6.5
		Mean		**29.0**	**85**	**4.2**	**28.7**	**6.2**
21	2556	RHC-HD 1438	Lam	27.1	84	4.5	28.5	6.3
22			UAS Raichur	27.4	83	4.4	25.3	6.2
23			Mudhol	25.5	82	3.6	25.3	5.5
24			Srivilliputtur	26.3	85	4.9	27.4	6.3
		Mean		**26.6**	**83**	**4.4**	**26.6**	**6.1**
25	2557	RAHC 1028	Lam	29.5	84	3.9	28.1	6.3
26			UAS Raichur	32.5	88	3.6	30.6	6.4
27			Mudhol	26.6	82	3.1	26.6	5.7
28			Srivilliputtur	30.6	87	4.8	27.7	6.4
		Mean		**29.8**	**85**	**3.9**	**28.3**	**6.2**
29	2558	LHDP 5	Lam	26.8	83	4.5	25.1	6.2
30			UAS Raichur	26.4	83	4.3	24.8	6.1
31			Mudhol	24.1	82	4.0	23.7	5.3
32			Srivilliputtur	27.2	83	4.8	25.1	6.2
		Mean		**26.1**	**83**	**4.4**	**24.7**	**5.9**

Br13a PVT G.barbadense

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Strength (g/tex)	E%
1	2561	DB 1901	Coimbatore	33.9	88	4.0	36.1	6.7
2			Dharward	32.0	85	3.4	35.3	6.7
		Mean		**32.9**	**87**	**3.7**	**35.7**	**6.7**
3	2562	CCB 29	Coimbatore	33.5	86	4.5	33.7	6.6
4			Dharward	33.9	85	3.6	36.3	6.6
		Mean		**33.7**	**85**	**4.0**	**35.0**	**6.6**
5	2563	CCB 64B	Coimbatore	37.1	88	4.3	39.1	6.8
6			Dharward	36.2	86	3.4	38.6	6.6
		Mean		36.7	87	3.8	38.8	6.7
7	2564	CCB 15	Coimbatore	36.3	88	4.6	37.2	6.8
8			Dharward	33.7	86	3.6	35.5	6.6
		Mean		**35.0**	**87**	**4.1**	**36.4**	**6.7**
9	2565	CCB 26	Coimbatore	36.3	89	4.0	39.3	6.7
10			Dharward	35.6	86	3.2	38.3	6.6
		Mean		**36.0**	**87**	**3.6**	**38.8**	**6.6**
11	2566	ZC	Coimbatore	37.7	87	3.7	39.4	6.6
12			Dharward	36.1	86	3.2	39.4	6.7
		Mean		**36.9**	**86**	**3.5**	**39.4**	**6.6**
13	2567	CCB 142	Coimbatore	37.0	87	4.4	36.7	6.7
14			Dharward	33.5	85	3.6	37.2	6.6
		Mean		**35.3**	**86**	**4.0**	**36.9**	**6.7**
15	2568	SBSD 5-6	Coimbatore	37.3	88	4.1	39.8	6.8
16			Dharward	35.2	84	3.5	38.5	6.6
		Mean		**36.3**	**86**	**3.8**	**39.1**	**6.7**
17	2569	CCB 6	Coimbatore	34.2	87	4.2	37.4	6.7
18			Dharward	35.6	84	3.6	39.3	7.0
		Mean		**34.9**	**85**	**3.9**	**38.4**	**6.8**
19	2570	CCB 141	Coimbatore	36.9	87	4.2	37.7	6.8
20			Dharward	34.9	87	3.6	39.9	6.8
		Mean		**35.9**	**87**	**3.9**	**38.8**	**6.8**
21	2571	CCB 51	Coimbatore	33.1	87	4.4	35.6	6.7
22			Dharward	36.8	87	3.7	39.0	6.8
		Mean		**34.9**	**87**	**4.0**	**37.3**	**6.7**
23	2572	CCB 64	Coimbatore	37.5	85	4.3	36.8	6.7
24			Dharward	35.0	87	3.5	38.8	6.7
		Mean		**36.2**	**86**	**3.9**	**37.8**	**6.7**

Br14a CVT G.barbadense

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Strength (g/tex)	E%
1	2581	CCB 51-2	Coimbatore	34.4	86	4.2	34.6	6.6
2			Dharward	34.4	85	3.6	36.7	6.6
		Mean		**34.4**	**85**	**3.9**	**35.6**	**6.6**
3	2582	ZC	Coimbatore	36.5	88	3.6	38.9	6.7
4			Dharward	33.0	88	3.5	36.0	6.7
		Mean		**34.8**	**88**	**3.6**	**37.4**	**6.7**
5	2583	DB 1801	Coimbatore	32.9	87	3.9	33.7	6.6
6			Dharward	37.1	87	3.3	40.2	6.7
		Mean		**35.0**	**87**	**3.6**	**36.9**	**6.6**

Br15a CHT H X B

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Strength (g/tex)	E%
1	2591	RHB 1623	Coimbatore	37.1	89	3.7	37.2	6.7
2			Dharward	36.5	89	3.1	38.1	6.7
3			Lam	35.0	86	3.4	38.5	6.7
4			KVK	31.9	83	2.3	29.7	6.4
		Mean		**35.1**	**87**	**3.1**	**35.9**	**6.6**
5	2592	LC	Coimbatore	36.9	87	3.6	36.7	6.6
6			Dharward	35.0	88	3.3	33.3	6.6
7			Lam	34.9	88	3.5	37.8	6.7
8			KVK	30.8	83	2.7	29.3	6.4
		Mean		**34.4**	**86**	**3.3**	**34.3**	**6.6**
9	2593	DHB 2002	Coimbatore	32.7	89	3.4	34.5	6.6
10			Dharward	32.5	86	3.1	33.9	6.7
11			Lam	32.2	86	3.4	35.6	6.5
12			KVK	27.5	83	2.4	27.9	6.3
		Mean		**31.2**	**86**	**3.1**	**32.9**	**6.5**
13	2594	Phule Dhara (CC)	Coimbatore	36.3	88	3.5	36.5	6.2
14			Dharward	35.2	87	3.1	33.6	6.6
15			Lam	35.5	84	3.6	38.3	6.6
16			KVK	31.3	84	2.5	27.6	6.3
		Mean		**34.6**	**86**	**3.1**	**34.0**	**6.4**
17	2595	DHB 1901	Coimbatore	36.2	88	3.7	34.5	6.1
18			Dharward	35.7	87	3.5	33.7	6.7
19			Lam	34.5	86	3.7	35.7	6.6
20			KVK	31.7	84	2.7	29.1	6.4

		Mean		**34.5**	**86**	**3.4**	**33.2**	**6.4**
21	2596	LAHB2	Coimbatore	37.9	88	3.1	39.3	5.9
22			Dharward	36.2	86	2.8	36.7	6.7
23			Lam	33.9	84	3.5	35.0	6.6
24			KVK	30.9	85	2.4	29.9	6.3
		Mean		**34.7**	**86**	**3.0**	**35.2**	**6.4**
25	2597	DHB 1902	Coimbatore	36.3	89	3.7	34.3	6.1
26			Dharward	36.0	89	3.5	35.7	6.6
27			Lam	35.0	86	3.7	36.7	6.7
28			KVK	32.4	87	2.6	29.6	6.5
		Mean		**34.9**	**88**	**3.4**	**34.1**	**6.5**
29	2598	RHB 1624	Coimbatore	37.4	88	3.3	37.9	6.5
30			Dharward	36.2	86	3.0	34.1	6.5
31			Lam	35.5	86	2.9	37.3	6.6
32			KVK	31.8	85	2.3	28.2	6.3
		Mean		**35.2**	**87**	**2.8**	**34.4**	**6.5**
33	2599	DHB 2003	Coimbatore	33.7	87	3.8	31.9	6.4
34			Dharward	32.0	84	3.2	31.4	6.5
35			Lam	32.5	84	3.3	34.6	6.7
36			KVK	27.9	82	2.6	26.2	6.4
		Mean		**31.5**	**84**	**3.2**	**31.0**	**6.5**
37	2600	RHB 1401	Coimbatore	36.1	88	4.1	38.3	6.6
38			Dharward	34.7	87	3.4	36.8	6.7
39			Lam	32.9	86	3.8	36.9	6.6
40			KVK	31.3	86	2.9	30.1	6.5
		Mean		**33.8**	**87**	**3.5**	**35.5**	**6.6**
41	2601	DHB 2001	Coimbatore	35.3	87	3.5	33.1	6.3
42			Dharward	34.7	86	3.0	31.6	6.5
43			Lam	33.4	85	3.2	35.1	6.5
44			KVK	30.3	82	2.2	26.3	6.3
		Mean		**33.4**	**85**	**3.0**	**31.5**	**6.4**

Br03b - PVT – Rainfed

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Strength (g/tex)	E%
1	2611	CNH 09-119	Dharward	28.5	85	4.2	27.2	6.3
2			Nandyal	27.2	85	4.7	29.2	6.4
3			Veppanthattai	28.9	85	5.0	28.0	5.8
		Mean		**28.2**	**85**	**4.6**	**28.1**	**6.2**
4	2612	NDLH 2051-3	Dharward	28.3	82	3.8	25.4	6.1
5			Nandyal	30.0	83	3.9	29.5	6.3
6			Veppanthattai	30.2	86	3.8	28.8	5.7
		Mean		**29.5**	**84**	**3.8**	**27.9**	**6.0**
7	2613	CNH 1134	Dharward	28.5	83	4.0	29.6	6.3

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Strength (g/tex)	E%
8			Nandyal	26.4	81	4.4	27.5	6.3
9			Veppanthattai	27.2	85	4.8	28.1	5.7
		Mean		**27.4**	**83**	**4.4**	**28.4**	**6.1**
10	2614	ZC	Dharward	27.3	84	3.9	26.8	6.3
11			Nandyal	25.1	82	4.3	23.8	6.1
12			Veppanthattai	28.0	85	4.4	27.7	5.7
		Mean		**26.8**	**84**	**4.2**	**26.1**	**6.0**
13	2615	CCH 19-2	Dharward	30.6	86	3.6	30.2	6.4
14			Nandyal	30.3	86	4.0	29.0	6.4
15			Veppanthattai	31.0	85	4.1	29.8	5.9
		Mean		**30.6**	**86**	**3.9**	**29.7**	**6.2**
16	2616	QC	Dharward	30.9	85	4.2	30.7	6.4
17			Nandyal	29.2	85	4.2	30.9	6.3
18			Veppanthattai	32.7	86	4.6	30.8	6.0
		Mean		**31.0**	**86**	**4.3**	**30.8**	**6.2**
19	2617	TSH 375	Dharward	26.8	84	3.7	27.6	6.3
20			Nandyal	25.4	84	4.3	24.9	6.2
21			Veppanthattai	28.8	84	4.1	27.8	5.8
		Mean		**27.0**	**84**	**4.0**	**26.7**	**6.1**
22	2618	TVH 007	Dharward	28.0	83	4.7	26.7	6.3
23			Nandyal	27.1	83	4.8	24.7	6.2
24			Veppanthattai	30.5	85	4.6	29.0	5.8
		Mean		**28.5**	**84**	**4.7**	**26.8**	**6.1**
25	2619	LC	Dharward	28.0	81	3.6	26.8	6.2
26			Nandyal	28.6	83	4.7	26.0	6.3
27			Veppanthattai	28.9	85	4.9	29.0	5.9
		Mean		**28.5**	**83**	**4.4**	**27.3**	**6.1**
28	2620	NDLH 2056-4	Dharward	30.3	84	3.8	27.9	6.2
29			Nandyal	30.2	85	3.9	29.9	6.3
30			Veppanthattai	30.3	86	4.5	27.9	5.8
		Mean		**30.3**	**85**	**4.1**	**28.6**	**6.1**
31	2621	BGDS 1033	Dharward	26.7	84	4.0	25.5	6.2
32			Nandyal	25.1	83	4.4	25.0	6.1
33			Veppanthattai	30.0	84	4.6	29.2	5.8
		Mean		**27.3**	**84**	**4.4**	**26.6**	**6.0**

Br04b - CVT – Rainfed

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Strength (g/tex)	E%
1	2631	NDLH-2035-5	Dharward	30.0	85	3.7	26.6	6.2
2			Nandyal	28.7	81	3.7	27.1	6.3
3			Veppanthattai	32.3	86	4.2	28.9	5.9
		Mean		**30.4**	**84**	**3.9**	**27.5**	**6.1**

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Strength (g/tex)	E%
4	2632	ZC	Dharward	26.4	82	4.3	25.3	6.2
5			Nandyal	26.1	79	4.2	24.2	6.1
6			Veppanthattai	28.1	84	4.3	28.3	5.8
		Mean		**26.9**	**82**	**4.3**	**25.9**	**6.0**
7	2633	GBHV-193	Dharward	28.8	83	4.5	31.7	6.6
8			Nandyal	26.2	82	4.8	27.0	6.3
9			Veppanthattai	27.4	85	4.2	28.9	5.8
		Mean		**27.5**	**83**	**4.5**	**29.2**	**6.2**
10	2634	QC	Dharward	31.2	86	4.3	29.7	6.5
11			Nandyal	28.9	85	4.3	29.9	6.4
12			Veppanthattai	32.4	87	4.3	31.6	6.0
		Mean		**30.9**	**86**	**4.3**	**30.4**	**6.3**
13	2635	RAH 1075	Dharward	27.4	85	4.0	25.8	6.3
14			Nandyal	26.4	81	3.9	25.0	6.2
15			Veppanthattai	30.1	85	4.0	29.3	5.8
		Mean		**27.9**	**83**	**4.0**	**26.7**	**6.1**
16	2636	LC	Dharward	27.8	86	4.5	26.2	6.3
17			Nandyal	27.7	84	5.1	26.2	6.2
18			Veppanthattai	28.7	84	4.5	28.1	5.8
		Mean		28.1	85	4.7	26.8	6.1

Br05b - CHT – HXH

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Strength (g/tex)	E%
1	2641	RAHH 2012	Dharward	29.5	86	4.5	26.8	6.4
2			Nandyal	27.0	83	4.8	28.5	6.4
3			Veppanthattai	30.3	83	4.4	30.0	5.9
		Mean		**28.9**	**84**	**4.6**	**28.4**	**6.2**
4	2642	LC	Dharward	28.9	83	4.3	26.0	6.2
5			Nandyal	26.4	85	4.9	26.1	6.2
6			Veppanthattai	32.7	87	4.4	30.9	5.9
		Mean		**29.3**	**85**	**4.5**	**27.7**	**6.1**
7	2643	BGDHH 2013	Dharward	29.0	84	4.5	26.1	6.3
8			Nandyal	27.7	85	4.9	27.5	6.3
9			Veppanthattai	31.8	86	4.6	28.9	5.8
		Mean		**29.5**	**85**	**4.7**	**27.5**	**6.1**
10	2644	DHH 2051	Dharward	28.6	85	4.4	25.8	6.2
11			Nandyal	27.3	82	4.7	25.6	6.2
12			Veppanthattai	28.3	84	4.4	29.5	5.7
		Mean		**28**	**84**	**4.0**	**27.0**	**6**
13	2645	RAHH 2011	Dharward	28.4	85	4.2	26.7	6.3
14			Nandyal	27.4	83	4.7	28.0	6.3
15			Veppanthattai	30.5	86	4.3	28.4	5.8

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Strength (g/tex)	E%
		Mean		28.8	85	4.4	27.7	6.1

Br06b - CVT Compact Cultures - Rainfed

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Strength (g/tex)	E%
1	2651	CCH 19-4	Dharward	31.3	84	3.3	32.3	6.6
2			Mudhol	28.3	83	3.6	27.4	5.8
3			Nandyal	29.2	84	4.0	32.1	6.4
4			Veppanthattai	27.4	84	3.6	28.3	5.7
		Mean		**29.1**	**84**	**3.6**	**30.0**	**6.1**
5	2652	TVH 002	Dharward	29.4	87	3.2	31.1	6.5
6			Mudhol	29.4	85	3.3	30.3	5.8
7			Nandyal	27.7	85	3.7	29.2	6.3
8			Veppanthattai	29.0	83	3.0	27.3	5.6
		Mean		**28.9**	**85**	**3.3**	**29.5**	**6.0**
9	2653	Zonal Check (Suraj)	Dharward	32.3	87	3.9	32.8	6.5
10			Mudhol	29.3	85	3.8	32.0	5.9
11			Nandyal	29.3	84	4.3	30.4	6.4
12			Veppanthattai	29.6	80	3.2	27.0	5.6
		Mean		**30.1**	**84**	**3.8**	**30.5**	**6.1**
13	2654	DSC 1951	Dharward	26.1	84	4.6	27.8	6.2
14			Mudhol	26.0	83	3.8	27.3	5.6
15			Nandyal	22.8	82	4.8	22.4	5.9
16			Veppanthattai	24.9	82	4.1	25.2	5.3
		Mean		**25.0**	**83**	**4.3**	**25.7**	**5.8**
17	2655	CNH 09-77	Dharward	28.9	85	3.2	31.4	6.4
18			Mudhol	25.3	83	3.0	24.8	5.4
19			Nandyal	27.1	85	3.5	28.4	6.2
20			Veppanthattai	25.8	81	2.8	25.4	5.3
		Mean		**26.8**	**83**	**3.1**	**27.5**	**5.8**
21	2656	RAHC 1029	Dharward	32.7	83	3.0	29.4	6.4
22			Mudhol	28.9	83	3.0	27.9	5.7
23			Nandyal	30.2	83	4.0	32.3	6.3
24			Veppanthattai	30.3	83	3.3	29.1	5.7
		Mean		**30.5**	**83**	**3.3**	**29.7**	**6.0**
25	2657	Local Check	Dharward	27.0	82	3.8	27.4	6.2
26			Mudhol	27.5	84	3.2	26.6	5.6
27			Nandyal	27.4	83	5.0	24.9	6.2
28			Veppanthattai	30.2	84	3.6	28.1	5.7
		Mean		**28.0**	**83**	**3.9**	**26.7**	**5.9**
29	2658	RAHC 1901	Dharward	30.1	84	3.4	26.6	6.3
30			Mudhol	27.4	81	3.1	26.5	5.6

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Strength (g/tex)	E%
31			Nandyal	28.0	83	4.3	26.0	6.3
32			Veppanthattai	28.5	80	3.3	27.1	5.6
		Mean		**28.5**	**82**	**3.5**	**26.5**	**5.9**
33	2659	AKH 1302	Dharward	28.3	81	4.4	28.3	6.4
34			Mudhol	25.4	81	4.2	24.3	5.5
35			Nandyal	26.0	83	3.9	25.7	6.2
36			Veppanthattai	25.7	81	3.9	26.3	5.6
		Mean		**26.4**	**82**	**4.1**	**26.2**	**5.9**
37	2660	DSC 1851	Dharward	27.6	85	4.2	27.7	6.3
38			Mudhol	24.8	81	4.6	25.8	5.6
39			Nandyal	26.2	84	4.5	27.8	6.3
40			Veppanthattai	27.5	84	3.6	28.1	5.6
		Mean		**26.5**	**83**	**4.2**	**27.3**	**6.0**
41	2661	CNH 2046	Dharward	26.1	82	3.9	25.7	6.2
42			Mudhol	25.1	82	4.0	25.6	5.5
43			Nandyal	25.0	78	4.4	25.7	6.2
44			Veppanthattai	25.8	82	3.5	24.1	5.3
		Mean		**25.5**	**81**	**4.0**	**25.3**	**5.8**

Br24b : CVT - G.arboreum

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Strength (g/tex)	E%
1	2671	CNA 2035	Dharward	23.9	79	5.7	22.2	6.2
2			Nandyal	24.5	81	5.2	22.9	6.1
		Mean		**24.2**	**80**	**5.4**	**22.5**	**6.1**
3	2672	NDLA 3116-3	Dharward	20.7	77	6.7	19.9	5.8
4			Nandyal	22.6	79	6.7	21.9	6.0
		Mean		**21.7**	**78**	**6.7**	**20.9**	**5.9**
5	2673	ZC	Dharward	24.5	81	5.1	23.1	6.2
6			Nandyal	25.2	78	5.4	23.6	6.1
		Mean		**24.8**	**80**	**5.2**	**23.3**	**6.1**
7	2674	JLA 1102	Dharward	24.8	80	5.1	24.0	6.3
8			Nandyal	25.3	82	5.0	24.3	6.1
		Mean		**25.0**	**81**	**5.0**	**24.1**	**6.2**
9	2675	DWDa 1802	Dharward	24.2	80	5.6	22.7	6.1
10			Nandyal	25.6	81	5.5	24.0	6.1
		Mean		**24.9**	**81**	**5.5**	**23.3**	**6.1**
11	2676	CNA 1031	Dharward	24.3	81	5.2	23.3	6.1
12			Nandyal	24.6	82	5.6	22.8	6.3
		Mean		**24.5**	**81**	**5.4**	**23.1**	**6.2**
13	2677	LC	Dharward	24.3	82	5.5	22.5	6.1
14			Nandyal	25.1	82	5.5	23.2	6.3
		Mean		**24.7**	**82**	**5.5**	**22.8**	**6.2**

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Strength (g/tex)	E%
15	2678	CNA 1054	Dharward	23.9	78	5.0	25.3	6.3
16			Nandyal	25.0	81	5.5	24.8	6.3
		Mean		**24.5**	**80**	**5.3**	**25.0**	**6.3**
17	2679	NDLA 3104-4	Dharward	21.4	78	6.5	21.1	6.1
18			Nandyal	20.7	80	6.5	20.0	5.8
		Mean		**21.0**	**79**	**6.5**	**20.5**	**5.9**
19	2680	JLA 1227	Dharward	24.0	82	5.1	22.5	6.2
20			Nandyal	25.4	82	6.3	23.2	6.2
		Mean		**24.7**	**82**	**5.7**	**22.9**	**6.2**

Br24b : CVT Long Linted G.arboreum

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Strength (g/tex)	E%
1	2681	CINA 1068	Dharward	24.6	82	5.3	25.5	6.3
2			Mudhol	25.2	82	5.6	26.3	5.8
3			Nandyal	24.7	80	5.2	24.6	6.2
		Mean		**24.8**	**82**	**5.4**	**25.5**	**6.1**
4	2682	PA 807	Dharward	25.1	83	5.0	23.5	6.2
5			Mudhol	25.3	82	4.6	26.6	5.7
6			Nandyal	26.1	82	4.6	26.0	6.2
		Mean		**25.5**	**83**	**4.7**	**25.4**	**6.0**
7	2683	PA 806	Dharward	27.2	83	4.7	25.7	6.3
8			Mudhol	28.8	84	4.9	28.2	5.8
9			Nandyal	28.6	81	4.6	25.6	6.2
		Mean		**28.2**	**83**	**4.7**	**26.5**	**6.1**
10	2684	ZC (DLSa 17)	Dharward	24.8	81	4.8	24.1	6.2
11			Mudhol	26.4	83	5.3	26.5	5.7
12			Nandyal	27.1	81	4.1	27.4	6.3
		Mean		**26.1**	**81**	**4.7**	**26.0**	**6.1**
13	2685	CINA 1069	Dharward	23.9	82	5.4	25.6	6.3
14			Mudhol	25.4	82	5.6	26.6	5.6
15			Nandyal	27.5	82	4.5	30.0	6.4
		Mean		**25.6**	**82**	**5.2**	**27.4**	**6.1**
16	2686	PAIG 396	Dharward	26.2	82	4.7	24.4	6.2
17			Mudhol	27.6	82	4.6	26.7	5.7
18			Nandyal	27.3	80	4.2	29.8	6.3
		Mean		**27.0**	**82**	**4.5**	**27.0**	**6.1**
19	2687	PAIG 384	Dharward	27.6	84	4.9	25.2	6.4
20			Mudhol	28.6	85	5.0	26.7	5.8
21			Nandyal	29.8	83	4.0	28.9	6.4
		Mean		**28.7**	**84**	**4.6**	**26.9**	**6.2**

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Strength (g/tex)	E%
22	2688	PA 833	Dharward	28.0	83	4.7	26.1	6.3
23			Mudhol	27.7	82	4.6	27.4	5.7
24			Nandyal	29.1	81	3.8	29.1	6.3
		Mean		**28.3**	**82**	**4.3**	**27.5**	**6.1**
25	2689	PA 880	Dharward	27.7	84	5.1	26.3	6.3
26			Mudhol	25.2	82	5.4	26.1	5.7
27			Nandyal	27.8	81	4.8	29.3	6.3
		Mean		**26.9**	**82**	**5.1**	**27.2**	**6.1**
28	2690	CINA 1067	Dharward	24.0	83	4.9	24.6	6.3
29			Mudhol	25.6	84	5.8	27.6	5.7
30			Nandyal	25.1	83	4.5	25.8	6.3
		Mean		**24.9**	**83**	**5.1**	**26.0**	**6.1**
31	2691	CNA 1065	Dharward	24.2	81	5.1	25.6	6.4
32			Mudhol	25.3	82	5.9	26.3	5.7
33			Nandyal	25.2	79	4.1	27.0	6.1
		Mean		**24.9**	**81**	**5.0**	**26.3**	**6.1**

Br24 a/b - CVT Arboreum (CC) - Rainfed

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Strength (g/tex)	E%
1	2701	DDCC 1901	Dharward	21.4	79	5.7	18.8	5.9
2			Nandyal	22.5	80	5.4	20.2	6.0
3			UAS Raichur	21.0	79	4.7	17.7	6.5
		Mean		**21.6**	**79**	**5.3**	**18.9**	**6.1**
4	2702	CAN 1091	Dharward	23.7	82	4.9	21.9	6.0
5			Nandyal	24.5	82	5.9	21.4	6.0
6			UAS Raichur	24.5	82	4.6	25.1	6.2
		Mean		**24.2**	**82**	**5.1**	**22.8**	**6.1**
7	2703	DDCC 1 (CC)	Dharward	21.8	78	4.9	18.1	5.7
8			Nandyal	23.1	78	5.2	18.9	6.0
9			UAS Raichur	20.3	80	4.5	17.1	5.7
		Mean		**21.7**	**79**	**4.9**	**18.0**	**5.8**
10	2704	DDCC 1902	Dharward	21.3	80	5.4	19.1	6.0
11			Nandyal	24.6	83	5.3	23.3	6.1
12			UAS Raichur	21.7	81	4.5	18.4	5.8
		Mean		**22.5**	**81**	**5.0**	**20.3**	**6.0**
13	2705	CAN 18562	Dharward	23.0	80	5.6	19.8	6.1
14			Nandyal	23.4	81	6.0	19.5	6.0
15			UAS Raichur	23.8	78	4.8	18.3	6.0
		Mean		**23.4**	**80**	**5.5**	**19.2**	**6.0**
16	2706	CAN 17522	Dharward	22.3	81	5.7	19.2	6.0
17			Nandyal	22.3	81	6.0	19.0	6.0
18			UAS Raichur	22.4	79	5.0	18.7	5.9
		Mean		**22.3**	**80**	**5.6**	**19.0**	**6.0**

Sr.No.	Code No.	Entry	Location	UHML	UI	Mic	Strength (g/tex)	E%
19	2707	LC	Dharward	26.5	83	5.0	24.2	6.2
20			Nandyal	25.4	82	5.8	23.7	6.3
21			UAS Raichur	25.7	81	4.9	24.7	6.2
		Mean		**25.9**	**82**	**5.2**	**24.2**	**6.2**
22	2708	DDCC 1801	Dharward	21.1	80	5.6	17.2	5.7
23			Nandyal	22.4	79	5.6	18.8	6.0
24			UAS Raichur	22.1	78	4.5	20.3	5.9
		Mean		**21.9**	**79**	**5.2**	**18.7**	**5.8**
25	2709	CAN 19475	Dharward	22.7	80	5.5	18.8	6.1
26			Nandyal	23.2	80	5.8	19.6	6.0
27			UAS Raichur	22.4	80	4.8	17.9	5.7
		Mean		**22.8**	**80**	**5.3**	**18.7**	**5.9**
28	2710	CAN 18563	Dharward	22.3	79	6.0	17.7	6.0
29			Nandyal	23.2	81	5.9	19.3	6.0
30			UAS Raichur	22.0	79	4.6	17.8	5.6
		Mean		*22.5*	*80*	*5.5*	*18.2*	*5.9*
31	2711	DDCC 2001	Dharward	21.8	80	5.7	19.3	5.9
32			Nandyal	22.0	80	5.2	19.1	5.9
33			UAS Raichur	20.7	79	4.0	16.1	5.9
		Mean		**21.5**	**79**	**5.0**	**18.1**	**5.9**
34	2712	CAN 1092	Dharward	23.7	81	3.8	21.8	6.2
35			Nandyal	21.7	80	5.1	18.7	5.8
36			UAS Raichur	24.1	82	4.4	22.9	6.2
		Mean		**23.2**	**81**	**4.4**	**21.1**	**6.1**
37	2713	DDCC 1802	Dharward	21.2	80	5.3	18.9	6.0
38			Nandyal	22.1	80	5.4	20.5	6.1
39			UAS Raichur	22.8	79	4.4	20.1	5.9
		Mean		**22.0**	**80**	**5.0**	**19.8**	**6.0**

Annexure I: Technical programme of ICAR-AICRP on Cotton Trials

NATIONAL TRIALS

Br. 02a - IET- *G. hirsutum* (IRRIGATED)

S. No	Code	Name of Entry	Sponsor
1.	301	GJHV 548	JAU, Junagadh
2.	302	RB 602	MPUAT, Banswara
3.	303	L 1536	ANGRAU, Lam
4.	304	TSH 354	TNAU, Srivilliputhur
5.	305	CPD 2003	UAS, Arabhavi
6.	306	ZC (Phule Yamuna/BGDS 1063)	
7.	307	TCH 1941	TNAU, Coimbatore
8.	308	CPD 2002	UAS, Dharwad
9.	309	GISV 328	NAU, Surat
10.	310	SHSV 14	SIMA-CDRA
11.	311	RB 1903	MPUAT, Banswara
12.	312	Quality Check (Suraj)	
13.	313	ADB 727	PJTSAU, Adilabad
14.	314	TSH 387	TNAU, Srivilliputhur
15.	315	GISV 332	NAU, Surat
16.	316	CPD 2001	UAS, Dharwad
17.	317	BS 10-20	OUAT, Bhawanipatna
18.	318	GJHV 568	JAU, Junagadh
19.	319	RAH 1083	UAS, B'Gudi
20.	320	RAH 1081	UAS, Raichur
21.	321	LC	
22.	322	GTHV 18/19	SDAU, Talod
23.	323	RAH 1082	UAS, Raichur

Br. 02 b – IET- *G. hirsutum* (RAINFED)

Design: RBD; Rows: 2 (6 m length); Reps: 3; Seed Qty: 120 g X 9 + 2

S. No	Code	Name of Entry	Sponsor
1.	351	CNH 18298	CICR, Nagpur
2.	352	CPD 2052	UAS, Dharwad
3.	353	BS 10-20	OUAT, Bhawanipatna
4.	354	Quality Check (Suraj)	
5.	355	NDLH 2061-4	ANGRAU, Nandyal
6.	356	CNH 119	CICR, Nagpur
7.	357	TKH 1225	TNAU, Kovilpatti
8.	358	TSH 337	TNAU, Srivilliputhur
9.	359	CNDTS 287	CICR, Nagpur
10.	360	WGCV 192	PJTSAU, Warangal
11.	361	TVH 003	TNAU, Veppanthattai
12.	362	ZC (NH 615/ NDLH 1938)	
13.	363	NDLH 2071-2	ANGRAU, Nandyal
14.	364	RAH 1082	UAS, Raichur
15.	365	CNH 18173	CICR, Nagpur
16.	366	NH 723	VNMKV, Nanded
17.	367	RB 1908	MPUAT, Banswara
18.	368	GBHV 202	NAU, Bharuch
19.	369	RAH 1081	UAS, Raichur
20.	370	ADB 728	PJTSAU, Adilabad
21.	371	TKH 1197	TNAU, Kovilpatti
22.	372	CPD 2053	UAS, Arabhavi
23.	373	AKH 2013-3	PDKV, Akola
24.	374	CNDTS 2131	CICR, Nagpur
25.	375	LC	
26.	376	CNH 1137	CICR, Nagpur
27.	377	CPD 2051	UAS, Dharwad
28.	378	GBHV 217	NAU, Bharuch
29.	379	TSH 358	TNAU, Srivilliputhur
30.	380	RB 1910	MPUAT, Banswara
31.	381	AKH 2016-1	PDKV, Akola
32.	382	RAH 1083	UAS, B'Gudi

Br. 02 a/b CC – IET- *G. hirsutum* – Coloured Cotton (IRRIGATED / RAINFED)

S. No.	Code	Entries	Sponsor
1.	391	CNH 19325	CICR, Nagpur
2.	392	DHCC 2002	UAS, Dharwad
3.	393	ZC (Phule Yamuna/Suraj)	
4.	394	CNH 19480	CICR, Nagpur
5.	395	DHCC 2001	UAS, Dharwad
6.	396	Local Check	
7.	397	SHSCC 5	SIMA-CDRA

Br. 06 a – IET of Compact genotypes under irrigated condition

S. No.	Code	Genotype	Sponsor
1.	401	RB 1918	MPUAT, Banswara
2.	402	CNH 20-31	CICR, Nagpur
3.	403	RHC 1651	MPKV, Rahuri
4.	404	BS 11-20	OUAT, Bhawanipatna
5.	405	Local Check	
6.	406	TCH 1895	TNAU, Coimbatore
7.	407	RHC 1639	MPKV, Rahuri
8.	408	RB 1901	MPUAT, Banswara
9.	409	RAHC 1032	UAS, Raichur
10.	410	Common Check (Suraj)	
11.	411	RAHC 1031	UAS, Raichur

Br. 06 b – Initial Evaluation of Compact genotypes under rainfed condition

S. No.	Code	Genotype	Sponsor
1.	421	CNH 1139	CICR, Nagpur
2.	422	CNH 20-32	CICR, Nagpur
3.	423	CNDTS 5114	CICR, Nagpur
4.	424	DSC 2051	UAS, Dharwad
5.	425	Local Check	
6.	426	CNH 20-33	CICR, Nagpur
7.	427	CNH 1140	CICR, Nagpur
8.	428	CNH 121	CICR, Nagpur
9.	429	CNDTS 5170	CICR, Nagpur
10.	430	CNH 20-31	CICR, Nagpur
11.	431	CNH 120	CICR, Nagpur
12.	432	RAHC 1032	UAS, Raichur
13. .	433	Common Check (Suraj)	
14.	434	RAHC 1031	UAS, Raichur
15.	435	GTHV 19/18	Talod

Br. 22 a/b IET-*G. arboreum*

S. No	Code	Entry	Sponsor
1.	441	NDLA 3140	ANGRAU, Nandyal
2.	442	CNA 18392	CICR, Nagpur
3.	443	CNA 2034	CICR, Nagpur
4.	444	CNA 1071	CICR, Nagpur
5.	445	JLA-1512	MPKV, Jalgaon
6.	446	PA 885	VNMKV, Parbhani
7.	447	DWDa 2051	UAS, Dharwad
8.	448	CNA 18408	CICR, Nagpur
9.	449	CNA 1072	CICR, Nagpur
10.	450	JLA-1430	MPKV, Jalgaon
11.	451	NDLA 3151	ANGRAU, Nandyal
12.	452	PA 881	VNMKV, Parbhani
13.	453	GAM 266	JAU, Amreli
14.	454	MDL 2674	PJTSAU, Mudhole
15.	455	GAM 269	JAU, Amreli
16.	456	ZC (AKA 7/DLSa 17)	
17.	457	LC	
18.	458	MDL ABB1	PJTSAU, Mudhole
19.	459	AKA 2015-8	PDKV, Akola

Br. 22 a/b IET-Long Linted *G. arboreum*

S. No	Code	Entry	Sponsored by
1.	461	PAIG 410	VNMKV, Parbhani
2.	462	CNA 1074	CICR, Nagpur
3.	463	PA 887	VNMKV, Parbhani
4.	464	QC (PA 255 - CZ; DLSa 17-SZ)	
5.	465	CNA 1075	CICR, Nagpur
6.	466	PA 888	VNMKV, Parbhani
7.	467	DWD (LL) 2051	UAS, Dharwad
8.	468	PAIG 411	VNMKV, Parbhani
9.	469	PA 898	VNMKV, Parbhani
10.	470	PA 904	VNMKV, Parbhani

Br. 25 a/b PHT - Desi Hybrid

S. No	Code	Name of Entry	Sponsor
1.	471	KR 150	Shakti Vardhak
2.	472	ZC (KR 64-NZ; NACH 12-CZ)	
3.	473	KR 149	Shakti Vardhak
4.	474	LC	
5.	475	KR 148	Shakti Vardhak

Br. 32b IET of *G. herbaceum*

S.No	Code	Name of Entry	Sponsor
1.	481	GShv 833/16	NAU, Surat
2.	482	ZC (G Cot 23/DDhc 11)	
3.	483	GShv 789/16	NAU, Surat
4.	484	GBhv 316	NAU, Bharuch
5.	485	LC	
6.	486	GShv 219/16	NAU, Surat
7.	487	GBhv 324	NAU, Bharuch
8.	488	GVhv 996	RCRS, Viramgam

North Zone

Trial Br 02(a)

S. No.	Code No	Name of the Entry
1.	101	F 2732
2.	102	PBH 197
3.	103	HS 310
4.	104	CSH 90
5.	105	Quality Check (CSH 3129)
6.	106	RS 2958
7.	107	F 2743
8.	108	H 1569
9.	109	CSH 89
10.	110	LC
11.	111	PBH 79
12.	112	H 1480
13.	113	RS 2943
14.	114	ZC (F 2228)

Br. 06 a – Initial Evaluation Trial of Compact genotypes under irrigated condition

S. No.	Code No	Name of the Entry
1.	2601	F 2785
2.	2602	CSH 49
3.	2603	CSH 50
4.	2604	F 2772
5.	2605	RS 2946
6.	2606	ZC (CSH 3075)
7.	2607	RS 2957
8.	2608	H 1601
9.	2609	Local Check

Br. 22 a/b Initial Evaluation Trial -*G. arboreum*

S. No.	Code No	Name of the Entry
1.	2201	PBD 130
2.	2202	CISA 6-3
3.	2203	FDK 312
4.	2204	RG 873
5.	2205	LC
6.	2206	RG 883
7.	2207	FDK 324
8.	2208	HD 555
9.	2209	ZC (FDK 124)
10.	2210	CISA 33-5
11.	2211	PBD 81
12.	2212	HD 556

Br. 25 a/b Preliminary Hybrid Trial - Desi Hybrid

S. No.	Code No	Name of the Entry
1.	2501	ZC (KR 64-NZ)
2.	2502	CISAA 19-4
3.	2503	KR 148
4.	2504	KR 150
5.	2505	CISAA 19-3
6.	2506	KR 149
7.	2507	LC
8.	2508	AAH 43

Br-06a - Coordinated Variety trial of compact *G. Hirsutum*

S. No.	Name of the Entry	Code No
1.	RS 2928	2621
2.	PBH 174	2622
3.	F 2757	2623
4.	H 1530	2624
5.	F 2560	2625
6.	Zonal Check (CSH 3075)	2626
7.	CSH 100	2627
8.	RS 2914	2628
9.	RS 2913	2629
10.	Local Check	2630

Br-24 a - Coordinated Variety trial of *G. arboreum*

S. No.	Name of the Entry	Code No
1.	PBD 88	2401
2.	PBD 35	2402
3.	PBD 92	2403
4.	FDK 124 (ZC)	2404
5.	Local Check	2405
6.	PBD 36	2406
7.	FDK 281	2407

Br-25 a Coordinated Desi Hybrid trial.

S. No.	Name of the Entry	Code No
1.	KR 155	2511
2.	KR 147	2512
3.	KR 139	2513
4.	Zonal Check (KR 64)	2514
5.	Local Check	2515
6.	KR 136	2516
7.	KR 133	2517

Br-03 a – PVT – Irrigated

S. No	Code	Entries
1.	2001	GISV319
2.	2002	ZC (Phule Yamuna)
3.	2003	GJHV 566
4.	2004	LC
5.	2005	CPD 1902
6.	2006	RHC 1409
7.	2007	Quality Check (Suraj)
8.	2008	CCH 19-2
9.	2009	GISV 323
10	2010	RAH 1076

Br-03 a – PVT Coloured cotton - Irrigated

S. No	Code	Entries
1.	2011	DHCC 1901
2.	2012	LHCC 4
3.	2013	Phule Yamuna (Zonal Check)
4.	2014	CNH 18528
5.	2015	DHCC 1801
6.	2016	CNH 18529
7.	2017	CNH 17395
8.	2018	Local Check
9.	2019	DHCC 1902

Br-04 a – CVT – Irrigated

S. No	Code	Entries
1.	2031	TSH 367
2.	2032	ZC (Phule Yamuna)
3.	2033	SHS 113
4.	2034	LC
5.	2035	GJHV-554
6.	2036	Quality Check (Suraj)
7.	2037	GJHV-522

Br-05a – CHT HXH

S. No	Code	Entries
1.	2041	GTHH 17/01
2.	2042	ZC (Phule Asmita)
3.	2043	GJHH 19
4.	2044	GTHH 1203
5.	2045	LC
6.	2046	GSHH 15035

Br-06a – CVT Compact Cultures – Irrigated

S. No	Code	Entries
1.	2051	RHC-HD 1312
2.	2052	Zonal check (Suraj)
3.	2053	CCH 19-2
4.	2054	RHC-HD 1438
5.	2055	Local Check
6.	2056	RHC-HD 1405
7.	2057	SHC 374
8.	2058	GTHV 18/17
9.	2059	CCH 19-4
10	2060	RAHC 1902

Br – 13 a PVT *G. barbadense*

S. No	Code	Entries
1.	2061	DB-1601
2.	2062	DB 1901
3.	2063	CCB 64
4.	2064	CCB 6
5.	2065	ZC (Phule Rukmai)
6.	2066	DB-1701
7.	2067	CCB 141
8.	2068	CCB 15
9.	2069	CCB 64B

Br – 14 a CVT *G. barbadense*

S. No	Code	Entries
1.	2071	CCB 143B
2.	2072	ZC (Phule Rukmai)
3.	2073	DB 1801
4.	2074	CCB 51-2

Br-15 a – CHT H x B

S. No	Code	Entry
1.	2081	RHB 1401
2.	2082	DHB 1902
3.	2083	DHB 2002
4.	2084	DHB 2001
5.	2085	Phule Dhara (ZC)
6.	2086	RHB 1623
7.	2087	LAHB 2
8.	2088	DHB 2003
9.	2089	RHB 1624

Br-03 b – PVT – Rainfed

S. No	Code	Entries
1.	2091	Quality Check (Suraj)
2.	2092	CNH 1134
3.	2093	LC
4.	2094	NDLH – 2057-1
5.	2095	TVH 007
6.	2096	ZC (NH 615)
7.	2097	AKH 2013-2

Br-04 b – CVT – Rainfed

S. No	Code	Entries
1.	2101	NDLH – 2035-5
2.	2102	Local Check
3.	2103	ZC (NH 615)
4.	2104	BS 3-17
5.	2105	Quality Check (Suraj)

Br-06b – CVT Compact Cultures - Rainfed

S. No	Code	Entries
1.	2111	GISV 312
2.	2112	Local Check
3.	2113	CNH 09-77
4.	2114	DSC 1851
5.	2115	ZC (Suraj)
6.	2116	AKH 1302
7.	2117	RHC-HD 1405
8.	2118	CNH 1133
9.	2119	TVH 002
10	2120	RHC-HD 1312
11	2121	RAHC 1901
12	2122	RAHC 1029

Br-24 b CVT – G. arboreum

S. No	Code	Entries
1.	2131	CNA 2036
2.	2132	NDLA 3104-4
3.	2133	MDL 2667
4.	2134	AKA 2013-8
5.	2135	ZC (AKA 7)
6.	2136	JLA-1207
7.	2137	CNA 2035
8.	2138	LC
9.	2139	DWDa 1802
10	2140	NDLA 3116-3
11	2141	MDL 2663

Br-24 b CVT – Long linted G. arboreum

S. No	Code	Entries
1.	2151	CNA 1065
2.	2152	PA 873
3.	2153	PAIG 379
4.	2154	PA 869
5.	2155	QC (PA 255)
6.	2156	CINA 1068
7.	2157	CINA 1069
8.	2158	CINA 1067

Br-24b – CVT Coloured Cotton – Arboreum

S. No	Code	Entries
1.	2161	CNA 18562
2.	2162	DDCC 1902
3.	2163	DDCC 1801
4.	2164	CNA 1092
5.	2165	AKA 7 (Zonal Check)
6.	2166	CNA 1091
7.	2167	CNA 17522
8.	2168	CNA 19475
9.	2169	Local Check
10	2170	CNA 18563
11	2171	DDCC 1802
12	2172	DDCC 2001
13	2173	DDCC 1901

Br-03 a – PVT - Irrigated

S. No	Code	Entries
1.	2501	TSH 383
2.	2502	ZC (Suraj)
3.	2503	CCH 19-2
4.	2504	RHC 1409
5.	2505	LC
6.	2506	CPD 1902
7.	2507	RAH 1046

Br-03 a/b (CC) – PVT Colour Cotton – Irrigated / Rainfed

S. No	Code	Entries
1.	2511	DHCC 1801
2.	2512	CCHC 19-2
3.	2513	DHCC 1901
4.	2514	Suraj (Zonal Check)
5.	2515	CNH 18528
6.	2516	CNH 17395
7.	2517	CCHC 19-1
8.	2518	DHCC 1902
9.	2519	Local Check
10	2520	DHCC 1802
11	2521	CNH 18529
12	2522	LHCC 3

Br-04a – CVT - Irrigated

S. No	Code	Entries
1.	2531	CPD 1701
2.	2532	ZC (Suraj)
3.	2533	CPD 1702
4.	2534	RAH 1075
5.	2535	LC
6.	2536	TSH 325

Br-05a – CHT HXH

S. No	Code	Entries
1.	2541	BGDHH 2013
2.	2542	DHH 2001
3.	2543	LC
4.	2544	RAHH 2012
5.	2545	RAHH 2011

Br-06a – CVT Compact Cultures - Irrigated

S. No	Code	Entries
1.	2551	CCH 19-2
2.	2552	Zonal Check (Suraj)
3.	2553	RHC-HD 1312
4.	2554	CCH 19-4
5.	2555	Local Check
6.	2556	RHC-HD 1438
7.	2557	RAHC 1028
8.	2558	LHDP 5

Br – 13 a PVT *G. barbadense*

S. No	Code	Entries
1.	2561	DB 1901
2.	2562	CCB 29
3.	2563	CCB 64B
4.	2564	CCB 15
5.	2565	CCB 26
6.	2566	ZC (Suvin)
7.	2567	CCB 142
8.	2568	SBSD 5-6
9.	2569	CCB 6
10	2570	CCB 141
11	2571	CCB 51
12	2572	CCB 64

Br – 14 a CVT *G. barbadense*

S. No	Code	Entries
1.	2581	CCB 51-2
2.	2582	ZC (Suvin)
3.	2583	DB 1801

Br-15 a CHT H X B

S. No	Code	Entry
1.	2591	RHB 1623
2.	2592	Local Check
3.	2593	DHB 2002
4.	2594	Phule Dhara (CC)
5.	2595	DHB 1901
6.	2596	LAHB 2
7.	2597	DHB 1902
8.	2598	RHB 1624
9.	2599	DHB 2003
10.	2600	RHB 1401
11.	2601	DHB 2001

Br-03b – PVT - Rainfed

S. No	Code	Entries
1.	2611	CNH 09-119
2.	2612	NDLH 2051-3
3.	2613	CNH 1134
4.	2614	ZC (Sahana)
5.	2615	CCH 19-2
6.	2616	QC (Suraj)
7.	2617	TSH 375
8.	2618	TVH 007
9.	2619	LC
10	2620	NDLH 2056-4
11	2621	BGDS 1033

Br-04b – CVT – Rainfed

S. No	Code	Entries
1.	2631	NDLH – 2035-5
2.	2632	ZC (Sahana)
3.	2633	GBHV-193
4.	2634	QC (Suraj)
5.	2635	RAH 1075
6.	2636	LC

Br-05b – CHT HXH

S. No	Code	Entries
1.	2641	RAHH 2012
2.	2642	LC
3.	2643	BGDHH 2013
4.	2644	DHH 2051
5.	2645	RAHH 2011

Br-06b – CVT Compact cultures – Rainfed

S. No	Code	Entries
1.	2651	CCH 19-4
2.	2652	TVH 002
3.	2653	Zonal Check (Suraj)
4.	2654	DSC 1951
5.	2655	CNH 09-77
6.	2656	RAHC 1029
7.	2657	Local Check
8.	2658	RAHC 1901
9.	2659	AKH 1302
10	2660	DSC 1851
11	2661	CNH 2046

Br-24 b: CVT – G. arboreum

S. No	Code	Entries
1.	2671	CNA 2035
2.	2672	NDLA 3116-3
3.	2673	ZC (DLSa 17)
4.	2674	JLA 1102
5.	2675	DWDa 1802
6.	2676	CNA 1031
7.	2677	LC
8.	2678	CNA 1054
9.	2679	NDLA 3104-4
10	2680	JLA-1227

Br-24 b: CVT – Long linted G. arboreum

S. No	Code	Entries
1.	2681	CINA 1068
2.	2682	PA 807
3.	2683	PA 806
4.	2684	ZC (DLSa 17)
5.	2685	CINA 1069
6.	2686	PAIG 396
7.	2687	PAIG 384
8.	2688	PA 833
9.	2689	PA 880
10	2690	CINA 1067
11	2691	CNA 1065

Br24a/b – CVT Arboreum (CC) - Rainfed

S. No	Code	New Entries
1.	2701	DDCC 1901
2.	2702	CNA 1091
3.	2703	DDCC 1 (CC)
4.	2704	DDCC 1902
5.	2705	CNA 18562
6.	2706	CNA 17522
7.	2707	Local Check
8.	2708	DDCC 1801
9.	2709	CNA 19475
10	2710	CNA 18563
11	2711	DDCC 2001
12	2712	CNA 1092
13	2713	DDCC 1802

Annexure II: Fibre and Yarn Quality Norms

ICAR-CIRCOT Yarn CSP Norms

Count	CSP	Count	CSP
16s	1836	60s	2392
20s	2024	70s	2484
30s	2116	80s	2576
40s	2208	100s	2760
50s	2300	120s	2944

TMC Norms for Trash (%)

Staple Class	**Trash Limit (%)**
Extra Long Staple	2.0
Long and Medium Long	3.0
Medium and Short	3.5
Closed Boll Types	6.0

Staple Length Categories of Indian Cottons Based on UHML*

Category	Range of 2.5% S.L.(mm)
Short	20 mm and below
Medium	20.5 - 24.5
Medium Long	25.0 - 27.0
Long	27.5 - 32.0
Extra long	32.5 mm and above

Ratings of Cotton on The Basis of Length Uniformity*

Category	UI
Poor	Below 76
Fair	76 to 78
Average	79 to 83
Good	83 to 85
Excellent	Above 85

Classification of Cottons According to Micronaire Value

Category	**Range of Micronaire Value**
Very fine	Below 3.0
Fine	3.0 to 3.9
Average	4.0 to 4.9
Coarse	5.0 to 5.9
Very coarse	6.0 and above

Ratings of cotton based on tenacity at 3.2 mm gauge length (HVI mode)*

Category	Range of Bundle tenacity values in g/tex
Very weak	20.0 & below
Weak	20.1 - 25.0
Average	25.1 – 29.0
Good	29.1 – 32.5
Very good	Above 32.5

* The values are provisional subject to revision

Provisional Norms on the basis of HVI mode of testing

Sr. No.	Count Range	Range of UHML (mm)	Minimum value of UI	Minimum Tenacity (g/t) (HVI mode)	Range of Micronaire
1.	14s-18s	24-25	81	27.5	3.9-4.7
2.	20s-24s	25-26	82	28.0	3.8-4.2
3.	25s-30s	26-27	83	29.1	3.4-4.2
4.	31s-40s	27-29	84	29.3	3.3-4.1
5.	41s-50s	29-31	84	31.3	3.3-4.0
6.	51s-60s	31-33	86	33.6	3.2-3.9
7.	61s-80s	33-34	86	36.6	3.2-3.8
8.	81s-100s	34-36	87	38.3	3.1-3.4
9.	101s-120s	36>	88	40.0	2.9-3.2

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Bt Cotton Evaluation Report

Central Zone

2020-21

Submitted by
Project Coordinator and Head
All India Coordinated Research Project on Cotton
ICAR-CICR, Regional Station, Coimbatore

April-2021

Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids in Central Zone (2020-21) - Irrigated

Constitution of Trial

The trial was constituted with 20 Bt cotton hybrids containing MON 15985 event sponsored by various organization along with two different check hybrids as furnished below.

S. No.	Name of the Entry	Sponsored by
1	ATCH 1365 BG II	Agri Top Seeds Pvt Ltd
2	US 708 BG II	Seed Works International Pvt Ltd
3	Solar 115 BG II	Solar Agrotech Pvt Ltd
4	D 1199 BG II	Daftari Agro Pvt Ltd
5	ARCH 3181 BG II	Ankur Seeds Pvt Ltd
6	MC 5460 BG II	Rallis India Ltd.
7	C 9335 BG II	Mahyco Pvt Ltd
8	ASRCH 108 BG I	ASR Seeds Pvt Ltd
9	RCH 989 BG II	Rasi Seeds Pvt Ltd
10	MRC 7351 BG II (ZC)	
11	GANDEEVAM BG II	Eldora Agri Tech Pvt Ltd
12	ASRCH 306 BG I	ASR Seeds Pvt Ltd
13	BIO GHH 101 BG II	Shriram Bioseed Genetics
14	ACH 981-2 BG II	Ajeet Seeds Pvt Ltd
15	US 707 BG II	Seed Works International Pvt Ltd
16	BG II Local Check	
17	RCH 981 BG II	Rasi Seeds Pvt Ltd
18	Solar 112 BG II	Solar Agrotech Pvt Ltd
19	ARCH 3079 BG II	Ankur Seeds Pvt Ltd
20	C 9336 BG II	Mahyco Pvt Ltd
21	D 1579 BG II	Daftari Agro Pvt Ltd
22	SRIKAR GOLD BG II	Eldora Agri Tech Pvt Ltd

The trial was conducted in four different locations and detail is furnished below.

Name of the trial location	JAU, Junagadh	SDAU, Talod	MPKV, Rahuri	RVSKVV, Khandwa
Local check Bt hybrid	PCH 4599 BG II	PCH 4599 BG II	NCS 854 BG II	RCH 659 BG II

Spacing: Recommended spacing for the hybrid has been followed.
Number of rows: 4 rows of 6 meters per entry with three replications

Data recorded:

Biometric evaluation

Plant height (cm) at harvest in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	ATCH 1365 BG II	144.0	107.8	159.3	155.3	**141.6**
2	US 708 BG II	126.0	95.9	144.7	153.9	**130.1**
3	Solar 115 BG II	139.0	95.7	143.3	86.9	**116.2**
4	D 1199 BG II	141.0	116.3	140.0	152.4	**137.4**
5	ARCH 3181 BG II	145.0	97.9	142.0	165.0	**137.5**
6	MC 5460 BG II	141.0	91.6	145.0	158.1	**133.9**
7	C 9335 BG II	144.0	86.6	134.7	100.1	**116.4**
8	ASRCH 108 BG I	143.0	83.8	134.0	167.1	**132.0**
9	RCH 989 BG II	150.0	93.8	132.7	150.5	**131.8**
10	MRC 7351 BG II (ZC)	149.0	96.6	118.0	130.2	**123.5**
11	GANDEEVAM BG II	151.0	102.9	130.0	154.1	**134.5**
12	ASRCH 306 BG I	146.0	113.6	129.0	93.1	**120.4**
13	BIO GHH 101 BG II	149.0	109.1	130.7	164.1	**138.2**
14	ACH 981-2 BG II	150.0	99.1	135.0	134.9	**129.8**
15	US 707 BG II	150.0	99.9	138.0	155.1	**135.7**
16	BG II Local Check	168.0	87.5	130.0	155.1	**135.1**
17	RCH 981 BG II	149.0	100.3	129.0	148.3	**131.7**
18	Solar 112 BG II	150.0	86.6	124.7	130.1	**122.9**
19	ARCH 3079 BG II	153.0	86.4	124.0	139.2	**125.7**
20	C 9336 BG II	151.0	176.0	132.0	156.6	**153.9**
21	D 1579 BG II	152.0	119.5	129.7	167.4	**142.2**
22	SRIKAR GOLD BG II	149.0	112.8	124.7	139.3	**131.5**
	CD @ 5%	15.7	NS	4.6	38.1	
	CV %	6.5	25.3	2.1	16.1	

Number of monopodia in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	ATCH 1365 BG II	1.4	0.7	1.3	0.1	**0.9**
2	US 708 BG II	1.5	0.6	0.9	0.1	**0.8**
3	Solar 115 BG II	1.7	1.3	1.1	0.0	**1.0**
4	D 1199 BG II	1.7	2.2	0.4	0.0	**1.1**
5	ARCH 3181 BG II	1.5	1.2	1.0	0.0	**0.9**
6	MC 5460 BG II	1.4	2.1	0.9	0.0	**1.1**
7	C 9335 BG II	0.9	0.4	0.3	0.0	**0.4**
8	ASRCH 108 BG I	1.8	1.2	0.9	0.0	**1.0**
9	RCH 989 BG II	2.6	1.6	0.9	0.1	**1.3**
10	MRC 7351 BG II (ZC)	2.2	1.2	0.9	0.0	**1.1**
11	GANDEEVAM BG II	2.1	1.3	1.1	0.3	**1.2**
12	ASRCH 306 BG I	1.6	1.3	1.0	0.0	**1.0**
13	BIO GHH 101 BG II	2.0	1.5	0.2	0.1	**0.9**
14	ACH 981-2 BG II	1.1	0.3	0.0	0.0	**0.4**
15	US 707 BG II	1.9	0.9	1.0	0.1	**1.0**
16	BG II Local Check	1.4	0.7	0.9	0.1	**0.8**
17	RCH 981 BG II	2.2	0.9	1.0	0.1	**1.1**
18	Solar 112 BG II	1.6	1.1	0.9	0.1	**0.9**
19	ARCH 3079 BG II	1.4	0.8	1.0	0.0	**0.8**
20	C 9336 BG II	2.4	1.0	1.3	0.0	**1.2**
21	D 1579 BG II	1.6	0.5	0.9	0.0	**0.8**
22	SRIKAR GOLD BG II	1.8	0.6	0.9	0.0	**0.8**
	CD @ 5%	0.3	0.4	0.2		
	CV %	11.4	24.1	16.5		

Number of sympodia in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	ATCH 1365 BG II	18.3	20.7	23.7	17.0	**19.9**
2	US 708 BG II	15.6	19.0	22.2	28.7	**21.4**
3	Solar 115 BG II	18.4	19.1	25.5	22.3	**21.3**
4	D 1199 BG II	14.4	18.3	22.1	26.7	**20.4**
5	ARCH 3181 BG II	16.2	19.7	19.2	27.2	**20.6**
6	MC 5460 BG II	16.3	17.3	26.0	28.7	**22.1**
7	C 9335 BG II	14.1	16.9	20.1	26.8	**19.5**
8	ASRCH 108 BG I	15.1	15.5	25.9	28.3	**21.2**
9	RCH 989 BG II	14.6	15.9	24.3	26.8	**20.4**
10	MRC 7351 BG II (ZC)	18.3	16.5	21.3	24.1	**20.0**
11	GANDEEVAM BG II	16.3	16.2	20.3	29.1	**20.5**
12	ASRCH 306 BG I	15.3	23.1	21.5	27.9	**21.9**
13	BIO GHH 101 BG II	17.3	23.9	24.6	27.2	**23.3**
14	ACH 981-2 BG II	18.3	16.1	22.2	24.3	**20.2**
15	US 707 BG II	15.3	17.5	21.2	18.3	**18.1**
16	BG II Local Check	15.7	15.7	24.2	27.7	**20.8**
17	RCH 981 BG II	15.3	16.2	24.3	18.0	**18.5**
18	Solar 112 BG II	18.4	16.8	22.3	22.9	**20.1**
19	ARCH 3079 BG II	15.5	16.5	24.1	25.0	**20.3**
20	C 9336 BG II	15.3	20.7	21.3	26.1	**20.9**
21	D 1579 BG II	15.3	20.3	22.9	28.1	**21.7**
22	SRIKAR GOLD BG II	15.6	17.5	23.6	26.4	**20.8**
	CD @ 5%	1.8	0.8	0.9	5.12	
	CV %	6.8	2.8	2.3	12.23	

Number of bolls / plant in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	ATCH 1365 BG II	38.6	26.3	59.1	28.0	**38.0**
2	US 708 BG II	38.5	21.3	45.6	35.0	**35.1**
3	Solar 115 BG II	45.2	15.7	43.1	23.1	**31.8**
4	D 1199 BG II	37.0	17.2	55.0	33.6	**35.7**
5	ARCH 3181 BG II	40.2	15.6	52.9	30.5	**34.8**
6	MC 5460 BG II	36.9	17.6	58.0	35.5	**37.0**
7	C 9335 BG II	31.1	10.1	52.7	24.9	**29.7**
8	ASRCH 108 BG I	35.2	16.7	36.9	27.1	**29.0**
9	RCH 989 BG II	39.9	20.6	52.1	34.5	**36.8**
10	MRC 7351 BG II (ZC)	49.5	19.8	48.7	29.3	**36.8**
11	GANDEEVAM BG II	36.1	20.8	42.3	30.5	**32.4**
12	ASRCH 306 BG I	34.2	16.8	33.9	29.9	**28.7**
13	BIO GHH 101 BG II	36.3	20.6	46.0	33.2	**34.0**
14	ACH 981-2 BG II	42.8	20.8	36.1	31.1	**32.7**
15	US 707 BG II	37.5	17.0	44.1	32.0	**32.7**
16	BG II Local Check	38.3	21.0	35.5	30.1	**31.2**
17	RCH 981 BG II	39.5	24.2	44.3	32.1	**35.0**
18	Solar 112 BG II	45.7	16.1	41.3	26.1	**32.3**
19	ARCH 3079 BG II	38.1	19.8	51.1	29.3	**34.6**
20	C 9336 BG II	34.1	20.3	40.7	29.3	**31.1**
21	D 1579 BG II	44.5	24.4	34.3	23.9	**31.8**
22	SRIKAR GOLD BG II	40.5	23.9	48.3	25.1	**34.4**
	CD @ 5%	6.4	3.7	2.5	7.83	
	CV %	9.9	11.6	3.2	15.95	

Number of bolls / sq.m.in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	ATCH 1365 BG II	79.3	48.7	81.5	69.1	**69.7**
2	US 708 BG II	80.7	39.4	62.9	94.5	**69.4**
3	Solar 115 BG II	93.3	29.0	59.5	49.7	**57.9**
4	D 1199 BG II	77.9	31.9	75.9	91.5	**69.3**
5	ARCH 3181 BG II	83.9	28.8	73.0	79.0	**66.2**
6	MC 5460 BG II	77.0	32.5	80.0	93.9	**70.9**
7	C 9335 BG II	65.9	18.7	72.7	56.9	**53.5**
8	ASRCH 108 BG I	73.5	30.9	51.0	65.7	**55.3**
9	RCH 989 BG II	78.3	38.1	71.9	92.6	**70.2**
10	MRC 7351 BG II (ZC)	101.7	36.6	67.2	74.5	**70.0**
11	GANDEEVAM BG II	75.6	38.5	58.4	79.3	**62.9**
12	ASRCH 306 BG I	71.7	31.2	46.7	76.6	**56.5**
13	BIO GHH 101 BG II	76.1	38.2	63.5	89.9	**66.9**
14	ACH 981-2 BG II	88.8	38.5	49.9	81.7	**64.7**
15	US 707 BG II	77.9	31.4	60.8	85.1	**63.8**
16	BG II Local Check	80.2	38.8	48.9	77.7	**61.4**
17	RCH 981 BG II	83.3	44.8	61.2	85.7	**68.7**
18	Solar 112 BG II	94.6	29.8	56.9	61.7	**60.7**
19	ARCH 3079 BG II	79.3	36.6	70.5	74.2	**65.1**
20	C 9336 BG II	71.3	37.6	56.1	74.2	**59.8**
21	D 1579 BG II	91.5	45.1	47.3	52.9	**59.2**
22	SRIKAR GOLD BG II	79.3	44.3	66.7	57.4	**61.9**
	CD @ 5%	12.9	6.8	3.4	24.1	
	CV %	9.6	11.6	3.2	19.3	

Lint Index (g) in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	ATCH 1365 BG II	5.8	5.3	6.2	3.3	**5.2**
2	US 708 BG II	7.0	6.6	5.8	3.0	**5.6**
3	Solar 115 BG II	5.9	4.7	4.9	2.7	**4.5**
4	D 1199 BG II	5.8	5.7	5.9	3.8	**5.3**
5	ARCH 3181 BG II	5.9	5.7	5.3	4.4	**5.3**
6	MC 5460 BG II	5.4	5.8	4.2	4.1	**4.9**
7	C 9335 BG II	5.7	5.1	5.3	3.2	**4.8**
8	ASRCH 108 BG I	5.9	6.3	5.8	3.8	**5.5**
9	RCH 989 BG II	5.9	5.3	6.4	3.9	**5.4**
10	MRC 7351 BG II (ZC)	5.8	4.3	4.7	3.0	**4.4**
11	GANDEEVAM BG II	5.2	4.1	4.8	3.7	**4.4**
12	ASRCH 306 BG I	5.6	4.1	4.1	2.8	**4.2**
13	BIO GHH 101 BG II	5.6	4.3	5.7	4.4	**5.0**
14	ACH 981-2 BG II	6.4	5.6	5.9	4.6	**5.6**
15	US 707 BG II	6.5	6.6	8.0	3.4	**6.1**
16	BG II Local Check	5.7	6.1	4.5	3.8	**5.0**
17	RCH 981 BG II	6.1	5.4	5.5	3.8	**5.2**
18	Solar 112 BG II	5.6	4.7	4.4	3.5	**4.5**
19	ARCH 3079 BG II	6.2	5.3	5.5	4.1	**5.3**
20	C 9336 BG II	5.9	4.9	5.4	3.4	**4.9**
21	D 1579 BG II	5.1	6.1	5.0	2.8	**4.7**
22	SRIKAR GOLD BG II	5.1	5.4	4.7	3.8	**4.7**
	CD @ 5%	0.9	1.2	0.3		
	CV %	9.5	14.0	3.3		

Seed Index (g) in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	ATCH 1365 BG II	11.2	10.7	12.1	7.3	**10.3**
2	US 708 BG II	12.3	11.3	11.1	6.8	**10.4**
3	Solar 115 BG II	10.8	9.0	10.2	6.4	**9.1**
4	D 1199 BG II	11.2	12.3	11.7	7.5	**10.7**
5	ARCH 3181 BG II	11.0	11.0	10.0	8.1	**10.0**
6	MC 5460 BG II	11.3	12.7	9.0	7.2	**10.1**
7	C 9335 BG II	12.2	11.0	11.6	7.1	**10.5**
8	ASRCH 108 BG I	12.3	13.0	11.2	8.1	**11.2**
9	RCH 989 BG II	11.8	10.7	12.5	6.8	**10.5**
10	MRC 7351 BG II (ZC)	11.2	8.7	9.7	6.9	**9.1**
11	GANDEEVAM BG II	11.8	8.7	10.0	7.4	**9.5**
12	ASRCH 306 BG I	11.3	8.7	9.0	6.6	**8.9**
13	BIO GHH 101 BG II	11.8	9.3	10.4	7.8	**9.8**
14	ACH 981-2 BG II	10.5	9.0	10.1	8.4	**9.5**
15	US 707 BG II	10.5	11.0	13.5	6.8	**10.5**
16	BG II Local Check	12.0	11.3	9.1	7.3	**9.9**
17	RCH 981 BG II	11.2	10.7	10.6	7.6	**10.0**
18	Solar 112 BG II	10.3	9.3	9.0	7.0	**8.9**
19	ARCH 3079 BG II	11.5	10.3	10.8	7.5	**10.0**
20	C 9336 BG II	11.7	10.0	11.0	6.6	**9.8**
21	D 1579 BG II	10.0	11.7	10.4	6.4	**9.6**
22	SRIKAR GOLD BG II	9.3	11.0	8.8	7.6	**9.2**
	CD @ 5%	1.5	1.8	0.2		
	CV %	8.1	10.3	1.4		

Ginning outturn (%) in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	ATCH 1365 BG II	34.0	33.0	33.9	31.2	**33.0**
2	US 708 BG II	36.3	36.7	34.5	30.3	**34.5**
3	Solar 115 BG II	35.0	34.1	32.3	29.6	**32.8**
4	D 1199 BG II	34.3	31.7	33.7	33.4	**33.3**
5	ARCH 3181 BG II	34.8	34.1	34.5	35.4	**34.7**
6	MC 5460 BG II	32.2	31.6	31.9	36.3	**33.0**
7	C 9335 BG II	32.2	31.5	31.4	31.0	**31.5**
8	ASRCH 108 BG I	32.2	32.7	34.3	32.1	**32.8**
9	RCH 989 BG II	33.3	33.1	33.8	36.5	**34.2**
10	MRC 7351 BG II (ZC)	34.2	33.0	32.4	30.1	**32.4**
11	GANDEEVAM BG II	30.7	32.1	32.4	33.2	**32.1**
12	ASRCH 306 BG I	33.0	32.2	31.2	30.1	**31.6**
13	BIO GHH 101 BG II	32.2	31.4	35.3	36.1	**33.8**
14	ACH 981-2 BG II	38.0	38.3	36.9	35.2	**37.1**
15	US 707 BG II	38.3	37.7	37.4	33.6	**36.8**
16	BG II Local Check	32.2	34.7	33.0	34.1	**33.5**
17	RCH 981 BG II	35.3	33.6	34.4	33.1	**34.1**
18	Solar 112 BG II	35.3	33.4	32.8	33.2	**33.7**
19	ARCH 3079 BG II	35.0	33.7	33.6	35.1	**34.4**
20	C 9336 BG II	33.5	33.0	33.0	34.2	**33.4**
21	D 1579 BG II	33.7	34.4	32.3	30.2	**32.7**
22	SRIKAR GOLD BG II	35.3	31.6	34.6	33.1	**33.7**
	CD @ 5%	1.9	3.6	1.2		
	CV %	3.3	6.6	2.2		

Upper Half Mean Length (mm) under HVI Mode in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Mean
1	ATCH 1365 BG II	30.0	29.0	29.2	**29.4**
2	US 708 BG II	27.2	26.7	27.0	**27.0**
3	Solar 115 BG II	26.5	28.8	27.4	**27.6**
4	D 1199 BG II	28.8	31.6	31.6	**30.7**
5	ARCH 3181 BG II	29.0	29.7	28.8	**29.2**
6	MC 5460 BG II	27.0	27.4	27.1	**27.2**
7	C 9335 BG II	30.2	30.1	30.2	**30.2**
8	ASRCH 108 BG I	32.2	30.0	31.4	**31.2**
9	RCH 989 BG II	26.9	27.4	27.4	**27.2**
10	MRC 7351 BG II (ZC)	28.4	27.9	28.9	**28.4**
11	GANDEEVAM BG II	30.0	28.1	29.2	**29.1**
12	ASRCH 306 BG I	27.6	27.4	28.3	**27.8**
13	BIO GHH 101 BG II	27.8	27.5	29.3	**28.2**
14	ACH 981-2 BG II	26.9	26.5	27.3	**26.9**
15	US 707 BG II	27.4	28.0	27.8	**27.7**
16	BG II Local Check	31.5	30.1	28.9	**30.2**
17	RCH 981 BG II	27.5	29.4	29.8	**28.9**
18	Solar 112 BG II	29.0	27.1	27.4	**27.8**
19	ARCH 3079 BG II	28.2	29.1	28.3	**28.5**
20	C 9336 BG II	29.4	31.0	29.8	**30.1**
21	D 1579 BG II	32.8	29.7	32.5	**31.7**
22	SRIKAR GOLD BG II	28.3	26.2	27.1	**27.2**

Uniformity index under HVI Mode in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Mean
1	ATCH 1365 BG II	85.0	86.0	84.0	**85.0**
2	US 708 BG II	86.0	84.0	85.0	**85.0**
3	Solar 115 BG II	85.0	85.0	85.0	**85.0**
4	D 1199 BG II	83.0	87.0	85.0	**85.0**
5	ARCH 3181 BG II	86.0	84.0	85.0	**85.0**
6	MC 5460 BG II	86.0	84.0	87.0	**85.7**
7	C 9335 BG II	86.0	86.0	85.0	**85.7**
8	ASRCH 108 BG I	85.0	86.0	85.0	**85.3**
9	RCH 989 BG II	84.0	84.0	86.0	**84.7**
10	MRC 7351 BG II (ZC)	85.0	85.0	86.0	**85.3**
11	GANDEEVAM BG II	86.0	86.0	85.0	**85.7**
12	ASRCH 306 BG I	85.0	85.0	85.0	**85.0**
13	BIO GHH 101 BG II	85.0	85.0	85.0	**85.0**
14	ACH 981-2 BG II	86.0	85.0	85.0	**85.3**
15	US 707 BG II	84.0	84.0	84.0	**84.0**
16	BG II Local Check	85.0	85.0	84.0	**84.7**
17	RCH 981 BG II	85.0	87.0	85.0	**85.7**
18	Solar 112 BG II	85.0	83.0	85.0	**84.3**
19	ARCH 3079 BG II	87.0	86.0	85.0	**86.0**
20	C 9336 BG II	86.0	85.0	86.0	**85.7**
21	D 1579 BG II	84.0	86.0	85.0	**85.0**
22	SRIKAR GOLD BG II	85.0	83.0	85.0	**84.3**

Micronaire under HVI Mode in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Mean
1	ATCH 1365 BG II	4.2	3.4	4.1	**3.9**
2	US 708 BG II	4.9	3.9	5.1	**4.6**
3	Solar 115 BG II	4.6	3.7	4.4	**4.2**
4	D 1199 BG II	4.7	3.6	4.6	**4.3**
5	ARCH 3181 BG II	4.6	3.7	4.3	**4.2**
6	MC 5460 BG II	4.6	3.3	4.5	**4.1**
7	C 9335 BG II	4.3	3.2	4.3	**3.9**
8	ASRCH 108 BG I	4.2	3.5	5.2	**4.3**
9	RCH 989 BG II	4.3	3.7	5.0	**4.3**
10	MRC 7351 BG II (ZC)	4.3	4.0	4.5	**4.3**
11	GANDEEVAM BG II	4.1	3.3	4.4	**3.9**
12	ASRCH 306 BG I	3.9	3.2	4.2	**3.8**
13	BIO GHH 101 BG II	4.9	3.2	4.8	**4.3**
14	ACH 981-2 BG II	4.7	3.9	4.9	**4.5**
15	US 707 BG II	4.1	3.3	4.2	**3.9**
16	BG II Local Check	4.9	3.2	4.8	**4.3**
17	RCH 981 BG II	4.2	3.5	4.6	**4.1**
18	Solar 112 BG II	4.5	3.1	4.1	**3.9**
19	ARCH 3079 BG II	4.6	3.5	4.7	**4.3**
20	C 9336 BG II	4.1	3.8	4.4	**4.1**
21	D 1579 BG II	4.3	3.4	4.3	**4.0**
22	SRIKAR GOLD BG II	4.0	2.9	4.1	**3.7**

Tenacity under HVI Mode in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Mean
1	ATCH 1365 BG II	29.6	28.6	27.0	**28.4**
2	US 708 BG II	26.6	25.5	25.4	**25.8**
3	Solar 115 BG II	24.8	29.1	26.3	**26.7**
4	D 1199 BG II	30.0	29.1	28.2	**29.1**
5	ARCH 3181 BG II	28.5	28.1	28.4	**28.3**
6	MC 5460 BG II	28.2	28.2	29.2	**28.5**
7	C 9335 BG II	29.4	29.7	27.9	**29.0**
8	ASRCH 108 BG I	29.1	30.5	27.2	**28.9**
9	RCH 989 BG II	28.1	29.7	26.2	**28.0**
10	MRC 7351 BG II (ZC)	29.1	28.4	27.1	**28.2**
11	GANDEEVAM BG II	29.9	29.9	27.3	**29.0**
12	ASRCH 306 BG I	27.0	27.5	26.5	**27.0**
13	BIO GHH 101 BG II	28.9	28.6	29.1	**28.9**
14	ACH 981-2 BG II	26.8	28.0	27.1	**27.3**
15	US 707 BG II	27.5	25.1	25.9	**26.2**
16	BG II Local Check	30.4	27.4	27.2	**28.3**
17	RCH 981 BG II	27.1	28.4	28.2	**27.9**
18	Solar 112 BG II	28.0	27.9	27.5	**27.8**
19	ARCH 3079 BG II	28.8	30.0	26.9	**28.6**
20	C 9336 BG II	29.4	28.5	28.3	**28.7**
21	D 1579 BG II	28.4	30.0	28.7	**29.0**
22	SRIKAR GOLD BG II	28.2	26.0	26.5	**26.9**

Seed Cotton Yield (q/ha) in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean	Rank
1	ATCH 1365 BG II	35.36	20.92	9.89	16.54	**20.68**	1
2	US 708 BG II	33.44	17.28	6.39	16.23	**18.34**	6
3	Solar 115 BG II	34.60	9.07	7.41	13.47	**16.14**	19
4	D 1199 BG II	32.15	12.35	6.81	15.69	**16.75**	17
5	ARCH 3181 BG II	31.77	11.82	7.57	18.42	**17.39**	13
6	MC 5460 BG II	30.09	12.56	8.57	17.58	**17.20**	15
7	C 9335 BG II	28.03	7.72	5.85	15.95	**14.39**	22
8	ASRCH 108 BG I	30.73	11.20	5.13	16.04	**15.78**	20
9	RCH 989 BG II	33.56	16.48	7.88	18.09	**19.00**	3
10	MRC 7351 BG II (ZC)	34.46	13.09	5.70	16.51	**17.44**	11
11	GANDEEVAM BG II	32.66	14.41	5.07	15.88	**17.01**	16
12	ASRCH 306 BG I	30.73	12.34	5.66	13.45	**15.55**	21
13	BIO GHH 101 BG II	32.92	15.56	7.68	17.20	**18.34**	5
14	ACH 981-2 BG II	37.68	14.20	9.46	18.73	**20.02**	2
15	US 707 BG II	30.99	13.58	9.44	15.82	**17.46**	10
16	BG II Local Check	33.56	15.89	8.60	16.21	**18.56**	4
17	RCH 981 BG II	29.96	16.30	7.82	15.58	**17.42**	12
18	Solar 112 BG II	36.39	11.26	6.03	15.69	**17.34**	14
19	ARCH 3079 BG II	33.31	13.49	8.76	16.02	**17.89**	7
20	C 9336 BG II	30.73	16.79	7.50	15.56	**17.65**	8
21	D 1579 BG II	33.05	14.60	5.55	13.00	**16.55**	18
22	SRIKAR GOLD BG II	32.28	16.11	8.38	13.10	**17.47**	9
	CD @ 5%	4.13	2.92	2.09	3.17		
	CV %	7.67	12.71	16.86	12.06		

Qualitative Cry Protein Evaluation

All the above entries were positive for Cry 1Ac Protein in qualitative ELISA Test

All the above entries were positive for Cry 2Ab Protein in qualitative ELISA Test

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect Pests

Table. Initial HxH Trial under protected conditions in Central Zone -- Aphid

Name of Entry	Aphid (Average of 3 leaves/plant)	
	Junagadh	Mean
ATCH 1365 BG II	5.23	5.23
US 708 BG II	5.97	5.97
Solar 115 BG II	4.30	4.30
D 1199 BG II	4.17	4.17
ARCH 3181 BG II	4.37	4.37
MC 5460 BG II	4.47	4.47
C 9335 BG II	6.53	6.53
ASRCH 108 BG I	6.93	6.93
RCH 989 BG II	5.90	5.90
MRC 7351 BG II (ZC)	6.07	6.07
GANDEEVAM BG II	4.90	4.90
ASRCH 306 BG I	5.57	5.57
BIO GHH 101 BG II	7.47	7.47
ACH 981-2 BG II	6.80	6.80
US 707 BG II	6.57	6.57
BG II Local Check	7.53	7.53
RCH 981 BG II	5.37	5.37
Solar 112 BG II	4.90	4.90
ARCH 3079 BG II	4.77	4.77
C 9336 BG II	5.83	5.83
D 1579 BG II	6.63	6.63
SRIKAR GOLD BG II	7.33	7.33

Table. Initial HxH Trial under protected conditions in Central Zone --Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)			
	Junagadh	Rahuri	Mean	Remarks*
ATCH 1365 BG II	4.93	3.69	4.31	BETL
US 708 BG II	5.50	3.44	4.47	BETL
Solar 115 BG II	3.57	3.69	3.63	BETL
D 1199 BG II	5.23	3.45	4.34	BETL
ARCH 3181 BG II	3.53	3.37	3.45	BETL
MC 5460 BG II	4.70	2.97	3.84	BETL
C 9335 BG II	5.37	3.61	4.49	BETL
ASRCH 108 BG I	6.27	3.96	5.11	BETL
RCH 989 BG II	6.13	3.76	4.95	BETL
MRC 7351 BG II (ZC)	4.27	3.73	4.00	BETL
GANDEEVAM BG II	4.53	4.62	4.58	BETL
ASRCH 306 BG I	5.67	4.48	5.07	BETL
BIO GHH 101 BG II	4.67	4.07	4.37	BETL
ACH 981-2 BG II	6.07	3.03	4.55	BETL
US 707 BG II	3.87	3.33	3.60	BETL
BG II Local Check	3.73	3.49	3.61	BETL
RCH 981 BG II	4.03	3.14	3.59	BETL
Solar 112 BG II	5.10	6.27	5.69	BETL
ARCH 3079 BG II	4.30	3.57	3.94	BETL
C 9336 BG II	5.07	3.35	4.21	BETL
D 1579 BG II	3.90	4.8	4.35	BETL
SRIKAR GOLD BG II	5.97	3.71	4.84	BETL

Table. Initial HxH Trial under protected conditions in Central Zone –Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)			
	Junagadh	Rahuri	Mean	Remarks*
ATCH 1365 BG II	10.53	3.13	6.83	BETL
US 708 BG II	11.83	3.47	7.65	BETL
Solar 115 BG II	10.73	3.73	7.23	BETL
D 1199 BG II	11.30	3.43	7.37	BETL
ARCH 3181 BG II	9.10	3.23	6.17	BETL
MC 5460 BG II	11.50	3.63	7.57	BETL
C 9335 BG II	9.70	3.8	6.75	BETL
ASRCH 108 BG I	10.47	3.37	6.92	BETL
RCH 989 BG II	8.77	3.5	6.13	BETL
MRC 7351 BG II (ZC)	8.63	4.7	6.67	BETL
GANDEEVAM BG II	9.30	3.87	6.59	BETL
ASRCH 306 BG I	9.83	3.93	6.88	BETL
BIO GHH 101 BG II	12.97	3.4	8.18	BETL
ACH 981-2 BG II	12.10	3.6	7.85	BETL
US 707 BG II	9.77	4.1	6.93	BETL
BG II Local Check	13.03	3.73	8.38	BETL
RCH 981 BG II	13.37	4	8.68	BETL
Solar 112 BG II	8.60	4.6	6.60	BETL
ARCH 3079 BG II	9.37	3.53	6.45	BETL
C 9336 BG II	9.23	3.83	6.53	BETL
D 1579 BG II	10.33	3.97	7.15	BETL
SRIKAR GOLD BG II	11.93	4	7.97	BETL

Table. Initial HxH Trial under protected conditions in Central Zone -Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)			
	Junagadh	Rahuri	Mean	Remarks*
ATCH 1365 BG II	6.03	2.50	4.27	BETL
US 708 BG II	5.33	2.47	3.90	BETL
Solar 115 BG II	5.90	2.27	4.09	BETL
D 1199 BG II	7.00	2.27	4.64	BETL
ARCH 3181 BG II	5.27	2.47	3.87	BETL
MC 5460 BG II	5.13	2.33	3.73	BETL
C 9335 BG II	5.20	2.37	3.79	BETL
ASRCH 108 BG I	5.77	2.47	4.12	BETL
RCH 989 BG II	6.47	2.37	4.42	BETL
MRC 7351 BG II (ZC)	4.50	2.47	3.49	BETL
GANDEEVAM BG II	5.57	2.47	4.02	BETL
ASRCH 306 BG I	6.53	2.37	4.45	BETL
BIO GHH 101 BG II	5.00	2.33	3.67	BETL
ACH 981-2 BG II	6.03	2.13	4.08	BETL
US 707 BG II	4.00	2.43	3.22	BETL
BG II Local Check	4.00	2.40	3.20	BETL
RCH 981 BG II	4.03	2.47	3.25	BETL
Solar 112 BG II	5.70	2.83	4.27	BETL
ARCH 3079 BG II	4.37	2.33	3.35	BETL
C 9336 BG II	4.70	2.33	3.52	BETL
D 1579 BG II	7.20	2.70	4.95	BETL
SRIKAR GOLD BG II	7.13	2.50	4.82	BETL

Table. Initial HxH Trial under protected conditions in Central Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)			
	Junagadh	Rahuri	Mean	Remarks*
ATCH 1365 BG II	2.60	17.33	9.97	BETL
US 708 BG II	2.60	14.17	8.39	BETL
Solar 115 BG II	1.90	17.33	9.62	BETL
D 1199 BG II	4.60	16.83	10.72	AETL
ARCH 3181 BG II	5.90	13.00	9.45	BETL
MC 5460 BG II	5.50	19.50	12.50	AETL
C 9335 BG II	4.40	14.33	9.37	BETL
ASRCH 108 BG I	3.10	12.33	7.72	BETL
RCH 989 BG II	6.00	16.17	11.09	AETL
MRC 7351 BG II (ZC)	1.60	14.67	8.14	BETL
GANDEEVAM BG II	4.00	19.17	11.59	AETL
ASRCH 306 BG I	4.30	12.83	8.57	BETL
BIO GHH 101 BG II	5.00	17.67	11.34	AETL
ACH 981-2 BG II	2.80	13.33	8.07	BETL
US 707 BG II	4.60	17.67	11.14	AETL
BG II Local Check	4.90	13.83	9.37	BETL
RCH 981 BG II	3.10	16.83	9.97	BETL
Solar 112 BG II	2.60	17.83	10.22	AETL
ARCH 3079 BG II	3.60	19.67	11.64	AETL
C 9336 BG II	3.90	20.00	11.95	AETL
D 1579 BG II	3.70	13.83	8.77	BETL
SRIKAR GOLD BG II	3.60	14.67	9.14	BETL

Table. Initial HxH Trial under protected conditions in Central Zone -- Green Boll damage

Name of Entry	Green Boll damage (%)			
	Junagadh	Rahuri	Mean	Remarks*
ATCH 1365 BG II	20.35	0.00	10.18	AETL
US 708 BG II	23.24	0.00	11.62	AETL
Solar 115 BG II	28.48	0.00	14.24	AETL
D 1199 BG II	26.29	0.00	13.15	AETL
ARCH 3181 BG II	28.06	0.00	14.03	AETL
MC 5460 BG II	22.12	0.00	11.06	AETL
C 9335 BG II	21.82	0.00	10.91	AETL
ASRCH 108 BG I	32.50	0.00	16.25	AETL
RCH 989 BG II	24.36	0.00	12.18	AETL
MRC 7351 BG II (ZC)	26.15	0.00	13.08	AETL
GANDEEVAM BG II	29.63	0.00	14.82	AETL
ASRCH 306 BG I	29.16	0.00	14.58	AETL
BIO GHH 101 BG II	23.91	0.00	11.96	AETL
ACH 981-2 BG II	26.95	0.00	13.48	AETL
US 707 BG II	28.83	0.00	14.42	AETL
BG II Local Check	27.40	0.00	13.70	AETL
RCH 981 BG II	22.62	0.00	11.31	AETL
Solar 112 BG II	25.15	0.00	12.58	AETL
ARCH 3079 BG II	30.30	0.00	15.15	AETL
C 9336 BG II	25.49	0.00	12.75	AETL
D 1579 BG II	33.38	0.00	16.69	AETL
SRIKAR GOLD BG II	27.65	0.00	13.83	AETL

Table. Initial HxH Trial under protected conditions in Central Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)			
	Junagadh	Rahuri	Mean	Remarks*
ATCH 1365 BG II	22.62	22.48	22.55	AETL
US 708 BG II	25.57	23.86	24.72	AETL
Solar 115 BG II	31.01	21.75	26.38	AETL
D 1199 BG II	29.07	21.34	25.21	AETL
ARCH 3181 BG II	30.44	21.04	25.74	AETL
MC 5460 BG II	24.79	23.90	24.35	AETL
C 9335 BG II	23.85	20.93	22.39	AETL
ASRCH 108 BG I	35.55	20.93	28.24	AETL
RCH 989 BG II	26.86	21.47	24.17	AETL
MRC 7351 BG II (ZC)	29.09	22.20	25.65	AETL
GANDEEVAM BG II	32.41	25.76	29.09	AETL
ASRCH 306 BG I	31.55	27.66	29.61	AETL
BIO GHH 101 BG II	26.60	26.33	26.47	AETL
ACH 981-2 BG II	30.10	28.25	29.18	AETL
US 707 BG II	31.51	34.46	32.99	AETL
BG II Local Check	31.00	32.00	31.50	AETL
RCH 981 BG II	25.31	32.95	29.13	AETL
Solar 112 BG II	28.05	53.82	40.94	AETL
ARCH 3079 BG II	32.44	32.59	32.52	AETL
C 9336 BG II	28.24	32.59	30.42	AETL
D 1579 BG II	36.13	32.59	34.36	AETL
SRIKAR GOLD BG II	31.08	32.59	31.84	AETL

Table. Initial HxH Trial under protected conditions in Central Zone -- Locule damage

Name of Entry	Locule damage (%)		
	Junagadh	Rahuri	Mean
ATCH 1365 BG II	18.00	12.57	15.29
US 708 BG II	21.05	12.75	16.90
Solar 115 BG II	26.01	10.54	18.28
D 1199 BG II	24.14	10.69	17.42
ARCH 3181 BG II	26.21	10.54	18.38
MC 5460 BG II	20.50	11.94	16.22
C 9335 BG II	19.08	11.43	15.26
ASRCH 108 BG I	30.23	11.43	20.83
RCH 989 BG II	21.95	12.38	17.17
MRC 7351 BG II (ZC)	24.35	11.73	18.04
GANDEEVAM BG II	27.71	13.94	20.83
ASRCH 306 BG I	27.13	14.52	20.83
BIO GHH 101 BG II	22.37	13.91	18.14
ACH 981-2 BG II	25.43	15.11	20.27
US 707 BG II	26.75	17.37	22.06
BG II Local Check	25.65	16.38	21.02
RCH 981 BG II	20.30	18.22	19.26
Solar 112 BG II	23.32	31.18	27.25
ARCH 3079 BG II	26.08	16.53	21.31
C 9336 BG II	23.24	16.53	19.89
D 1579 BG II	30.97	16.53	23.75
SRIKAR GOLD BG II	25.09	16.53	20.81

Table. Initial HxH Trial under unprotected conditions in Central Zone – Aphid

Name of Entry	Aphid (Average of 3 leaves/plant)		
	Junagadh	Khandwa	Mean
ATCH 1365 BG II	5.77	6.90	6.33
US 708 BG II	6.50	14.80	10.65
Solar 115 BG II	4.87	16.75	10.81
D 1199 BG II	4.57	10.25	7.41
ARCH 3181 BG II	4.83	9.10	6.97
MC 5460 BG II	5.00	8.65	6.83
C 9335 BG II	7.03	21.10	14.07
ASRCH 108 BG I	7.53	20.45	13.99
RCH 989 BG II	6.47	12.55	9.51
MRC 7351 BG II (ZC)	6.60	15.90	11.25
GANDEEVAM BG II	5.40	21.40	13.40
ASRCH 306 BG I	6.07	21.65	13.86
BIO GHH 101 BG II	8.30	11.00	9.65
ACH 981-2 BG II	7.27	10.50	8.88
US 707 BG II	7.07	20.20	13.63
BG II Local Check	8.17	19.65	13.91
RCH 981 BG II	5.90	19.25	12.58
Solar 112 BG II	5.37	21.75	13.56
ARCH 3079 BG II	5.30	9.80	7.55
C 9336 BG II	6.40	20.05	13.23
D 1579 BG II	7.17	13.10	10.13
SRIKAR GOLD BG II	8.17	12.60	10.38

Table. Initial HxH Trial under unprotected conditions in Central Zone –Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)				
	Junagadh	Rahuri	Khandwa	Mean	Remarks*
ATCH 1365 BG II	5.23	3.92	1.40	3.52	BETL
US 708 BG II	5.83	3.95	2.10	3.96	BETL
Solar 115 BG II	3.87	4.22	2.55	3.55	BETL
D 1199 BG II	5.57	3.98	2.20	3.92	BETL
ARCH 3181 BG II	3.67	4.03	2.35	3.35	BETL
MC 5460 BG II	5.00	3.57	1.60	3.39	BETL
C 9335 BG II	5.77	4.26	3.20	4.41	BETL
ASRCH 108 BG I	6.90	4.24	2.75	4.63	BETL
RCH 989 BG II	6.70	3.89	1.60	4.06	BETL
MRC 7351 BG II (ZC)	4.57	4.09	3.10	3.92	BETL
GANDEEVAM BG II	4.83	4.94	2.70	4.16	BETL
ASRCH 306 BG I	5.93	4.8	3.05	4.59	BETL
BIO GHH 101 BG II	4.93	4.37	1.75	3.68	BETL
ACH 981-2 BG II	6.53	3.67	1.90	4.03	BETL
US 707 BG II	4.20	3.87	4.30	4.12	BETL
BG II Local Check	4.03	4.11	6.50	4.88	BETL
RCH 981 BG II	4.33	3.96	2.90	3.73	BETL
Solar 112 BG II	5.40	5.25	2.40	4.35	BETL
ARCH 3079 BG II	4.53	3.89	0.95	3.12	BETL
C 9336 BG II	5.30	4.18	3.90	4.46	BETL
D 1579 BG II	4.23	4.97	2.90	4.03	BETL
SRIKAR GOLD BG II	6.47	4.01	3.00	4.49	BETL

Reaction to Diseases

Criteria used for Evaluation against Fungal foliar diseases and bacterial blight

Percent Disease index(PDI)	Disease reaction
0	Immune/disease free
0.1-25	Resistant
25.1-50	Moderately Resistant
50.1-75	Moderately Susceptible
>75	Susceptible

Note: The reaction less than the local/Zonal check will be permissible.

Table: Initial Evaluation Trial of Intra-Hirsutum Hybrids – Irrigated Under unprotected conditions (Central Zone)

Entry	Average PDI & Disease Reaction (DR): Unprotected											
	Junagarh						Rahuri					
	BLB		ALB		GM		BLB		ALB		GM	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
ATCH 1365 BG II	1.0	R	17.0	R	16.5	R	8.3	R	5.0	R	5.0	R
US 708 BG II	9.3	R	10.5	R	4.8	R	10.0	R	16.7	R	3.3	R
Solar 115 BG II	3.0	R	16.3	R	9.3	R	6.7	R	15.0	R	5.0	R
D 1199 BG II	8.8	R	12.3	R	5.0	R	5.0	R	20.0	R	15.0	R
ARCH 3181 BG II	0.5	R	9.5	R	9.8	R	3.3	R	5.0	R	5.0	R
MC 5460 BG II	6.3	R	8.8	R	5.5	R	5.0	R	5.0	R	3.3	R
C 9335 BG II	5.8	R	19.0	R	7.8	R	6.7	R	18.3	R	20.0	R
ASRCH 108 BG I	13.0	R	17.5	R	7.3	R	8.3	R	16.7	R	5.0	R
RCH 989 BG II	0.5	R	11.8	R	8.0	R	3.3	R	18.3	R	5.0	R
MRC 7351 BG II (ZC)	0.3	R	9.3	R	12.8	R	8.3	R	13.3	R	18.3	R
GANDEEVAM BG II	1.0	R	11.8	R	8.8	R	8.3	R	16.7	R	13.3	R
ASRCH 306 BG I	1.0	R	24.3	R	15.3	R	10.0	R	20.0	R	3.3	R
BIO GHH 101 BG II	5.3	R	25.3	MR	4.0	R	10.0	R	3.3	R	3.3	R
ACH 981-2 BG II	1.5	R	12.8	R	7.8	R	3.3	R	5.0	R	3.3	R
US 707 BG II	0.8	R	13.5	R	7.5	R	5.0	R	5.0	R	5.0	R
BG II (LC)	0.5	R	27.8	MR	10.8	R	8.3	R	5.0	R	5.0	R
RCH 981 BG II	0.8	R	14.8	R	4.8	R	6.7	R	5.0	R	3.3	R
Solar 112 BG II	0.5	R	27.8	MR	7.0	R	10.0	R	15.0	R	5.0	R
ARCH 3079 BG II	10.3	R	11.8	R	6.8	R	5.0	R	3.3	R	5.0	R
C 9336 BG II	4.0	R	10.3	R	10.3	R	3.3	R	5.0	R	5.0	R
D 1579 BG II	6.0	R	10.8	R	5.3	R	8.3	R	20.0	R	15.0	R
SRIKAR GOLD BG II	2.0	R	9.3	R	5.8	R	5.0	R	5.0	R	5.0	R

Evaluation under unprotected condition for insect pests and diseases:

Reaction to Insect Pests

Table. Initial HxH Trial under unprotected conditions in Central Zone –Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)			
	Junagadh	Rahuri	Mean	Remarks*
ATCH 1365 BG II	10.83	5.74	8.29	BETL
US 708 BG II	12.07	6.37	9.22	BETL
Solar 115 BG II	11.07	6.15	8.61	BETL
D 1199 BG II	11.70	6.25	8.98	BETL
ARCH 3181 BG II	9.40	6.17	7.79	BETL
MC 5460 BG II	11.80	6.23	9.02	BETL
C 9335 BG II	10.00	6.56	8.28	BETL
ASRCH 108 BG I	10.73	6.44	8.59	BETL
RCH 989 BG II	9.00	6.04	7.52	BETL
MRC 7351 BG II (ZC)	8.87	6.64	7.75	BETL
GANDEEVAM BG II	9.70	6.34	8.02	BETL
ASRCH 306 BG I	10.20	6.87	8.54	BETL
BIO GHH 101 BG II	13.43	6.63	10.03	AETL
ACH 981-2 BG II	12.43	6.29	9.36	BETL
US 707 BG II	10.20	6.60	8.40	BETL
BG II Local Check	13.47	6.46	9.96	BETL
RCH 981 BG II	13.80	6.45	10.13	AETL
Solar 112 BG II	8.83	6.92	7.88	BETL
ARCH 3079 BG II	9.70	6.26	7.98	BETL
C 9336 BG II	9.50	6.45	7.98	BETL
D 1579 BG II	10.67	6.53	8.60	BETL
SRIKAR GOLD BG II	12.27	6.51	9.39	BETL

Table. Initial HxH Trial under unprotected conditions in Central Zone –Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)				
	Junagadh	Rahuri	Khandwa	Mean	Remarks*
ATCH 1365 BG II	7.23	3.97	8.55	6.58	BETL
US 708 BG II	6.40	4.06	21.64	10.70	AETL
Solar 115 BG II	6.97	4.09	22.05	11.04	AETL
D 1199 BG II	7.93	3.88	4.95	5.59	BETL
ARCH 3181 BG II	6.37	4.11	8.00	6.16	BETL
MC 5460 BG II	6.17	3.84	7.05	5.69	BETL
C 9335 BG II	6.33	4.01	25.35	11.90	AETL
ASRCH 108 BG I	6.83	4.02	22.79	11.21	AETL
RCH 989 BG II	7.53	4.00	5.75	5.76	BETL
MRC 7351 BG II (ZC)	5.53	4.18	24.00	11.24	AETL
GANDEEVAM BG II	6.63	4.00	26.14	12.26	AETL
ASRCH 306 BG I	7.47	3.87	22.70	11.35	AETL
BIO GHH 101 BG II	6.07	4.04	9.15	6.42	BETL
ACH 981-2 BG II	7.07	3.94	7.25	6.09	AETL
US 707 BG II	5.03	3.97	20.35	9.78	AETL
BG II Local Check	4.97	4.02	26.25	11.75	AETL
RCH 981 BG II	4.97	4.13	25.25	11.45	AETL
Solar 112 BG II	6.73	4.33	25.90	12.32	AETL
ARCH 3079 BG II	5.33	4.11	10.70	6.71	BETL
C 9336 BG II	5.73	4.07	21.80	10.53	AETL
D 1579 BG II	8.13	4.20	5.70	6.01	BETL
SRIKAR GOLD BG II	8.10	4.02	6.65	6.26	BETL

Table. Initial HxH Trial under unprotected conditions in Central Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)			
	Junagadh	Rahuri	Mean	Remarks*
ATCH 1365 BG II	3.20	22.83	13.02	AETL
US 708 BG II	4.20	17.83	11.02	AETL
Solar 115 BG II	6.30	21.33	13.82	AETL
D 1199 BG II	5.40	21.83	13.62	AETL
ARCH 3181 BG II	5.60	19.5	12.55	AETL
MC 5460 BG II	4.20	24.83	14.52	AETL
C 9335 BG II	3.40	20.67	12.04	AETL
ASRCH 108 BG I	7.40	16.33	11.87	AETL
RCH 989 BG II	4.60	22.83	13.72	AETL
MRC 7351 BG II (ZC)	5.10	21.5	13.30	AETL
GANDEEVAM BG II	6.80	25.83	16.32	AETL
ASRCH 306 BG I	6.50	18.83	12.67	AETL
BIO GHH 101 BG II	4.40	25.33	14.87	AETL
ACH 981-2 BG II	5.50	18.17	11.84	AETL
US 707 BG II	6.40	24.17	15.29	AETL
BG II Local Check	5.60	20	12.80	AETL
RCH 981 BG II	4.10	24.67	14.39	AETL
Solar 112 BG II	4.60	26.33	15.47	AETL
ARCH 3079 BG II	7.10	25.17	16.14	AETL
C 9336 BG II	5.80	24.67	15.24	AETL
D 1579 BG II	7.60	19.67	13.64	AETL
SRIKAR GOLD BG II	6.10	20.33	13.22	AETL

Table. Initial HxH Trial under unprotected conditions in Central Zone -- Green Boll damage

Name of Entry	Green Boll damage (%)			
	Junagadh	Rahuri	Mean	Remarks*
ATCH 1365 BG II	22.15	0.0	11.08	AETL
US 708 BG II	25.92	0.0	12.96	AETL
Solar 115 BG II	30.57	0.0	15.29	AETL
D 1199 BG II	29.09	0.0	14.55	AETL
ARCH 3181 BG II	30.14	0.0	15.07	AETL
MC 5460 BG II	24.56	0.0	12.28	AETL
C 9335 BG II	23.66	0.0	11.83	AETL
ASRCH 108 BG I	36.21	0.0	18.11	AETL
RCH 989 BG II	26.75	0.0	13.38	AETL
MRC 7351 BG II (ZC)	28.58	0.0	14.29	AETL
GANDEEVAM BG II	31.69	0.0	15.85	AETL
ASRCH 306 BG I	31.53	0.0	15.77	AETL
BIO GHH 101 BG II	26.53	0.0	13.27	AETL
ACH 981-2 BG II	29.22	0.0	14.61	AETL
US 707 BG II	31.26	0.0	15.63	AETL
BG II Local Check	29.67	0.0	14.84	AETL
RCH 981 BG II	25.46	0.0	12.73	AETL
Solar 112 BG II	27.73	0.0	13.87	AETL
ARCH 3079 BG II	33.36	0.0	16.68	AETL
C 9336 BG II	27.99	0.0	14.00	AETL
D 1579 BG II	37.61	0.0	18.81	AETL
SRIKAR GOLD BG II	30.76	0.0	15.38	AETL

Table. Initial HxH Trial under unprotected conditions in Central Zone --Green boll damage due to PBW

Name of Entry	Green Boll damage (%)		
	Khandwa	Mean	Remarks*
ATCH 1365 BG II	5.00	5.00	BETL
US 708 BG II	50.00	50.00	AETL
Solar 115 BG II	45.00	45.00	AETL
D 1199 BG II	55.00	55.00	AETL
ARCH 3181 BG II	15.00	15.00	AETL
MC 5460 BG II	5.00	5.00	BETL
C 9335 BG II	45.00	45.00	AETL
ASRCH 108 BG I	65.00	65.00	AETL
RCH 989 BG II	20.00	20.00	AETL
MRC 7351 BG II (ZC)	40.00	40.00	AETL
GANDEEVAM BG II	55.00	55.00	AETL
ASRCH 306 BG I	50.00	50.00	AETL
BIO GHH 101 BG II	20.00	20.00	AETL
ACH 981-2 BG II	25.00	25.00	AETL
US 707 BG II	35.00	35.00	AETL
BG II Local Check	55.00	55.00	AETL
RCH 981 BG II	10.00	10.00	ETL
Solar 112 BG II	35.00	35.00	AETL
ARCH 3079 BG II	25.00	25.00	AETL
C 9336 BG II	35.00	35.00	AETL
D 1579 BG II	45.00	45.00	AETL
SRIKAR GOLD BG II	50.00	50.00	AETL

Table. Initial HxH Trial under unprotected conditions in Central Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)				
	Junagadh	Rahuri	Khandwa	Mean	Remarks*
ATCH 1365 BG II	23.62	32.19	5.00	20.27	AETL
US 708 BG II	27.01	30.53	70.00	42.51	AETL
Solar 115 BG II	32.59	28.04	50.00	36.88	AETL
D 1199 BG II	30.55	29.81	65.00	41.79	AETL
ARCH 3181 BG II	32.05	27.96	15.00	25.00	AETL
MC 5460 BG II	26.09	27.16	10.00	21.08	AETL
C 9335 BG II	26.56	30.81	50.00	35.79	AETL
ASRCH 108 BG I	37.34	36.25	65.00	46.20	AETL
RCH 989 BG II	28.80	31.47	25.00	28.42	AETL
MRC 7351 BG II (ZC)	30.89	27.86	40.00	32.92	AETL
GANDEEVAM BG II	34.03	25.47	65.00	41.50	AETL
ASRCH 306 BG I	32.74	36.68	95.00	54.81	AETL
BIO GHH 101 BG II	29.15	38.69	30.00	32.61	AETL
ACH 981-2 BG II	31.97	25.85	25.00	27.61	AETL
US 707 BG II	33.30	25.42	35.00	31.24	AETL
BG II Local Check	32.53	32.61	65.00	43.38	AETL
RCH 981 BG II	26.33	34.5	10.00	23.61	AETL
Solar 112 BG II	29.59	39.03	35.00	34.54	AETL
ARCH 3079 BG II	34.08	29.6	25.00	29.56	AETL
C 9336 BG II	29.76	25.74	85.00	46.83	AETL
D 1579 BG II	38.08	38.45	45.00	40.51	AETL
SRIKAR GOLD BG II	33.18	31.42	45.00	36.53	AETL

Table. Initial HxH Trial under unprotected conditions in Central Zone -- Locule damage

Name of Entry	Locule damage (%)			
	Junagadh	Rahuri	Khandwa	Mean
ATCH 1365 BG II	20.79	17.77	1.25	13.27
US 708 BG II	23.31	16.38	16.25	18.65
Solar 115 BG II	28.59	16.60	18.75	21.31
D 1199 BG II	26.72	18.37	11.25	18.78
ARCH 3181 BG II	28.78	16.12	6.25	17.05
MC 5460 BG II	23.10	14.59	1.25	12.98
C 9335 BG II	21.93	17.39	20.00	19.77
ASRCH 108 BG I	34.09	21.52	22.50	26.04
RCH 989 BG II	24.52	13.83	6.25	14.87
MRC 7351 BG II (ZC)	26.97	15.37	16.25	19.53
GANDEEVAM BG II	30.29	11.76	18.75	20.27
ASRCH 306 BG I	29.70	21.92	12.50	21.37
BIO GHH 101 BG II	25.05	19.96	12.50	19.17
ACH 981-2 BG II	28.00	13.00	10.00	17.00
US 707 BG II	29.07	16.94	20.00	22.00
BG II Local Check	28.22	20.01	22.50	23.58
RCH 981 BG II	22.89	17.20	7.50	15.86
Solar 112 BG II	25.90	20.28	17.50	21.23
ARCH 3079 BG II	28.64	15.16	11.25	18.35
C 9336 BG II	27.73	13.02	35.00	25.25
D 1579 BG II	34.50	17.21	17.50	23.07
SRIKAR GOLD BG II	27.54	16.76	17.50	20.60

Reaction to Diseases

Table : Initial Evaluation Trial of Intra-Hirsutum Hybrids – Irrigated Under unprotected conditions (Central Zone)

Entry	Average PDI & Disease Reaction (DR): Unprotected											
	Junagarh						Rahuri					
	BLB		ALB		GM		BLB		ALB		GM	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
ATCH 1365 BG II	1.0	R	17.0	R	16.5	R	8.3	R	5.0	R	5.0	R
US 708 BG II	9.3	R	10.5	R	4.8	R	10.0	R	16.7	R	3.3	R
Solar 115 BG II	3.0	R	16.3	R	9.3	R	6.7	R	15.0	R	5.0	R
D 1199 BG II	8.8	R	12.3	R	5.0	R	5.0	R	20.0	R	15.0	R
ARCH 3181 BG II	0.5	R	9.5	R	9.8	R	3.3	R	5.0	R	5.0	R
MC 5460 BG II	6.3	R	8.8	R	5.5	R	5.0	R	5.0	R	3.3	R
C 9335 BG II	5.8	R	19.0	R	7.8	R	6.7	R	18.3	R	20.0	R
ASRCH 108 BG I	13.0	R	17.5	R	7.3	R	8.3	R	16.7	R	5.0	R
RCH 989 BG II	0.5	R	11.8	R	8.0	R	3.3	R	18.3	R	5.0	R
MRC 7351 BG II (ZC)	0.3	R	9.3	R	12.8	R	8.3	R	13.3	R	18.3	R
GANDEEVAM BG II	1.0	R	11.8	R	8.8	R	8.3	R	16.7	R	13.3	R
ASRCH 306 BG I	1.0	R	24.3	R	15.3	R	10.0	R	20.0	R	3.3	R
BIO GHH 101 BG II	5.3	R	25.3	MR	4.0	R	10.0	R	3.3	R	3.3	R
ACH 981-2 BG II	1.5	R	12.8	R	7.8	R	3.3	R	5.0	R	3.3	R
US 707 BG II	0.8	R	13.5	R	7.5	R	5.0	R	5.0	R	5.0	R
BG II (LC)	0.5	R	27.8	MR	10.8	R	8.3	R	5.0	R	5.0	R
RCH 981 BG II	0.8	R	14.8	R	4.8	R	6.7	R	5.0	R	3.3	R
Solar 112 BG II	0.5	R	27.8	MR	7.0	R	10.0	R	15.0	R	5.0	R
ARCH 3079 BG II	10.3	R	11.8	R	6.8	R	5.0	R	3.3	R	5.0	R
C 9336 BG II	4.0	R	10.3	R	10.3	R	3.3	R	5.0	R	5.0	R
D 1579 BG II	6.0	R	10.8	R	5.3	R	8.3	R	20.0	R	15.0	R
SRIKAR GOLD BG II	2.0	R	9.3	R	5.8	R	5.0	R	5.0	R	5.0	R

Advanced Evaluation Trial of Intra-Hirsutum Bt Hybrids (I) in Central Zone (2020-21) - Irrigated

Constitution of Trial

The trial was constituted with 22 Bt cotton hybrids containing MON 15985 event sponsored by various organization along with two different check hybrids as furnished below.

S. No.	Name of the Entry	Sponsored by
1	Solar 109 BG II	Solar Agrotech Pvt Ltd
2	ARCH 3001 BG II	Ankur Seeds Pvt Ltd
3	G COT HY 10 BG II	NAU, Surat
4	C 364 BG II	Sungro
5	RCH 979 BG II	Rasi Seeds Pvt Ltd
6	BG II Local Check	
7	GSBHH 32 BG II	NAU, Surat
8	JAI HO BG II	Eldora Agri Tech Pvt Ltd
9	MC 5441 BG II	Metahelix Life Sciences Ltd
10	Daftari 3434 BG II	Daftari Agro Pvt Ltd
11	GBCH 1801 BG II	Green Gold Seeds Pvt. Ltd.
12	MC 5444 BG II	Metahelix Life Sciences Ltd
13	G COT HY 12 BG II	NAU, Surat
14	NBC 2020 BG II	Nath Biogenes
15	KCH 9292 BG II	Kaveri Seeds Pvt Ltd
16	RCH 971 BG II	Rasi Seeds Pvt Ltd
17	RHH 0622 BG II	MSSCL, Akola
18	US 704 BG II	Seed Works
19	ATCH 118 BG II	Agri Top Seeds
20	VSCH 369 BG II	Veda Seed Science Pvt Ltd
21	ARCH 3106 BG II	Ankur Seeds Pvt Ltd
22	JKCH 161042 BG II	J K Agri Genetics Ltd
23	MRC 7351 BG II (ZC)	
24	SP 7679 BG II	Bayer Biosciences

The trial was conducted in four different locations and detail is furnished below.

Name of the trial location	JAU, Junagadh	SDAU, Talod	MPKV, Rahuri	RVSKVV, Khandwa
Local check Bt hybrid	PCH 4599 BG II	PCH 4599 BG II	NCS 854 BG II	RCH 659 BG II

Spacing: Recommended spacing for the hybrid has been followed.
Number of rows:4 rows of 6 meters per entry with three replications

Data recorded:

Biometric evaluation

Plant height (cm) at harvest in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	Solar 109 BG II	146.0	109.6	161.0	134.7	**137.8**
2	ARCH 3001 BG II	144.0	148.5	143.7	145.5	**145.4**
3	G COT HY 10 BG II	142.0	133.5	114.7	132.1	**130.6**
4	C 364 BG II	146.0	138.5	159.3	158.8	**150.7**
5	RCH 979 BG II	129.0	137.9	125.0	150.3	**135.6**
6	BG II Local Check	137.0	144.4	139.7	148.9	**142.5**
7	GSBHH 32 BG II	151.0	145.0	124.0	115.1	**133.8**
8	JAI HO BG II	144.0	161.6	140.0	158.5	**151.0**
9	MC 5441 BG II	146.0	161.7	156.7	135.4	**150.0**
10	Daftari 3434 BG II	145.0	166.3	144.7	128.2	**146.1**
11	GBCH 1801 BG II	148.0	147.3	143.3	132.7	**142.8**
12	MC 5444 BG II	155.0	156.8	155.3	161.1	**157.1**
13	G COT HY 12 BG II	-	-	125.7	127.9	**126.8**
14	NBC 2020 BG II	166.0	155.5	158.7	157.5	**159.4**
15	KCH 9292 BG II	145.0	154.6	159.7	157.7	**154.3**
16	RCH 971 BG II	142.0	138.8	144.7	153.9	**144.9**
17	RHH 0622 BG II	129.0	124.0	133.7	133.4	**130.0**
18	US 704 BG II	147.0	142.5	161.0	169.9	**155.1**
19	ATCH 118 BG II	159.0	127.2	165.7	146.9	**149.7**
20	VSCH 369 BG II	154.0	148.2	147.7	161.9	**153.0**
21	ARCH 3106 BG II	154.0	125.9	165.3	161.7	**151.7**
22	JKCH 161042 BG II	150.0	150.1	160.0	148.6	**152.2**
23	MRC 7351 BG II (ZC)	149.0	144.0	142.3	128.3	**140.9**
24	SP 7679 BG II	148.0	135.4	135.7	156.4	**143.9**
	CD @ 5%	15.5	27.9	3.5	23.5	
	CV %	6.4	11.8	1.5	9.7	

Number of monopodia in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	Solar 109 BG II	1.2	1.0	0.6	0.1	**0.7**
2	ARCH 3001 BG II	2.0	1.3	1.4	0.1	**1.2**
3	G COT HY 10 BG II	1.8	2.1	1.6	0.0	**1.4**
4	C 364 BG II	1.3	2.2	1.5	0.0	**1.3**
5	RCH 979 BG II	1.6	2.5	2.3	0.0	**1.6**
6	BG II Local Check	0.8	1.1	1.0	0.0	**0.7**
7	GSBHH 32 BG II	2.4	1.7	1.4	0.0	**1.4**
8	JAI HO BG II	0.8	1.2	0.9	0.0	**0.7**
9	MC 5441 BG II	1.0	2.2	1.5	0.0	**1.2**
10	Daftari 3434 BG II	1.4	3.6	2.1	0.0	**1.8**
11	GBCH 1801 BG II	1.2	0.7	1.2	0.0	**0.8**
12	MC 5444 BG II	1.8	1.9	1.1	0.0	**1.2**
13	G COT HY 12 BG II	-	-	1.7	0.0	**0.9**
14	NBC 2020 BG II	1.1	1.2	0.8	0.0	**0.8**
15	KCH 9292 BG II	1.4	1.4	0.9	0.1	**1.0**
16	RCH 971 BG II	1.8	2.2	0.9	0.0	**1.2**
17	RHH 0622 BG II	0.8	1.7	1.5	0.0	**1.0**
18	US 704 BG II	1.6	2.0	1.2	0.0	**1.2**
19	ATCH 118 BG II	1.9	2.3	1.9	0.1	**1.6**
20	VSCH 369 BG II	0.9	2.3	1.3	0.1	**1.2**
21	ARCH 3106 BG II	1.4	2.8	2.1	0.0	**1.6**
22	JKCH 161042 BG II	1.4	1.0	1.3	0.0	**0.9**
23	MRC 7351 BG II (ZC)	1.8	1.5	1.5	0.0	**1.2**
24	SP 7679 BG II	1.8	2.0	1.3	0.0	**1.3**
	CD @ 5%	0.3	0.5	0.4		
	CV %	13.9	17.0	17.4		

Number of sympodia in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	Solar 109 BG II	18.5	18.2	21.9	25.6	**21.1**
2	ARCH 3001 BG II	16.9	23.1	23.2	26.3	**22.4**
3	G COT HY 10 BG II	16.3	18.9	17.3	24.5	**19.3**
4	C 364 BG II	16.8	20.9	23.6	27.2	**22.1**
5	RCH 979 BG II	15.6	18.7	21.6	26.2	**20.5**
6	BG II Local Check	18.4	21.3	24.1	27.3	**22.8**
7	GSBHH 32 BG II	15.6	22.8	20.4	23.7	**20.6**
8	JAI HO BG II	16.1	22.8	21.7	29.2	**22.5**
9	MC 5441 BG II	16.9	21.8	23.9	24.6	**21.8**
10	Daftari 3434 BG II	15.5	20.6	22.9	24.3	**20.8**
11	GBCH 1801 BG II	16.8	36.1	23.7	26.8	**25.9**
12	MC 5444 BG II	18.5	22.5	26.7	32.2	**25.0**
13	G COT HY 12 BG II	-	-	24.6	24.5	**24.6**
14	NBC 2020 BG II	17.8	19.5	26.1	28.7	**23.0**
15	KCH 9292 BG II	18.4	21.5	23.9	29.3	**23.3**
16	RCH 971 BG II	16.1	20.3	23.5	28.0	**22.0**
17	RHH 0622 BG II	16.4	19.5	22.2	26.7	**21.2**
18	US 704 BG II	15.1	20.1	24.7	30.8	**22.7**
19	ATCH 118 BG II	18.1	19.3	28.9	29.8	**24.0**
20	VSCH 369 BG II	18.3	22.7	23.5	29.5	**23.5**
21	ARCH 3106 BG II	17.7	22.3	26.3	28.9	**23.8**
22	JKCH 161042 BG II	18.3	21.9	22.3	25.3	**22.0**
23	MRC 7351 BG II (ZC)	19.4	18.5	23.2	23.9	**21.3**
24	SP 7679 BG II	16.4	18.4	23.2	27.5	**21.4**
	CD @ 5%	1.8	NS	1.3	4.2	
	CV %	6.3	23.1	3.4	9.5	

Number of bolls / plant in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	Solar 109 BG II	57.7	24.7	56.5	27.8	**41.7**
2	ARCH 3001 BG II	42.4	35.2	54.0	29.4	**40.3**
3	G COT HY 10 BG II	44.6	13.6	54.2	24.8	**34.3**
4	C 364 BG II	39.6	25.0	47.5	28.8	**35.2**
5	RCH 979 BG II	44.9	25.3	57.9	28.8	**39.2**
6	BG II Local Check	48.7	32.6	53.1	27.3	**40.4**
7	GSBHH 32 BG II	40.9	24.1	45.1	25.3	**33.9**
8	JAI HO BG II	39.5	25.5	38.7	30.9	**33.7**
9	MC 5441 BG II	50.5	30.3	53.7	29.6	**41.0**
10	Daftari 3434 BG II	40.7	26.7	52.7	26.0	**36.5**
11	GBCH 1801 BG II	50.2	24.4	60.0	30.9	**41.4**
12	MC 5444 BG II	40.3	24.0	56.9	37.2	**39.6**
13	G COT HY 12 BG II	-	-	36.6	29.7	**33.2**
14	NBC 2020 BG II	50.9	39.9	58.4	34.6	**46.0**
15	KCH 9292 BG II	46.3	32.6	56.4	31.0	**41.6**
16	RCH 971 BG II	44.2	28.4	46.7	35.1	**38.6**
17	RHH 0622 BG II	41.7	28.5	56.4	26.5	**38.3**
18	US 704 BG II	39.7	25.5	56.3	34.7	**39.1**
19	ATCH 118 BG II	43.8	40.6	62.1	35.6	**45.5**
20	VSCH 369 BG II	43.3	28.9	44.7	26.6	**35.9**
21	ARCH 3106 BG II	47.8	28.5	61.5	29.5	**41.8**
22	JKCH 161042 BG II	48.8	37.4	54.0	29.5	**42.4**
23	MRC 7351 BG II (ZC)	48.9	26.5	46.3	26.3	**37.0**
24	SP 7679 BG II	35.6	21.7	61.6	24.1	**35.8**
	CD @ 5%	6.6	7.3	4.1	6.0	
	CV %	9.0	15.7	4.7	12.2	

Number of bolls / sq.m. in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	Solar 109 BG II	118.1	45.8	78.0	66.0	**77.0**
2	ARCH 3001 BG II	87.9	65.3	74.5	72.4	**75.0**
3	G COT HY 10 BG II	92.7	25.2	74.8	54.0	**61.7**
4	C 364 BG II	82.1	46.2	65.6	70.0	**66.0**
5	RCH 979 BG II	93.2	46.9	79.9	70.0	**72.5**
6	BG II Local Check	101.1	60.4	73.3	64.1	**74.7**
7	GSBHH 32 BG II	85.2	44.6	62.3	55.8	**62.0**
8	JAI HO BG II	82.7	47.2	53.4	78.5	**65.4**
9	MC 5441 BG II	103.9	56.1	74.2	73.2	**76.8**
10	Daftari 3434 BG II	84.9	49.5	72.8	58.8	**66.5**
11	GBCH 1801 BG II	103.3	45.2	82.8	78.2	**77.4**
12	MC 5444 BG II	84.2	44.4	78.5	95.6	**75.7**
13	G COT HY 12 BG II	-	-	50.5	73.4	**62.0**
14	NBC 2020 BG II	105.1	73.9	80.6	93.2	**88.2**
15	KCH 9292 BG II	95.4	60.3	77.8	78.8	**78.1**
16	RCH 971 BG II	91.3	52.5	64.4	92.6	**75.2**
17	RHH 0622 BG II	86.9	52.8	77.8	60.9	**69.6**
18	US 704 BG II	82.9	47.2	77.7	93.4	**75.3**
19	ATCH 118 BG II	93.9	75.2	85.7	94.5	**87.3**
20	VSCH 369 BG II	89.5	53.5	61.7	61.2	**66.5**
21	ARCH 3106 BG II	97.9	52.7	84.8	72.9	**77.1**
22	JKCH 161042 BG II	101.2	69.2	74.5	72.6	**79.4**
23	MRC 7351 BG II (ZC)	101.3	49.1	63.9	60.1	**68.6**
24	SP 7679 BG II	75.2	40.2	85.0	51.3	**62.9**
	CD @ 5%	12.6	13.6	5.7	23.7	
	CV %	8.3	15.7	4.7	19.8	

Lint Index (g) in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	Solar 109 BG II	5.9	5.0	5.2	2.8	**4.7**
2	ARCH 3001 BG II	6.0	5.4	5.5	4.6	**5.4**
3	G COT HY 10 BG II	5.4	4.6	4.2	3.6	**4.5**
4	C 364 BG II	6.2	5.6	6.9	3.8	**5.6**
5	RCH 979 BG II	6.3	5.5	7.6	4.7	**6.0**
6	BG II Local Check	5.7	4.9	5.9	4.4	**5.2**
7	GSBHH 32 BG II	5.7	4.4	4.7	4.0	**4.7**
8	JAI HO BG II	5.8	5.3	5.9	4.2	**5.3**
9	MC 5441 BG II	6.0	4.8	5.8	4.7	**5.3**
10	Daftari 3434 BG II	6.1	4.8	5.0	3.3	**4.8**
11	GBCH 1801 BG II	7.3	5.4	5.6	3.1	**5.4**
12	MC 5444 BG II	5.8	4.9	5.8	4.5	**5.3**
13	G COT HY 12 BG II	-	-	5.4	2.8	**4.1**
14	NBC 2020 BG II	6.6	5.0	5.5	4.4	**5.4**
15	KCH 9292 BG II	6.3	5.0	5.3	5.0	**5.4**
16	RCH 971 BG II	6.0	4.9	6.2	4.6	**5.4**
17	RHH 0622 BG II	5.8	4.2	6.3	4.3	**5.2**
18	US 704 BG II	7.2	4.6	6.9	4.1	**5.7**
19	ATCH 118 BG II	7.0	5.5	7.3	3.8	**5.9**
20	VSCH 369 BG II	4.8	5.5	7.0	3.7	**5.3**
21	ARCH 3106 BG II	5.8	5.4	6.9	3.6	**5.4**
22	JKCH 161042 BG II	7.4	5.4	6.6	3.8	**5.8**
23	MRC 7351 BG II (ZC)	5.7	4.7	4.5	3.4	**4.6**
24	SP 7679 BG II	6.6	6.1	6.3	3.7	**5.7**
	CD @ 5%	0.9	0.7	0.3		
	CV %	9.2	8.5	2.8		

Seed Index (g) in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	Solar 109 BG II	10.3	10.3	10.6	6.4	**9.4**
2	ARCH 3001 BG II	11.0	11.0	10.3	8.1	**10.1**
3	G COT HY 10 BG II	10.5	9.7	8.8	7.3	**9.1**
4	C 364 BG II	11.5	12.0	13.4	7.1	**11.0**
5	RCH 979 BG II	10.7	11.3	13.5	8.2	**10.9**
6	BG II Local Check	11.0	10.3	12.4	8.3	**10.5**
7	GSBHH 32 BG II	10.7	9.7	8.9	8.0	**9.3**
8	JAI HO BG II	11.2	11.0	11.8	7.5	**10.4**
9	MC 5441 BG II	11.2	10.0	10.6	7.9	**9.9**
10	Daftari 3434 BG II	12.3	11.7	11.8	6.6	**10.6**
11	GBCH 1801 BG II	11.3	10.0	9.5	7.2	**9.5**
12	MC 5444 BG II	11.2	11.0	11.7	7.7	**10.4**
13	G COT HY 12 BG II	-	-	10.8	6.3	**8.6**
14	NBC 2020 BG II	10.7	9.0	10.3	7.5	**9.4**
15	KCH 9292 BG II	11.5	10.3	9.8	8.1	**9.9**
16	RCH 971 BG II	10.5	10.0	12.1	7.8	**10.1**
17	RHH 0622 BG II	11.3	9.3	11.5	7.8	**10.0**
18	US 704 BG II	12.8	9.7	13.2	7.8	**10.9**
19	ATCH 118 BG II	11.2	10.7	13.0	6.9	**10.5**
20	VSCH 369 BG II	9.0	11.7	12.9	7.2	**10.2**
21	ARCH 3106 BG II	10.7	11.0	13.1	7.1	**10.5**
22	JKCH 161042 BG II	11.0	8.7	9.9	7.0	**9.2**
23	MRC 7351 BG II (ZC)	10.5	9.7	9.1	7.2	**9.1**
24	SP 7679 BG II	11.2	11.0	11.4	8.0	**10.4**
	CD @ 5%	1.5	1.5	0.1		
	CV %	8.3	8.8	0.8		

Ginning outturn (%) in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	Solar 109 BG II	36.3	32.7	33.2	30.2	**33.1**
2	ARCH 3001 BG II	35.3	32.9	34.7	36.1	**34.8**
3	G COT HY 10 BG II	34.0	32.3	32.2	32.9	**32.9**
4	C 364 BG II	35.2	32.0	33.9	34.9	**34.0**
5	RCH 979 BG II	37.0	32.8	36.1	36.6	**35.6**
6	BG II Local Check	34.2	32.0	32.1	34.8	**33.3**
7	GSBHH 32 BG II	34.8	31.5	34.8	33.6	**33.7**
8	JAI HO BG II	34.2	32.6	33.5	35.8	**34.0**
9	MC 5441 BG II	35.0	32.3	35.2	37.3	**35.0**
10	Daftari 3434 BG II	33.2	29.3	29.7	33.2	**31.4**
11	GBCH 1801 BG II	39.0	34.9	37.2	30.3	**35.4**
12	MC 5444 BG II	34.3	30.8	33.2	36.8	**33.8**
13	G COT HY 12 BG II	-	-	33.3	30.8	**32.1**
14	NBC 2020 BG II	38.2	35.8	34.8	37.2	**36.5**
15	KCH 9292 BG II	35.5	32.4	35.2	38.0	**35.3**
16	RCH 971 BG II	36.3	32.7	34.0	36.9	**35.0**
17	RHH 0622 BG II	34.0	31.1	35.4	35.5	**34.0**
18	US 704 BG II	36.0	32.0	34.2	34.3	**34.1**
19	ATCH 118 BG II	38.5	34.0	36.1	35.5	**36.0**
20	VSCH 369 BG II	34.8	32.0	35.0	34.2	**34.0**
21	ARCH 3106 BG II	35.2	32.8	34.4	33.7	**34.0**
22	JKCH 161042 BG II	40.3	38.3	40.1	35.4	**38.5**
23	MRC 7351 BG II (ZC)	35.0	32.8	33.2	32.3	**33.3**
24	SP 7679 BG II	37.3	35.7	35.7	31.6	**35.1**
	CD @ 5%	1.7	1.5	1.0		
	CV %	2.9	2.7	1.8		

Upper Half Mean Length (mm) under HVI Mode in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Mean
1	Solar 109 BG II	29.4	28.8	28.2	**28.8**
2	ARCH 3001 BG II	28.6	28.0	28.0	**28.2**
3	G COT HY 10 BG II	28.3	27.7	29.0	**28.3**
4	C 364 BG II	30.7	31.5	31.5	**31.2**
5	RCH 979 BG II	28.0	30.3	30.9	**29.7**
6	BG II Local Check	30.2	32.0	30.6	**30.9**
7	GSBHH 32 BG II	29.7	27.8	28.6	**28.7**
8	JAI HO BG II	29.6	29.0	30.2	**29.6**
9	MC 5441 BG II	27.5	27.3	26.4	**27.1**
10	Daftari 3434 BG II	30.8	30.9	31.6	**31.1**
11	GBCH 1801 BG II	26.8	26.7	27.4	**27.0**
12	MC 5444 BG II	27.9	28.5	27.1	**27.8**
13	G COT HY 12 BG II	-	27.5	-	**27.5**
14	NBC 2020 BG II	28.0	27.7	27.7	**27.8**
15	KCH 9292 BG II	30.6	28.0	30.3	**29.6**
16	RCH 971 BG II	29.7	30.8	29.5	**30.0**
17	RHH 0622 BG II	27.4	25.8	27.2	**26.8**
18	US 704 BG II	30.6	31.7	30.0	**30.8**
19	ATCH 118 BG II	28.9	28.7	28.6	**28.7**
20	VSCH 369 BG II	28.1	29.8	30.1	**29.3**
21	ARCH 3106 BG II	27.6	28.6	28.1	**28.1**
22	JKCH 161042 BG II	26.6	27.1	27.4	**27.0**
23	MRC 7351 BG II (ZC)	30.2	30.9	29.5	**30.2**
24	SP 7679 BG II	28.0	27.9	27.6	**27.8**

Uniformity index under HVI Mode in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Mean
1	Solar 109 BG II	86.0	86.0	86.0	**86.0**
2	ARCH 3001 BG II	85.0	86.0	86.0	**85.7**
3	G COT HY 10 BG II	84.0	84.0	86.0	**84.7**
4	C 364 BG II	84.0	85.0	87.0	**85.3**
5	RCH 979 BG II	84.0	86.0	86.0	**85.3**
6	BG II Local Check	85.0	85.0	87.0	**85.7**
7	GSBHH 32 BG II	87.0	85.0	86.0	**86.0**
8	JAI HO BG II	86.0	85.0	86.0	**85.7**
9	MC 5441 BG II	85.0	84.0	86.0	**85.0**
10	Daftari 3434 BG II	84.0	83.0	86.0	**84.3**
11	GBCH 1801 BG II	85.0	85.0	85.0	**85.0**
12	MC 5444 BG II	86.0	86.0	87.0	**86.3**
13	G COT HY 12 BG II	-	85.0	-	**85.0**
14	NBC 2020 BG II	86.0	85.0	89.0	**86.7**
15	KCH 9292 BG II	86.0	85.0	87.0	**86.0**
16	RCH 971 BG II	86.0	87.0	85.0	**86.0**
17	RHH 0622 BG II	85.0	84.0	88.0	**85.7**
18	US 704 BG II	84.0	86.0	85.0	**85.0**
19	ATCH 118 BG II	87.0	86.0	85.0	**86.0**
20	VSCH 369 BG II	84.0	86.0	86.0	**85.3**
21	ARCH 3106 BG II	87.0	86.0	88.0	**87.0**
22	JKCH 161042 BG II	85.0	85.0	85.0	**85.0**
23	MRC 7351 BG II (ZC)	88.0	84.0	85.0	**85.7**
24	SP 7679 BG II	85.0	86.0	85.0	**85.3**

Micronaire under HVI Mode in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Mean
1	Solar 109 BG II	4.5	3.1	4.4	**4.0**
2	ARCH 3001 BG II	5.4	4.8	5.3	**5.2**
3	G COT HY 10 BG II	4.5	3.4	4.3	**4.1**
4	C 364 BG II	4.1	3.4	4.5	**4.0**
5	RCH 979 BG II	4.3	4.1	4.7	**4.4**
6	BG II Local Check	5.4	3.1	5.0	**4.5**
7	GSBHH 32 BG II	5.0	3.6	4.9	**4.5**
8	JAI HO BG II	5.0	3.8	4.9	**4.6**
9	MC 5441 BG II	5.5	4.7	5.8	**5.3**
10	Daftari 3434 BG II	4.8	3.5	4.3	**4.2**
11	GBCH 1801 BG II	4.4	3.4	4.6	**4.1**
12	MC 5444 BG II	4.4	3.4	4.7	**4.2**
13	G COT HY 12 BG II	-	3.6	-	**3.6**
14	NBC 2020 BG II	5.7	5.1	5.3	**5.4**
15	KCH 9292 BG II	5.5	4.6	5.5	**5.2**
16	RCH 971 BG II	4.6	3.7	4.8	**4.4**
17	RHH 0622 BG II	5.4	3.7	5.2	**4.8**
18	US 704 BG II	4.8	4.1	5.1	**4.7**
19	ATCH 118 BG II	5.4	5.0	5.2	**5.2**
20	VSCH 369 BG II	5.4	4.3	5.0	**4.9**
21	ARCH 3106 BG II	4.5	4.5	5.0	**4.7**
22	JKCH 161042 BG II	6.1	5.0	6.0	**5.7**
23	MRC 7351 BG II (ZC)	4.1	3.5	4.4	**4.0**
24	SP 7679 BG II	4.6	3.9	4.9	**4.5**

Tenacity under HVI Mode in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Mean
1	Solar 109 BG II	28.9	26.1	25.9	**27.0**
2	ARCH 3001 BG II	28.2	28.2	26.9	**27.8**
3	G COT HY 10 BG II	28.1	27.2	27.6	**27.6**
4	C 364 BG II	31.2	28.0	27.9	**29.0**
5	RCH 979 BG II	31.2	28.1	27.3	**28.9**
6	BG II Local Check	29.7	28.7	28.5	**29.0**
7	GSBHH 32 BG II	28.7	27.4	25.7	**27.3**
8	JAI HO BG II	29.7	28.2	29.1	**29.0**
9	MC 5441 BG II	28.6	28.4	26.1	**27.7**
10	Daftari 3434 BG II	30.5	28.9	28.1	**29.2**
11	GBCH 1801 BG II	27.7	27.7	26.4	**27.3**
12	MC 5444 BG II	28.6	28.0	29.4	**28.7**
13	G COT HY 12 BG II	-	27.5	-	**27.5**
14	NBC 2020 BG II	27.7	26.0	29.4	**27.7**
15	KCH 9292 BG II	30.7	28.4	29.7	**29.6**
16	RCH 971 BG II	29.0	29.1	26.2	**28.1**
17	RHH 0622 BG II	27.6	26.3	28.3	**27.4**
18	US 704 BG II	27.3	27.3	26.9	**27.2**
19	ATCH 118 BG II	28.2	26.6	27.5	**27.4**
20	VSCH 369 BG II	27.0	27.2	26.3	**26.8**
21	ARCH 3106 BG II	28.6	27.0	28.6	**28.1**
22	JKCH 161042 BG II	28.1	26.2	25.8	**26.7**
23	MRC 7351 BG II (ZC)	31.0	29.2	28.5	**29.6**
24	SP 7679 BG II	30.4	26.5	26.9	**27.9**

Seed Cotton Yield (q/ha)in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean	Rank
1	Solar 109 BG II	40.5	18.5	11.9	13.12	**21.02**	10
2	ARCH 3001 BG II	29.8	20.4	14.2	16.11	**20.15**	17
3	G COT HY 10 BG II	31.4	8.1	6.1	12.83	**14.60**	23
4	C 364 BG II	32.4	19.0	13.6	15.98	**20.25**	16
5	RCH 979 BG II	35.1	19.0	11.8	16.77	**20.68**	12
6	BG II Local Check	39.7	19.6	10.8	15.41	**21.40**	9
7	GSBHH 32 BG II	30.4	15.5	5.5	13.10	**16.11**	22
8	JAI HO BG II	34.3	17.7	13.0	17.16	**20.54**	13
9	MC 5441 BG II	36.8	20.4	12.9	17.26	**21.82**	5
10	Daftari 3434 BG II	36.0	18.8	10.1	16.23	**20.29**	15
11	GBCH 1801 BG II	35.5	17.1	12.5	16.43	**20.38**	14
12	MC 5444 BG II	31.5	16.9	14.2	17.92	**20.13**	18
13	G COT HY 12 BG II	-	-	2.2	13.03	**7.63**	24
14	NBC 2020 BG II	38.3	24.5	13.6	19.13	**23.90**	2
15	KCH 9292 BG II	41.2	22.5	12.1	18.72	**23.61**	3
16	RCH 971 BG II	34.1	20.0	14.3	18.24	**21.64**	7
17	RHH 0622 BG II	31.6	17.0	14.3	15.98	**19.73**	19
18	US 704 BG II	31.6	17.4	16.7	17.48	**20.79**	11
19	ATCH 118 BG II	40.1	26.9	16.6	17.31	**25.22**	1
20	VSCH 369 BG II	37.0	20.7	12.0	16.58	**21.58**	8
21	ARCH 3106 BG II	35.0	20.1	15.7	16.47	**21.81**	6
22	JKCH 161042 BG II	38.7	23.6	9.3	15.67	**21.83**	4
23	MRC 7351 BG II (ZC)	39.4	15.7	7.5	13.98	**19.14**	20
24	SP 7679 BG II	30.7	15.4	15.0	14.26	**18.87**	21
	CD @ 5%	4.8	3.8	2.0	3.38		
	CV %	8.3	12.3	10.1	12.77		

Qualitative Cry Protein Evaluation

All the above entries were positive for Cry 1Ac Protein in qualitative ELISA Test

All the above entries were positive for Cry 2Ab Protein in qualitative ELISA Test

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect Pests

Table. Advance HxH Trial under protected conditions in Central Zone – Aphid

Name of Entry	Aphid (Average of 3 leaves/plant)		
	Junagadh	Mean	Remarks*
Solar 109 BG II	4.70	4.70	
ARCH 3001 BG II	4.60	4.60	
G COT HY 10 BG II	4.77	4.77	
C 364 BG II	6.77	6.77	
RCH 979 BG II	5.63	5.63	
BG II Local Check	5.17	5.17	
GSBHH 32 BG II	6.70	6.70	
JAI HO BG II	6.43	6.43	
MC 5441 BG II	5.47	5.47	
Daftari 3434 BG II	5.80	5.80	
GBCH 1801 BG II	5.00	5.00	
MC 5444 BG II	6.70	6.70	
G COT HY 12 BG II	4.13	4.13	
NBC 2020 BG II	3.80	3.80	
KCH 9292 BG II	4.23	4.23	
RCH 971 BG II	3.57	3.57	
RHH 0622 BG II	4.13	4.13	
US 704 BG II	3.77	3.77	
ATCH 118 BG II	6.00	6.00	
VSCH 369 BG II	5.33	5.33	
ARCH 3106 BG II	5.90	5.90	
JKCH 161042 BG II	5.77	5.77	
MRC 7351 BG II (ZC)	4.70	4.70	
SP 7679 BG II	6.30	6.30	

Table. Advance HxH Trial under protected conditions in Central Zone –Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)			
	Junagadh	Rahuri	Mean	Remarks*
Solar 109 BG II	4.00	3.74	3.87	BETL
ARCH 3001 BG II	5.57	3.74	4.65	BETL
G COT HY 10 BG II	3.90	3.33	3.62	BETL
C 364 BG II	4.20	3.79	4.00	BETL
RCH 979 BG II	3.37	3.47	3.42	BETL
BG II Local Check	5.00	3.65	4.33	BETL
GSBHH 32 BG II	3.53	3.56	3.55	BETL
JAI HO BG II	4.90	3.77	4.34	BETL
MC 5441 BG II	3.83	3.71	3.77	BETL
Daftari 3434 BG II	4.83	3.46	4.15	BETL
GBCH 1801 BG II	4.63	4.17	4.40	BETL
MC 5444 BG II	3.13	3.93	3.53	BETL
G COT HY 12 BG II	5.47	3.57	4.52	BETL
NBC 2020 BG II	5.90	3.77	4.84	BETL
KCH 9292 BG II	5.10	3.56	4.33	BETL
RCH 971 BG II	6.27	3.41	4.84	BETL
RHH 0622 BG II	4.40	3.58	3.99	BETL
US 704 BG II	3.93	3.49	3.71	BETL
ATCH 118 BG II	5.47	3.66	4.56	BETL
VSCH 369 BG II	5.27	3.46	4.36	BETL
ARCH 3106 BG II	4.13	3.74	3.94	BETL
JKCH 161042 BG II	3.63	3.6	3.62	BETL
MRC 7351 BG II (ZC)	3.30	3.78	3.54	BETL
SP 7679 BG II	3.23	3.12	3.18	BETL

Table. Advance HxH Trial under protected conditions in Central Zone -Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)			
	Junagadh	Rahuri	Mean	Remarks*
Solar 109 BG II	10.33	3.4	6.87	BETL
ARCH 3001 BG II	12.00	3.41	7.71	BETL
G COT HY 10 BG II	12.10	3.19	7.65	BETL
C 364 BG II	10.80	3.63	7.22	BETL
RCH 979 BG II	10.67	3.41	7.04	BETL
BG II Local Check	14.10	3.38	8.74	BETL
GSBHH 32 BG II	10.07	3.23	6.65	BETL
JAI HO BG II	11.17	3.51	7.34	BETL
MC 5441 BG II	8.57	3.18	5.87	BETL
Daftari 3434 BG II	11.47	2.96	7.21	BETL
GBCH 1801 BG II	14.67	3.69	9.18	BETL
MC 5444 BG II	12.53	3.47	8.00	BETL
G COT HY 12 BG II	12.70	3.45	8.08	BETL
NBC 2020 BG II	9.10	3.9	6.50	BETL
KCH 9292 BG II	9.53	3.3	6.42	BETL
RCH 971 BG II	10.07	3.56	6.81	BETL
RHH 0622 BG II	9.17	3.09	6.13	BETL
US 704 BG II	9.37	3.33	6.35	BETL
ATCH 118 BG II	12.40	3.53	7.97	BETL
VSCH 369 BG II	14.23	3.25	8.74	BETL
ARCH 3106 BG II	13.70	3.71	8.71	BETL
JKCH 161042 BG II	13.27	3.81	8.54	BETL
MRC 7351 BG II (ZC)	10.00	3.69	6.85	BETL
SP 7679 BG II	10.10	4.14	7.12	BETL

Table. Advance HxH Trial under protected conditions in Central Zone -Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)			
	Junagadh	Rahuri	Mean	Remarks*
Solar 109 BG II	4.23	2.51	3.37	BETL
ARCH 3001 BG II	5.20	2.83	4.02	BETL
G COT HY 10 BG II	6.63	2.72	4.68	BETL
C 364 BG II	5.93	2.63	4.28	BETL
RCH 979 BG II	6.07	2.8	4.43	BETL
BG II Local Check	5.57	2.63	4.10	BETL
GSBHH 32 BG II	7.43	2.83	5.13	BETL
JAI HO BG II	6.73	2.81	4.77	BETL
MC 5441 BG II	7.57	2.63	5.10	BETL
Daftari 3434 BG II	5.43	2.7	4.07	BETL
GBCH 1801 BG II	4.30	2.63	3.47	BETL
MC 5444 BG II	5.03	2.79	3.91	BETL
G COT HY 12 BG II	6.33	2.62	4.48	BETL
NBC 2020 BG II	6.10	2.95	4.53	BETL
KCH 9292 BG II	4.77	2.82	3.79	BETL
RCH 971 BG II	4.53	2.45	3.49	BETL
RHH 0622 BG II	5.50	2.83	4.17	BETL
US 704 BG II	5.97	2.88	4.42	BETL
ATCH 118 BG II	4.57	2.62	3.59	BETL
VSCH 369 BG II	4.37	2.78	3.57	BETL
ARCH 3106 BG II	4.87	2.74	3.80	BETL
JKCH 161042 BG II	5.70	2.77	4.24	BETL
MRC 7351 BG II (ZC)	5.10	2.81	3.96	BETL
SP 7679 BG II	6.87	2.81	4.84	BETL

Table. Advance HxH Trial under protected conditions in Central Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)			
	Junagadh	Rahuri	Mean	Remarks*
Solar 109 BG II	2.60	11.17	6.89	BETL
ARCH 3001 BG II	3.10	15.00	9.05	BETL
G COT HY 10 BG II	2.60	11.17	6.89	BETL
C 364 BG II	2.20	11.00	6.60	BETL
RCH 979 BG II	1.20	13.00	7.10	BETL
BG II Local Check	2.40	15.33	8.87	BETL
GSBHH 32 BG II	3.80	10.67	7.24	BETL
JAI HO BG II	4.40	10.67	7.54	BETL
MC 5441 BG II	3.40	11.83	7.62	BETL
Daftari 3434 BG II	3.60	13.00	8.30	BETL
GBCH 1801 BG II	4.50	12.00	8.25	BETL
MC 5444 BG II	1.40	12.00	6.70	BETL
G COT HY 12 BG II	3.90	5.33	4.62	BETL
NBC 2020 BG II	2.10	11.33	6.72	BETL
KCH 9292 BG II	2.80	12.67	7.74	BETL
RCH 971 BG II	5.10	9.00	7.05	BETL
RHH 0622 BG II	2.20	10.50	6.35	BETL
US 704 BG II	4.40	11.83	8.12	BETL
ATCH 118 BG II	4.80	12.33	8.57	BETL
VSCH 369 BG II	3.40	11.33	7.37	BETL
ARCH 3106 BG II	4.10	13.00	8.55	BETL
JKCH 161042 BG II	2.60	12.17	7.39	BETL
MRC 7351 BG II (ZC)	3.30	15.17	9.24	BETL
SP 7679 BG II	5.40	12.50	8.95	BETL

Table. Advance HxH Trial under protected conditions in Central Zone -- Green Boll damage

Name of Entry	Green Boll damage (%)			
	Junagadh	Rahuri	Mean	Remarks*
Solar 109 BG II	24.43	0.00	12.215	AETL
ARCH 3001 BG II	26.55	0.00	13.275	AETL
G COT HY 10 BG II	25.44	0.00	12.72	AETL
C 364 BG II	23.28	0.00	11.64	AETL
RCH 979 BG II	18.75	0.00	9.375	AETL
BG II Local Check	24.32	0.00	12.16	AETL
GSBHH 32 BG II	28.56	0.00	14.28	AETL
JAI HO BG II	29.46	0.00	14.73	AETL
MC 5441 BG II	27.58	0.00	13.79	AETL
Daftari 3434 BG II	27.57	0.00	13.785	AETL
GBCH 1801 BG II	30.97	0.00	15.485	AETL
MC 5444 BG II	20.3	0.00	10.15	AETL
G COT HY 12 BG II	28.14	0.00	14.07	AETL
NBC 2020 BG II	20.3	0.00	10.15	AETL
KCH 9292 BG II	24.45	0.00	12.225	AETL
RCH 971 BG II	34.3	0.00	17.15	AETL
RHH 0622 BG II	22.76	0.00	11.38	AETL
US 704 BG II	29.82	0.00	14.91	AETL
ATCH 118 BG II	31.04	0.00	15.52	AETL
VSCH 369 BG II	27.69	0.00	13.845	AETL
ARCH 3106 BG II	28.8	0.00	14.4	AETL
JKCH 161042 BG II	25.23	0.00	12.615	AETL
MRC 7351 BG II (ZC)	26.49	0.00	13.245	AETL
SP 7679 BG II	35.38	0.00	17.69	AETL

Table. Advance HxH Trial under protected conditions in Central Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)			
	Junagadh	Rahuri	Mean	Remarks*
Solar 109 BG II	26.74	22.62	24.68	AETL
ARCH 3001 BG II	29.56	22.97	26.265	AETL
G COT HY 10 BG II	26.74	26.70	26.72	AETL
C 364 BG II	25.23	25.40	25.315	AETL
RCH 979 BG II	21.09	25.13	23.11	AETL
BG II Local Check	28.04	30.83	29.435	AETL
GSBHH 32 BG II	30.42	28.18	29.3	AETL
JAI HO BG II	31.68	27.56	29.62	AETL
MC 5441 BG II	30.24	22.25	26.245	AETL
Daftari 3434 BG II	29.37	24.99	27.18	AETL
GBCH 1801 BG II	33.54	23.31	28.425	AETL
MC 5444 BG II	23.3	24.49	23.895	AETL
G COT HY 12 BG II	30.62	30.00	30.31	AETL
NBC 2020 BG II	23.06	29.64	26.35	AETL
KCH 9292 BG II	27.35	25.66	26.505	AETL
RCH 971 BG II	36.48	30.24	33.36	AETL
RHH 0622 BG II	26.55	28.22	27.385	AETL
US 704 BG II	32.25	26.07	29.16	AETL
ATCH 118 BG II	33.66	24.32	28.99	AETL
VSCH 369 BG II	30.98	28.09	29.535	AETL
ARCH 3106 BG II	31.29	30.90	31.095	AETL
JKCH 161042 BG II	28.1	30.32	29.21	AETL
MRC 7351 BG II (ZC)	28.98	23.11	26.045	AETL
SP 7679 BG II	38.36	25.18	31.77	AETL

Table. Advance HxH Trial under protected conditions in Central Zone -- Locule damage

Name of Entry	Locule damage (%)			
	Junagadh	Rahuri	Mean	Remarks*
Solar 109 BG II	21.96	11.30	16.63	
ARCH 3001 BG II	24.19	12.79	18.49	
G COT HY 10 BG II	22.38	12.27	17.33	
C 364 BG II	21.20	13.16	17.18	
RCH 979 BG II	17.40	12.58	14.99	
BG II Local Check	21.76	15.28	18.52	
GSBHH 32 BG II	25.21	13.11	19.16	
JAI HO BG II	27.07	12.98	20.03	
MC 5441 BG II	23.74	12.78	18.26	
Daftari 3434 BG II	24.47	13.40	18.94	
GBCH 1801 BG II	28.89	12.88	20.89	
MC 5444 BG II	18.25	13.96	16.11	
G COT HY 12 BG II	25.98	13.92	19.95	
NBC 2020 BG II	17.67	14.58	16.13	
KCH 9292 BG II	21.70	12.93	17.32	
RCH 971 BG II	31.29	14.85	23.07	
RHH 0622 BG II	20.70	13.25	16.98	
US 704 BG II	26.72	13.23	19.98	
ATCH 118 BG II	28.14	13.18	20.66	
VSCH 369 BG II	24.29	13.41	18.85	
ARCH 3106 BG II	25.00	17.36	21.18	
JKCH 161042 BG II	22.01	16.64	19.33	
MRC 7351 BG II (ZC)	23.16	12.60	17.88	
SP 7679 BG II	32.26	12.03	22.15	

Reaction to Diseases

Table : Advanced Evaluation Trial of Intra-hirsutum Hybrids BGII-I: irrigated under protected condition (Central Zone)

Entries	Average PDI & Disease Reaction (DR): Protected									
	Junagarh						Khandwa			
	BLB		ALB		GM		ALB		MLS	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
Solar 109 BG II	1.0	R	11.0	R	2.3	R	8.0	R	23.0	R
ARCH 3001 BG II	0.5	R	16.5	R	10.8	R	8.0	R	21.0	R
G COT HY 10 BG II	9.0	R	16.0	R	1.5	R	5.5	R	20.0	R
C 364 BG II	0.5	R	11.0	R	7.8	R	12.0	R	22.5	R
RCH 979 BG II	0.5	R	12.5	R	3.0	R	9.0	R	22.0	R
BG II (LC)	0.5	R	19.0	R	4.3	R	7.0	R	21.5	R
GSBHH 32 BG II	20.0	R	11.0	R	2.8	R	11.0	R	21.0	R
JAI HO BG II	0.5	R	8.5	R	5.3	R	17.0	R	17.0	R
MC 5441 BG II	0.5	R	17.0	R	5.3	R	10.0	R	12.0	R
Daftari 3434 BG II	0.5	R	11.5	R	4.3	R	5.0	R	12.5	R
GBCH 1801 BG II	0.5	R	6.5	R	2.5	R	11.0	R	16.5	R
MC 5444 BG II	0.5	R	13.0	R	2.3	R	11.5	R	10.0	R
G COT HY 12 BG II	0.5	R	10.0	R	4.8	R	15.5	R	22.5	R
NBC 2020 BG II	0.5	R	21.5	R	15.5	R	5.5	R	16.5	R
KCH 9292 BG II	0.5	R	21.0	R	11.5	R	11.0	R	22.0	R
RCH 971 BG II	0.5	R	18.5	R	6.3	R	5.5	R	21.5	R
RHH 0622 BG II	0.5	R	26.5	MR	6.8	R	6.5	R	12.0	R
US 704 BG II	0.5	R	20.5	R	1.8	R	14.5	R	10.0	R
ATCH 118 BG II	0.5	R	8.0	R	1.8	R	5.5	R	17.0	R
VSCH 369 BG II	1.0	R	14.0	R	2.5	R	5.0	R	12.5	R
ARCH 3106 BG II	1.0	R	15.5	R	1.8	R	4.5	R	22.0	R
JKCH 161042 BG II	0.5	R	22.0	R	7.0	R	7.0	R	22.0	R
MRC 7351 BG II (ZC)	0.5	R	13.5	R	2.8	R	9.5	R	23.0	R
SP 7679 BG II	0.5	R	11.0	R	2.8	R	5.5	R	24.0	R

Evaluation under Unprotected Condition for Insect pests & Diseases incidences

Reaction to Insect Pests

Table. Advance HxH Trial under unprotected conditions in Central Zone – Aphid

Name of Entry	Aphid (Average of 3 leaves/plant)			
	Junagadh	Khandwa	Mean	Remarks*
Solar 109 BG II	5.10	12.90	9.00	
ARCH 3001 BG II	4.97	14.80	9.88	
G COT HY 10 BG II	5.27	16.75	11.01	
C 364 BG II	7.27	10.25	8.76	
RCH 979 BG II	6.10	9.10	7.60	
BG II Local Check	5.60	10.65	8.13	
GSBHH 32 BG II	7.07	21.10	14.08	
JAI HO BG II	6.77	16.90	11.83	
MC 5441 BG II	5.87	10.00	7.93	
Daftari 3434 BG II	6.30	15.90	11.10	
GBCH 1801 BG II	5.40	21.40	13.40	
MC 5444 BG II	7.33	20.15	13.74	
G COT HY 12 BG II	4.50	11.50	8.00	
NBC 2020 BG II	4.27	8.70	6.48	
KCH 9292 BG II	4.60	10.15	7.38	
RCH 971 BG II	4.10	10.90	7.50	
RHH 0622 BG II	4.60	16.10	10.35	
US 704 BG II	4.23	21.75	12.99	
ATCH 118 BG II	6.57	7.30	6.93	
VSCH 369 BG II	5.90	18.50	12.20	
ARCH 3106 BG II	6.33	13.10	9.72	
JKCH 161042 BG II	6.20	13.25	9.73	
MRC 7351 BG II (ZC)	5.17	11.20	8.18	
SP 7679 BG II	6.77	8.15	7.46	

Table. Advance HxH Trial under unprotected conditions in Central Zone --Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)				
	Junagadh	Rahuri	Khandwa	Mean	Remarks*
Solar 109 BG II	4.60	4.05	3.60	4.08	BETL
ARCH 3001 BG II	6.23	4.12	2.10	4.15	BETL
G COT HY 10 BG II	4.33	4.14	2.55	3.67	BETL
C 364 BG II	4.67	4.04	2.20	3.64	BETL
RCH 979 BG II	3.83	3.93	2.35	3.37	BETL
BG II Local Check	5.53	3.97	1.90	3.80	BETL
GSBHH 32 BG II	3.93	4.14	3.20	3.76	BETL
JAI HO BG II	5.37	4.40	2.75	4.17	BETL
MC 5441 BG II	4.40	4.19	1.15	3.25	BETL
Daftari 3434 BG II	5.30	4.29	3.10	4.23	BETL
GBCH 1801 BG II	5.03	4.37	2.70	4.03	BETL
MC 5444 BG II	3.70	4.34	3.05	3.70	BETL
G COT HY 12 BG II	5.97	3.16	1.75	3.63	BETL
NBC 2020 BG II	6.53	4.04	1.60	4.06	BETL
KCH 9292 BG II	5.63	4.25	1.05	3.64	BETL
RCH 971 BG II	7.00	4.18	1.10	4.09	BETL
RHH 0622 BG II	4.83	3.92	2.90	3.88	BETL
US 704 BG II	4.50	4.26	2.40	3.72	BETL
ATCH 118 BG II	5.90	4.31	0.95	3.72	BETL
VSCH 369 BG II	5.90	4.09	3.90	4.63	BETL
ARCH 3106 BG II	4.60	4.30	2.90	3.93	BETL
JKCH 161042 BG II	4.17	4.23	3.00	3.80	BETL
MRC 7351 BG II (ZC)	3.77	4.22	2.35	3.45	BETL
SP 7679 BG II	3.73	4.17	3.10	3.67	BETL

Table. Advance HxH Trial under unprotected conditions in Central Zone -Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)			
	Junagadh	Rahuri	Mean	Remarks*
Solar 109 BG II	10.97	5.82	8.39	BETL
ARCH 3001 BG II	12.43	5.98	9.21	BETL
G COT HY 10 BG II	12.63	5.66	9.15	BETL
C 364 BG II	11.33	6.13	8.73	BETL
RCH 979 BG II	11.13	6.45	8.79	BETL
BG II Local Check	14.83	6.14	10.49	BETL
GSBHH 32 BG II	10.60	5.68	8.14	BETL
JAI HO BG II	11.60	6.17	8.89	BETL
MC 5441 BG II	9.23	5.80	7.52	BETL
Daftari 3434 BG II	12.00	5.78	8.89	BETL
GBCH 1801 BG II	15.47	6.01	10.74	BETL
MC 5444 BG II	12.90	6.01	9.46	BETL
G COT HY 12 BG II	13.17	4.70	8.93	BETL
NBC 2020 BG II	9.60	6.15	7.88	BETL
KCH 9292 BG II	10.03	6.18	8.11	BETL
RCH 971 BG II	10.60	6.06	8.33	BETL
RHH 0622 BG II	9.53	5.85	7.69	BETL
US 704 BG II	9.90	6.27	8.09	BETL
ATCH 118 BG II	12.93	6.22	9.58	BETL
VSCH 369 BG II	15.13	6.11	10.62	BETL
ARCH 3106 BG II	14.67	5.83	10.25	BETL
JKCH 161042 BG II	13.90	5.93	9.92	BETL
MRC 7351 BG II (ZC)	10.47	5.53	8.00	BETL
SP 7679 BG II	10.90	6.55	8.73	BETL

Table. Advance HxH Trial under unprotected conditions in Central Zone –Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)				
	Junagadh	Rahuri	Khandwa	Mean	Remarks*
Solar 109 BG II	5.43	3.71	15.30	8.15	BETL
ARCH 3001 BG II	6.40	3.83	19.30	9.84	BETL
G COT HY 10 BG II	8.03	3.92	17.85	9.93	BETL
C 364 BG II	7.10	3.74	14.95	8.60	BETL
RCH 979 BG II	7.33	3.91	13.40	8.21	BETL
BG II Local Check	6.70	3.73	16.10	8.84	BETL
GSBHH 32 BG II	8.73	3.83	16.25	9.60	BETL
JAI HO BG II	7.80	3.80	15.65	9.08	BETL
MC 5441 BG II	8.90	3.68	10.80	7.79	BETL
Daftari 3434 BG II	6.70	3.75	19.50	9.98	BETL
GBCH 1801 BG II	5.53	3.73	20.15	9.80	BETL
MC 5444 BG II	6.17	3.67	19.30	9.71	BETL
G COT HY 12 BG II	7.60	3.00	9.15	6.58	BETL
NBC 2020 BG II	7.47	3.78	7.45	6.23	BETL
KCH 9292 BG II	5.77	3.67	9.20	6.21	BETL
RCH 971 BG II	5.67	3.47	9.80	6.31	BETL
RHH 0622 BG II	6.63	3.79	19.30	9.91	BETL
US 704 BG II	7.10	3.66	16.65	9.14	BETL
ATCH 118 BG II	5.70	3.84	7.80	5.78	BETL
VSCH 369 BG II	5.53	3.85	17.95	9.11	BETL
ARCH 3106 BG II	6.07	3.55	14.30	7.97	BETL
JKCH 161042 BG II	6.90	3.68	18.85	9.81	BETL
MRC 7351 BG II (ZC)	6.33	3.82	14.40	8.18	BETL
SP 7679 BG II	8.17	3.81	17.40	9.79	BETL

Table. Advance HxH Trial under unprotected conditions in Central Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)			
	Junagadh	Rahuri	Mean	Remarks*
Solar 109 BG II	4.20	16.00	10.10	AETL
ARCH 3001 BG II	4.90	21.83	13.37	AETL
G COT HY 10 BG II	4.40	14.83	9.62	BETL
C 364 BG II	3.80	15.17	9.49	BETL
RCH 979 BG II	2.80	18.83	10.82	AETL
BG II Local Check	4.00	20.50	12.25	AETL
GSBHH 32 BG II	5.20	17.50	11.35	AETL
JAI HO BG II	5.70	16.67	11.19	AETL
MC 5441 BG II	5.40	17.00	11.20	AETL
Daftari 3434 BG II	4.70	18.00	11.35	AETL
GBCH 1801 BG II	6.40	18.50	12.45	AETL
MC 5444 BG II	3.00	17.67	10.34	AETL
G COT HY 12 BG II	6.10	4.17	5.14	BETL
NBC 2020 BG II	3.70	17.67	10.69	AETL
KCH 9292 BG II	4.20	20.00	12.10	AETL
RCH 971 BG II	7.00	13.17	10.09	AETL
RHH 0622 BG II	3.80	15.67	9.74	BETL
US 704 BG II	6.00	19.33	12.67	AETL
ATCH 118 BG II	6.70	16.83	11.77	AETL
VSCH 369 BG II	5.50	17.67	11.59	AETL
ARCH 3106 BG II	5.00	18.83	11.92	AETL
JKCH 161042 BG II	4.20	17.67	10.94	AETL
MRC 7351 BG II (ZC)	5.00	21.17	13.09	AETL
SP 7679 BG II	6.00	17.17	11.59	AETL

Table. Advance HxH Trial under unprotected conditions in Central Zone -- Green Boll damage

Name of Entry	Green Boll damage (%)			
	Junagadh	Rahuri	Mean	Remarks*
Solar 109 BG II	27.92	0.00	13.96	AETL
ARCH 3001 BG II	30.01	0.00	15.005	AETL
G COT HY 10 BG II	29.14	0.00	14.57	AETL
C 364 BG II	26.93	0.00	13.465	AETL
RCH 979 BG II	21.56	0.00	10.78	AETL
BG II Local Check	27.69	0.00	13.845	AETL
GSBHH 32 BG II	32.26	0.00	16.13	AETL
JAI HO BG II	33.03	0.00	16.515	AETL
MC 5441 BG II	31.34	0.00	15.67	AETL
Daftari 3434 BG II	30.15	0.00	15.075	AETL
GBCH 1801 BG II	37.12	0.00	18.56	AETL
MC 5444 BG II	22.86	0.00	11.43	AETL
G COT HY 12 BG II	32.13	0.00	16.065	AETL
NBC 2020 BG II	23.61	0.00	11.805	AETL
KCH 9292 BG II	27.8	0.00	13.9	AETL
RCH 971 BG II	38.81	0.00	19.405	AETL
RHH 0622 BG II	26.37	0.00	13.185	AETL
US 704 BG II	33.47	0.00	16.735	AETL
ATCH 118 BG II	36.69	0.00	18.345	AETL
VSCH 369 BG II	32.58	0.00	16.29	AETL
ARCH 3106 BG II	31.57	0.00	15.785	AETL
JKCH 161042 BG II	27.92	0.00	13.96	AETL
MRC 7351 BG II (ZC)	30.28	0.00	15.14	AETL
SP 7679 BG II	40.07	0.00	20.035	AETL

Table. Advance HxH Trial under unprotected conditions in Central Zone -- Green boll damage due to PBW

Name of Entry	Green Boll damage (%)		
	Khandwa	Mean	Remarks*
Solar 109 BG II	45.00	45.00	AETL
ARCH 3001 BG II	50.00	50.00	AETL
G COT HY 10 BG II	30.00	30.00	AETL
C 364 BG II	45.00	45.00	AETL
RCH 979 BG II	25.00	25.00	AETL
BG II Local Check	35.00	35.00	AETL
GSBHH 32 BG II	45.00	45.00	AETL
JAI HO BG II	45.00	45.00	AETL
MC 5441 BG II	15.00	15.00	AETL
Daftari 3434 BG II	40.00	40.00	AETL
GBCH 1801 BG II	45.00	45.00	AETL
MC 5444 BG II	45.00	45.00	AETL
G COT HY 12 BG II	20.00	20.00	AETL
NBC 2020 BG II	15.00	15.00	AETL
KCH 9292 BG II	20.00	20.00	AETL
RCH 971 BG II	15.00	15.00	AETL
RHH 0622 BG II	55.00	55.00	AETL
US 704 BG II	35.00	35.00	AETL
ATCH 118 BG II	10.00	10.00	ETL
VSCH 369 BG II	35.00	35.00	AETL
ARCH 3106 BG II	45.00	45.00	AETL
JKCH 161042 BG II	55.00	55.00	AETL
MRC 7351 BG II (ZC)	35.00	35.00	AETL
SP 7679 BG II	45.00	45.00	AETL

Table. Advance HxH Trial under unprotected conditions in Central Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)				
	Junagadh	Rahuri	Khandwa	Mean	Remarks*
Solar 109 BG II	29.3	42.65	45.00	38.98	AETL
ARCH 3001 BG II	31.5	40.37	40.00	37.29	AETL
G COT HY 10 BG II	28.48	35.37	42.50	35.45	AETL
C 364 BG II	27.82	39.77	45.00	37.53	AETL
RCH 979 BG II	23.51	33.21	35.00	30.57	AETL
BG II Local Check	30.06	38.93	40.00	36.33	AETL
GSBHH 32 BG II	32.98	36.50	35.00	34.83	AETL
JAI HO BG II	34.54	34.26	40.00	36.27	AETL
MC 5441 BG II	32.68	29.94	15.00	25.87	AETL
Daftari 3434 BG II	31.87	32.23	40.00	34.70	AETL
GBCH 1801 BG II	36.49	31.77	50.00	39.42	AETL
MC 5444 BG II	25.84	34.77	40.00	33.54	AETL
G COT HY 12 BG II	32.86	41.39	30.00	34.75	AETL
NBC 2020 BG II	25.96	36.88	10.00	24.28	AETL
KCH 9292 BG II	30.29	33.24	15.00	26.18	AETL
RCH 971 BG II	39.6	37.39	12.50	29.83	AETL
RHH 0622 BG II	29.56	35.66	35.00	33.41	AETL
US 704 BG II	34.71	31.95	35.00	33.89	AETL
ATCH 118 BG II	36.57	31.26	15.00	27.61	AETL
VSCH 369 BG II	33.88	33.66	35.00	34.18	AETL
ARCH 3106 BG II	33.87	44.08	45.00	40.98	AETL
JKCH 161042 BG II	30.67	38.22	45.00	37.96	AETL
MRC 7351 BG II (ZC)	31.35	35.90	35.00	34.08	AETL
SP 7679 BG II	41.41	36.55	30.00	35.99	AETL

Table. Advance HxH Trial under unprotected conditions in Central Zone -- Locule damage

Name of Entry	Locule damage (%)				
	Junagadh	Rahuri	Khandwa	Mean	Remarks*
Solar 109 BG II	25.41	21.07	8.75	18.41	
ARCH 3001 BG II	27.35	20.83	16.25	21.48	
G COT HY 10 BG II	25.13	16.45	18.75	20.11	
C 364 BG II	23.76	18.63	11.25	17.88	
RCH 979 BG II	20.87	16.47	6.25	14.53	
BG II Local Check	24.55	15.67	1.25	13.82	
GSBHH 32 BG II	28.07	14.83	20.00	20.97	
JAI HO BG II	29.68	14.45	22.50	22.21	
MC 5441 BG II	26.18	13.59	6.25	15.34	
Daftari 3434 BG II	27.57	14.67	16.25	19.50	
GBCH 1801 BG II	32.02	16.24	18.75	22.34	
MC 5444 BG II	21.39	15.47	12.50	16.45	
G COT HY 12 BG II	29.08	15.75	12.50	19.11	
NBC 2020 BG II	20.77	13.85	11.25	15.29	
KCH 9292 BG II	25.22	15.58	7.50	16.10	
RCH 971 BG II	35.60	15.33	3.75	18.23	
RHH 0622 BG II	23.84	14.75	7.50	15.36	
US 704 BG II	29.83	12.45	17.50	19.93	
ATCH 118 BG II	31.24	14.41	2.50	16.05	
VSCH 369 BG II	27.40	13.18	35.00	25.19	
ARCH 3106 BG II	28.12	18.15	17.50	21.26	
JKCH 161042 BG II	25.16	14.9	17.50	19.19	
MRC 7351 BG II (ZC)	26.28	16.89	16.25	19.81	
SP 7679 BG II	36.21	15.81	15.00	22.34	

Reaction to Diseases

Table: Advanced Evaluation Trial of Intra-hirsutum Hybrids-I – Irrigated under unprotected conditions (Central Zone))

Entries	Average PDI & Disease Reaction (DR): Unprotected											
	Junagarh						Rahuri					
	BLB		ALB		GM		BLB		ALB		GM	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
Solar 109 BG II	1.8	R	9.3	R	1.5	R	5.0	R	3.3	R	5.0	R
ARCH 3001 BG II	3.5	R	17.0	R	2.0	R	3.3	R	5.0	R	5.0	R
G COT HY 10 BG II	4.5	R	20.8	R	6.3	R	8.3	R	16.7	R	3.3	R
C 364 BG II	0.8	R	14.8	R	4.8	R	3.3	R	5.0	R	5.0	R
RCH 979 BG II	1.5	R	13.0	R	5.0	R	5.0	R	3.3	R	3.3	R
BG II (LC)	0.8	R	19.3	R	4.3	R	10.0	R	5.0	R	3.3	R
GSBHH 32 BG II	14.0	R	21.5	R	8.3	R	5.0	R	20.0	R	18.3	R
JAI HO BG II	1.8	R	16.8	R	11.5	R	3.3	R	3.3	R	5.0	R
MC 5441 BG II	0.5	R	15.0	R	5.0	R	3.3	R	5.0	R	5.0	R
Daftari 3434 BG II	4.8	R	11.3	R	4.3	R	5.0	R	5.0	R	3.3	R
GBCH 1801 BG II	0.8	R	9.0	R	1.5	R	8.3	R	3.3	R	3.3	R
MC 5444 BG II	8.5	R	11.5	R	1.3	R	5.0	R	5.0	R	5.0	R
G COT HY 12 BG II	3.5	R	8.0	R	0.8	R	8.3	R	13.3	R	16.7	R
NBC 2020 BG II	0.8	R	18.3	R	10.0	R	3.3	R	5.0	R	5.0	R
KCH 9292 BG II	2.3	R	12.0	R	8.3	R	5.0	R	3.3	R	5.0	R
RCH 971 BG II	1.0	R	13.5	R	10.3	R	5.0	R	5.0	R	5.0	R
RHH 0622 BG II	2.5	R	17.3	R	3.5	R	3.3	R	3.3	R	3.3	R
US 704 BG II	1.0	R	11.8	R	7.0	R	3.3	R	5.0	R	5.0	R
ATCH 118 BG II	5.3	R	12.5	R	3.3	R	5.0	R	3.3	R	3.3	R
VSCH 369 BG II	9.5	R	18.5	R	1.0	R	3.3	R	5.0	R	3.3	R
ARCH 3106 BG II	9.3	R	14.3	R	1.5	R	5.0	R	5.0	R	5.0	R
JKCH 161042 BG II	10.3	R	14.3	R	7.8	R	5.0	R	5.0	R	5.0	R
MRC 7351 BG II (ZC)	6.3	R	9.3	R	1.5	R	6.7	R	15.0	R	3.3	R
SP 7679 BG II	1.5	R	14.5	R	4.0	R	3.3	R	3.3	R	5.0	R

Advanced Evaluation Trial of Intra-Hirsutum Bt Hybrids (II) in Central Zone (2020-21) - Irrigated

Constitution of Trial

The trial was constituted with five Bt cotton hybrids containing deregulated events along with two different check hybrids as furnished below.

S. No.	Name of the Entry	Sponsored by
1	MC5431 BGII	Metahelix Life Sciences Ltd
2	Solar 108 BG II	Solar Agrotech Pvt Ltd
3	MRC 7351 BG II (ZC)	
4	ZCH 1439 BG II	Pancha Ganga Seeds Pvt Ltd (Zuari)
5	JBG 3 BG II	JAU, Junagadh
6	Solar 106 BG II	Solar Agrotech Pvt Ltd
7	BG II Local Check	

The trial was conducted in four different locations and detail is furnished below.

Name of the trial location	JAU, Junagadh	SDAU, Talod	MPKV, Rahuri	RVSKVV, Khandwa
Local check Bt hybrid	PCH 4599 BG II	PCH 4599 BG II	NCS 854 BG II	RCH 659 BG II

Spacing: Recommended spacing for the hybrid has been followed.
Number of rows:4 rows of 6 meters per entry with three replications

Data recorded:

Biometric evaluation

Plant height (cm) at harvest in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	MC5431 BGII	129.0	125.9	131.3	164.5	**137.7**
2	Solar 108 BG II	158.0	121.6	138.3	182.7	**150.2**
3	MRC 7351 BG II (ZC)	145.0	138.1	127.3	159.3	**142.4**
4	ZCH 1439 BG II	141.0	121.3	148.3	155.7	**141.6**
5	JBG 3 BG II	142.0	107.1	119.7	142.3	**127.8**
6	Solar 106 BG II	141.0	123.9	125.3	147.7	**134.5**
7	BG II Local Check	154.0	149.2	130.0	153.9	**146.8**
	CD @ 5%	16.0	6.1	2.7	49.7	
	CV %	6.2	2.7	1.1	19.1	

Number of monopodia in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	MC5431 BGII	2.0	0.6	0.3	2.0	**1.2**
2	Solar 108 BG II	1.6	2.0	0.6	0.4	**1.2**
3	MRC 7351 BG II (ZC)	1.8	2.2	1.5	0.2	**1.4**
4	ZCH 1439 BG II	1.5	0.8	1.3	0.0	**0.9**
5	JBG 3 BG II	2.6	3.3	2.1	0.2	**2.1**
6	Solar 106 BG II	2.0	0.5	0.9	0.2	**0.9**
7	BG II Local Check	1.4	1.1	1.5	1.0	**1.3**
	CD @ 5%	0.4	0.5	0.2		
	CV %	11.1	18.4	9.8		

Number of sympodia in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	MC5431 BGII	16.5	20.4	22.7	34.6	**23.6**
2	Solar 108 BG II	17.4	19.4	21.7	32.3	**22.7**
3	MRC 7351 BG II (ZC)	17.5	20.1	24.9	26.9	**22.4**
4	ZCH 1439 BG II	15.3	17.9	20.7	27.6	**20.4**
5	JBG 3 BG II	18.3	17.7	22.0	26.5	**21.1**
6	Solar 106 BG II	18.4	19.2	25.9	25.5	**22.3**
7	BG II Local Check	18.3	20.3	24.3	28.9	**23.0**
	CD @ 5%	1.9	1.0	1.1	8.8	
	CV %	6.1	2.9	2.8	18.5	

Number of bolls / plant in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	MC5431 BGII	33.6	24.8	44.8	32.3	**33.9**
2	Solar 108 BG II	42.3	25.4	46.6	35.3	**37.4**
3	MRC 7351 BG II (ZC)	41.3	24.5	53.9	27.9	**36.9**
4	ZCH 1439 BG II	39.5	25.3	60.2	31.5	**39.1**
5	JBG 3 BG II	46.7	34.6	44.5	30.5	**39.1**
6	Solar 106 BG II	39.7	21.1	35.4	32.2	**32.1**
7	BG II Local Check	38.7	27.5	41.8	26.6	**33.7**
	CD @ 5%	6.8	5.1	3.6	9.3	
	CV %	9.5	11.0	4.3	18.2	

Number of bolls / sq.m. in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	MC5431 BGII	70.1	46.0	61.8	79.4	**64.3**
2	Solar 108 BG II	87.6	47.0	64.3	91.4	**72.6**
3	MRC 7351 BG II (ZC)	85.5	45.4	74.3	61.8	**66.7**
4	ZCH 1439 BG II	82.9	46.9	83.1	76.5	**72.3**
5	JBG 3 BG II	95.6	64.0	61.5	72.2	**73.3**
6	Solar 106 BG II	82.6	39.1	48.9	79.1	**62.4**
7	BG II Local Check	80.6	50.9	57.7	56.7	**61.5**
	CD @ 5%	13.7	9.5	5.0	21.5	
	CV %	9.2	11.0	4.3	17.6	

Lint Index (g) in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	MC5431 BGII	5.4	4.2	4.8	3.3	**4.4**
2	Solar 108 BG II	5.8	4.5	4.9	2.9	**4.5**
3	MRC 7351 BG II (ZC)	5.7	4.1	4.5	4.3	**4.7**
4	ZCH 1439 BG II	5.0	4.1	5.3	3.8	**4.6**
5	JBG 3 BG II	5.7	4.9	4.9	4.4	**5.0**
6	Solar 106 BG II	6.6	4.9	4.6	3.9	**5.0**
7	BG II Local Check	5.0	4.5	4.9	3.0	**4.4**
	CD @ 5%	0.9	NS	0.4		
	CV %	8.8	9.0	5.1		

Seed Index (g) in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	MC5431 BGII	9.7	8.3	9.1	7.3	**8.6**
2	Solar 108 BG II	10.7	9.3	10.6	6.6	**9.3**
3	MRC 7351 BG II (ZC)	10.5	8.0	9.2	7.3	**8.8**
4	ZCH 1439 BG II	9.5	8.7	10.6	7.5	**9.1**
5	JBG 3 BG II	10.0	9.0	9.8	8.1	**9.2**
6	Solar 106 BG II	12.2	9.7	10.1	6.8	**9.7**
7	BG II Local Check	10.2	9.3	11.9	6.5	**9.5**
	CD @ 5%	1.5	NS	0.3		
	CV %	8.1	10.9	1.5		

Ginning outturn (%) in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	MC5431 BGII	36.0	33.8	34.3	31.2	**33.8**
2	Solar 108 BG II	35.3	32.3	31.5	30.3	**32.4**
3	MRC 7351 BG II (ZC)	35.3	34.0	32.9	36.8	**34.8**
4	ZCH 1439 BG II	34.5	32.2	33.1	33.4	**33.3**
5	JBG 3 BG II	36.2	35.3	33.2	35.4	**35.0**
6	Solar 106 BG II	35.2	33.7	31.1	36.3	**34.1**
7	BG II Local Check	33.0	32.4	29.4	31.4	**31.6**
	CD @ 5%	1.7	1.7	1.8		
	CV %	2.8	2.9	3.2		

Upper Half Mean Length (mm) under HVI Mode in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Mean
1	MC5431 BGII	28.5	28.7	28.1	**28.4**
2	Solar 108 BG II	29.7	29.8	28.0	**29.2**
3	MRC 7351 BG II (ZC)	29.7	29.1	29.0	**29.3**
4	ZCH 1439 BG II	28.2	30.1	27.6	**28.6**
5	JBG 3 BG II	27.4	28.4	26.5	**27.4**
6	Solar 106 BG II	29.3	28.2	29.5	**29.0**
7	BG II Local Check	30.6	31.2	29.8	**30.5**

Uniformity index under HVI Mode in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Mean
1	MC5431 BGII	85.0	84.0	85.0	**84.7**
2	Solar 108 BG II	85.0	86.0	86.0	**85.7**
3	MRC 7351 BG II (ZC)	85.0	86.0	84.0	**85.0**
4	ZCH 1439 BG II	86.0	86.0	85.0	**85.7**
5	JBG 3 BG II	85.0	84.0	84.0	**84.3**
6	Solar 106 BG II	85.0	86.0	85.0	**85.3**
7	BG II Local Check	85.0	86.0	84.0	**85.0**

Micronaire under HVI Mode in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Mean
1	MC5431 BGII	4.5	3.6	4.4	**4.2**
2	Solar 108 BG II	4.2	3.3	4.1	**3.9**
3	MRC 7351 BG II (ZC)	4.3	3.3	4.3	**4.0**
4	ZCH 1439 BG II	4.0	3.5	4.1	**3.9**
5	JBG 3 BG II	4.6	3.5	5.0	**4.4**
6	Solar 106 BG II	4.2	3.1	4.7	**4.0**
7	BG II Local Check	5.5	3.0	5.2	**4.6**

Tenacity under HVI Mode in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Mean
1	MC5431 BGII	29.3	26.2	27.9	**27.8**
2	Solar 108 BG II	29.8	27.3	28.2	**28.4**
3	MRC 7351 BG II (ZC)	30.7	29.1	27.6	**29.1**
4	ZCH 1439 BG II	31.9	28.0	27.6	**29.2**
5	JBG 3 BG II	28.1	28.6	28.1	**28.3**
6	Solar 106 BG II	28.1	27.6	28.0	**27.9**
7	BG II Local Check	30.9	28.2	28.5	**29.2**

Seed Cotton Yield (q/ha) in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	MC5431 BGII	27.01	16.05	10.12	17.23	**17.60**
2	Solar 108 BG II	33.95	18.46	10.35	16.74	**19.88**
3	MRC 7351 BG II (ZC)	34.85	16.36	7.34	16.29	**18.71**
4	ZCH 1439 BG II	32.92	15.34	17.18	15.93	**20.34**
5	JBG 3 BG II	35.62	22.13	7.63	17.62	**20.75**
6	Solar 106 BG II	36.14	16.27	10.42	14.64	**19.37**
7	BG II Local Check	32.79	19.29	8.91	13.85	**18.71**
	CD @ 5%	5.34	3.58	1.77	2.97	
	CV %	9.01	11.36	9.82	11.24	

Quantity of Cry 1Ac Protein (ppm) at MPKV, Rahuri in Advanced Evaluation Trial of H X H hybrids - II

Entry	Leaf				Square			Bolls	
	30 D	60 D	90 D	120 D	60 D	90 D	120 D	90 D	120 D
MC5431 BGII	1.83	3.06	4.15	2.98	1.31	2.65	2.16	2.53	4.45
Solar 108 BG II	2.11	4.19	4.80	3.02	1.90	1.46	1.56	2.47	2.62
MRC 7351 BG II (ZC)	1.78	4.62	5.25	3.40	2.87	3.63	2.48	2.38	4.19
ZCH 1439 BG II	1.93	3.13	5.11	3.10	2.63	2.55	2.75	3.71	3.86
JBG 3 BG II	1.91	3.16	5.08	3.28	1.75	2.53	3.11	3.21	3.00
Solar 106 BG II	1.45	3.56	4.84	3.34	1.91	2.61	3.87	3.28	4.86
BG II Local Check	1.79	5.75	5.00	2.78	2.10	2.06	2.74	2.76	3.14
Check	3.95	4.69	5.76	3.38	2.32	2.35	3.77	2.29	4.79

Quantity of Cry 2Ab Protein (ppm) at MPKV, Rahuri in Advanced Evaluation Trial of H X H hybrids - II

Entry	Leaf				Square			Bolls	
	30 D	60 D	90 D	120 D	60 D	90 D	120 D	90 D	120 D
MC5431 BGII	187.07	283.60	286.27	155.58	162.69	220.30	148.73	156.19	134.14
Solar 108 BG II	158.67	200.53	335.42	124.96	137.48	206.01	122.32	144.81	124.76
MRC 7351 BG II (ZC)	109.15	203.30	291.18	127.38	160.48	201.70	108.81	179.56	133.22
ZCH 1439 BG II	115.15	217.30	283.49	126.03	119.68	210.75	107.49	141.27	120.25
JBG 3 BG II	109.86	215.13	295.55	143.28	163.49	123.83	125.92	130.02	112.26
Solar 106 BG II	110.94	221.70	338.72	119.44	176.38	128.35	124.16	128.66	104.26
BG II Local Check	118.14	209.89	290.02	127.58	110.75	140.20	111.81	124.36	105.81
Check	113.69	228.93	392.74	124.02	156.08	255.05	126.26	158.05	125.85

Quantity of Cry 1Ac Protein (ppm) at Junagadh in Advanced Evaluation Trial of H X H hybrids - II

Entry	Leaf				Square			Bolls	
	30D	60D	90D	120D	60D	90D	120D	90D	120D
MC5431 BGII	2.54	3.10	4.61	1.47	3.70	2.81	1.14	2.86	2.05
Solar 108 BG II	2.72	3.82	4.62	2.33	2.32	3.46	1.09	2.36	2.34
MRC 7351 BG II (ZC)	2.23	4.55	4.28	1.55	2.06	2.59	1.79	2.84	3.01
ZCH 1439 BG II	1.14	3.44	4.08	2.62	1.23	2.42	1.85	2.26	2.03
JBG 3 BG II	1.55	3.13	4.33	1.51	1.97	1.24	1.53	2.86	2.33
Solar 106 BG II	2.25	4.05	4.17	2.15	1.54	1.88	0.96	2.55	1.87
BG II Local Check	1.51	3.38	4.06	2.11	2.20	1.54	0.71	2.77	1.41

Quantity of Cry 2Ab Protein (ppm) at Junagadh in Advanced Evaluation Trial of H X H hybrids - II

Entry	Leaf				Square			Bolls	
	30D	60D	90D	120D	60D	90D	120D	90D	120D
MC5431 BGII	218.88	306.48	286.34	236.10	281.25	252.47	151.51	191.09	169.37
Solar 108 BG II	209.47	333.01	295.29	178.49	253.63	218.96	140.74	134.85	167.37
MRC 7351 BG II (ZC)	163.58	289.37	292.60	278.22	116.65	274.55	141.40	137.67	217.40
ZCH 1439 BG II	205.36	280.24	302.72	185.06	160.44	162.70	159.81	138.47	143.25
JBG 3 BG II	166.48	304.01	302.81	116.62	199.23	280.06	182.69	162.03	115.22
Solar 106 BG II	220.91	292.12	314.29	160.31	176.49	231.27	162.51	133.04	135.48
BG II Local Check	133.25	282.82	292.73	113.64	153.87	280.44	169.70	154.50	107.67

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect pests

Table. Advance HxH Trial under protected conditions in Central Zone -- Aphid

Name of Entry	Aphid (Average of 3 leaves/plant)		
	Junagadh	Mean	Remarks*
MC5431 BGII	5.53	5.53	BETL
Solar 108 BG II	6.23	6.23	AETL
MRC 7351 BG II (ZC)	5.17	5.17	BETL
ZCH 1439 BG II	4.20	4.20	BETL
JBG 3 BG II	3.73	3.73	BETL
Solar 106 BG II	4.53	4.53	BETL
BG II Local Check	6.20	6.20	AETL

Table. Advance HxH Trial under protected conditions in Central Zone --Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)			
	Junagadh	Rahuri	Mean	Remarks*
MC5431 BGII	4.70	3.23	3.97	BETL
Solar 108 BG II	4.47	3.19	3.83	BETL
MRC 7351 BG II (ZC)	5.93	3.07	4.50	BETL
ZCH 1439 BG II	3.97	3.46	3.71	BETL
JBG 3 BG II	3.83	3.18	3.51	BETL
Solar 106 BG II	5.20	3.14	4.17	BETL
BG II Local Check	5.77	3.49	4.63	BETL

Table. Advance HxH Trial under protected conditions in Central Zone –Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)			
	Junagadh	Rahuri	Mean	Remarks*
MC5431 BGII	10.87	3.05	6.96	BETL
Solar 108 BG II	12.77	3.64	8.20	BETL
MRC 7351 BG II (ZC)	10.93	3.45	7.19	BETL
ZCH 1439 BG II	8.53	3.24	5.89	BETL
JBG 3 BG II	8.60	3.57	6.09	BETL
Solar 106 BG II	9.70	3.04	6.37	BETL
BG II Local Check	12.27	3.23	7.75	BETL

Table. Advance HxH Trial i under protected conditions in Central Zone –Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)			
	Junagadh	Rahuri	Mean	Remarks*
MC5431 BGII	5.13	2.62	3.88	BETL
Solar 108 BG II	4.27	2.53	3.40	BETL
MRC 7351 BG II (ZC)	6.53	2.18	4.36	BETL
ZCH 1439 BG II	4.20	2.53	3.37	BETL
JBG 3 BG II	4.23	2.31	3.27	BETL
Solar 106 BG II	5.37	2.55	3.96	BETL
BG II Local Check	6.23	2.52	4.38	BETL

Table. Advance HxH Trial under protected conditions in Central Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)			
	Junagadh	Rahuri	Mean	Remarks*
MC5431 BGII	3.40	13.33	8.37	BETL
Solar 108 BG II	4.00	14.33	9.17	BETL
MRC 7351 BG II (ZC)	4.60	12.83	8.72	BETL
ZCH 1439 BG II	2.90	13.17	8.04	BETL
JBG 3 BG II	3.10	13.33	8.22	BETL
Solar 106 BG II	5.10	12.67	8.89	BETL
BG II Local Check	3.70	14.17	8.94	BETL

Table. Advance HxH Trial under protected conditions in Central Zone -- Green Boll damage

Name of Entry	Green Boll damage (%)			
	Junagadh	Rahuri	Mean	Remarks*
MC5431 BGII	23.02	0.00	11.51	AETL
Solar 108 BG II	28.16	0.00	14.08	AETL
MRC 7351 BG II (ZC)	29.18	0.00	14.59	AETL
ZCH 1439 BG II	17.78	0.00	8.89	BETL
JBG 3 BG II	20.22	0.00	10.11	AETL
Solar 106 BG II	31.96	0.00	15.98	AETL
BG II Local Check	25.97	0.00	12.985	AETL

Table. Advance HxH Trial under protected conditions in Central Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)			
	Junagadh	Rahuri	Mean	Remarks*
MC5431 BGII	26.03	30.18	28.11	AETL
Solar 108 BG II	31.15	30.67	30.91	AETL
MRC 7351 BG II (ZC)	32.75	26.63	29.69	AETL
ZCH 1439 BG II	19.84	22.85	21.35	AETL
JBG 3 BG II	22.33	24.61	23.47	AETL
Solar 106 BG II	35.19	26.81	31.00	AETL
BG II Local Check	28.76	26.9	27.83	AETL

Table. Advance HxH Trial under protected conditions in Central Zone -- Locule damage

Name of Entry	Locule damage (%)		
	Junagadh	Rahuri	Mean
MC5431 BGII	20.73	13.91	17.32
Solar 108 BG II	24.55	15.11	19.83
MRC 7351 BG II (ZC)	27.12	11.43	19.275
ZCH 1439 BG II	15.42	10.81	13.115
JBG 3 BG II	17.19	10.88	14.035
Solar 106 BG II	29.97	12.91	21.44
BG II Local Check	23.65	13.34	18.495

Table. Helicoverpa armigera bioassay on Advance HxH hybrid trial in leaf in laboratory condition at Junagadh and MPKV, Rahuri

Name of Entry	Mortality (%)											
	Junagadh						Rahuri					
	30DAS	60 DAS	90 DAS	120 DAS	140 DAS	Mean	80DAS	100 DAS	120 DAS	140 DAS	Mean	OM
MC5431 BGII	100.0	100.0	100.0	100.0	100.0	100.0	94.00	92.00	90.00	90.00	91.50	95.75
Solar 108 BG II	100.0	100.0	100.0	100.0	100.0	100.0	93.00	91.00	90.00	90.00	91.00	95.50
MRC 7351 BG II (ZC)	100.0	100.0	100.0	100.0	100.0	100.0	96.00	95.00	93.00	90.00	93.50	96.75
ZCH 1439 BG II	100.0	100.0	100.0	100.0	100.0	100.0	97.00	96.00	95.00	90.00	94.50	97.25
JBG 3 BG II	100.0	100.0	100.0	100.0	100.0	100.0	98.00	97.00	95.00	89.00	94.75	97.38
Solar 106 BG II	100.0	100.0	100.0	100.0	100.0	100.0	95.00	93.00	92.00	90.00	92.50	96.25
BG II Local Check	100.0	100.0	100.0	100.0	100.0	100.0	95.00	92.00	90.00	88.00	91.25	95.63

Table. Helicoverpa armigera bioassay on Advance HxH hybrid trial in Square, flower and bolls in laboratory condition at Junagadh and MPKV, Rahuri

Name of Entry	Mortality (%)								
	Junagadh				Rahuri				
	Square	Flower	Bolls	Mean	Square 80 DAS	Flower 80DAS	Bolls 100 DAS	Mean	OM
MC5431 BGII	100.0	100.0	100.0	100.0	95.00	95.00	95.00	95.00	97.50
Solar 108 BG II	100.0	100.0	100.0	100.0	92.00	94.00	93.00	93.00	96.50
MRC 7351 BG II (ZC)	100.0	100.0	100.0	100.0	96.00	93.00	100.00	96.33	98.17
ZCH 1439 BG II	100.0	100.0	100.0	100.0	94.00	95.00	96.00	95.00	97.50
JBG 3 BG II	100.0	100.0	100.0	100.0	90.00	92.00	95.00	92.33	96.17
Solar 106 BG II	100.0	100.0	100.0	100.0	94.00	94.00	95.00	94.33	97.17
BG II Local Check	100.0	100.0	100.0	100.0	95.00	95.00	95.00	95.00	97.50

Table. Pink bollworm bioassay on Advance HxH hybrid trial in Square, flower and bolls in laboratory condition at Junagadh and MPKV, Rahuri

Name of Entry	Mortality (%)								
	Junagadh				Rahuri				
	Square	Flower	Bolls	Mean	Square 80 DAS	Flower 80DAS	Bolls 100 DAS	Mean	OM
MC5431 BGII	80.00	90.67	90.67	87.11	72.50	54.10	21.80	49.47	68.29
Solar 108 BG II	90.67	80.00	80.00	83.56	70.25	52.15	19.25	47.22	65.39
MRC 7351 BG II (ZC)	90.67	90.67	100.00	93.78	76.30	58.75	23.10	52.72	73.25
ZCH 1439 BG II	90.67	90.67	80.00	87.11	83.50	62.35	25.50	57.12	72.11
JBG 3 BG II	100.00	100.00	90.67	96.89	78.90	60.40	24.50	54.60	75.74
Solar 106 BG II	70.67	90.67	90.67	84.00	76.10	57.20	22.45	51.92	67.96
BG II Local Check	100.00	90.67	80.00	90.22	74.55	54.95	22.20	50.57	70.39

Reaction to Diseases

Table: Advanced Evaluation Trial of Intra-hirsutum Hybrids-II – irrigated under protected condition (Central Zone)

Entries	Average PDI & Disease Reaction (DR): Protected									
	Junagarh						Khandwa			
	BLB		ALB		GM		ALB		MLS	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
MC5431 BGII	4.3	R	11.0	R	8.8	R	16.0	R	23.5	R
Solar 108 BG II	4.3	R	16.5	R	7.5	R	15.0	R	25.0	R
MRC 7351 BG II (ZC)	1.3	R	13.5	R	4.3	R	8.0	R	21.0	R
ZCH 1439 BG II	10.0	R	11.5	R	1.8	R	11.0	R	20.0	R
JBG 3 BG II	1.8	R	11.0	R	7.3	R	6.0	R	22.5	R
Solar 106 BG II	0.8	R	11.0	R	7.0	R	12.5	R	22.0	R
BG II (LC)	0.5	R	18.5	R	16.0	R	8.5	R	21.5	R

Evaluation under Unprotected Condition for Insect pests & Diseases incidences

Reaction to Insect pests

Table. Advance HxH Trial under unprotected conditions in Central Zone – Aphid

Name of Entry	Aphid (Average of 3 leaves/plant)			
	Junagadh	Khandwa	Mean	Remarks*
MC5431 BGII	6.23	13.30	9.77	AETL
Solar 108 BG II	6.93	15.70	11.32	AETL
MRC 7351 BG II (ZC)	5.73	8.85	7.29	AETL
ZCH 1439 BG II	4.60	18.65	11.63	AETL
JBG 3 BG II	4.10	15.65	9.88	AETL
Solar 106 BG II	5.00	9.65	7.33	AETL
BG II Local Check	7.00	19.80	13.40	AETL

Table. Advance HxH Trial under unprotected conditions in Central Zone –Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)				
	Junagadh	Rahuri	Khandwa	Mean	Remarks*
MC5431 BGII	5.77	4.04	4.60	4.80	BETL
Solar 108 BG II	5.20	4.05	3.10	4.12	BETL
MRC 7351 BG II (ZC)	7.13	3.91	1.05	4.03	BETL
ZCH 1439 BG II	4.50	3.92	2.50	3.64	BETL
JBG 3 BG II	4.67	3.81	2.80	3.76	BETL
Solar 106 BG II	6.47	4.15	1.20	3.94	BETL
BG II Local Check	6.77	4.17	3.80	4.91	BETL

Table. Advance HxH Trial under unprotected conditions in Central Zone –Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)			
	Junagadh	Rahuri	Mean	Remarks*
MC5431 BGII	11.43	4.50	7.97	BETL
Solar 108 BG II	13.77	4.44	9.10	BETL
MRC 7351 BG II (ZC)	11.43	4.04	7.74	BETL
ZCH 1439 BG II	8.83	4.18	6.51	BETL
JBG 3 BG II	8.63	4.21	6.42	BETL
Solar 106 BG II	9.87	4.19	7.03	BETL
BG II Local Check	13.67	3.87	8.77	BETL

Table. Advance HxH Trial under unprotected conditions in Central Zone –Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)				
	Junagadh	Rahuri	Khandwa	Mean	Remarks*
MC5431 BGII	6.63	3.13	19.05	9.60	BETL
Solar 108 BG II	5.63	3.29	19.99	9.64	BETL
MRC 7351 BG II (ZC)	7.90	3.14	10.20	7.08	BETL
ZCH 1439 BG II	5.30	3.40	15.50	8.07	BETL
JBG 3 BG II	5.33	3.39	8.00	5.57	BETL
Solar 106 BG II	6.97	3.37	10.10	6.81	BETL
BG II Local Check	7.23	3.29	17.60	9.37	BETL

Table. Advance HxH Trial under unprotected conditions in Central Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)			
	Junagadh	Rahuri	Mean	Remarks*
MC5431 BGII	4.70	20.33	12.52	AETL
Solar 108 BG II	5.20	22.83	14.02	AETL
MRC 7351 BG II (ZC)	6.00	17.67	11.84	AETL
ZCH 1439 BG II	3.80	16.83	10.32	AETL
JBG 3 BG II	4.20	17.17	10.69	AETL
Solar 106 BG II	6.50	18.5	12.50	AETL
BG II Local Check	5.00	18.83	11.92	AETL

Table. Initial HxH Trial under unprotected conditions in Central Zone -- Green Boll damage

Name of Entry	Green Boll damage (%)			
	Junagadh	Rahuri	Mean	Remarks*
MC5431 BGII	25.61	0.00	12.81	AETL
Solar 108 BG II	30.98	0.00	15.49	AETL
MRC 7351 BG II (ZC)	33.09	0.00	16.55	AETL
ZCH 1439 BG II	20.00	0.00	10.00	ETL
JBG 3 BG II	22.83	0.00	11.42	AETL
Solar 106 BG II	35.69	0.00	17.85	AETL
BG II Local Check	28.46	0.00	14.23	AETL

Table. Initial HxH Trial under unprotected conditions in Central Zone -- Green boll damage due to PBW

Name of Entry	Green Boll damage (%)			
	Khandwa	Mean	Remarks*	Remarks*
MC5431 BGII	55.00	55.00	AETL	AETL
Solar 108 BG II	50.00	50.00	AETL	AETL
MRC 7351 BG II (ZC)	45.00	45.00	AETL	AETL
ZCH 1439 BG II	65.00	65.00	AETL	ETL
JBG 3 BG II	15.00	15.00	AETL	AETL
Solar 106 BG II	5.00	5.00	BETL	AETL
BG II Local Check	45.00	45.00	AETL	AETL

Table. Advance HxH Trial under unprotected conditions in Central Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)				
	Junagadh	Rahuri	Khandwa	Mean	Remarks*
MC5431 BGII	28.68	27.96	40.00	32.21	AETL
Solar 108 BG II	33.50	29.67	45.00	36.06	AETL
MRC 7351 BG II (ZC)	37.59	32.51	15.00	28.37	AETL
ZCH 1439 BG II	22.01	27.02	30.00	26.34	AETL
JBG 3 BG II	24.65	26.42	20.00	23.69	AETL
Solar 106 BG II	39.25	26.29	15.00	26.85	AETL
BG II Local Check	32.06	32.07	50.00	38.04	AETL

Table. Advance HxH Trial under unprotected conditions in Central Zone -- Locule damage

Name of Entry	Locule damage (%)			
	Junagadh	Rahuri	Khandwa	Mean
MC5431 BGII	22.47	16.61	11.25	16.78
Solar 108 BG II	26.29	16.64	16.25	19.73
MRC 7351 BG II (ZC)	29.15	18.56	5.00	17.57
ZCH 1439 BG II	17.13	16.71	15.00	16.28
JBG 3 BG II	19.38	14.22	10.00	14.53
Solar 106 BG II	32.47	16.38	3.75	17.53
BG II Local Check	24.81	17.05	20.00	20.62

Reaction to Diseases

Table :Advanced Evaluation Trial of Intra-hirsutum Hybrids-II – Irrigated under unprotected condition

Entries	Average PDI & Disease Reaction (DR): Unprotected											
	Junagarh						Rahuri					
	BLB		ALB		GM		BLB		ALB		GM	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
MC5431 BGII	0.5	R	8.3	R	4.0	R	10.0	R	5.0	R	5.0	R
Solar 108 BG II	13.8	R	10.0	R	1.3	R	6.7	R	3.3	R	3.3	R
MRC 7351 BG II (ZC)	0.5	R	7.5	R	1.3	R	8.3	R	18.3	R	13.3	R
ZCH 1439 BG II	19.8	R	8.0	R	1.5	R	5.0	R	5.0	R	5.0	R
JBG 3 BG II	13.0	R	6.5	R	1.8	R	8.3	R	8.3	R	16.7	R
Solar 106 BG II	0.8	R	12.3	R	3.8	R	8.3	R	5.0	R	5.0	R
BG II (LC)	1.0	R	8.8	R	10.0	R	6.7	R	15.0	R	3.3	R

Initial Evaluation Trial of Hirsutum Varieties in Central Zone (2020-21) - Irrigated

Constitution of Trial

The trial was constituted with five Bt cotton varieties containing deregulated events along with three different check varieties as furnished below.

S. No.	Name of the Entry	Sponsored by
1	CICR 20 Bt	CICR, Nagpur
2	Local Check	
3	Phule Yamuna (ZC Non-Bt)	
4	Suraj Bt (ZC Bt)	
5	GISV 267 Cry1Ac	NAU, Surat
6	CICR 18 Bt	CICR, Nagpur
7	CICR Bt 20-31	CICR, Nagpur

The trial was conducted in four different locations and detail is furnished below.

Name of the trial location	JAU, Junagadh	SDAU, Talod	MPKV, Rahuri	RVSKVV, Khandwa
Local check Non Bt Variety	GN Cot 32	GN Cot 32	Phule 688	JK 4

Spacing: Recommended spacing for the variety has been followed.
Number of rows:4 rows of 6 meters per entry with three replications

Data recorded:

Biometric evaluation

Plant height (cm) at harvest in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	CICR 20 Bt	151.0	149.5	130.3	134.0	**141.2**
2	Local Check	143.7	166.0	119.7	105.1	**133.6**
3	Phule Yamuna (ZC Non-Bt)	143.0	138.2	115.7	134.9	**133.0**
4	Suraj Bt (ZC Bt)	136.3	141.6	95.7	99.9	**118.4**
5	GISV 267 Cry1Ac	155.7	147.1	114.7	131.7	**137.3**
6	CICR 18 Bt	140.7	116.6	104.3	99.8	**115.4**
7	CICR Bt 20-31	129.7	152.6	109.7	126.7	**129.7**
	CD @ 5%	13.2	NS	3.6	15.7	
	CV %	5.2	26.9	1.8	8.0	

Number of monopodia in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	CICR 20 Bt	2.2	1.5	1.7	0.0	**1.4**
2	Local Check	2.8	5.1	1.0	0.0	**2.2**
3	Phule Yamuna (ZC Non-Bt)	1.6	1.3	0.7	0.0	**0.9**
4	Suraj Bt (ZC Bt)	2.4	2.3	1.1	0.0	**1.5**
5	GISV 267 Cry1Ac	2.2	4.2	1.0	0.0	**1.9**
6	CICR 18 Bt	1.0	1.1	0.0	0.0	**0.5**
7	CICR Bt 20-31	2.0	0.7	1.1	0.0	**1.0**
	CD @ 5%	0.3	0.4	0.2		
	CV %	9.0	8.7	15.3		

Number of sympodia in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	CICR 20 Bt	17.3	20.0	15.8	21.6	**18.7**
2	Local Check	13.9	16.7	21.1	19.1	**17.7**
3	Phule Yamuna (ZC Non-Bt)	16.9	17.4	18.5	20.5	**18.3**
4	Suraj Bt (ZC Bt)	15.7	19.3	21.3	20.7	**19.3**
5	GISV 267 Cry1Ac	15.5	14.3	19.5	20.5	**17.5**
6	CICR 18 Bt	18.2	20.7	22.1	29.2	**22.6**
7	CICR Bt 20-31	17.6	20.4	20.1	28.9	**21.8**
	CD @ 5%	2.2	0.9	0.8	3.0	
	CV %	7.5	2.6	2.2	8.3	

Number of bolls / plant in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	CICR 20 Bt	42.3	24.1	30.1	22.5	**29.8**
2	Local Check	26.1	11.2	47.9	20.9	**26.5**
3	Phule Yamuna (ZC Non-Bt)	44.5	31.0	42.2	19.1	**34.2**
4	Suraj Bt (ZC Bt)	45.1	29.9	43.5	24.9	**35.9**
5	GISV 267 Cry1Ac	29.9	16.0	22.5	21.0	**22.4**
6	CICR 18 Bt	48.3	27.9	56.5	36.4	**42.3**
7	CICR Bt 20-31	49.0	38.0	41.5	29.1	**39.4**
	CD @ 5%	7.5	6.3	2.1	5.0	
	CV %	10.3	13.9	2.9	12.3	

Number of bolls / sq.m. in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	CICR 20 Bt	87.1	44.6	55.6	54.8	**60.5**
2	Local Check	55.7	20.7	88.7	48.7	**53.4**
3	Phule Yamuna (ZC Non-Bt)	92.5	57.3	78.1	41.5	**67.3**
4	Suraj Bt (ZC Bt)	92.9	55.4	80.4	64.4	**73.3**
5	GISV 267 Cry1Ac	64.6	29.6	41.6	49.0	**46.2**
6	CICR 18 Bt	99.7	51.7	104.5	110.6	**91.6**
7	CICR Bt 20-31	102.4	70.4	76.8	81.5	**82.8**
	CD @ 5%	14.8	11.6	3.9	20.1	
	CV %	9.8	13.9	2.9	19.0	

Lint Index (g) in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	CICR 20 Bt	6.0	5.1	3.9	3.6	**4.7**
2	Local Check	5.5	4.0	3.5	3.4	**4.1**
3	Phule Yamuna (ZC Non-Bt)	5.2	3.5	3.1	3.9	**3.9**
4	Suraj Bt (ZC Bt)	5.9	3.4	3.5	3.7	**4.1**
5	GISV 267 Cry1Ac	6.8	5.1	3.8	3.2	**4.7**
6	CICR 18 Bt	5.1	3.5	4.5	3.1	**4.1**
7	CICR Bt 20-31	5.3	3.3	4.2	3.4	**4.1**
	CD @ 5%	1.0	0.7	0.1		
	CV %	9.9	9.8	1.8		

Seed Index (g) in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	CICR 20 Bt	10.8	9.3	7.9	6.7	**8.7**
2	Local Check	9.5	8.0	7.8	7.1	**8.1**
3	Phule Yamuna (ZC Non-Bt)	10.5	7.3	5.5	7.0	**7.6**
4	Suraj Bt (ZC Bt)	10.0	6.0	6.7	6.6	**7.3**
5	GISV 267 Cry1Ac	11.3	8.7	6.6	7.2	**8.5**
6	CICR 18 Bt	8.7	6.7	8.2	7.1	**7.7**
7	CICR Bt 20-31	8.5	6.0	6.4	6.8	**6.9**
	CD @ 5%	1.1	1.2	0.1		
	CV %	6.3	9.4	0.8		

Ginning outturn (%) in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	CICR 20 Bt	35.5	35.3	32.8	34.9	**34.6**
2	Local Check	36.8	33.6	30.9	32.1	**33.4**
3	Phule Yamuna (ZC Non-Bt)	33.2	32.1	35.9	35.6	**34.2**
4	Suraj Bt (ZC Bt)	37.2	36.1	34.5	36.2	**36.0**
5	GISV 267 Cry1Ac	37.5	36.9	36.7	30.6	**35.4**
6	CICR 18 Bt	37.2	34.4	35.6	30.1	**34.3**
7	CICR Bt 20-31	38.5	35.8	39.7	33.2	**36.8**
	CD @ 5%	2.0	1.6	1.0		
	CV %	3.1	2.6	1.6		

Upper Half Mean Length (mm) under HVI Mode in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Mean
1	CICR 20 Bt	25.1	22.9	26.3	**24.8**
2	Local Check	27.1	24.1	26.7	**26.0**
3	Phule Yamuna (ZC Non-Bt)	25.6	23.8	27.1	**25.5**
4	Suraj Bt (ZC Bt)	25.6	24.4	26.1	**25.4**
5	GISV 267 Cry1Ac	28.2	25.8	28.8	**27.6**
6	CICR 18 Bt	23.3	22.6	22.7	**22.9**
7	CICR Bt 20-31	25.1	23.9	26.4	**25.1**

Uniformity index under HVI Mode in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Mean
1	CICR 20 Bt	86.0	82.0	86.0	**84.7**
2	Local Check	82.0	83.0	84.0	**83.0**
3	Phule Yamuna (ZC Non-Bt)	87.0	82.0	87.0	**85.3**
4	Suraj Bt (ZC Bt)	83.0	82.0	81.0	**82.0**
5	GISV 267 Cry1Ac	85.0	81.0	84.0	**83.3**
6	CICR 18 Bt	82.0	81.0	82.0	**81.7**
7	CICR Bt 20-31	83.0	82.0	84.0	**83.0**

Micronaire under HVI Mode in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Mean
1	CICR 20 Bt	3.8	3.0	3.9	**3.6**
2	Local Check	4.5	3.0	4.5	**4.0**
3	Phule Yamuna (ZC Non-Bt)	4.2	3.1	4.5	**3.9**
4	Suraj Bt (ZC Bt)	4.0	3.0	3.7	**3.6**
5	GISV 267 Cry1Ac	5.3	3.1	4.4	**4.3**
6	CICR 18 Bt	5.1	4.7	4.7	**4.8**
7	CICR Bt 20-31	5.4	3.6	5.3	**4.8**

Tenacity under HVI Mode in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Mean
1	CICR 20 Bt	29.0	23.4	28.1	**26.8**
2	Local Check	27.1	25.8	26.3	**26.4**
3	Phule Yamuna (ZC Non-Bt)	28.9	23.4	28.9	**27.1**
4	Suraj Bt (ZC Bt)	28.5	24.6	24.5	**25.9**
5	GISV 267 Cry1Ac	30.2	25.4	27.5	**27.7**
6	CICR 18 Bt	26.4	23.8	23.2	**24.5**
7	CICR Bt 20-31	25.8	23.8	25.1	**24.9**

Seed Cotton Yield (q/ha) in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean	Rank
1	CICR 20 Bt	30.10	13.12	2.96	14.32	**15.13**	5
2	Local Check	17.23	4.94	8.30	12.22	**10.67**	7
3	Phule Yamuna (ZC Non-Bt)	27.14	14.04	6.11	15.26	**15.64**	4
4	Suraj Bt (ZC Bt)	27.39	12.93	6.42	16.19	**15.73**	3
5	GISV 267 Cry1Ac	25.85	8.21	3.98	15.75	**13.45**	6
6	CICR 18 Bt	31.76	12.96	7.98	16.92	**17.41**	1
7	CICR Bt 20-31	31.38	15.28	7.36	13.72	**16.94**	2
	CD @ 5%	4.07	2.65	1.53	3.12		
	CV %	8.40	12.82	14.47	12.69		

Qualitative Cry Protein Evaluation

All the above entries except local check and Phule Yamuna were positive for Cry 1Ac Protein in qualitative ELISA Test

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect pests

Table. Initial Variety Trial under protected conditions in Central Zone – Aphid

Name of Entry	Aphid (Average of 3 leaves/plant)		
	Junagadh	Mean	Remarks*
CICR 20 Bt	4.60	4.60	BETL
Local Check	4.67	4.67	BETL
Phule Yamuna (ZC Non-Bt)	5.70	5.70	BETL
Suraj Bt (ZC Bt)	5.50	5.50	BETL
GISV 267 Cry1Ac	4.10	4.10	BETL
CICR 18 Bt	3.90	3.90	BETL
CICR Bt 20-31	6.43	6.43	AETL

Table. Initial Variety Trial under protected conditions in Central Zone –Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)			
	Junagadh	Rahuri	Mean	Remarks*
CICR 20 Bt	3.23	3.11	3.17	BETL
Local Check	3.33	2.71	3.02	BETL
Phule Yamuna (ZC Non-Bt)	5.03	3.26	4.15	BETL
Suraj Bt (ZC Bt)	5.13	2.70	3.92	BETL
GISV 267 Cry1Ac	4.37	2.92	3.64	BETL
CICR 18 Bt	4.23	3.00	3.62	BETL
CICR Bt 20-31	3.90	2.82	3.36	BETL

Table. Initial Variety Trial under protected conditions in Central Zone –Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)			
	Junagadh	Rahuri	Mean	Remarks*
CICR 20 Bt	9.33	3.48	6.41	BETL
Local Check	11.83	3.03	7.43	BETL
Phule Yamuna (ZC Non-Bt)	12.10	3.23	7.67	BETL
Suraj Bt (ZC Bt)	13.30	2.98	8.14	BETL
GISV 267 Cry1Ac	8.97	3.30	6.13	BETL
CICR 18 Bt	9.93	3.51	6.72	BETL
CICR Bt 20-31	10.73	3.19	6.96	BETL

Table. Initial Variety Trial under protected conditions in Central Zone –Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)			
	Junagadh	Rahuri	Mean	Remarks*
CICR 20 Bt	4.07	2.33	3.20	BETL
Local Check	3.97	2.03	3.00	BETL
Phule Yamuna (ZC Non-Bt)	5.87	2.36	4.11	BETL
Suraj Bt (ZC Bt)	5.60	2.27	3.94	BETL
GISV 267 Cry1Ac	4.67	2.36	3.51	BETL
CICR 18 Bt	6.33	2.18	4.26	BETL
CICR Bt 20-31	4.70	2.28	3.49	BETL

Table. Initial Variety Trial under protected conditions in Central Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)			
	Junagadh	Rahuri	Mean	Remarks*
CICR 20 Bt	3.30	14.33	8.82	BETL
Local Check	4.20	16.00	10.10	AETL
Phule Yamuna (ZC Non-Bt)	3.90	14.33	9.12	BETL
Suraj Bt (ZC Bt)	3.60	12.33	7.97	BETL
GISV 267 Cry1Ac	4.60	12.67	8.64	BETL
CICR 18 Bt	5.20	15.83	10.52	AETL
CICR Bt 20-31	3.10	11.83	7.47	BETL

Table. Initial Variety Trial under protected conditions in Central Zone-- Green Boll damage

Name of Entry	Green Boll damage (%)			
	Junagadh	Rahuri	Mean	Remarks*
CICR 20 Bt	25.03	0.00	12.52	AETL
Local Check	27.97	0.00	13.99	AETL
Phule Yamuna (ZC Non-Bt)	30.74	0.00	15.37	AETL
Suraj Bt (ZC Bt)	26.97	0.00	13.49	AETL
GISV 267 Cry1Ac	32.82	0.00	16.41	AETL
CICR 18 Bt	22.47	0.00	11.24	AETL
CICR Bt 20-31	20.04	0.00	10.02	AETL

Table. Initial Variety Trial under protected conditions in Central Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)			
	Junagadh	Rahuri	Mean	Remarks*
CICR 20 Bt	27.82	31.54	29.68	AETL
Local Check	31.60	26.12	28.86	AETL
Phule Yamuna (ZC Non-Bt)	33.44	26.39	29.92	AETL
Suraj Bt (ZC Bt)	30.35	28.40	29.38	AETL
GISV 267 Cry1Ac	35.16	26.23	30.70	AETL
CICR 18 Bt	24.02	25.72	24.87	AETL
CICR Bt 20-31	21.72	26.28	24.00	AETL

Table. Initial Variety Trial under protected conditions in Central Zone -- Locule damage

Name of Entry	Locule damage (%)		
	Junagadh	Rahuri	Mean
CICR 20 Bt	21.81	13.04	17.43
Local Check	24.71	11.44	18.08
Phule Yamuna (ZC Non-Bt)	27.23	11.42	19.33
Suraj Bt (ZC Bt)	24.45	11.95	18.20
GISV 267 Cry1Ac	28.77	11.38	20.08
CICR 18 Bt	19.89	11.49	15.69
CICR Bt 20-31	17.38	12.19	14.79

Reaction to Diseases

Table :Initial Evaluation Trial of Hirsutum Varieties - Irrigated–under protected condition

Entries	Average PDI & Disease Reaction (DR): Protected									
	Junagarh						Khandwa			
	BLB		ALB		GM		ALB		MLS	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
CICR 20 Bt	4.8	R	10.0	R	6.3	R	9.0	R	22.0	R
(LC)	15.5	R	9.0	R	2.0	R	12.0	R	21.5	R
Phule Yamuna (ZC Non-Bt)	9.0	R	12.5	R	5.3	R	11.0	R	21.0	R
Suraj Bt (ZC Bt)	3.0	R	26.5	MR	5.0	R	12.5	R	17.0	R
GISV 267 Cry1Ac	4.5	R	4.5	R	1.8	R	10.0	R	12.0	R
CICR 18 Bt	2.3	R	9.5	R	13.0	R	5.0	R	17.0	R
CICR Bt 20-31	1.0	R	10.0	R	4.8	R	11.0	R	16.5	R

Evaluation under Unprotected Condition for Insect pests & Diseases incidences

Reaction to Insect pests

Table. Initial Variety Trial under unprotected conditions in Central Zone – Aphid

Name of Entry	Aphid (Average of 3 leaves/plant)			
	Junagadh	Khandwa	Mean	Remarks*
CICR 20 Bt	5.03	20.00	12.52	AETL
Local Check	5.17	7.55	6.36	AETL
Phule Yamuna (ZC Non-Bt)	6.47	15.55	11.01	AETL
Suraj Bt (ZC Bt)	6.30	18.80	12.55	AETL
GISV 267 Cry1Ac	4.50	15.65	10.08	AETL
CICR 18 Bt	4.30	9.00	6.65	AETL
CICR Bt 20-31	7.20	21.15	14.18	AETL

Table. Initial Variety Trial under unprotected conditions in Central Zone --Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)				
	Junagadh	Rahuri	Khandwa	Mean	Remarks*
CICR 20 Bt	3.57	3.91	4.60	4.03	BETL
Local Check	3.70	3.73	0.90	2.78	BETL
Phule Yamuna (ZC Non-Bt)	5.60	3.68	3.10	4.13	BETL
Suraj Bt (ZC Bt)	5.67	3.57	3.00	4.08	BETL
GISV 267 Cry1Ac	4.73	3.38	3.30	3.80	BETL
CICR 18 Bt	4.60	3.71	0.85	3.05	BETL
CICR Bt 20-31	4.27	3.49	3.80	3.85	BETL

Table. Initial Variety Trial under unprotected conditions in Central Zone –Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)			
	Junagadh	Rahuri	Mean	Remarks*
CICR 20 Bt	9.83	3.26	6.55	BETL
Local Check	12.83	3.21	8.02	BETL
Phule Yamuna (ZC Non-Bt)	13.07	3.41	8.24	BETL
Suraj Bt (ZC Bt)	14.10	3.21	8.66	BETL
GISV 267 Cry1Ac	9.33	3.25	6.29	BETL
CICR 18 Bt	10.27	3.33	6.80	BETL
CICR Bt 20-31	11.20	3.26	7.23	BETL

Table. Initial Variety Trial under unprotected conditions in Central Zone –Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)				
	Junagadh	Rahuri	Khandwa	Mean	Remarks*
CICR 20 Bt	5.20	2.89	19.05	9.05	BETL
Local Check	5.03	2.72	11.15	6.30	BETL
Phule Yamuna (ZC Non-Bt)	7.23	2.93	15.30	8.49	BETL
Suraj Bt (ZC Bt)	6.73	2.83	17.80	9.12	BETL
GISV 267 Cry1Ac	5.97	2.94	19.70	9.54	BETL
CICR 18 Bt	7.43	2.83	10.10	6.79	BETL
CICR Bt 20-31	5.93	2.82	20.00	9.58	BETL

Table. Initial Variety Trial under unprotected conditions in Central Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)			
	Junagadh	Rahuri	Mean	Remarks*
CICR 20 Bt	4.60	21.33	12.97	AETL
Local Check	5.10	21.67	13.39	AETL
Phule Yamuna (ZC Non-Bt)	6.00	20.33	13.17	AETL
Suraj Bt (ZC Bt)	5.40	17.67	11.54	AETL
GISV 267 Cry1Ac	6.70	17.00	11.85	AETL
CICR 18 Bt	4.30	20.33	12.32	AETL
CICR Bt 20-31	3.90	18.50	11.20	AETL

Table. Initial HxH Trial under unprotected conditions in Central Zone -- Green Boll damage

Name of Entry	Green Boll damage (%)			
	Junagadh	Rahuri	Mean	Remarks*
CICR 20 Bt	26.49	0.0	13.25	AETL
Local Check	30.75	0.0	15.38	AETL
Phule Yamuna (ZC Non-Bt)	33.71	0.0	16.86	AETL
Suraj Bt (ZC Bt)	28.43	0.0	14.22	AETL
GISV 267 Cry1Ac	36.47	0.0	18.24	AETL
CICR 18 Bt	23.96	0.0	11.98	AETL
CICR Bt 20-31	21.49	0.0	10.75	AETL

Table. Initial HxH Trial under unprotected conditions in Central Zone -- Green boll damage due to PBW.

Name of Entry	Green Boll damage (%)		
	Khandwa	Mean	Remarks*
CICR 20 Bt	45.0	45.0	AETL
Local Check	15.0	15.0	AETL
Phule Yamuna (ZC Non-Bt)	45.0	45.0	AETL
Suraj Bt (ZC Bt)	45.0	45.0	AETL
GISV 267 Cry1Ac	15.0	15.0	AETL
CICR 18 Bt	10.0	10.0	ETL
CICR Bt 20-31	45.0	45.0	AETL

Table. Initial Variety Trial under unprotected conditions in Central Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)				
	Junagadh	Rahuri	Khandwa	Mean	Remarks*
CICR 20 Bt	29.41	32.52	35.00	32.31	AETL
Local Check	33.12	38.45	10.00	27.19	AETL
Phule Yamuna (ZC Non-Bt)	35.39	35.85	45.00	38.75	AETL
Suraj Bt (ZC Bt)	31.97	35.78	45.00	37.58	AETL
GISV 267 Cry1Ac	38.24	31.67	40.00	36.64	AETL
CICR 18 Bt	25.15	37.50	15.00	25.88	AETL
CICR Bt 20-31	22.83	36.82	45.00	34.88	AETL

Table. Initial Variety Trial under unprotected conditions in Central Zone -- Locule damage

Name of Entry	Locule damage (%)			
	Junagadh	Rahuri	Khandwa	Mean
CICR 20 Bt	23.33	18.64	15.00	18.99
Local Check	26.23	19.09	6.25	17.19
Phule Yamuna (ZC Non-Bt)	28.68	18.15	5.00	17.28
Suraj Bt (ZC Bt)	25.97	17.75	16.25	19.99
GISV 267 Cry1Ac	32.23	17.22	12.50	20.65
CICR 18 Bt	21.06	19.57	2.50	14.38
CICR Bt 20-31	18.92	18.83	15.00	17.58

Reaction to Diseases

Table : Initial Evaluation Trial of Hirsutum Varieties – Irrigated under Unprotected condition

Entries	Average PDI & Disease Reaction (DR): Unprotected											
	Junagarh						Rahuri					
	BLB		ALB		GM		BLB		ALB		GM	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
CICR 20 Bt	8.0	R	11.0	R	0.8	R	10.0	R	15.0	R	11.7	R
(LC)	2.3	R	10.5	R	0.5	R	8.3	R	5.0	R	3.3	R
Phule Yamuna (ZC Non-Bt)	11.5	R	13.3	R	2.0	R	6.7	R	20.0	R	5.0	R
Suraj Bt (ZC Bt)	2.8	R	30.0	MR	0.8	R	8.3	R	13.3	R	5.0	R
GISV 267 Cry1Ac	7.8	R	5.5	R	12.3	R	10.0	R	10.0	R	10.0	R
CICR 18 Bt	0.8	R	10.8	R	1.0	R	3.3	R	5.0	R	3.3	R
CICR Bt 20-31	0.5	R	13.0	R	0.8	R	5.0	R	5.0	R	5.0	R

Advanced Evaluation Trial of Hirsutum Varieties (I) in Central Zone (2020-21) - Irrigated

Constitution of Trial

The trial was constituted with four Bt cotton varieties containing various deregulated events along with three different check varieties as furnished below.

S. No.	Name of the Entry	Sponsored by
1	CICR 21 Bt	CICR, Nagpur
2	Suraj Bt (ZC Bt)	
3	G. COT 16 Cry 1Ac	NAU, Surat
4	Phule Yamuna (ZC Non-Bt)	
5	G. COT 10 Cry 1Ac	NAU, Surat
6	CICR 22 Bt	CICR, Nagpur
7	Local Check	
8	CICR 19 Bt	CICR, Nagpur

The trial was conducted in four different locations and detail is furnished below.

Name of the trial location	Junagadh	Talod	Rahuri	Khandwa
Local check Non Bt Variety	GN Cot 32	GN Cot 32	Phule 688	JK 4

Spacing: Two separate trials viz., one with recommended spacing for the variety and another with half the spacing between plants have been followed.
Number of rows:4 rows of 6 meters per entry with three replications

Data recorded:

Biometric evaluation

Plant height (cm) at harvest in Advanced Evaluation Trial of Hirsutum Varieties (I)

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	CICR 21 Bt	123.0	130.4	99.7	134.0	**121.8**
2	Suraj Bt (ZC Bt)	128.0	123.3	94.0	105.1	**112.6**
3	G. COT 16 Cry 1Ac	132.0	150.8	108.7	134.9	**131.6**
4	Phule Yamuna (ZC Non-Bt)	150.0	119.4	121.3	99.9	**122.7**
5	G. COT 10 Cry 1Ac	139.0	97.2	102.7	131.7	**117.7**
6	CICR 22 Bt	149.0	162.5	116.3	99.8	**131.9**
7	Local Check	146.0	173.8	109.3	126.7	**139.0**
8	CICR 19 Bt	137.0	164.1	121.7	15.7	**109.6**
	CD @ 5%	15.2	3.7	1.5	8.0	
	CV %	6.3	1.5	0.9		

Number of monopodia in Advanced Evaluation Trial of Hirsutum Varieties (I)

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	CICR 21 Bt	2.8	3.6	1.0	0.0	**1.9**
2	Suraj Bt (ZC Bt)	2.0	1.5	1.1	0.0	**1.2**
3	G. COT 16 Cry 1Ac	2.0	1.9	1.0	0.0	**1.2**
4	Phule Yamuna (ZC Non-Bt)	1.5	0.7	1.0	0.0	**0.8**
5	G. COT 10 Cry 1Ac	1.6	1.3	1.2	0.0	**1.0**
6	CICR 22 Bt	2.6	1.9	0.9	0.0	**1.4**
7	Local Check	1.3	9.5	0.0	0.0	**2.7**
8	CICR 19 Bt	2.0	1.7	2.7		**2.1**
	CD @ 5%	0.2	0.8	12.3		
	CV %	6.7	16.9	0.1		

Number of sympodia in Advanced Evaluation Trial of Hirsutum Varieties (I)

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	CICR 21 Bt	14.0	24.9	20.1	21.6	**20.2**
2	Suraj Bt (ZC Bt)	16.3	18.1	16.4	19.1	**17.5**
3	G. COT 16 Cry 1Ac	14.7	20.3	17.7	20.5	**18.3**
4	Phule Yamuna (ZC Non-Bt)	17.4	16.7	18.0	20.7	**18.2**
5	G. COT 10 Cry 1Ac	14.3	16.1	17.5	20.5	**17.1**
6	CICR 22 Bt	17.3	18.4	18.9	29.2	**21.0**
7	Local Check	15.3	13.0	18.8	28.9	**19.0**
8	CICR 19 Bt	15.3	20.8	18.8	3.0	**14.5**
	CD @ 5%	2.2	1.8	3.6	8.3	
	CV %	8.1	5.6	0.4		

Number of bolls / plant in Advanced Evaluation Trial of Hirsutum Varieties (I)

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	CICR 21 Bt	41.9	26.8	44.5	22.5	**33.9**
2	Suraj Bt (ZC Bt)	44.1	18.6	32.6	20.9	**29.1**
3	G. COT 16 Cry 1Ac	33.9	19.6	39.5	19.1	**28.0**
4	Phule Yamuna (ZC Non-Bt)	44.8	24.3	35.7	24.9	**32.4**
5	G. COT 10 Cry 1Ac	38.3	19.6	37.1	21.0	**29.0**
6	CICR 22 Bt	39.4	14.7	39.5	36.4	**32.5**
7	Local Check	28.6	5.3	42.7	29.1	**26.4**
8	CICR 19 Bt	39.7	12.2	34.1	5.0	**22.8**
	CD @ 5%	7.4	3.7	3.5	12.3	
	CV %	10.9	11.8	0.8		

Number of bolls / sq.m.in Advanced Evaluation Trial of Hirsutum Varieties (I)

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	CICR 21 Bt	87.7	49.7	164.5	55.9	**89.4**
2	Suraj Bt (ZC Bt)	91.7	34.5	120.6	70.8	**79.4**
3	G. COT 16 Cry 1Ac	71.7	36.4	146.0	54.5	**77.2**
4	Phule Yamuna (ZC Non-Bt)	93.2	45.0	132.2	50.8	**80.3**
5	G. COT 10 Cry 1Ac	80.1	36.2	137.4	59.3	**78.3**
6	CICR 22 Bt	82.1	27.2	146.0	30.3	**71.4**
7	Local Check	59.7	9.8	157.9	51.3	**69.7**
8	CICR 19 Bt	82.8	22.7	126.3	77.2	**77.3**
	CD @ 5%	14.0	6.8	3.5	17.3	
	CV %	9.8	11.8	3.0	18.7	

Lint Index (g) in Advanced Evaluation Trial of Hirsutum Varieties (I)

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	CICR 21 Bt	4.2	4.0	3.5	3.6	**3.8**
2	Suraj Bt (ZC Bt)	5.2	4.6	4.0	3.4	**4.3**
3	G. COT 16 Cry 1Ac	5.9	5.0	5.0	3.9	**5.0**
4	Phule Yamuna (ZC Non-Bt)	5.1	4.1	2.8	3.7	**3.9**
5	G. COT 10 Cry 1Ac	5.1	4.0	3.8	3.2	**4.0**
6	CICR 22 Bt	5.5	4.1	3.6	3.1	**4.1**
7	Local Check	4.3	3.7	4.0	3.4	**3.9**
8	CICR 19 Bt	5.2	4.2	4.2		**4.5**
	CD @ 5%	0.9	0.6	2.0		
	CV %	10.7	8.7	0.0		

Seed Index (g) in Advanced Evaluation Trial of Hirsutum Varieties (I)

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	CICR 21 Bt	8.3	8.3	6.8	6.7	**7.5**
2	Suraj Bt (ZC Bt)	8.7	8.3	6.2	7.1	**7.6**
3	G. COT 16 Cry 1Ac	11.3	9.0	7.7	7.0	**8.8**
4	Phule Yamuna (ZC Non-Bt)	9.3	8.3	6.2	6.6	**7.6**
5	G. COT 10 Cry 1Ac	8.8	7.3	6.0	7.2	**7.3**
6	CICR 22 Bt	9.7	7.7	6.4	7.1	**7.7**
7	Local Check	8.2	7.7	6.4	6.8	**7.3**
8	CICR 19 Bt	9.5	7.3	6.4		**7.7**
	CD @ 5%	1.7	NS	0.7		
	CV %	10.8	8.5	0.0		

Ginning outturn (%) in Advanced Evaluation Trial of Hirsutum Varieties (I)

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean
1	CICR 21 Bt	33.3	32.3	33.7	34.9	**33.6**
2	Suraj Bt (ZC Bt)	37.3	35.3	39.0	32.1	**35.9**
3	G. COT 16 Cry 1Ac	34.0	35.7	39.4	35.6	**36.2**
4	Phule Yamuna (ZC Non-Bt)	35.2	32.7	31.2	36.2	**33.8**
5	G. COT 10 Cry 1Ac	36.5	35.2	38.4	30.6	**35.2**
6	CICR 22 Bt	36.3	34.9	36.3	30.1	**34.4**
7	Local Check	34.3	32.6	38.5	33.2	**34.7**
8	CICR 19 Bt	35.5	36.4	39.5		**37.1**
	CD @ 5%	1.8	1.5	1.2		
	CV %	3.0	2.5	0.2		

Upper Half Mean Length (mm) under HVI Mode in Advanced Evaluation Trial of Hirsutum Varieties (I) (Data awaited from CIRCOT)

Uniformity index under HVI Mode in Advanced Evaluation Trial of Hirsutum Varieties (I)

Micronaire under HVI Mode in Advanced Evaluation Trial of Hirsutum Varieties (I)

Tenacity under HVI Mode in Advanced Evaluation Trial of Hirsutum Varieties (I)

Seed Cotton Yield (q/ha)in Advanced Evaluation Trial of Hirsutum Varieties (I)

S. No.	Name of the Entry	Junagadh	Talod	Rahuri	Khandwa	Mean	Rank
1	CICR 21 Bt	24.18	11.51	4.91	14.32	**13.73**	4
2	Suraj Bt (ZC Bt)	25.46	8.18	6.83	12.22	**13.17**	6
3	G. COT 16 Cry 1Ac	23.66	11.36	8.77	15.26	**14.76**	3
4	Phule Yamuna (ZC Non-Bt)	27.14	11.57	7.34	16.19	**15.56**	1
5	G. COT 10 Cry 1Ac	23.02	9.79	5.28	15.75	**13.46**	5
6	CICR 22 Bt	28.55	8.24	6.31	16.92	**15.01**	2
7	Local Check	18.13	2.56	5.65	-	**8.78**	8
8	CICR 19 Bt	21.73	5.71	3.89	13.72	**11.26**	7
	CD @ 5%	4.46	1.87	12.65	3.12		
	CV %	10.63	12.39	0.46	0.13		

Number of bolls / sq.m.in Advanced Evaluation Trial of Hirsutum Varieties (I) under closer spacing

S. No.	Name of the Entry	Junagadh	Rahuri	Mean
1	CICR 21 Bt	104.9	164.5	**134.7**
2	Suraj Bt (ZC Bt)	123.1	120.6	**121.9**
3	G. COT 16 Cry 1Ac	85.3	146.0	**115.7**
4	Phule Yamuna (ZC Non-Bt)	110.9	132.2	**121.6**
5	G. COT 10 Cry 1Ac	96.1	137.4	**116.8**
6	CICR 22 Bt	100.7	146.0	**123.4**
7	Local Check	77.6	157.9	**117.8**
8	CICR 19 Bt	99.1	126.3	**112.7**
	CD @ 5%	14.1		
	CV %	8.1		

Seed Cotton Yield (q/ha)in Advanced Evaluation Trial of Hirsutum Varieties (I) under closer spacing

S. No.	Name of the Entry	Junagadh	Rahuri	Mean	Rank
1	CICR 21 Bt	26.23	4.91	**15.57**	5
2	Suraj Bt (ZC Bt)	27.39	6.83	**17.11**	3
3	G. COT 16 Cry 1Ac	25.20	8.77	**16.99**	4
4	Phule Yamuna (ZC Non-Bt)	30.73	7.34	**19.04**	1
5	G. COT 10 Cry 1Ac	24.31	5.28	**14.80**	6
6	CICR 22 Bt	29.32	6.31	**17.82**	2
7	Local Check	20.58	5.65	**13.12**	8
8	CICR 19 Bt	22.89	3.89	**13.39**	7
	CD @ 5%	4.56			
	CV %	10.09			

Qualitative Cry Protein Evaluation

All the above entries except local check and Phule Yamuna were positive for Cry 1Ac Protein in qualitative ELISA Test

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect pests

Table. Advance Variety Trial inder protected conditions in Central Zone -- Aphid (Normal spacing)

Name of Entry	Aphid (Average of 3 leaves/plant)		
	Junagadh	Mean	Remarks*
CICR 21 Bt	5.80	5.80	BETL
Suraj Bt (ZC Bt)	5.73	5.73	BETL
G. COT 16 Cry 1Ac	4.73	4.73	BETL
Phule Yamuna (ZC Non-Bt)	3.67	3.67	BETL
G. COT 10 Cry 1Ac	3.73	3.73	BETL
CICR 22 Bt	4.77	4.77	BETL
Local Check	5.70	5.70	BETL
CICR 19 Bt	4.13	4.13	BETL

Table. Advance Variety Trial under protected conditions in Central Zone --Leafhopper (Normal spacing)

Name of Entry	Leafhopper (Average of 3 leaves/plant)			
	Junagadh	Rahuri	Mean	Remarks*
CICR 21 Bt	2.75	2.72	2.74	BETL
Suraj Bt (ZC Bt)	3.40	2.80	3.10	BETL
G. COT 16 Cry 1Ac	3.48	2.98	3.23	BETL
Phule Yamuna (ZC Non-Bt)	2.35	3.20	2.78	BETL
G. COT 10 Cry 1Ac	2.45	2.89	2.67	BETL
CICR 22 Bt	4.15	3.24	3.70	BETL
Local Check	4.00	3.13	3.57	BETL
CICR 19 Bt	3.15	3.14	3.15	BETL

Table. Advance Variety Trial under protected conditions in Central Zone -Thrips (Normal spacing)

Name of Entry	Thrips (Average of 3 leaves/plant)			
	Junagadh	Rahuri	Mean	Remarks*
CICR 21 Bt	10.10	2.98	6.54	BETL
Suraj Bt (ZC Bt)	12.87	3.08	7.97	BETL
G. COT 16 Cry 1Ac	12.83	2.95	7.89	BETL
Phule Yamuna (ZC Non-Bt)	9.30	2.90	6.10	BETL
G. COT 10 Cry 1Ac	9.03	2.82	5.93	BETL
CICR 22 Bt	11.20	2.87	7.04	BETL
Local Check	14.30	2.96	8.63	BETL
CICR 19 Bt	11.67	2.95	7.31	BETL

Table. Advance Variety Trial under protected conditions in Central Zone -Whitefly (Normal spacing)

Name of Entry	Whitefly (Average of 3 leaves/plant)			
	Junagadh	Rahuri	Mean	Remarks*
CICR 21 Bt	6.37	2.83	4.60	BETL
Suraj Bt (ZC Bt)	5.33	2.72	4.03	BETL
G. COT 16 Cry 1Ac	5.33	2.61	3.97	BETL
Phule Yamuna (ZC Non-Bt)	4.37	2.46	3.41	BETL
G. COT 10 Cry 1Ac	4.27	2.83	3.55	BETL
CICR 22 Bt	3.93	2.49	3.21	BETL
Local Check	5.57	2.77	4.17	BETL
CICR 19 Bt	6.93	2.72	4.83	BETL

Table Advance Variety Trial under protected conditions in Central Zone -- Pink bollworm (Normal spacing)

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)			
	Junagadh	Rahuri	Mean	Remarks*
CICR 21 Bt	2.40	14.00	8.20	BETL
Suraj Bt (ZC Bt)	2.70	11.50	7.10	BETL
G. COT 16 Cry 1Ac	3.40	8.83	6.12	BETL
Phule Yamuna (ZC Non-Bt)	4.30	7.83	6.07	BETL
G. COT 10 Cry 1Ac	4.10	13.00	8.55	BETL
CICR 22 Bt	3.50	9.50	6.50	BETL
Local Check	2.80	12.50	7.65	BETL
CICR 19 Bt	3.80	12.67	8.24	BETL

Table. Advance Variety Trial under protected conditions in Central Zone -- Green Boll damage (Normal spacing)

Name of Entry	Green Boll damage (%)			
	Junagadh	Rahuri	Mean	Remarks*
CICR 21 Bt	18.86	0.00	9.43	BETL
Suraj Bt (ZC Bt)	19.93	0.00	9.97	BETL
G. COT 16 Cry 1Ac	24.33	0.00	12.17	AETL
Phule Yamuna (ZC Non-Bt)	31.71	0.00	15.86	AETL
G. COT 10 Cry 1Ac	25.44	0.00	12.72	AETL
CICR 22 Bt	21.02	0.00	10.51	AETL
Local Check	18.79	0.00	9.40	BETL
CICR 19 Bt	24.69	0.00	12.35	AETL

Table. Advance Variety Trial under protected conditions in Central Zone -Open Boll damage (Normal spacing)

Name of Entry	Open Boll damage (%)			
	Junagadh	Rahuri	Mean	Remarks*
CICR 21 Bt	20.59	26.29	23.44	AETL
Suraj Bt (ZC Bt)	26.8	22.15	24.48	AETL
G. COT 16 Cry 1Ac	29.29	24.31	26.80	AETL
Phule Yamuna (ZC Non-Bt)	34.41	27.59	31.00	AETL
G. COT 10 Cry 1Ac	28.81	25.75	27.28	AETL
CICR 22 Bt	23.8	22.90	23.35	AETL
Local Check	21.65	25.71	23.68	AETL
CICR 19 Bt	27.01	26.12	26.56	AETL

Table. Advance Variety Trial under protected conditions in Central Zone -- Locule damage (Normal spacing)

Name of Entry	Locule damage (%)			
	Junagadh	Rahuri	Mean	Remarks*
CICR 21 Bt	17.21	13.04	15.13	
Suraj Bt (ZC Bt)	18.84	11.44	15.14	
G. COT 16 Cry 1Ac	21.61	11.42	16.52	
Phule Yamuna (ZC Non-Bt)	27.11	11.95	19.53	
G. COT 10 Cry 1Ac	22.24	11.38	16.81	
CICR 22 Bt	19.08	11.49	15.29	
Local Check	16.32	12.19	14.25	
CICR 19 Bt	21.93	11.60	16.76	

Table. Advance Variety Trial under protected conditions in Central Zone -- Aphid (Closer spacing)

Name of Entry	Aphid (Average of 3 leaves/plant)		
	Junagadh	Mean	Remarks*
CICR 21 Bt	5.73	5.73	BETL
Suraj Bt (ZC Bt)	6.63	6.63	AETL
G. COT 16 Cry 1Ac	5.53	5.53	BETL
Phule Yamuna (ZC Non-Bt)	4.07	4.07	BETL
G. COT 10 Cry 1Ac	4.57	4.57	BETL
CICR 22 Bt	4.67	4.67	BETL
Local Check	6.73	6.73	AETL
CICR 19 Bt	4.60	4.60	BETL

Table. Advance Variety Trial under protected conditions in Central Zone --Leafhopper (Closer spacing)

Name of Entry	Leafhopper (Average of 3 leaves/plant)		
	Junagadh	Mean	Remarks*
CICR 21 Bt	3.90	3.90	BETL
Suraj Bt (ZC Bt)	5.53	5.53	BETL
G. COT 16 Cry 1Ac	5.20	5.20	BETL
Phule Yamuna (ZC Non-Bt)	3.93	3.93	BETL
G. COT 10 Cry 1Ac	3.83	3.83	BETL
CICR 22 Bt	6.17	6.17	AETL
Local Check	6.27	6.27	AETL
CICR 19 Bt	4.73	4.73	BETL

Table. Advance Variety Trial under protected conditions in Central Zone -Thrips (Closer spacing)

Name of Entry	Thrips (Average of 3 leaves/plant)		
	Junagadh	Mean	Remarks*
CICR 21 Bt	11.10	11.10	AETL
Suraj Bt (ZC Bt)	12.83	12.83	AETL
G. COT 16 Cry 1Ac	14.03	14.03	AETL
Phule Yamuna (ZC Non-Bt)	9.87	9.87	BETL
G. COT 10 Cry 1Ac	10.00	10.00	AETL
CICR 22 Bt	11.40	11.40	AETL
Local Check	14.47	14.47	AETL
CICR 19 Bt	13.27	13.27	AETL

Table. Advance HxH Trial under protected conditions in Central Zone -Whitefly (Closer spacing)

Name of Entry	Whitefly (Average of 3 leaves/plant)		
	Junagadh	Mean	Remarks*
CICR 21 Bt	7.23	7.23	BETL
Suraj Bt (ZC Bt)	5.47	5.47	BETL
G. COT 16 Cry 1Ac	5.90	5.90	BETL
Phule Yamuna (ZC Non-Bt)	5.30	5.30	BETL
G. COT 10 Cry 1Ac	4.50	4.50	BETL
CICR 22 Bt	5.13	5.13	BETL
Local Check	6.40	6.40	BETL
CICR 19 Bt	7.57	7.57	BETL

Table. Advance Variety Trial under protected conditions in Central Zone -- Pink bollworm (Closer spacing)

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)		
	Junagadh	Mean	Remarks*
CICR 21 Bt	2.20	2.20	BETL
Suraj Bt (ZC Bt)	3.00	3.00	BETL
G. COT 16 Cry 1Ac	4.10	4.10	BETL
Phule Yamuna (ZC Non-Bt)	4.50	4.50	BETL
G. COT 10 Cry 1Ac	3.70	3.70	BETL
CICR 22 Bt	2.80	2.80	BETL
Local Check	2.30	2.30	BETL
CICR 19 Bt	3.20	3.20	BETL

Table. Advance Variety Trial under protected conditions in Central Zone -- Green Boll damage (Closer spacing)

Name of Entry	Green Boll damage (%)		
	Junagadh	Mean	Remarks*
CICR 21 Bt	18.74	18.74	AETL
Suraj Bt (ZC Bt)	21.74	21.74	AETL
G. COT 16 Cry 1Ac	26.94	26.94	AETL
Phule Yamuna (ZC Non-Bt)	32.77	32.77	AETL
G. COT 10 Cry 1Ac	25.86	25.86	AETL
CICR 22 Bt	21.09	21.09	AETL
Local Check	19.18	19.18	AETL
CICR 19 Bt	25.14	25.14	AETL

Table. Advance Variety Trial under protected conditions in Central Zone -Open Boll damage (Closer spacing)

Name of Entry	Open Boll damage(%)		
	Junagadh	Mean	Remarks*
CICR 21 Bt	22.83	22.83	AETL
Suraj Bt (ZC Bt)	24.93	24.93	AETL
G. COT 16 Cry 1Ac	32.03	32.03	AETL
Phule Yamuna (ZC Non-Bt)	35.73	35.73	AETL
G. COT 10 Cry 1Ac	28.78	28.78	AETL
CICR 22 Bt	24.36	24.36	AETL
Local Check	23.62	23.62	AETL
CICR 19 Bt	28.39	28.39	AETL

Table. Advance Variety Trial under protected conditions in Central Zone -- Locule damage (Closer spacing)

Name of Entry	Aphid (Average of 3 leaves/plant)		
	Junagadh	Mean	Remarks*
CICR 21 Bt	17.24	17.24	
Suraj Bt (ZC Bt)	19.08	19.08	
G. COT 16 Cry 1Ac	25.13	25.13	
Phule Yamuna (ZC Non-Bt)	30.22	30.22	
G. COT 10 Cry 1Ac	23.58	23.58	
CICR 22 Bt	18.83	18.83	
Local Check	17.01	17.01	
CICR 19 Bt	22.06	22.06	

Reaction to Diseases

Table: Advanced Evaluation Trial of Hirsutum Varieties – Irrigated (Normal spacing) under protected condition

Entry	Average PDI & Disease Reaction (DR): Protected (Normal spacing)									
	Junagarh						Khandwa			
	BLB		ALB		GM		ALB		MLS	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
CICR 21 Bt	6.8	R	22.0	R	1.5	R	23.5	R	8.0	R
Suraj Bt (ZC Bt)	4.5	R	8.0	R	3.5	R	25.0	R	15.0	R
G. COT 16 Cry 1Ac	5.3	R	17.0	R	2.5	R	21.0	R	14.5	R
Phule Yamuna (ZC Non-Bt)	8.0	R	25.0	R	1.0	R	20.0	R	11.0	R
G. COT 10 Cry 1Ac	1.0	R	19.0	R	11.8	R	22.5	R	5.0	R
CICR 22 Bt	1.3	R	10.0	R	6.0	R	22.0	R	12.5	R
(LC)	5.3	R	3.5	R	7.0	R	21.5	R	16.5	R
CICR 19 Bt	0.8	R	6.0	R	3.3	R	21.0	R	17.0	R

Table: Advanced Evaluation Trial of Hirsutum Varieties - Irrigated–(Closer spacing) under protected condition

Entry	Average PDI & Disease Reaction (DR): Protected (Closer spacing) (Junagarh)					
	BLB		ALB		GM	
	PDI	DR	PDI	DR	PDI	DR
CICR 21 Bt	4.5	R	24.5	R	2.5	R
Suraj Bt (ZC Bt)	3.3	R	11.0	R	3.0	R
G. COT 16 Cry 1Ac	17.5	R	18.5	R	2.5	R
Phule Yamuna (ZC Non-Bt)	4.3	R	27.0	MR	3.0	R
G. COT 10 Cry 1Ac	1.5	R	20.0	R	12.0	R
CICR 22 Bt	2.0	R	11.5	R	4.0	R
(LC)	7.5	R	4.0	R	15.0	R
CICR 19 Bt	5.8	R	6.5	R	4.5	R

Evaluation under unprotected condition for insect pests and diseases:

Reaction to Insect Pests

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Aphid (Normal spacing)

Name of Entry	Aphid (Average of 3 leaves/plant)			
	Junagadh	Khandwa	Mean	Remarks*
CICR 21 Bt	6.37	19.65	13.01	AETL
Suraj Bt (ZC Bt)	6.23	16.45	11.34	AETL
G. COT 16 Cry 1Ac	5.07	20.75	12.91	AETL
Phule Yamuna (ZC Non-Bt)	3.90	18.80	11.35	AETL
G. COT 10 Cry 1Ac	4.07	15.65	9.86	AETL
CICR 22 Bt	5.03	9.55	7.29	AETL
Local Check	6.37	21.15	13.76	AETL
CICR 19 Bt	4.50	21.20	12.85	AETL

Table. Advance Variety Trial under unprotected conditions in Central Zone --Leafhopper (Normal spacing)

Name of Entry	Leafhopper (Average of 3 leaves/plant)				
	Junagadh	Rahuri	Khandwa	Mean	Remarks*
CICR 21 Bt	2.85	3.79	4.60	3.75	BETL
Suraj Bt (ZC Bt)	3.45	3.98	5.10	4.18	BETL
G. COT 16 Cry 1Ac	3.55	3.80	3.10	3.48	BETL
Phule Yamuna (ZC Non-Bt)	2.30	3.81	4.00	3.37	BETL
G. COT 10 Cry 1Ac	2.60	3.40	3.30	3.10	BETL
CICR 22 Bt	4.33	3.66	1.70	3.23	BETL
Local Check	4.40	3.81	3.50	3.90	BETL
CICR 19 Bt	3.15	3.47	3.30	3.31	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -Thrips (Normal spacing)

Name of Entry	Aphid (Average of 3 leaves/plant)			
	Junagadh	Rahuri	Mean	Remarks*
CICR 21 Bt	10.03	3.83	6.93	BETL
Suraj Bt (ZC Bt)	13.63	3.49	8.56	BETL
G. COT 16 Cry 1Ac	13.57	3.31	8.44	BETL
Phule Yamuna (ZC Non-Bt)	9.17	3.04	6.10	BETL
G. COT 10 Cry 1Ac	9.70	3.05	6.38	BETL
CICR 22 Bt	11.53	3.30	7.42	BETL
Local Check	15.20	3.36	9.28	BETL
CICR 19 Bt	11.47	3.31	7.39	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -Whitefly (Normal spacing)

Name of Entry	Whitefly (Average of 3 leaves/plant)				
	Junagadh	Rahuri	Khandwa	Mean	Remarks*
CICR 21 Bt	7.37	3.22	19.65	10.08	BETL
Suraj Bt (ZC Bt)	6.03	3.75	12.75	7.51	BETL
G. COT 16 Cry 1Ac	6.23	3.08	16.75	8.69	BETL
Phule Yamuna (ZC Non-Bt)	5.17	3.14	19.15	9.15	BETL
G. COT 10 Cry 1Ac	4.93	3.18	19.70	9.27	BETL
CICR 22 Bt	4.80	3.26	8.85	5.64	BETL
Local Check	6.27	3.59	19.95	9.94	BETL
CICR 19 Bt	7.83	3.44	19.55	10.27	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Pink bollworm (Normal spacing)

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)			
	Junagadh	Rahuri	Mean	Remarks*
CICR 21 Bt	3.80	19.67	11.74	AETL
Suraj Bt (ZC Bt)	3.90	15.33	9.62	BETL
G. COT 16 Cry 1Ac	4.50	11.67	8.09	BETL
Phule Yamuna (ZC Non-Bt)	5.40	10.83	8.12	BETL
G. COT 10 Cry 1Ac	5.20	19.00	12.10	AETL
CICR 22 Bt	4.50	13.00	8.75	BETL
Local Check	3.40	21.17	12.29	AETL
CICR 19 Bt	4.70	18.67	11.69	AETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Green Boll damage & Green boll damage due to PBW

Name of Entry	Green Boll damage (%)			
	Junagadh	Rahuri	Mean	Remarks*
CICR 21 Bt	20.60	0.00	10.30	AETL
Suraj Bt (ZC Bt)	22.67	0.00	11.34	AETL
G. COT 16 Cry 1Ac	27.16	0.00	13.58	AETL
Phule Yamuna (ZC Non-Bt)	35.69	0.00	17.85	AETL
G. COT 10 Cry 1Ac	30.92	0.00	15.46	AETL
CICR 22 Bt	23.82	0.00	11.91	AETL
Local Check	19.38	0.00	9.69	BETL
CICR 19 Bt	28.73	0.00	14.37	AETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Green boll damage due to PBW

Name of Entry	Green Boll damage (%)		
	Khandwa	Mean	Remarks*
CICR 21 Bt	50.00	50.00	AETL
Suraj Bt (ZC Bt)	25.00	25.00	AETL
G. COT 16 Cry 1Ac	45.00	45.00	AETL
Phule Yamuna (ZC Non-Bt)	50.00	50.00	AETL
G. COT 10 Cry 1Ac	40.00	40.00	AETL
CICR 22 Bt	10.00	10.00	BETL
Local Check	45.00	45.00	AETL
CICR 19 Bt	35.00	35.00	AETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -Open Boll damage (Normal spacing)

Name of Entry	Open Boll damage (%)				
	Junagadh	Rahuri	Khandwa	Mean	Remarks*
CICR 21 Bt	21.80	26.39	30.00	26.06	AETL
Suraj Bt (ZC Bt)	27.90	29.88	40.00	32.59	AETL
G. COT 16 Cry 1Ac	31.75	29.45	45.00	35.40	AETL
Phule Yamuna (ZC Non-Bt)	38.02	27.32	45.00	36.78	AETL
G. COT 10 Cry 1Ac	33.60	25.24	40.00	32.95	AETL
CICR 22 Bt	25.11	26.85	15.00	22.32	AETL
Local Check	22.93	33.91	45.00	33.95	AETL
CICR 19 Bt	28.18	26.84	35.00	30.01	AETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Locule damage (Normal spacing)

Name of Entry	Locule damage (%)			
	Junagadh	Rahuri	Khandwa	Mean
CICR 21 Bt	18.90	12.38	15.00	15.43
Suraj Bt (ZC Bt)	20.32	14.49	15.00	16.60
G. COT 16 Cry 1Ac	23.95	16.75	6.25	15.65
Phule Yamuna (ZC Non-Bt)	30.33	12.68	13.75	18.92
G. COT 10 Cry 1Ac	24.98	13.59	12.50	17.02
CICR 22 Bt	20.15	12.62	3.75	12.17
Local Check	17.82	18.98	15.00	17.27
CICR 19 Bt	23.47	16.34	15.00	18.27

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Aphid (Closer spacing)

Name of Entry	Aphid (Average of 3 leaves/plant)		
	Junagadh	Mean	Remarks*
CICR 21 Bt	6.30	6.30	AETL
Suraj Bt (ZC Bt)	7.20	7.20	AETL
G. COT 16 Cry 1Ac	6.03	6.03	AETL
Phule Yamuna (ZC Non-Bt)	4.50	4.50	BETL
G. COT 10 Cry 1Ac	4.83	4.83	BETL
CICR 22 Bt	4.97	4.97	BETL
Local Check	7.03	7.03	AETL
CICR 19 Bt	5.10	5.10	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone --Leafhopper (Closer spacing)

Name of Entry	Leafhopper (Average of 3 leaves/plant)		
	Junagadh	Mean	Remarks*
CICR 21 Bt	4.13	4.13	BETL
Suraj Bt (ZC Bt)	5.80	5.80	BETL
G. COT 16 Cry 1Ac	5.43	5.43	BETL
Phule Yamuna (ZC Non-Bt)	4.07	4.07	BETL
G. COT 10 Cry 1Ac	4.10	4.10	BETL
CICR 22 Bt	6.50	6.50	AETL
Local Check	6.70	6.70	AETL
CICR 19 Bt	5.00	5.00	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -Thrips (Closer spacing)

Name of Entry	Thrips (Average of 3 leaves/plant)		
	Junagadh	Mean	Remarks*
CICR 21 Bt	11.40	11.40	BETL
Suraj Bt (ZC Bt)	13.13	13.13	BETL
G. COT 16 Cry 1Ac	15.10	15.10	BETL
Phule Yamuna (ZC Non-Bt)	10.13	10.13	BETL
G. COT 10 Cry 1Ac	10.33	10.33	BETL
CICR 22 Bt	11.30	11.30	BETL
Local Check	15.37	15.37	BETL
CICR 19 Bt	13.87	13.87	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -Whitefly (Closer spacing)

Name of Entry	Whitefly (Average of 3 leaves/plant)		
	Junagadh	Mean	Remarks*
CICR 21 Bt	8.37	8.37	BETL
Suraj Bt (ZC Bt)	6.43	6.43	BETL
G. COT 16 Cry 1Ac	7.03	7.03	BETL
Phule Yamuna (ZC Non-Bt)	6.37	6.37	BETL
G. COT 10 Cry 1Ac	5.57	5.57	BETL
CICR 22 Bt	6.33	6.33	BETL
Local Check	7.27	7.27	BETL
CICR 19 Bt	8.57	8.57	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Pink bollworm (Closer spacing)

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)		
	Junagadh	Mean	Remarks*
CICR 21 Bt	3.50	3.50	BETL
Suraj Bt (ZC Bt)	4.20	4.20	BETL
G. COT 16 Cry 1Ac	5.80	5.80	BETL
Phule Yamuna (ZC Non-Bt)	6.20	6.20	BETL
G. COT 10 Cry 1Ac	5.40	5.40	BETL
CICR 22 Bt	4.60	4.60	BETL
Local Check	3.80	3.80	BETL
CICR 19 Bt	5.10	5.10	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Green Boll damage (Closer spacing)

Name of Entry	Green Boll damage(%)		
	Junagadh	Mean	Remarks*
CICR 21 Bt	20.18	20.18	AETL
Suraj Bt (ZC Bt)	22.70	22.70	AETL
G. COT 16 Cry 1Ac	29.16	29.16	AETL
Phule Yamuna (ZC Non-Bt)	34.86	34.86	AETL
G. COT 10 Cry 1Ac	28.07	28.07	AETL
CICR 22 Bt	22.77	22.77	AETL
Local Check	20.74	20.74	AETL
CICR 19 Bt	26.71	26.71	AETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -Open Boll damage (Closer spacing)

Name of Entry	Green Boll damage(%)		
	Junagadh	Mean	Remarks*
CICR 21 Bt	24.18	24.18	AETL
Suraj Bt (ZC Bt)	26.4	26.4	AETL
G. COT 16 Cry 1Ac	34.15	34.15	AETL
Phule Yamuna (ZC Non-Bt)	37.09	37.09	AETL
G. COT 10 Cry 1Ac	31.06	31.06	AETL
CICR 22 Bt	25.86	25.86	AETL
Local Check	25.1	25.1	AETL
CICR 19 Bt	29.84	29.84	AETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Locule damage (Closer spacing)

Name of Entry	Locule damage (%)	
	Junagadh	Mean
CICR 21 Bt	17.28	17.28
Suraj Bt (ZC Bt)	25.1	25.1
G. COT 16 Cry 1Ac	29.94	29.94
Phule Yamuna (ZC Non-Bt)	34.87	34.87
G. COT 10 Cry 1Ac	25.92	25.92
CICR 22 Bt	21.24	21.24
Local Check	20.64	20.64
CICR 19 Bt	22.06	22.06

Reaction to Diseases

Table: Advanced Evaluation Trial of Hirsutum Varieties – Irrigated (Normal spacing)– under Unprotected condition

Entries	Average PDI & Disease Reaction (DR): Unprotected (Normal spacing)											
	Junagarh						Rahuri					
	BLB		ALB		GM		BLB		ALB		GM	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
CICR 21 Bt	0.8	R	19.0	R	0.8	R	8.3	R	16.7	R	5.0	R
Suraj Bt (ZC Bt)	3.8	R	26.5	MR	6.0	R	6.7	R	5.0	R	3.3	R
G. COT 16 Cry 1Ac	8.8	R	15.5	R	10.0	R	5.0	R	3.3	R	5.0	R
Phule Yamuna (ZC Non-Bt)	8.0	R	14.5	R	7.8	R	1.7	R	5.0	R	5.0	R
G. COT 10 Cry 1Ac	7.8	R	12.3	R	9.0	R	10.0	R	11.7	R	3.3	R
CICR 22 Bt	8.8	R	8.0	R	0.5	R	6.7	R	5.0	R	3.3	R
(LC)	2.5	R	9.8	R	0.8	R	8.3	R	3.3	R	5.0	R
CICR 19 Bt	5.0	R	5.5	R	1.8	R	10.0	R	13.3	R	13.3	R

Table: Advanced Evaluation Trial of Hirsutum Varieties – Irrigated (Closer spacing) – under Unprotected condition.

Entries	Average PDI & Disease Reaction (DR): Unprotected (Closer Spacing) (Junagarh)					
	BLB		ALB		GM	
	PDI	DR	PDI	DR	PDI	DR
CICR 21 Bt	2.3	R	21.5	R	3.8	R
Suraj Bt (ZC Bt)	5.3	R	29.0	R	9.0	R
G. COT 16 Cry 1Ac	10.3	R	18.0	R	13.0	R
Phule Yamuna (ZC Non-Bt)	9.5	R	17.0	R	10.8	R
G. COT 10 Cry 1Ac	9.3	R	14.8	R	12.0	R
CICR 22 Bt	10.3	R	10.5	R	3.5	R
(LC)	4.0	R	12.3	R	3.8	R
CICR 19 Bt	6.5	R	8.0	R	4.8	R

Combined Evaluation Trial of Hirsutum x Barbadense Hybrids in Central Zone (2020-21) - Irrigated

Constitution of Trial

The trial was constituted with two Hirsutum x Barbadense Bt cotton Hybrids containing MON 15985 event sponsored by various Private organization along with three different check hybrids as furnished below.

S. No.	Name of the Entry	Sponsored by
1	MRC 7918 BG II (ZC)	
2	C 7928 BG II	Mahyco Pvt Ltd
3	DCH 32 (Non Bt ZC)	
4	MC 5500 BG II	Rallis India Ltd.
5	BG II Local Check	
6	C 7938 BG II	Mahyco Pvt Ltd

The trial was conducted in two different locations and detail is furnished below.

Name of the trial location	Rahuri	Anand
Local check	Bahubali BG II	G. Cot Hy 101

Spacing: Recommended spacing for the hybrid has been followed.
Number of rows:4 rows of 6 meters per entry with four replications

Data recorded:

Biometric evaluation

Plant height (cm) at harvest in Hirsutum x Barbadense Hybrids trial

S. No.	Name of the Entry	Anand	Rahuri	Mean
1	MRC 7918 BG II (ZC)	177.2	137.8	**157.5**
2	C 7928 BG II	177.9	143.3	**160.6**
3	DCH 32 (Non Bt ZC)	176.7	125.3	**151.0**
4	MC 5500 BG II	205.1	134.5	**169.8**
5	BG II Local Check	184.9	114.8	**149.9**
6	C 7938 BG II	191.1	130.0	**160.6**
	CD @ 5%	16.5	3.3	
	CV %	5.9	1.7	

Number of monopodia in Hirsutum x Barbadense Hybrids trial

S. No.	Name of the Entry	Anand	Rahuri	Mean
1	MRC 7918 BG II (ZC)	5.1	1.9	**3.5**
2	C 7928 BG II	5.3	2.0	**3.7**
3	DCH 32 (Non Bt ZC)	4.9	1.7	**3.3**
4	MC 5500 BG II	6.8	2.3	**4.6**
5	BG II Local Check	6.1	0.3	**3.2**
6	C 7938 BG II	5.6	1.6	**3.6**
	CD @ 5%	0.8	0.2	
	CV %	9.3	8.6	

Number of sympodia in Hirsutum x Barbadense Hybrids trial

S. No.	Name of the Entry	Anand	Rahuri	Mean
1	MRC 7918 BG II (ZC)	22.5	26.7	**24.6**
2	C 7928 BG II	22.3	25.2	**23.8**
3	DCH 32 (Non Bt ZC)	20.3	23.8	**22.1**
4	MC 5500 BG II	24.5	25.2	**24.9**
5	BG II Local Check	22.3	28.2	**25.3**
6	C 7938 BG II	24.4	22.1	**23.3**
	CD @ 5%	0.7	0.5	
	CV %	2.2	1.3	

Number of bolls / plant in Hirsutum x Barbadense Hybrids trial

S. No.	Name of the Entry	Anand	Rahuri	Mean
1	MRC 7918 BG II (ZC)	63.1	55.7	**59.4**
2	C 7928 BG II	51.7	56.7	**54.2**
3	DCH 32 (Non Bt ZC)	47.9	34.5	**41.2**
4	MC 5500 BG II	68.8	34.3	**51.6**
5	BG II Local Check	56.9	39.8	**48.4**
6	C 7938 BG II	72.0	54.4	**63.2**
	CD @ 5%	7.3	1.7	
	CV %	8.0	2.5	

Lint Index (g) in Hirsutum x Barbadense Hybrids trial

S. No.	Name of the Entry	Anand	Rahuri	Mean
1	MRC 7918 BG II (ZC)	5.0	5.8	**5.4**
2	C 7928 BG II	5.8	4.2	**5.0**
3	DCH 32 (Non Bt ZC)	5.1	4.7	**4.9**
4	MC 5500 BG II	5.0	3.9	**4.5**
5	BG II Local Check	6.6	4.8	**5.7**
6	C 7938 BG II	5.9	3.7	**4.8**
	CD @ 5%	0.7	0.5	
	CV %	7.8	7.4	

Seed Index (g) in Hirsutum x Barbadense Hybrids trial

S. No.	Name of the Entry	Anand	Rahuri	Mean
1	MRC 7918 BG II (ZC)	11.1	11.4	**11.3**
2	C 7928 BG II	14.0	9.6	**11.8**
3	DCH 32 (Non Bt ZC)	12.9	8.9	**10.9**
4	MC 5500 BG II	12.8	8.7	**10.8**
5	BG II Local Check	11.8	10.2	**11.0**
6	C 7938 BG II	11.9	8.2	**10.1**
	CD @ 5%	0.7	0.7	
	CV %	4.0	4.7	

Ginning outturn (%) in Hirsutum x Barbadense Hybrids trial

S. No.	Name of the Entry	Anand	Rahuri	Mean
1	MRC 7918 BG II (ZC)	31.3	33.6	**32.5**
2	C 7928 BG II	29.2	30.2	**29.7**
3	DCH 32 (Non Bt ZC)	28.3	34.7	**31.5**
4	MC 5500 BG II	28.0	30.7	**29.4**
5	BG II Local Check	35.9	31.8	**33.9**
6	C 7938 BG II	33.2	31.4	**32.3**
	CD @ 5%	2.1	1.5	
	CV %	4.4	3.0	

Upper Half Mean Length (mm) under HVI Mode in Hirsutum x Barbadense Hybrids trial

S. No.	Name of the Entry	Anand	Rahuri	Mean
1	MRC 7918 BG II (ZC)	34.9	35.5	**35.2**
2	C 7928 BG II	38.5	35.2	**36.9**
3	DCH 32 (Non Bt ZC)	36.1	32.0	**34.1**
4	MC 5500 BG II	34.7	32.0	**33.4**
5	BG II Local Check	33.3	35.1	**34.2**
6	C 7938 BG II	37.1	33.2	**35.2**

Uniformity index under HVI Mode in Hirsutum x Barbadense Hybrids trial

S. No.	Name of the Entry	Anand	Rahuri	Mean
1	MRC 7918 BG II (ZC)	83.0	86.0	**84.5**
2	C 7928 BG II	86.0	84.0	**85.0**
3	DCH 32 (Non Bt ZC)	86.0	85.0	**85.5**
4	MC 5500 BG II	86.0	84.0	**85.0**
5	BG II Local Check	81.0	86.0	**83.5**
6	C 7938 BG II	84.0	85.0	**84.5**

Micronaire under HVI Mode in I Hirsutum x Barbadense Hybrids trial

S. No.	Name of the Entry	Anand	Rahuri	Mean
1	MRC 7918 BG II (ZC)	3.7	3.0	**3.4**
2	C 7928 BG II	3.7	2.8	**3.3**
3	DCH 32 (Non Bt ZC)	4.1	3.0	**3.6**
4	MC 5500 BG II	4.3	3.0	**3.7**
5	BG II Local Check	4.1	3.0	**3.6**
6	C 7938 BG II	3.9	2.6	**3.3**

Tenacity under HVI Mode in Hirsutum x Barbadense Hybrids trial

S. No.	Name of the Entry	Anand	Rahuri	Mean
1	MRC 7918 BG II (ZC)	31.5	29.3	**30.4**
2	C 7928 BG II	35.4	31.0	**33.2**
3	DCH 32 (Non Bt ZC)	32.0	29.9	**31.0**
4	MC 5500 BG II	32.3	30.6	**31.5**
5	BG II Local Check	30.7	32.2	**31.5**
6	C 7938 BG II	33.3	31.4	**32.4**

Seed Cotton Yield (q/ha)in Hirsutum x Barbadense Hybrids trial

S. No.	Name of the Entry	Anand	Rahuri	Mean	Rank
1	MRC 7918 BG II (ZC)	27.69	8.58	**18.14**	1
2	C 7928 BG II	23.90	4.88	**14.39**	4
3	DCH 32 (Non Bt ZC)	13.82	1.65	**7.74**	6
4	MC 5500 BG II	29.78	5.31	**17.55**	3
5	BG II Local Check	19.42	5.45	**12.44**	5
6	C 7938 BG II	30.43	5.19	**17.81**	2
	CD @ 5%		0.82		
	CV %		9.36		

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect pests

Table. Combined HXB Trial under protected conditions in Central Zone – Aphid

Name of Entry	Aphid (Average of 3 leaves/plant)		
	Anand	Mean	Remarks*
MRC 7918 BG II (ZC)	1.02	1.02	BETL
C 7928 BG II	1.09	1.09	BETL
DCH 32 (Non Bt ZC)	1.12	1.12	BETL
MC 5500 BG II	0.88	0.88	BETL
BG II Local Check	0.93	0.93	BETL
C 7938 BG II	1.05	1.05	BETL

Table. Combined HXB Trial under protected conditions in Central Zone – Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)			
	Rahuri	Anand	Mean	Remarks*
MRC 7918 BG II (ZC)	4.61	1.48	3.05	BETL
C 7928 BG II	4.69	1.15	2.92	BETL
DCH 32 (Non Bt ZC)	4.99	1.43	3.21	BETL
MC 5500 BG II	4.83	0.85	2.84	BETL
BG II Local Check	4.49	1.49	2.99	BETL
C 7938 BG II	4.40	0.53	2.46	BETL

Table. Combined HXB Trial under protected conditions in Central Zone -- Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)			
	Rahuri	Anand	Mean	Remarks*
MRC 7918 BG II (ZC)	2.64	0.63	1.63	BETL
C 7928 BG II	3.50	0.44	1.97	BETL
DCH 32 (Non Bt ZC)	3.03	0.75	1.89	BETL
MC 5500 BG II	3.70	0.12	1.91	BETL
BG II Local Check	3.39	0.35	1.87	BETL
C 7938 BG II	3.30	0.99	2.14	BETL

Table. Combined HXB Trial under protected conditions in Central Zone – Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)			
	Rahuri	Anand	Mean	Remarks*
MRC 7918 BG II (ZC)	3.53	0.64	2.08	BETL
C 7928 BG II	3.24	0.59	1.92	BETL
DCH 32 (Non Bt ZC)	3.36	0.74	2.05	BETL
MC 5500 BG II	3.64	0.33	1.99	BETL
BG II Local Check	3.09	0.61	1.85	BETL
C 7938 BG II	3.4	0.49	1.94	BETL

Table. Combined HXB Trial under protected conditions in Central Zone -- Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)			
	Rahuri	Anand	Mean	Remarks*
MRC 7918 BG II (ZC)	0.0	1.05	0.53	BETL
C 7928 BG II	0.0	1.16	0.58	BETL
DCH 32 (Non Bt ZC)	0.0	1.52	0.76	BETL
MC 5500 BG II	0.0	0.98	0.49	BETL
BG II Local Check	0.0	1.60	0.80	BETL
C 7938 BG II	0.0	0.98	0.49	BETL

Table. Combined HXB Trial under protected conditions in Central Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)			
	Rahuri	Anand	Mean	Remarks*
MRC 7918 BG II (ZC)	12.5	1.38	6.94	BETL
C 7928 BG II	12.0	1.61	6.81	BETL
DCH 32 (Non Bt ZC)	11.3	1.94	6.64	BETL
MC 5500 BG II	11.7	1.20	6.44	BETL
BG II Local Check	11.3	1.77	6.55	BETL
C 7938 BG II	14.0	1.15	7.57	BETL

Table. Combined HXB Trial under protected conditions in Central Zone -- Green Boll damage

Name of Entry	Green Boll damage (%)			
	Rahuri	Anand	Mean	Remarks*
MRC 7918 BG II (ZC)	0.0	4.67	2.33	BETL
C 7928 BG II	0.0	5.55	2.78	BETL
DCH 32 (Non Bt ZC)	0.0	10.45	5.22	BETL
MC 5500 BG II	0.0	3.11	1.56	BETL
BG II Local Check	0.0	10.00	5.00	BETL
C 7938 BG II	0.0	6.22	3.11	BETL

Table. Combined HXB Trial under protected conditions in Central Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)		
	Rahuri	Mean	Remarks*
MRC 7918 BG II (ZC)	27.52	27.52	AETL
C 7928 BG II	28.96	28.96	AETL
DCH 32 (Non Bt ZC)	27.57	27.57	AETL
MC 5500 BG II	29.74	29.74	AETL
BG II Local Check	35.50	35.50	AETL
C 7938 BG II	28.16	28.16	AETL

Table. Combined HXB Trial under protected conditions in Central Zone -- Locule damage

Name of Entry	Locule damage (%)	
	Rahuri	Mean
MRC 7918 BG II (ZC)	17.32	17.32
C 7928 BG II	17.73	17.73
DCH 32 (Non Bt ZC)	14.94	14.94
MC 5500 BG II	18.99	18.99
BG II Local Check	20.16	20.16
C 7938 BG II	18.71	18.71

Evaluation under unprotected condition for insect pests and diseases:

Reaction to Insect Pests

Table. Combined HXB Trial under unprotected conditions in Central Zone -- Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)		
	Rahuri	Mean	Remarks*
MRC 7918 BG II (ZC)	7.02	7.02	AETL
C 7928 BG II	7.04	7.04	AETL
DCH 32 (Non Bt ZC)	7.74	7.74	AETL
MC 5500 BG II	7.38	7.38	AETL
BG II Local Check	7.32	7.32	AETL
C 7938 BG II	7.38	7.38	AETL

Table. Combined HXB Trial under unprotected conditions in Central Zone -- Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)		
	Rahuri	Mean	Remarks*
MRC 7918 BG II (ZC)	3.70	3.70	BETL
C 7928 BG II	4.10	4.10	BETL
DCH 32 (Non Bt ZC)	4.03	4.03	BETL
MC 5500 BG II	4.17	4.17	BETL
BG II Local Check	3.98	3.98	BETL
C 7938 BG II	3.82	3.82	BETL

Table. Combined HXB Trial under unprotected conditions in Central Zone -- Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)		
	Rahuri	Mean	Remarks*
MRC 7918 BG II (ZC)	3.85	3.85	BETL
C 7928 BG II	3.75	3.75	BETL
DCH 32 (Non Bt ZC)	4.11	4.11	BETL
MC 5500 BG II	3.77	3.77	BETL
BG II Local Check	3.74	3.74	BETL
C 7938 BG II	3.74	3.74	BETL

Table. Combined HXB Trial under unprotected conditions in Central Zone -- Spotted

Name of Entry	Spotted Bollworms (No. / 5 plants)		
	Rahuri	Mean	Remarks*
MRC 7918 BG II (ZC)	0	0	BETL
C 7928 BG II	0	0	BETL
DCH 32 (Non Bt ZC)	0	0	BETL
MC 5500 BG II	0	0	BETL
BG II Local Check	0	0	BETL
C 7938 BG II	0	0	BETL

Table. Combined HXB Trial under unprotected conditions in Central Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)		
	Rahuri	Mean	Remarks*
MRC 7918 BG II (ZC)	19.50	19.50	AETL
C 7928 BG II	18.67	18.67	AETL
DCH 32 (Non Bt ZC)	16.67	16.67	AETL
MC 5500 BG II	17.33	17.33	AETL
BG II Local Check	17.00	17.00	AETL
C 7938 BG II	20.83	20.83	AETL

Table. Combined HXB Trial under unprotected conditions in Central Zone -- Green Boll damage

Name of Entry	Green Boll damage (%)		
	Rahuri	Mean	Remarks*
MRC 7918 BG II (ZC)	0.00	0.00	BETL
C 7928 BG II	0.00	0.00	BETL
DCH 32 (Non Bt ZC)	0.00	0.00	BETL
MC 5500 BG II	0.00	0.00	BETL
BG II Local Check	0.00	0.00	BETL
C 7938 BG II	0.00	0.00	BETL

Table. Combined HXB Trial under unprotected conditions in Central Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)		
	Rahuri	Mean	Remarks*
MRC 7918 BG II (ZC)	28.03	28.03	AETL
C 7928 BG II	23.84	23.84	AETL
DCH 32 (Non Bt ZC)	26.30	26.30	AETL
MC 5500 BG II	25.34	25.34	AETL
BG II Local Check	28.41	28.41	AETL
C 7938 BG II	26.24	26.24	AETL

Table. Combined HXB Trial under unprotected conditions in Central Zone -- Locule damage

Name of Entry	Locule damage (%)		
	Rahuri	Mean	Remarks*
MRC 7918 BG II (ZC)	12.48	12.48	AETL
C 7928 BG II	11.01	11.01	AETL
DCH 32 (Non Bt ZC)	11.94	11.94	AETL
MC 5500 BG II	12.20	12.20	AETL
BG II Local Check	13.52	13.52	AETL
C 7938 BG II	13.31	13.31	AETL

Reaction to Diseases

Table. Combined Evaluation Trial of Interspecific H X B Hybrids – Irrigated: Unprotected (Rahuri)

Entry	Average PDI & Disease Reaction (DR): Unprotected (Rahuri)					
	BLB		ALB		GM	
	PDI	DR	PDI	DR	PDI	DR
MRC 7918 BG II (ZC)	8.3	R	5.0	R	5.0	R
C 7928 BG II	6.7	R	15.0	R	16.7	R
DCH 32 (Non Bt ZC)	6.7	R	18.3	R	15.0	R
MC 5500 BG II	8.3	R	11.7	R	5.0	R
BG II Local Check	5.0	R	5.0	R	3.3	R
C 7938 BG II	10.0	R	18.3	R	3.3	R

Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids in Central Zone (2020-21) - Rainfed

1. *Constitution of Trial*

The trial was constituted with 14 Bt cotton hybrids containing MON 15985 event sponsored by various organization along with two different check hybrids as furnished below.

S. No.	Name of the Entry	Sponsored by
1	US 708 BG II	Seed Works International Pvt Ltd
2	SP7680 BG II	Bayer Biosciences Pvt Ltd
3	ARCH 3181 BG II	Ankur Seeds Pvt Ltd
4	Indam 2092 BG II	Indo-American Hybrid Seeds (I) Pvt Ltd
5	ACH 955-2 BG II	Ajeet Seeds Pvt Ltd
6	Jadoo BG II (ZC)	
7	RCH 990 BG II	Rasi Seeds Pvt Ltd
8	CICR HH Bt 11	ICAR-CICR, Nagpur
9	SP7688 BG II	Bayer Biosciences Pvt Ltd
10	MC 5461 BG II	Rallis India Ltd.
11	RCH 996 BG II	Rasi Seeds Pvt Ltd
12	BG II Local Check	
13	US 707 BG II	Seed Works International Pvt Ltd
14	C 9393 BG II	Mahyco Pvt Ltd
15	ARCH 3079 BG II	Ankur Seeds Pvt Ltd
16	BIO AMBHH 511 BG II	Shriram Bioseed Genetics

The trial was conducted in four different locations and detail is furnished below.

Name of the trial location	Surat	Bharuch	Nagpur	Akola
Local check Bt hybrid	MRC 7347 BG II	MRC 7347 BG II	MRC 7347 BG II	MRC 7347 BG II

Spacing: Recommended spacing for the hybrid has been followed.

Number of rows:4 rows of 6 meters per entry with three replications

Data recorded:

Biometric evaluation

Plant height (cm) at harvest in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Surat	Akola	Nagpur	Mean
1	US 708 BG II	134.9	129.4	153.1	**139.1**
2	SP7680 BG II	133.8	119.0	150.6	**134.5**
3	ARCH 3181 BG II	149.4	128.9	145.1	**141.1**
4	Indam 2092 BG II	136.2	110.6	146.3	**131.0**
5	ACH 955-2 BG II	153.4	124.4	148.2	**142.0**
6	Jadoo BG II (ZC)	160.1	129.4	165.7	**151.7**
7	RCH 990 BG II	128.5	125.6	160.5	**138.2**
8	CICR HH Bt 11	123.3	92.1	134.1	**116.5**
9	SP7688 BG II	136.1	113.9	142.3	**130.8**
10	MC 5461 BG II	147.1	129.4	152.6	**143.0**
11	RCH 996 BG II	129.0	120.6	157.9	**135.8**
12	BG II Local Check	131.7	116.1	139.5	**129.1**
13	US 707 BG II	139.9	108.9	149.1	**132.6**
14	C 9393 BG II	117.5	122.2	131.3	**123.7**
15	ARCH 3079 BG II	150.6	127.7	146.0	**141.4**
16	BIO AMBHH 511 BG II	152.1	141.1	162.6	**151.9**
	CD @ 5%	16.9	10.3	NS	
	CV %	7.3	8.8	8.9	

Number of monopodia in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Surat	Akola	Nagpur	Mean
1	US 708 BG II	1.7	1.8	2.2	**1.9**
2	SP7680 BG II	3.4	1.8	2.6	**2.6**
3	ARCH 3181 BG II	1.9	1.3	2.9	**2.0**
4	Indam 2092 BG II	1.9	1.7	1.9	**1.8**
5	ACH 955-2 BG II	2.1	2.1	2.9	**2.4**
6	Jadoo BG II (ZC)	2.5	1.8	2.7	**2.3**
7	RCH 990 BG II	2.8	1.8	2.9	**2.5**
8	CICR HH Bt 11	3.3	2.4	3.9	**3.2**
9	SP7688 BG II	2.5	2.2	2.9	**2.5**
10	MC 5461 BG II	3.3	2.0	2.6	**2.6**
11	RCH 996 BG II	3.2	2.3	3.3	**2.9**
12	BG II Local Check	2.9	2.7	2.2	**2.6**
13	US 707 BG II	2.3	1.9	2.7	**2.3**
14	C 9393 BG II	2.1	0.9	1.9	**1.6**
15	ARCH 3079 BG II	2.0	1.7	3.0	**2.2**
16	BIO AMBHH 511 BG II	3.1	1.1	1.7	**2.0**
	CD @ 5%	0.7	0.3	0.9	
	CV %	16.3	18.4	19.4	

Number of sympodia in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Surat	Akola	Nagpur	Mean
1	US 708 BG II	15.5	17.7	27.6	**20.3**
2	SP7680 BG II	14.5	19.1	23.5	**19.0**
3	ARCH 3181 BG II	14.8	17.6	25.3	**19.2**
4	Indam 2092 BG II	13.6	15.6	26.2	**18.5**
5	ACH 955-2 BG II	16.5	17.3	26.3	**20.0**
6	Jadoo BG II (ZC)	15.3	17.0	24.8	**19.0**
7	RCH 990 BG II	13.4	16.8	23.2	**17.8**
8	CICR HH Bt 11	15.3	16.3	26.1	**19.2**
9	SP7688 BG II	14.4	17.9	24.3	**18.9**
10	MC 5461 BG II	15.1	15.9	25.7	**18.9**
11	RCH 996 BG II	14.1	17.2	24.5	**18.6**
12	BG II Local Check	14.6	17.4	26.0	**19.3**
13	US 707 BG II	15.7	17.3	26.1	**19.7**
14	C 9393 BG II	14.9	17.8	29.2	**20.6**
15	ARCH 3079 BG II	18.0	16.2	25.7	**20.0**
16	BIO AMBHH 511 BG II	16.5	17.3	25.5	**19.8**
	CD @ 5%	1.8	1.2	3.2	
	CV %	7.1	7.5	7.5	

Number of bolls / plant in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	US 708 BG II	18.0	17.9	18.2	20.4	**18.6**
2	SP7680 BG II	20.7	18.6	18.7	22.5	**20.1**
3	ARCH 3181 BG II	19.2	15.1	25.8	33.9	**23.5**
4	Indam 2092 BG II	23.5	11.3	21.3	26.7	**20.7**
5	ACH 955-2 BG II	20.6	18.7	22.9	25.4	**21.9**
6	Jadoo BG II (ZC)	20.7	21.6	22.0	26.7	**22.8**
7	RCH 990 BG II	18.8	22.4	15.0	28.5	**21.2**
8	CICR HH Bt 11	25.1	19.3	19.7	36.9	**25.3**
9	SP7688 BG II	18.8	18.2	19.4	20.5	**19.2**
10	MC 5461 BG II	21.3	14.7	20.1	22.5	**19.7**
11	RCH 996 BG II	21.5	15.4	18.4	22.2	**19.4**
12	BG II Local Check	25.1	20.2	22.4	35.3	**25.8**
13	US 707 BG II	21.2	16.8	21.5	19.1	**19.7**
14	C 9393 BG II	16.8	12.2	24.6	20.2	**18.5**
15	ARCH 3079 BG II	25.5	18.3	22.6	31.7	**24.5**
16	BIO AMBHH 511 BG II	19.2	15.3	18.4	41.8	**23.7**
	CD @ 5%	4.9	4.3	3.2	10.3	
	CV %	14.0	14.7	16.2	23.0	

Number of bolls / sq.m. in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	US 708 BG II	33.2	53.8	46.0	60.4	**48.4**
2	SP7680 BG II	38.4	55.9	69.0	66.8	**57.5**
3	ARCH 3181 BG II	35.5	45.4	59.7	100.3	**60.2**
4	Indam 2092 BG II	43.5	33.8	58.7	79.0	**53.8**
5	ACH 955-2 BG II	38.0	56.0	74.3	75.3	**60.9**
6	Jadoo BG II (ZC)	38.3	64.8	55.0	79.0	**59.3**
7	RCH 990 BG II	34.8	67.2	56.7	84.5	**60.8**
8	CICR HH Bt 11	46.4	57.8	71.0	109.4	**71.2**
9	SP7688 BG II	34.9	54.6	59.7	60.6	**52.5**
10	MC 5461 BG II	39.5	44.2	59.0	66.6	**52.3**
11	RCH 996 BG II	39.8	46.2	59.7	65.8	**52.9**
12	BG II Local Check	46.5	60.7	47.3	104.5	**64.8**
13	US 707 BG II	39.2	50.3	61.0	56.7	**51.8**
14	C 9393 BG II	31.0	36.7	70.7	59.9	**49.6**
15	ARCH 3079 BG II	47.2	54.9	67.0	94.0	**65.8**
16	BIO AMBHH 511 BG II	35.6	46.0	72.3	123.9	**69.5**
	CD @ 5%	9.1		9.5	30.7	
	CV %	14.0		16.1	23.0	

Lint Index (g) in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	US 708 BG II	5.2	6.0	5.7	6.2	**5.8**
2	SP7680 BG II	6.1	5.4	5.5	6.0	**5.8**
3	ARCH 3181 BG II	5.1	4.8	5.1	5.0	**5.0**
4	Indam 2092 BG II	5.1	5.2	4.6	4.5	**4.9**
5	ACH 955-2 BG II	5.5	4.5	5.1	4.8	**5.0**
6	Jadoo BG II (ZC)	5.1	4.1	4.9	4.1	**4.6**
7	RCH 990 BG II	4.6	5.5	5.7	5.4	**5.3**
8	CICR HH Bt 11	5.4	4.8	3.6	4.3	**4.5**
9	SP7688 BG II	5.8	5.7	4.9	5.4	**5.5**
10	MC 5461 BG II	5.0	5.9	5.4	5.4	**5.4**
11	RCH 996 BG II	5.1	5.7	5.6	5.0	**5.4**
12	BG II Local Check	4.9	5.7	3.7	5.3	**4.9**
13	US 707 BG II	5.3	6.2	6.0	5.8	**5.8**
14	C 9393 BG II	4.4	5.3	4.8	3.9	**4.6**
15	ARCH 3079 BG II	5.1	6.1	5.0	4.8	**5.3**
16	BIO AMBHH 511 BG II	5.1	6.5	6.8	5.3	**5.9**
	CD @ 5%	0.5	0.2	0.6		
	CV %	6.0	2.4	11.6		

Seed Index (g) in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	US 708 BG II	8.5	10.3	9.7	10.5	**9.8**
2	SP7680 BG II	8.8	9.4	9.3	9.5	**9.3**
3	ARCH 3181 BG II	9.3	9.5	9.7	9.5	**9.5**
4	Indam 2092 BG II	9.2	10.1	8.5	8.5	**9.1**
5	ACH 955-2 BG II	9.0	8.1	8.3	8.0	**8.4**
6	Jadoo BG II (ZC)	9.0	8.1	8.7	8.0	**8.5**
7	RCH 990 BG II	8.7	11.8	9.8	10.0	**10.1**
8	CICR HH Bt 11	8.3	9.4	6.8	7.0	**7.9**
9	SP7688 BG II	10.5	10.9	9.7	8.5	**9.9**
10	MC 5461 BG II	9.2	11.8	9.0	9.5	**9.9**
11	RCH 996 BG II	9.3	12.0	10.8	10.0	**10.5**
12	BG II Local Check	9.5	10.9	6.7	9.5	**9.2**
13	US 707 BG II	8.8	10.3	10.3	10.0	**9.9**
14	C 9393 BG II	9.0	12.3	9.7	8.5	**9.9**
15	ARCH 3079 BG II	8.7	11.3	9.5	8.5	**9.5**
16	BIO AMBHH 511 BG II	9.0	12.0	10.5	9.5	**10.3**
	CD @ 5%	0.9	0.4	0.6		
	CV %	5.8	2.0	7.0		

Ginning outturn (%) in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	US 708 BG II	38.8	37.0	37.3	37.0	**37.5**
2	SP7680 BG II	39.5	36.6	36.9	38.9	**38.0**
3	ARCH 3181 BG II	36.2	33.3	34.5	34.5	**34.6**
4	Indam 2092 BG II	35.2	34.3	35.0	34.7	**34.8**
5	ACH 955-2 BG II	38.0	35.8	37.8	37.7	**37.3**
6	Jadoo BG II (ZC)	35.9	33.4	36.2	34.1	**34.9**
7	RCH 990 BG II	35.9	31.8	36.8	35.1	**34.9**
8	CICR HH Bt 11	37.7	33.7	34.6	37.9	**36.0**
9	SP7688 BG II	35.8	34.4	33.4	38.8	**35.6**
10	MC 5461 BG II	35.9	33.4	37.5	36.2	**35.8**
11	RCH 996 BG II	35.0	32.0	34.0	33.4	**33.6**
12	BG II Local Check	35.1	34.4	35.5	35.7	**35.2**
13	US 707 BG II	38.0	37.7	36.9	36.6	**37.3**
14	C 9393 BG II	33.1	30.3	32.9	31.4	**31.9**
15	ARCH 3079 BG II	36.9	35.0	34.2	36.0	**35.5**
16	BIO AMBHH 511 BG II	37.1	35.2	39.4	35.9	**36.9**
	CD @ 5%	1.1	0.6	2.0		
	CV %	1.7	1.1	6.0		

Upper Half Mean Length (mm) under HVI Mode in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	US 708 BG II	28.3	27.4	27.9	25.6	**27.3**
2	SP7680 BG II	28.3	29.3	27.0	27.1	**27.9**
3	ARCH 3181 BG II	28.0	28.3	29.1	27.8	**28.3**
4	Indam 2092 BG II	27.8	26.8	27.3	26.9	**27.2**
5	ACH 955-2 BG II	26.2	26.8	25.9	24.7	**25.9**
6	Jadoo BG II (ZC)	29.8	30.9	30.0	28.3	**29.8**
7	RCH 990 BG II	29.9	30.7	29.6	27.6	**29.5**
8	CICR HH Bt 11	25.7	26.2	25.2	26.2	**25.8**
9	SP7688 BG II	29.0	28.8	27.9	28.6	**28.6**
10	MC 5461 BG II	27.6	28.0	27.6	27.5	**27.7**
11	RCH 996 BG II	28.0	28.3	28.6	27.8	**28.2**
12	BG II Local Check	25.7	27.4	25.4	25.1	**25.9**
13	US 707 BG II	29.3	28.0	27.8	27.6	**28.2**
14	C 9393 BG II	30.2	30.2	28.6	28.7	**29.4**
15	ARCH 3079 BG II	27.2	28.4	27.8	28.1	**27.9**
16	BIO AMBHH 511 BG II	27.5	28.8	27.0	27.5	**27.7**

Uniformity index under HVI Mode in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	US 708 BG II	85.0	84.0	85.0	80.0	**83.5**
2	SP7680 BG II	85.0	87.0	85.0	83.0	**85.0**
3	ARCH 3181 BG II	85.0	82.0	85.0	83.0	**83.8**
4	Indam 2092 BG II	85.0	82.0	82.0	82.0	**82.8**
5	ACH 955-2 BG II	85.0	83.0	83.0	82.0	**83.3**
6	Jadoo BG II (ZC)	85.0	84.0	86.0	83.0	**84.5**
7	RCH 990 BG II	87.0	85.0	86.0	81.0	**84.8**
8	CICR HH Bt 11	85.0	81.0	82.0	80.0	**82.0**
9	SP7688 BG II	87.0	83.0	85.0	81.0	**84.0**
10	MC 5461 BG II	85.0	81.0	86.0	81.0	**83.3**
11	RCH 996 BG II	85.0	83.0	87.0	81.0	**84.0**
12	BG II Local Check	85.0	83.0	84.0	79.0	**82.8**
13	US 707 BG II	86.0	82.0	85.0	81.0	**83.5**
14	C 9393 BG II	86.0	84.0	83.0	81.0	**83.5**
15	ARCH 3079 BG II	86.0	84.0	86.0	81.0	**84.3**
16	BIO AMBHH 511 BG II	87.0	86.0	86.0	81.0	**85.0**

Micronaire under HVI Mode in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	US 708 BG II	4.2	3.9	4.5	4.3	**4.2**
2	SP7680 BG II	4.7	4.3	4.5	4.3	**4.5**
3	ARCH 3181 BG II	4.2	4.0	4.3	4.1	**4.2**
4	Indam 2092 BG II	4.5	4.1	4.2	3.9	**4.2**
5	ACH 955-2 BG II	4.3	3.8	4.0	4.2	**4.1**
6	Jadoo BG II (ZC)	5.1	4.4	4.9	4.6	**4.8**
7	RCH 990 BG II	4.0	3.5	3.9	4.1	**3.9**
8	CICR HH Bt 11	4.7	3.6	4.0	3.9	**4.1**
9	SP7688 BG II	4.0	3.7	4.4	3.5	**3.9**
10	MC 5461 BG II	4.8	4.2	4.6	4.2	**4.5**
11	RCH 996 BG II	3.8	3.5	4.1	3.9	**3.8**
12	BG II Local Check	4.3	4.0	4.1	4.2	**4.2**
13	US 707 BG II	3.5	3.4	3.7	3.6	**3.6**
14	C 9393 BG II	4.3	3.7	4.8	3.6	**4.1**
15	ARCH 3079 BG II	4.5	4.1	4.6	4.2	**4.4**
16	BIO AMBHH 511 BG II	4.0	3.6	4.4	3.8	**4.0**

Tenacity under HVI Mode in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	US 708 BG II	29.5	27.2	26.5	27.0	**27.6**
2	SP7680 BG II	29.9	29.4	26.9	26.0	**28.1**
3	ARCH 3181 BG II	28.8	29.4	28.5	30.0	**29.2**
4	Indam 2092 BG II	28.3	25.4	27.1	30.9	**27.9**
5	ACH 955-2 BG II	29.1	27.6	26.6	29.8	**28.3**
6	Jadoo BG II (ZC)	30.1	28.9	29.3	33.9	**30.6**
7	RCH 990 BG II	29.6	28.4	30.2	28.3	**29.1**
8	CICR HH Bt 11	27.7	26.6	26.2	24.2	**26.2**
9	SP7688 BG II	28.6	28.5	28.3	26.8	**28.1**
10	MC 5461 BG II	27.7	28.1	27.0	28.1	**27.7**
11	RCH 996 BG II	30.7	28.5	28.5	26.0	**28.4**
12	BG II Local Check	27.9	28.1	26.2	27.9	**27.5**
13	US 707 BG II	28.2	26.1	26.8	26.0	**26.8**
14	C 9393 BG II	28.8	28.7	26.4	27.4	**27.8**
15	ARCH 3079 BG II	29.1	28.9	27.2	31.5	**29.2**
16	BIO AMBHH 511 BG II	29.3	28.1	26.3	25.5	**27.3**

Seed Cotton Yield (q/ha) in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean	Rank
1	US 708 BG II	15.90	15.41	10.31	21.33	**15.74**	10
2	SP7680 BG II	15.57	13.39	12.72	20.57	**15.56**	11
3	ARCH 3181 BG II	16.26	10.79	19.04	24.90	**17.75**	1
4	Indam 2092 BG II	20.29	8.01	9.30	16.56	**13.54**	14
5	ACH 955-2 BG II	16.66	13.69	16.21	20.54	**16.78**	5
6	Jadoo BG II (ZC)	19.39	15.56	11.44	20.22	**16.65**	6
7	RCH 990 BG II	16.29	16.05	10.81	24.71	**16.97**	4
8	CICR HH Bt 11	16.07	12.12	9.46	16.05	**13.43**	15
9	SP7688 BG II	17.37	13.53	11.76	14.47	**14.28**	12
10	MC 5461 BG II	17.95	10.37	9.63	16.83	**13.70**	13
11	RCH 996 BG II	16.11	13.39	9.04	25.99	**16.13**	7
12	BG II Local Check	18.23	11.64	9.24	24.49	**15.90**	9
13	US 707 BG II	19.35	13.73	9.07	22.14	**16.07**	8
14	C 9393 BG II	14.17	8.66	13.25	14.00	**12.52**	16
15	ARCH 3079 BG II	20.22	13.05	16.21	20.66	**17.54**	3
16	BIO AMBHH 511 BG II	19.04	10.19	15.99	25.55	**17.69**	2
	CD @ 5%	3.69	3.25	1.13	6.67		
	CV %	12.60	14.40	9.65	19.60		

Qualitative Cry Protein Evaluation

All the above entries were positive for Cry 1Ac Protein in qualitative ELISA Test

All the above entries were positive for Cry 2Ab Protein in qualitative ELISA Test

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect Pests

Table. Initial HxH Trial in Central Zone under protected conditions – Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)					
	Surat	Akola	Nagpur	Bharuch	Mean	Remarks*
US 708 BG II	0.93	0.51	2.48	2.73	1.66	BETL
SP7680 BG II	0.82	0.58	2.46	2.13	1.50	BETL
ARCH 3181 BG II	3.38	0.51	2.87	3.03	2.45	BETL
Indam 2092 BG II	3.87	0.89	3.18	1.77	2.42	BETL
ACH 955-2 BG II	0.96	0.84	3.48	2.93	2.05	BETL
Jadoo BG II (ZC)	1.09	0.73	2.98	2.73	1.88	BETL
RCH 990 BG II	1.16	0.60	3.00	2.70	1.86	BETL
CICR HH Bt 11	1.29	0.93	2.81	3.77	2.20	BETL
SP7688 BG II	4.16	0.91	3.51	2.10	2.67	BETL
MC 5461 BG II	2.07	1.82	3.73	3.27	2.72	BETL
RCH 996 BG II	3.96	0.96	3.52	3.47	2.97	BETL
BG II Local Check	1.80	0.84	2.75	1.30	1.67	BETL
US 707 BG II	4.11	1.07	3.53	1.20	2.48	BETL
C 9393 BG II	2.07	1.29	3.75	2.73	2.46	BETL
ARCH 3079 BG II	3.36	1.36	3.25	2.97	2.73	BETL
BIO AMBHH 511 BG II	1.31	1.26	3.08	2.10	1.94	BETL

Table. Initial HxH Trial in Central Zone under protected conditions -- Jassid Injury Grade

Name of Entry	JIG (Average of 3 leaves/plant)		
	Akola	Nagpur	Remarks*
US 708 BG II	I	1	BETL
SP7680 BG II	II	1	BETL
ARCH 3181 BG II	I	1	BETL
Indam 2092 BG II	II	1	BETL
ACH 955-2 BG II	II	1	BETL
Jadoo BG II (ZC)	II	1	BETL
RCH 990 BG II	II	1	BETL
CICR HH Bt 11	II	1	BETL
SP7688 BG II	II	1	BETL
MC 5461 BG II	II	1	BETL
RCH 996 BG II	I	1	BETL
BG II Local Check	II	1	BETL
US 707 BG II	I	1	BETL
C 9393 BG II	II	1	BETL
ARCH 3079 BG II	I	1	BETL
BIO AMBHH 511 BG II	I	1	BETL

Table. Initial HxH Trial in Central Zone under protected conditions – Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)					
	Surat	Akola	Nagpur	Bharuch	Mean	Remarks*
US 708 BG II	8.67	2.71	3.25	3.23	4.47	BETL
SP7680 BG II	8.36	3.07	2.65	2.27	4.08	BETL
ARCH 3181 BG II	18.00	2.62	2.67	2.20	6.37	BETL
Indam 2092 BG II	14.18	2.64	2.95	4.80	6.14	BETL
ACH 955-2 BG II	10.13	2.71	2.95	4.13	4.98	BETL
Jadoo BG II (ZC)	10.00	2.64	2.11	4.83	4.90	BETL
RCH 990 BG II	7.13	3.22	3.01	3.40	4.19	BETL
CICR HH Bt 11	8.20	2.73	2.36	3.87	4.29	BETL
SP7688 BG II	20.09	2.53	2.38	2.60	6.90	BETL
MC 5461 BG II	15.67	2.40	2.55	3.13	5.94	BETL
RCH 996 BG II	17.44	3.18	2.3	3.87	6.70	BETL
BG II Local Check	6.98	2.18	3.23	3.30	3.92	BETL
US 707 BG II	20.13	3.13	3.03	3.83	7.53	BETL
C 9393 BG II	13.73	2.67	2.83	3.30	5.63	BETL
ARCH 3079 BG II	9.89	3.16	3.15	3.40	4.90	BETL
BIO AMBHH 511 BG II	5.58	3.02	2.65	3.47	3.68	BETL

Table. Initial HxH Trial in Central Zone under protected conditions -- Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)					
	Surat	Akola	Nagpur	Bharuch	Mean	Remarks*
US 708 BG II	1.73	3.40	3.20	3.40	2.93	BETL
SP7680 BG II	1.78	4.09	3.72	3.53	3.28	BETL
ARCH 3181 BG II	2.33	3.96	3.70	2.20	3.05	BETL
Indam 2092 BG II	2.73	4.11	2.86	3.43	3.28	BETL
ACH 955-2 BG II	1.47	3.67	3.58	3.00	2.93	BETL
Jadoo BG II (ZC)	1.33	2.62	3.23	3.23	2.60	BETL
RCH 990 BG II	2.13	3.91	3.53	3.83	3.35	BETL
CICR HH Bt 11	0.73	3.29	3.00	4.00	2.76	BETL
SP7688 BG II	3.42	3.22	3.63	2.43	3.18	BETL
MC 5461 BG II	1.67	3.36	3.35	2.73	2.78	BETL
RCH 996 BG II	1.76	4.87	4.95	2.57	3.53	BETL
BG II Local Check	1.22	3.60	4.08	1.80	2.68	BETL
US 707 BG II	3.40	3.04	4.81	2.50	3.44	BETL
C 9393 BG II	2.18	3.69	3.56	3.20	3.16	BETL
ARCH 3079 BG II	1.64	4.22	4.00	2.80	3.17	BETL
BIO AMBHH 511 BG II	1.69	4.47	3.78	2.23	3.04	BETL

Table. Initial HxH Trial in Central Zone under protected conditions -- Natural Enemies

Name of Entry	Natural enemies (No./Plant)		
	Surat	Bharuch	Mean
US 708 BG II	0.06	0.13	0.09
SP7680 BG II	0.04	0.10	0.07
ARCH 3181 BG II	0.14	0.10	0.12
Indam 2092 BG II	0.07	0.13	0.10
ACH 955-2 BG II	0.12	0.10	0.11
Jadoo BG II (ZC)	0.06	0.13	0.09
RCH 990 BG II	0.09	0.10	0.09
CICR HH Bt 11	0.09	0.13	0.11
SP7688 BG II	0.10	0.07	0.08
MC 5461 BG II	0.13	0.07	0.10
RCH 996 BG II	0.12	0.03	0.08
BG II Local Check	0.12	0.13	0.13
US 707 BG II	0.18	0.13	0.16
C 9393 BG II	0.11	0.13	0.12
ARCH 3079 BG II	0.18	0.07	0.12
BIO AMBHH 511 BG II	0.10	0.13	0.12

Table. Initial HxH Trial in Central Zone under protected conditions -- Bollworms - *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants				
	Surat	Nagpur	Bharuch	Mean	Remarks*
US 708 BG II	0.00	0.00	0.00	0.00	BETL
SP7680 BG II	0.00	0.00	0.00	0.00	BETL
ARCH 3181 BG II	0.00	0.00	0.00	0.00	BETL
Indam 2092 BG II	0.00	0.00	0.00	0.00	BETL
ACH 955-2 BG II	0.00	0.00	0.00	0.00	BETL
Jadoo BG II (ZC)	0.00	0.00	0.00	0.00	BETL
RCH 990 BG II	0.00	0.00	0.00	0.00	BETL
CICR HH Bt 11	0.00	0.00	0.00	0.00	BETL
SP7688 BG II	0.00	0.00	0.00	0.00	BETL
MC 5461 BG II	0.00	0.00	0.00	0.00	BETL
RCH 996 BG II	0.00	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	0.00	BETL
US 707 BG II	0.00	0.00	0.00	0.00	BETL
C 9393 BG II	0.00	0.00	0.00	0.00	BETL
ARCH 3079 BG II	0.00	0.00	0.00	0.00	BETL
BIO AMBHH 511 BG II	0.00	0.00	0.00	0.00	BETL

Table. Initial HxH Trial in Central Zone under protected conditions -- Bollworms - Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)			
	Surat	Bharuch	Mean	Remarks*
US 708 BG II	0.00	0.00	0.00	BETL
SP7680 BG II	0.00	0.00	0.00	BETL
ARCH 3181 BG II	0.00	0.00	0.00	BETL
Indam 2092 BG II	0.00	0.00	0.00	BETL
ACH 955-2 BG II	0.00	0.00	0.00	BETL
Jadoo BG II (ZC)	0.00	0.00	0.00	BETL
RCH 990 BG II	0.00	0.00	0.00	BETL
CICR HH Bt 11	0.00	0.00	0.00	BETL
SP7688 BG II	0.00	0.00	0.00	BETL
MC 5461 BG II	0.00	0.00	0.00	BETL
RCH 996 BG II	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	BETL
US 707 BG II	0.00	0.00	0.00	BETL
C 9393 BG II	0.00	0.00	0.00	BETL
ARCH 3079 BG II	0.00	0.00	0.00	BETL
BIO AMBHH 511 BG II	0.00	0.00	0.00	BETL

Table. Initial HxH Trial in Central Zone under protected conditions -- Bollworms - *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)			
	Surat	Bharuch	Mean	Remarks*
US 708 BG II	0.00	0.00	0.00	BETL
SP7680 BG II	0.00	0.00	0.00	BETL
ARCH 3181 BG II	0.00	0.00	0.00	BETL
Indam 2092 BG II	0.00	0.00	0.00	BETL
ACH 955-2 BG II	0.00	0.00	0.00	BETL
Jadoo BG II (ZC)	0.00	0.00	0.00	BETL
RCH 990 BG II	0.00	0.00	0.00	BETL
CICR HH Bt 11	0.00	0.00	0.00	BETL
SP7688 BG II	0.00	0.00	0.00	BETL
MC 5461 BG II	0.00	0.00	0.00	BETL
RCH 996 BG II	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	BETL
US 707 BG II	0.00	0.00	0.00	BETL
C 9393 BG II	0.00	0.00	0.00	BETL
ARCH 3079 BG II	0.00	0.00	0.00	BETL
BIO AMBHH 511 BG II	0.00	0.00	0.00	BETL

Table. Initial HxH Trial in Central Zone under protected conditions -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)					
	Surat	Akola	Nagpur	Bharuch	Mean	Remarks*
US 708 BG II	0.00	2.20	0.03	0.00	0.56	BETL
SP7680 BG II	0.00	2.51	0.02	0.00	0.63	BETL
ARCH 3181 BG II	0.44	2.13	0.02	0.00	0.65	BETL
Indam 2092 BG II	0.56	2.27	0.00	0.11	0.73	BETL
ACH 955-2 BG II	0.00	2.02	0.00	0.00	0.51	BETL
Jadoo BG II (ZC)	0.00	2.16	0.05	0.11	0.58	BETL
RCH 990 BG II	0.00	2.38	0.08	0.11	0.64	BETL
CICR HH Bt 11	0.00	1.89	0.03	0.00	0.48	BETL
SP7688 BG II	1.00	2.24	0.03	0.22	0.88	BETL
MC 5461 BG II	0.44	2.07	0.00	0.00	0.63	BETL
RCH 996 BG II	0.67	2.38	0.07	0.22	0.83	BETL
BG II Local Check	0.22	1.60	0.02	0.00	0.46	BETL
US 707 BG II	0.56	3.40	0.05	0.22	1.06	AETL
C 9393 BG II	0.44	3.11	0.00	0.00	0.89	BETL
ARCH 3079 BG II	0.56	2.13	0.07	0.00	0.69	BETL
BIO AMBHH 511 BG II	0.22	2.38	0.02	0.00	0.65	BETL

Table. Initial HxH Trial in Central Zone under protected conditions -- Green Boll damage

Name of Entry	Green Boll damage (%)			
	Nagpur	Bharuch	Mean	Remarks*
US 708 BG II	0.36	0.00	0.18	BETL
SP7680 BG II	0.00	0.00	0.00	BETL
ARCH 3181 BG II	0.00	0.00	0.00	BETL
Indam 2092 BG II	0.00	0.33	0.17	BETL
ACH 955-2 BG II	0.00	0.78	0.39	BETL
Jadoo BG II (ZC)	0.00	0.33	0.17	BETL
RCH 990 BG II	0.00	0.33	0.17	BETL
CICR HH Bt 11	0.00	0.00	0.00	BETL
SP7688 BG II	0.00	0.78	0.39	BETL
MC 5461 BG II	0.00	0.89	0.44	BETL
RCH 996 BG II	0.00	0.67	0.33	BETL
BG II Local Check	0.00	0.78	0.39	BETL
US 707 BG II	0.00	0.00	0.00	BETL
C 9393 BG II	0.00	0.33	0.17	BETL
ARCH 3079 BG II	0.00	0.78	0.39	BETL
BIO AMBHH 511 BG II	0.00	0.33	0.17	BETL

Table. Initial HxH Trial in Central Zone under protected conditions -- Open Boll damage

Name of Entry	Open Boll damage (%)				
	Surat	Akola	Bharuch	Mean	Remarks*
US 708 BG II	0.00	67.94	0.33	22.76	AETL
SP7680 BG II	0.00	43.15	0.00	14.38	AETL
ARCH 3181 BG II	3.33	48.60	0.33	17.42	AETL
Indam 2092 BG II	3.33	48.58	0.22	17.38	AETL
ACH 955-2 BG II	0.00	30.97	0.33	10.43	AETL
Jadoo BG II (ZC)	0.00	36.97	0.33	12.43	AETL
RCH 990 BG II	0.00	62.62	0.33	20.98	AETL
CICR HH Bt 11	0.00	26.08	0.22	8.77	BETL
SP7688 BG II	7.78	48.28	0.00	18.69	AETL
MC 5461 BG II	4.44	33.27	0.00	12.57	AETL
RCH 996 BG II	4.44	48.56	0.00	17.67	AETL
BG II Local Check	1.11	37.98	0.00	13.03	AETL
US 707 BG II	6.67	73.96	0.33	26.99	AETL
C 9393 BG II	4.44	35.22	0.56	13.41	AETL
ARCH 3079 BG II	4.44	35.06	0.00	13.17	AETL
BIO AMBHH 511 BG II	2.22	43.67	0.33	15.41	AETL

Table. Initial HxH Trial in Central Zone under protected conditions -- Locule damage

Name of Entry	Locule damage (%)				
	Surat	Akola	Nagpur	Bharuch	Mean
US 708 BG II	0.00	34.69	1.67	0.00	9.09
SP7680 BG II	0.00	20.34	0.42	0.00	5.19
ARCH 3181 BG II	1.11	18.84	0.84	0.11	5.23
Indam 2092 BG II	1.39	19.43	0.00	0.00	5.21
ACH 955-2 BG II	0.00	11.43	0.42	0.11	2.99
Jadoo BG II (ZC)	0.00	14.46	2.92	0.11	4.37
RCH 990 BG II	0.00	32.37	3.90	0.00	9.07
CICR HH Bt 11	0.00	11.46	1.28	0.00	3.19
SP7688 BG II	2.50	25.17	3.38	0.00	7.76
MC 5461 BG II	1.94	14.24	0.00	0.00	4.05
RCH 996 BG II	1.67	23.18	3.97	0.00	7.20
BG II Local Check	0.56	14.33	2.07	0.00	4.24
US 707 BG II	2.50	39.96	7.87	0.11	12.61
C 9393 BG II	1.39	27.47	0.43	0.22	7.38
ARCH 3079 BG II	1.94	15.55	1.67	0.00	4.79
BIO AMBHH 511 BG II	0.56	21.75	0.39	0.00	5.67

Table. Initial HxH Trial in Central Zone under protected conditions -- Number of sprays for sucking pests

Name of Entry	Sprays applied for sap sucking pests (Nos.)			
	Surat	Akola	Bharuch	Mean
US 708 BG II	5.00	2.00	5.00	4.00
SP7680 BG II	5.00	2.00	5.00	4.00
ARCH 3181 BG II	5.00	2.00	5.00	4.00
Indam 2092 BG II	5.00	2.00	5.00	4.00
ACH 955-2 BG II	5.00	2.00	5.00	4.00
Jadoo BG II (ZC)	5.00	2.00	5.00	4.00
RCH 990 BG II	5.00	2.00	5.00	4.00
CICR HH Bt 11	5.00	2.00	5.00	4.00
SP7688 BG II	5.00	2.00	5.00	4.00
MC 5461 BG II	5.00	2.00	5.00	4.00
RCH 996 BG II	5.00	2.00	5.00	4.00
BG II Local Check	5.00	2.00	5.00	4.00
US 707 BG II	5.00	2.00	5.00	4.00
C 9393 BG II	5.00	2.00	5.00	4.00
ARCH 3079 BG II	5.00	2.00	5.00	4.00
BIO AMBHH 511 BG II	5.00	2.00	5.00	4.00

Reaction to Diseases

Table: Initial Evaluation Trial of Intra-Hirsutum Hybrids - Rainfed under protected condition

Entries	Average PDI & Disease Reaction (DR): Protected									
	Surat				Akola					
	BLB		ALB		BLB		MLS		GM	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
US 708 BG II	10.0	R	0.0	DF	5.0	R	5.0	R	1.7	R
SP7680 BG II	24.5	R	0.0	DF	1.7	R	1.7	R	3.3	R
ARCH 3181 BG II	0.0	DF	0.0	DF	6.7	R	11.7	R	6.7	R
Indam 2092 BG II	14.5	R	0.0	DF	11.7	R	13.3	R	1.7	R
ACH 955-2 BG II	14.7	R	0.0	DF	8.3	R	5.0	R	5.0	R
Jadoo BG II (ZC)	0.0	DF	0.0	DF	1.7	R	13.3	R	8.3	R
RCH 990 BG II	0.0	DF	0.0	DF	10.0	R	5.0	R	1.7	R
CICR HH Bt 11	7.8	R	0.0	DF	13.3	R	10.0	R	3.3	R
SP7688 BG II	22.8	R	0.0	DF	1.7	R	11.7	R	5.0	R
MC 5461 BG II	14.6	R	0.0	DF	18.3	R	10.0	R	17.5	R
RCH 996 BG II	10.8	R	0.0	DF	3.3	R	11.7	R	18.3	R
BG II (LC)	16.0	R	0.0	DF	11.7	R	11.7	R	5.0	R
US 707 BG II	0.0	DF	0.0	DF	1.7	R	13.3	R	6.7	R
C 9393 BG II	24.2	R	0.0	DF	6.7	R	11.7	R	8.3	R
ARCH 3079 BG II	16.7	R	0.0	DF	13.3	R	5.0	R	16.7	R
BIO AMBHH 511 BG II	5.5	R	0.0	DF	11.7	R	10.0	R	5.0	R

Evaluation under unprotected condition for insect pests and diseases:

Reaction to Insect Pests

Table. Initial HxH Trial in Central Zone under unprotected conditions -- Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
US 708 BG II	1.69	2.52	4.40	2.87	BETL
SP7680 BG II	1.44	2.28	2.77	2.16	BETL
ARCH 3181 BG II	5.40	2.8	4.20	4.13	BETL
Indam 2092 BG II	5.44	2.92	3.27	3.88	BETL
ACH 955-2 BG II	1.22	2.62	2.97	2.27	BETL
Jadoo BG II (ZC)	1.58	2.8	3.20	2.53	BETL
RCH 990 BG II	1.56	2.27	3.17	2.33	BETL
CICR HH Bt 11	2.00	2.52	4.67	3.06	BETL
SP7688 BG II	6.07	3.4	3.10	4.19	BETL
MC 5461 BG II	3.33	3.5	4.10	3.64	BETL
RCH 996 BG II	6.04	3.32	3.87	4.41	BETL
BG II Local Check	3.20	3.15	1.90	2.75	BETL
US 707 BG II	5.29	3.22	2.37	3.63	BETL
C 9393 BG II	3.13	3.47	3.67	3.42	BETL
ARCH 3079 BG II	4.13	2.92	4.07	3.71	BETL
BIO AMBHH 511 BG II	2.24	3.41	3.90	3.18	BETL

Table. Initial HxH Trial in Central Zone under unprotected conditions -- Jassid Injury Grade

Name of Entry	JIG (Average of 3 leaves/plant)
	Nagpur
US 708 BG II	I
SP7680 BG II	I
ARCH 3181 BG II	I
Indam 2092 BG II	I
ACH 955-2 BG II	I
Jadoo BG II (ZC)	I
RCH 990 BG II	I
CICR HH Bt 11	I
SP7688 BG II	I
MC 5461 BG II	I
RCH 996 BG II	I
BG II Local Check	I
US 707 BG II	I
C 9393 BG II	I
ARCH 3079 BG II	I
BIO AMBHH 511 BG II	I

Table. Initial HxH Trial in Central Zone under unprotected conditions -- Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
US 708 BG II	11.09	3.17	4.67	6.31	BETL
SP7680 BG II	10.47	2.90	2.62	5.33	BETL
ARCH 3181 BG II	20.84	2.77	2.90	8.84	BETL
Indam 2092 BG II	16.71	2.97	5.37	8.35	BETL
ACH 955-2 BG II	12.11	2.72	4.73	6.52	BETL
Jadoo BG II (ZC)	11.84	3.05	5.40	6.76	BETL
RCH 990 BG II	9.11	3.33	4.47	5.64	BETL
CICR HH Bt 11	10.47	2.65	4.67	5.93	BETL
SP7688 BG II	22.40	3.17	4.23	9.93	BETL
MC 5461 BG II	17.62	2.32	3.53	7.83	BETL
RCH 996 BG II	19.27	2.50	4.47	8.74	BETL
BG II Local Check	8.76	2.42	4.27	5.15	BETL
US 707 BG II	23.22	2.82	4.67	10.24	BETL
C 9393 BG II	16.24	3.02	4.50	7.92	BETL
ARCH 3079 BG II	11.56	2.37	3.80	5.91	BETL
BIO AMBHH 511 BG II	7.29	2.60	5.40	5.10	BETL

Table. Initial HxH Trial in Central Zone under unprotected conditions -- Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
US 708 BG II	2.56	2.95	4.23	3.25	BETL
SP7680 BG II	3.00	3.37	4.40	3.59	BETL
ARCH 3181 BG II	3.24	3.05	3.73	3.34	BETL
Indam 2092 BG II	3.31	2.82	4.20	3.44	BETL
ACH 955-2 BG II	2.07	3.22	3.47	2.92	BETL
Jadoo BG II (ZC)	2.47	3.6	3.70	3.26	BETL
RCH 990 BG II	3.58	3.65	3.67	3.63	BETL
CICR HH Bt 11	1.67	3.82	4.47	3.32	BETL
SP7688 BG II	4.80	3.17	3.70	3.89	BETL
MC 5461 BG II	2.22	2.65	3.60	2.82	BETL
RCH 996 BG II	3.62	4.65	3.67	3.98	BETL
BG II Local Check	1.73	3.3	3.63	2.89	BETL
US 707 BG II	5.64	3.1	4.13	4.29	BETL
C 9393 BG II	3.40	3.72	4.40	3.84	BETL
ARCH 3079 BG II	3.18	3.72	3.60	3.50	BETL
BIO AMBHH 511 BG II	3.00	4.52	3.67	3.73	BETL

Table. Initial HxH Trial in Central Zone under unprotected conditions -- Natural Enemies

Name of Entry	Natural enemies (No./Plant)		
	Surat	Bharuch	Mean
US 708 BG II	0.12	0.33	0.23
SP7680 BG II	0.10	0.10	0.10
ARCH 3181 BG II	0.26	0.10	0.18
Indam 2092 BG II	0.12	0.37	0.24
ACH 955-2 BG II	0.21	0.33	0.27
Jadoo BG II (ZC)	0.10	0.53	0.32
RCH 990 BG II	0.20	0.63	0.42
CICR HH Bt 11	0.19	0.67	0.43
SP7688 BG II	0.22	0.13	0.18
MC 5461 BG II	0.39	0.13	0.26
RCH 996 BG II	0.28	0.40	0.34
BG II Local Check	0.32	0.50	0.41
US 707 BG II	0.42	0.57	0.49
C 9393 BG II	0.33	0.37	0.35
ARCH 3079 BG II	0.39	0.10	0.24
BIO AMBHH 511 BG II	0.33	0.37	0.35

Table. Initial HxH Trial in Central Zone under unprotected conditions -- Bollworms - *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
US 708 BG II	0.00	0.00	0.00	0.00	BETL
SP7680 BG II	0.00	0.00	0.00	0.00	BETL
ARCH 3181 BG II	0.00	0.00	0.00	0.00	BETL
Indam 2092 BG II	0.00	0.00	0.00	0.00	BETL
ACH 955-2 BG II	0.00	0.00	0.00	0.00	BETL
Jadoo BG II (ZC)	0.00	0.00	0.00	0.00	BETL
RCH 990 BG II	0.00	0.00	0.00	0.00	BETL
CICR HH Bt 11	0.00	0.00	0.00	0.00	BETL
SP7688 BG II	0.00	0.00	0.00	0.00	BETL
MC 5461 BG II	0.00	0.00	0.00	0.00	BETL
RCH 996 BG II	0.00	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.25	0.00	0.08	BETL
US 707 BG II	0.00	0.00	0.00	0.00	BETL
C 9393 BG II	0.00	0.00	0.00	0.00	BETL
ARCH 3079 BG II	0.00	0.00	0.00	0.00	BETL
BIO AMBHH 511 BG II	0.00	0.00	0.00	0.00	BETL

Table. Initial HxH Trial in Central Zone under unprotected conditions -- Bollworms - Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)			
	Surat	Bharuch	Mean	Remarks*
US 708 BG II	0.00	0.00	0.00	BETL
SP7680 BG II	0.00	0.00	0.00	BETL
ARCH 3181 BG II	0.00	0.00	0.00	BETL
Indam 2092 BG II	0.00	0.00	0.00	BETL
ACH 955-2 BG II	0.00	0.00	0.00	BETL
Jadoo BG II (ZC)	0.00	0.00	0.00	BETL
RCH 990 BG II	0.00	0.00	0.00	BETL
CICR HH Bt 11	0.00	0.00	0.00	BETL
SP7688 BG II	0.00	0.00	0.00	BETL
MC 5461 BG II	0.00	0.00	0.00	BETL
RCH 996 BG II	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	BETL
US 707 BG II	0.00	0.00	0.00	BETL
C 9393 BG II	0.00	0.00	0.00	BETL
ARCH 3079 BG II	0.00	0.00	0.00	BETL
BIO AMBHH 511 BG II	0.00	0.00	0.00	BETL

Table. Initial HxH Trial in Central Zone under unprotected conditions -- Bollworms - *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)			
	Surat	Bharuch	Mean	Remarks*
US 708 BG II	0.00	0.00	0.00	BETL
SP7680 BG II	0.00	0.00	0.00	BETL
ARCH 3181 BG II	0.00	0.00	0.00	BETL
Indam 2092 BG II	0.00	0.00	0.00	BETL
ACH 955-2 BG II	0.00	0.00	0.00	BETL
Jadoo BG II (ZC)	0.00	0.00	0.00	BETL
RCH 990 BG II	0.00	0.00	0.00	BETL
CICR HH Bt 11	0.00	0.00	0.00	BETL
SP7688 BG II	0.00	0.00	0.00	BETL
MC 5461 BG II	0.00	0.00	0.00	BETL
RCH 996 BG II	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	BETL
US 707 BG II	0.00	0.00	0.00	BETL
C 9393 BG II	0.00	0.00	0.00	BETL
ARCH 3079 BG II	0.00	0.00	0.00	BETL
BIO AMBHH 511 BG II	0.00	0.00	0.00	BETL

Table. Initial HxH Trial in Central Zone under unprotected conditions -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
US 708 BG II	0.00	0.00	0.00	0.00	BETL
SP7680 BG II	0.00	0.03	0.00	0.01	BETL
ARCH 3181 BG II	0.78	0.03	0.00	0.27	BETL
Indam 2092 BG II	0.89	0.03	0.11	0.34	BETL
ACH 955-2 BG II	0.00	0.00	0.00	0.00	BETL
Jadoo BG II (ZC)	0.00	0.05	0.11	0.05	BETL
RCH 990 BG II	0.00	0.00	0.11	0.04	BETL
CICR HH Bt 11	0.00	0.03	0.00	0.01	BETL
SP7688 BG II	1.33	0.03	0.22	0.53	BETL
MC 5461 BG II	0.78	0.03	0.00	0.27	BETL
RCH 996 BG II	1.00	0.00	0.22	0.41	BETL
BG II Local Check	0.33	0.00	0.00	0.11	BETL
US 707 BG II	0.78	0.00	0.22	0.33	BETL
C 9393 BG II	0.78	0.00	0.00	0.26	BETL
ARCH 3079 BG II	0.89	0.03	0.00	0.30	BETL
BIO AMBHH 511 BG II	0.33	0.03	0.00	0.12	BETL

Table. Initial HxH Trial in Central Zone under unprotected conditions -- Green Boll damage

Name of Entry	Green Boll damage (%)			
	Nagpur	Bharuch	Mean	Remarks*
US 708 BG II	1.14	0.33	0.73	BETL
SP7680 BG II	0.00	1.11	0.56	BETL
ARCH 3181 BG II	0.00	0.78	0.39	BETL
Indam 2092 BG II	0.00	0.89	0.44	BETL
ACH 955-2 BG II	0.00	0.67	0.33	BETL
Jadoo BG II (ZC)	0.00	0.56	0.28	BETL
RCH 990 BG II	0.00	0.78	0.39	BETL
CICR HH Bt 11	0.00	1.00	0.50	BETL
SP7688 BG II	0.00	0.78	0.39	BETL
MC 5461 BG II	0.00	1.00	0.50	BETL
RCH 996 BG II	0.00	0.89	0.44	BETL
BG II Local Check	0.69	0.67	0.68	BETL
US 707 BG II	0.00	0.67	0.33	BETL
C 9393 BG II	0.00	1.22	0.61	BETL
ARCH 3079 BG II	0.00	1.00	0.50	BETL
BIO AMBHH 511 BG II	0.00	1.00	0.50	BETL

Table. Initial HxH Trial in Central Zone under unprotected conditions -- Open Boll damage

Name of Entry	Open Boll damage (%)			
	Surat	Bharuch	Mean	Remarks*
US 708 BG II	0.00	0.11	0.06	BETL
SP7680 BG II	0.00	0.56	0.28	BETL
ARCH 3181 BG II	5.56	0.33	2.94	BETL
Indam 2092 BG II	5.00	0.44	2.72	BETL
ACH 955-2 BG II	0.00	0.33	0.17	BETL
Jadoo BG II (ZC)	0.00	0.22	0.11	BETL
RCH 990 BG II	0.00	0.33	0.17	BETL
CICR HH Bt 11	0.00	0.56	0.28	BETL
SP7688 BG II	11.11	0.33	5.72	BETL
MC 5461 BG II	7.22	0.56	3.89	BETL
RCH 996 BG II	6.11	0.33	3.22	BETL
BG II Local Check	2.22	0.33	1.28	BETL
US 707 BG II	9.44	0.33	4.89	BETL
C 9393 BG II	6.11	0.78	3.44	BETL
ARCH 3079 BG II	7.22	0.33	3.78	BETL
BIO AMBHH 511 BG II	3.33	0.56	1.95	BETL

Table. Initial HxH Trial in Central Zone under unprotected conditions -- Locule damage

Name of Entry	Locule damage (%)			
	Surat	Nagpur	Bharuch	Mean
US 708 BG II	0.00	0.63	0.00	0.21
SP7680 BG II	0.00	0.61	0.22	0.28
ARCH 3181 BG II	1.67	0.69	0.00	0.79
Indam 2092 BG II	2.22	2.44	0.00	1.55
ACH 955-2 BG II	0.00	1.22	0.11	0.44
Jadoo BG II (ZC)	0.00	2.50	0.00	0.83
RCH 990 BG II	0.00	0.63	0.11	0.25
CICR HH Bt 11	0.00	0.63	0.11	0.25
SP7688 BG II	4.44	5.77	0.00	3.40
MC 5461 BG II	2.50	1.22	0.11	1.28
RCH 996 BG II	2.22	0.00	0.00	0.74
BG II Local Check	0.83	0.00	0.00	0.28
US 707 BG II	3.89	0.00	0.00	1.30
C 9393 BG II	1.94	0.00	0.22	0.72
ARCH 3079 BG II	2.50	2.50	0.00	1.67
BIO AMBHH 511 BG II	1.11	0.60	0.11	0.61

Reaction to Diseases

Table: Initial Evaluation Trial (IET) of Intra Hirsutum Hybrids – Rainfed under unprotected condition

Entries	Average PDI & Disease Reaction (DR): Un-protected conditions											
	Surat				Nagpur							
	BLB		ALB		*CoLS*		GM		TSV		BLB	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
US 708 BG II	0.0	DF	0.0	DF	5.8	R	17.5	R	0.0	R	0.8	R
SP7680 BG II	0.0	DF	0.0	DF	6.7	R	14.2	R	0.0	R	1.7	R
ARCH 3181 BG II	0.0	DF	0.0	DF	1.7	R	11.7	R	0.0	R	1.7	R
Indam 2092 BG II	0.0	DF	0.0	DF	3.3	R	10.7	R	0.0	R	4.2	R
ACH 955-2 BG II	15.3	R	0.0	DF	3.3	R	11.7	R	20.8	R	0.8	R
Jadoo BG II (ZC)	0.0	DF	0.0	DF	12.5	R	5.8	R	0.0	R	3.6	R
RCH 990 BG II	0.0	DF	0.0	DF	7.5	R	12.5	R	0.0	R	0.0	R
CICR HH Bt 11	0.0	DF	0.0	DF	15.8	R	5.0	R	14.6	R	0.8	R
SP7688 BG II	0.0	DF	0.0	DF	16.7	R	5.0	R	0.0	R	5.0	R
MC 5461 BG II	6.0	R	0.0	DF	5.8	R	12.5	R	0.0	R	6.9	R
RCH 996 BG II	0.0	DF	0.0	DF	3.3	R	9.2	R	0.0	R	0.8	R
BG II LC	0.0	DF	0.0	DF	4.2	R	15.0	R	0.0	R	4.2	R
US 707 BG II	0.0	DF	0.0	DF	10.0	R	10.0	R	0.0	R	0.0	R
C 9393 BG II	0.0	DF	0.0	DF	3.3	R	8.3	R	0.0	R	2.3	R
ARCH 3079 BG II	0.0	DF	0.0	DF	3.3	R	5.0	R	3.8	R	5.8	R
BIO AMBHH 511 BG II	0.0	DF	0.0	DF	10.7	R	3.3	R	0.0	R	2.5	R
LC	-	-	-	-	16.7	R	10.8	R	0.0	R	4.2	R

Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids in Central Zone (2020-21) - Rainfed

Constitution of Trial

The trial was constituted with 16 Bt cotton hybrids containing MON 15985 event sponsored by various organization along with two different check hybrids as furnished below.

S. No.	Name of the Entry	Sponsored by
1	SP 7686 BG II	Bayer Biosciences
2	Solar 111 BG II	Solar Agrotech Pvt Ltd
3	NHH 44 BG II	VNMKV, Nanded
4	GBCH 1801 BG II	Green Gold Seeds
5	RCH 969 BG II	Rasi Seeds Pvt Ltd
6	Jadoo BG II (ZC)	
7	G COT HY 12 BG II	NAU, Surat
8	ARCH 3001 BG II	Ankur Seeds Pvt Ltd
9	MC 5459 BG II	Metahelix Life Sciences Ltd
10	RCH 962 BG II	Rasi Seeds Pvt Ltd
11	VSCH 234 BG II	Veda Seed Science Pvt Ltd
12	Neo 1656 BG II	Neo Seeds India Pvt. Ltd
13	ARCH 3106 BG II	Ankur Seeds Pvt Ltd
14	BG II Local Check	
15	SP 7675 BG II	Bayer Biosciences
16	US 704 BG II	Seed Works International Pvt Ltd
17	Daftari 2244 BG II	Daftari Agro Pvt Ltd
18	C 9392 BG II	Mahyco Pvt Ltd

The trial was conducted in five different locations and detail is furnished below.

Name of the trial location	Surat	Bharuch	Nagpur	Nanded
Local check Bt hybrid	MRC 7347 BG II	MRC 7347 BG II	MRC 7347 BG II	MRC 7347 BG II

Spacing: Recommended spacing for the hybrid has been followed.

Number of rows:4 rows of 6 meters per entry with three replications

Data recorded:

Biometric evaluation

Plant height (cm) at harvest in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Surat	Akola	Nagpur	Mean
1	SP 7686 BG II	138.6	120.0	121.2	**126.6**
2	Solar 111 BG II	139.0	117.2	112.4	**122.9**
3	NHH 44 BG II	143.0	108.9	140.1	**130.7**
4	GBCH 1801 BG II	150.9	118.9	122.0	**130.6**
5	RCH 969 BG II	141.5	124.4	133.1	**133.0**
6	Jadoo BG II (ZC)	165.4	131.1	132.2	**142.9**
7	G COT HY 12 BG II	132.7	87.8	-	**110.3**
8	ARCH 3001 BG II	156.5	126.7	125.0	**136.1**
9	MC 5459 BG II	144.2	124.4	123.0	**130.5**
10	RCH 962 BG II	125.1	117.2	121.2	**121.2**
11	VSCH 234 BG II	154.7	130.6	133.8	**139.7**
12	Neo 1656 BG II	157.1	131.1	136.8	**141.7**
13	ARCH 3106 BG II	162.8	131.1	134.0	**142.6**
14	BG II Local Check	127.7	93.9	116.7	**112.8**
15	SP 7675 BG II	161.3	126.1	138.7	**142.0**
16	US 704 BG II	171.1	140.6	132.3	**148.0**
17	Daftari 2244 BG II	145.1	118.3	117.9	**127.1**
18	C 9392 BG II	146.4	115.6	111.3	**124.4**
	CD @ 5%	15.9	7.6	14.2	
	CV %	6.5	6.3	6.7	

Number of monopodia in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Surat	Akola	Nagpur	Mean
1	SP 7686 BG II	2.9	1.8	2.1	**2.3**
2	Solar 111 BG II	3.1	1.7	2.7	**2.5**
3	NHH 44 BG II	3.2	2.3	4.0	**3.2**
4	GBCH 1801 BG II	2.2	1.4	1.9	**1.8**
5	RCH 969 BG II	2.1	1.6	2.3	**2.0**
6	Jadoo BG II (ZC)	2.5	2.0	2.2	**2.2**
7	G COT HY 12 BG II	1.9	1.0	-	**1.5**
8	ARCH 3001 BG II	1.7	1.6	1.7	**1.7**
9	MC 5459 BG II	2.8	1.9	3.3	**2.7**
10	RCH 962 BG II	2.2	2.0	1.9	**2.0**
11	VSCH 234 BG II	1.7	1.7	1.5	**1.6**
12	Neo 1656 BG II	1.7	1.7	1.1	**1.5**
13	ARCH 3106 BG II	2.7	2.0	2.5	**2.4**
14	BG II Local Check	3.0	1.4	1.8	**2.1**
15	SP 7675 BG II	2.6	1.8	2.3	**2.2**
16	US 704 BG II	2.1	1.4	1.9	**1.8**
17	Daftari 2244 BG II	2.7	2.1	2.9	**2.6**
18	C 9392 BG II	2.1	1.7	2.8	**2.2**
	CD @ 5%	0.7	0.3	1.0	
	CV %	16.6	17.6	26.4	

Number of sympodia in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Surat	Akola	Nagpur	Mean
1	SP 7686 BG II	14.3	16.0	24.8	**18.4**
2	Solar 111 BG II	15.1	16.3	22.3	**17.9**
3	NHH 44 BG II	14.5	15.4	25.8	**18.6**
4	GBCH 1801 BG II	15.7	18.0	25.7	**19.8**
5	RCH 969 BG II	14.1	15.8	22.4	**17.4**
6	Jadoo BG II (ZC)	15.7	16.9	24.5	**19.0**
7	G COT HY 12 BG II	13.4	14.3	-	**13.9**
8	ARCH 3001 BG II	15.0	17.2	24.7	**19.0**
9	MC 5459 BG II	16.8	16.9	23.2	**19.0**
10	RCH 962 BG II	13.8	20.0	21.7	**18.5**
11	VSCH 234 BG II	16.9	18.0	26.6	**20.5**
12	Neo 1656 BG II	16.4	18.8	27.5	**20.9**
13	ARCH 3106 BG II	15.5	17.6	26.5	**19.9**
14	BG II Local Check	15.3	16.3	25.0	**18.9**
15	SP 7675 BG II	16.5	17.2	27.7	**20.5**
16	US 704 BG II	16.4	18.0	25.5	**20.0**
17	Daftari 2244 BG II	14.0	15.1	22.5	**17.2**
18	C 9392 BG II	14.8	16.2	21.5	**17.5**
	CD @ 5%	NS	2.4	2.3	
	CV %	13.0	14.7	5.7	

Number of bolls / plant in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	SP 7686 BG II	17.5	9.3	18.0	25.8	**17.7**
2	Solar 111 BG II	14.7	15.3	18.4	22.4	**17.7**
3	NHH 44 BG II	20.8	30.9	13.2	34.4	**24.8**
4	GBCH 1801 BG II	21.9	20.3	18.1	25.5	**21.5**
5	RCH 969 BG II	16.1	13.7	12.8	18.9	**15.4**
6	Jadoo BG II (ZC)	19.1	22.5	18.4	26.3	**21.6**
7	G COT HY 12 BG II	20.9	6.4	10.8	-	**12.7**
8	ARCH 3001 BG II	22.7	15.2	22.2	25.2	**21.3**
9	MC 5459 BG II	23.8	20.6	21.0	23.7	**22.3**
10	RCH 962 BG II	15.9	14.9	27.9	21.2	**20.0**
11	VSCH 234 BG II	17.3	15.6	16.3	21.2	**17.6**
12	Neo 1656 BG II	22.8	19.4	11.4	18.7	**18.1**
13	ARCH 3106 BG II	23.4	11.5	16.4	28.0	**19.8**
14	BG II Local Check	23.1	23.0	24.2	29.9	**25.1**
15	SP 7675 BG II	18.7	17.9	15.7	20.5	**18.2**
16	US 704 BG II	19.2	18.0	19.1	24.5	**20.2**
17	Daftari 2244 BG II	17.6	13.9	17.9	23.5	**18.2**
18	C 9392 BG II	21.3	14.0	19.3	22.7	**19.3**
	CD @ 5%	4.3	4.7	2.8	NS	
	CV %	13.3	16.9	16.1	21.1	

Number of bolls / sq.m. in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	SP 7686 BG II	32.3	27.8	40.3	76.4	**44.2**
2	Solar 111 BG II	27.3	45.8	47.7	66.4	**46.8**
3	NHH 44 BG II	38.4	92.8	42.3	101.9	**68.9**
4	GBCH 1801 BG II	40.4	60.8	37.7	75.5	**53.6**
5	RCH 969 BG II	29.7	41.1	37.0	55.9	**40.9**
6	Jadoo BG II (ZC)	35.4	67.4	55.0	77.8	**58.9**
7	G COT HY 12 BG II	38.6	19.3	50.0	-	**36.0**
8	ARCH 3001 BG II	42.1	45.5	54.7	74.7	**54.3**
9	MC 5459 BG II	44.1	61.7	71.0	70.1	**61.7**
10	RCH 962 BG II	29.5	44.7	49.3	62.8	**46.6**
11	VSCH 234 BG II	32.0	46.9	41.0	62.8	**45.7**
12	Neo 1656 BG II	42.1	58.3	35.7	55.3	**47.9**
13	ARCH 3106 BG II	43.2	34.5	30.3	83.0	**47.8**
14	BG II Local Check	42.8	69.0	57.0	88.5	**64.3**
15	SP 7675 BG II	34.6	53.7	57.7	60.8	**51.7**
16	US 704 BG II	35.6	54.0	56.0	72.7	**54.6**
17	Daftari 2244 BG II	32.6	41.8	53.0	69.7	**49.3**
18	C 9392 BG II	39.3	42.0	59.3	67.2	**52.0**
	CD @ 5%	8.0		8.8	NS	
	CV %	13.3		18.9	21.1	

Lint Index (g) in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	SP 7686 BG II	5.6	6.0	5.0	5.6	**5.6**
2	Solar 111 BG II	4.7	5.7	4.5	4.7	**4.9**
3	NHH 44 BG II	4.9	4.4	4.3	4.8	**4.6**
4	GBCH 1801 BG II	5.2	6.3	4.7	5.4	**5.4**
5	RCH 969 BG II	4.9	5.9	6.1	5.9	**5.7**
6	Jadoo BG II (ZC)	4.7	5.3	4.9	4.4	**4.8**
7	G COT HY 12 BG II	4.6	5.6	4.6	-	**4.9**
8	ARCH 3001 BG II	5.1	6.0	4.8	4.3	**5.1**
9	MC 5459 BG II	5.0	5.1	4.4	4.7	**4.8**
10	RCH 962 BG II	6.3	6.2	5.3	4.9	**5.7**
11	VSCH 234 BG II	5.6	5.9	5.1	5.2	**5.5**
12	Neo 1656 BG II	5.7	6.0	5.0	5.0	**5.4**
13	ARCH 3106 BG II	5.6	5.8	5.9	5.4	**5.7**
14	BG II Local Check	4.9	5.8	4.4	5.4	**5.1**
15	SP 7675 BG II	5.3	6.0	4.8	4.9	**5.3**
16	US 704 BG II	5.2	5.4	6.1	5.6	**5.6**
17	Daftari 2244 BG II	5.5	5.8	4.8	5.1	**5.3**
18	C 9392 BG II	4.8	5.5	5.1	4.6	**5.0**
	CD @ 5%	0.5	0.3	0.6		
	CV %	6.2	2.8	12.9		

Seed Index (g) in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	SP 7686 BG II	9.2	10.3	9.3	9.5	**9.6**
2	Solar 111 BG II	9.0	11.4	8.3	9.0	**9.4**
3	NHH 44 BG II	8.8	10.5	8.2	9.0	**9.1**
4	GBCH 1801 BG II	8.7	10.1	8.2	9.0	**9.0**
5	RCH 969 BG II	9.2	12.0	9.8	10.0	**10.3**
6	Jadoo BG II (ZC)	8.7	11.4	8.5	8.5	**9.3**
7	G COT HY 12 BG II	9.2	11.9	7.8	-	**9.6**
8	ARCH 3001 BG II	9.3	11.5	9.0	9.5	**9.8**
9	MC 5459 BG II	9.3	10.0	8.7	9.5	**9.4**
10	RCH 962 BG II	10.3	12.0	9.7	8.5	**10.1**
11	VSCH 234 BG II	10.0	11.9	9.5	10.0	**10.4**
12	Neo 1656 BG II	9.7	11.9	9.7	10.0	**10.3**
13	ARCH 3106 BG II	9.8	11.8	9.8	10.0	**10.4**
14	BG II Local Check	8.8	11.2	7.3	9.5	**9.2**
15	SP 7675 BG II	9.3	11.9	8.7	10.0	**10.0**
16	US 704 BG II	9.2	11.5	10.8	10.5	**10.5**
17	Daftari 2244 BG II	9.5	11.9	8.2	10.0	**9.9**
18	C 9392 BG II	8.7	12.3	9.0	10.0	**10.0**
	CD @ 5%	0.8	0.3	0.6		
	CV %	5.0	1.5	7.1		

Ginning outturn (%) in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	SP 7686 BG II	38.0	36.6	34.9	36.9	**36.6**
2	Solar 111 BG II	34.3	33.4	35.2	34.5	**34.4**
3	NHH 44 BG II	35.7	29.7	34.5	35.0	**33.7**
4	GBCH 1801 BG II	37.5	38.5	36.5	37.6	**37.5**
5	RCH 969 BG II	34.7	33.0	38.2	36.9	**35.7**
6	Jadoo BG II (ZC)	35.1	31.7	36.8	34.2	**34.5**
7	G COT HY 12 BG II	33.4	31.9	36.8	-	**34.0**
8	ARCH 3001 BG II	35.5	34.2	35.3	31.1	**34.0**
9	MC 5459 BG II	34.7	33.8	33.4	33.0	**33.7**
10	RCH 962 BG II	37.9	33.9	35.4	36.4	**35.9**
11	VSCH 234 BG II	35.8	33.0	35.0	34.2	**34.5**
12	Neo 1656 BG II	37.0	33.5	34.1	33.5	**34.5**
13	ARCH 3106 BG II	36.1	33.0	37.5	35.1	**35.4**
14	BG II Local Check	35.7	34.0	37.1	36.1	**35.7**
15	SP 7675 BG II	36.2	33.5	35.7	32.8	**34.6**
16	US 704 BG II	36.2	32.0	35.9	34.7	**34.7**
17	Daftari 2244 BG II	36.6	32.9	37.1	33.7	**35.1**
18	C 9392 BG II	35.4	31.0	36.3	31.3	**33.5**
	CD @ 5%	1.3	0.8	1.6		
	CV %	2.1	1.4	4.7		

Upper Half Mean Length (mm) under HVI Mode in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	SP 7686 BG II	29.8	29.3	28.8	29.8	**29.4**
2	Solar 111 BG II	27.1	28.4	26.2	27.3	**27.3**
3	NHH 44 BG II	26.2	26.6	26.5	25.3	**26.2**
4	GBCH 1801 BG II	27.1	26.7	25.4	26.6	**26.5**
5	RCH 969 BG II	30.0	29.1	28.3	29.1	**29.1**
6	Jadoo BG II (ZC)	30.9	30.0	28.4	29.1	**29.6**
7	G COT HY 12 BG II	27.9	29.5	-	-	**28.7**
8	ARCH 3001 BG II	26.5	27.9	27.8	27.5	**27.4**
9	MC 5459 BG II	26.5	26.1	25.3	27.6	**26.4**
10	RCH 962 BG II	30.4	28.9	29.8	29.3	**29.6**
11	VSCH 234 BG II	29.1	27.9	29.2	28.1	**28.6**
12	Neo 1656 BG II	29.6	28.7	29.3	29.4	**29.3**
13	ARCH 3106 BG II	27.0	27.7	27.5	28.0	**27.6**
14	BG II Local Check	25.8	26.5	27.3	25.7	**26.3**
15	SP 7675 BG II	29.3	28.4	26.2	26.9	**27.7**
16	US 704 BG II	31.2	29.4	29.4	30.6	**30.2**
17	Daftari 2244 BG II	32.4	32.6	30.2	30.8	**31.5**
18	C 9392 BG II	30.1	28.0	29.1	29.5	**29.2**

Uniformity index under HVI Mode in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	SP 7686 BG II	86.0	83.0	84.0	82.0	**83.8**
2	Solar 111 BG II	86.0	83.0	85.0	81.0	**83.8**
3	NHH 44 BG II	83.0	80.0	83.0	79.0	**81.3**
4	GBCH 1801 BG II	86.0	82.0	84.0	80.0	**83.0**
5	RCH 969 BG II	87.0	83.0	86.0	84.0	**85.0**
6	Jadoo BG II (ZC)	87.0	82.0	87.0	85.0	**85.3**
7	G COT HY 12 BG II	86.0	83.0	-	-	**84.5**
8	ARCH 3001 BG II	85.0	83.0	83.0	84.0	**83.8**
9	MC 5459 BG II	84.0	81.0	84.0	83.0	**83.0**
10	RCH 962 BG II	86.0	81.0	86.0	83.0	**84.0**
11	VSCH 234 BG II	85.0	82.0	86.0	84.0	**84.3**
12	Neo 1656 BG II	85.0	83.0	87.0	82.0	**84.3**
13	ARCH 3106 BG II	84.0	84.0	84.0	82.0	**83.5**
14	BG II Local Check	85.0	81.0	85.0	83.0	**83.5**
15	SP 7675 BG II	87.0	83.0	83.0	82.0	**83.8**
16	US 704 BG II	86.0	83.0	85.0	81.0	**83.8**
17	Daftari 2244 BG II	86.0	83.0	84.0	85.0	**84.5**
18	C 9392 BG II	86.0	81.0	86.0	84.0	**84.3**

Micronaire under HVI Mode in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	SP 7686 BG II	3.6	3.7	3.9	4.1	**3.8**
2	Solar 111 BG II	4.4	3.9	4.0	4.3	**4.2**
3	NHH 44 BG II	4.6	4.1	4.7	5.0	**4.6**
4	GBCH 1801 BG II	4.0	3.4	4.2	4.1	**3.9**
5	RCH 969 BG II	3.8	3.7	4.4	4.9	**4.2**
6	Jadoo BG II (ZC)	4.9	3.8	4.5	5.4	**4.7**
7	G COT HY 12 BG II	4.4	4.1	-	-	**4.3**
8	ARCH 3001 BG II	4.9	4.6	4.9	5.2	**4.9**
9	MC 5459 BG II	5.2	4.7	5.3	5.2	**5.1**
10	RCH 962 BG II	4.1	3.7	4.5	3.8	**4.0**
11	VSCH 234 BG II	4.5	4.6	4.4	4.5	**4.5**
12	Neo 1656 BG II	4.5	4.9	4.3	4.2	**4.5**
13	ARCH 3106 BG II	4.6	4.4	4.4	4.6	**4.5**
14	BG II Local Check	5.0	3.9	4.0	4.3	**4.3**
15	SP 7675 BG II	3.7	3.9	3.9	4.2	**3.9**
16	US 704 BG II	4.6	3.9	4.6	4.6	**4.4**
17	Daftari 2244 BG II	3.8	3.2	3.4	4.0	**3.6**
18	C 9392 BG II	4.0	3.5	4.0	3.9	**3.9**

Tenacity under HVI Mode in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	SP 7686 BG II	27.9	27.9	26.8	30.5	**28.3**
2	Solar 111 BG II	28.6	27.5	26.5	29.2	**28.0**
3	NHH 44 BG II	25.7	26.1	26.2	23.7	**25.4**
4	GBCH 1801 BG II	29.2	26.8	26.7	27.5	**27.6**
5	RCH 969 BG II	31.9	28.7	28.6	31.3	**30.1**
6	Jadoo BG II (ZC)	31.2	29.9	27.8	32.2	**30.3**
7	G COT HY 12 BG II	29.9	28.8	-	-	**29.4**
8	ARCH 3001 BG II	29.1	28.1	28.3	31.1	**29.2**
9	MC 5459 BG II	30.5	27.8	27.7	33.5	**29.9**
10	RCH 962 BG II	29.8	28.4	27.3	31.8	**29.3**
11	VSCH 234 BG II	28.5	27.6	27.1	28.9	**28.0**
12	Neo 1656 BG II	29.6	27.0	28.0	30.9	**28.9**
13	ARCH 3106 BG II	29.3	28.6	29.3	31.4	**29.7**
14	BG II Local Check	26.5	26.7	26.8	29.7	**27.4**
15	SP 7675 BG II	30.8	29.5	25.9	31.3	**29.4**
16	US 704 BG II	29.2	29.6	26.9	29.5	**28.8**
17	Daftari 2244 BG II	31.4	29.9	27.9	32.3	**30.4**
18	C 9392 BG II	31.2	26.7	28.7	31.1	**29.4**

Seed Cotton Yield (q/ha) in Advanced Evaluation Trial of H X H hybrids - I

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean	Rank
1	SP 7686 BG II	16.37	6.78	7.95	20.66	**12.94**	15
2	Solar 111 BG II	13.13	10.51	10.39	15.33	**12.34**	17
3	NHH 44 BG II	14.46	16.65	10.86	20.57	**15.64**	7
4	GBCH 1801 BG II	18.13	13.22	13.27	19.55	**16.04**	4
5	RCH 969 BG II	12.79	11.07	8.74	18.35	**12.74**	16
6	Jadoo BG II (ZC)	19.92	15.30	8.93	19.32	**15.87**	6
7	G COT HY 12 BG II	15.73	4.53	2.04	-	**7.43**	18
8	ARCH 3001 BG II	18.42	10.53	17.09	23.25	**17.32**	1
9	MC 5459 BG II	19.47	12.85	13.88	20.88	**16.77**	2
10	RCH 962 BG II	14.63	11.98	6.20	19.61	**13.11**	14
11	VSCH 234 BG II	16.78	13.18	8.37	20.38	**14.68**	12
12	Neo 1656 BG II	18.77	14.12	9.37	18.91	**15.29**	10
13	ARCH 3106 BG II	20.21	10.16	9.91	21.88	**15.54**	8
14	BG II Local Check	17.73	13.75	8.74	21.31	**15.38**	9
15	SP 7675 BG II	18.59	13.43	8.19	18.87	**14.77**	11
16	US 704 BG II	17.82	13.29	11.19	23.01	**16.33**	3
17	Daftari 2244 BG II	15.98	10.84	8.56	20.43	**13.95**	13
18	C 9392 BG II	19.90	11.25	12.24	20.20	**15.90**	5
	CD @ 5%	3.13	3.73	1.10	NS		
	CV %	11.00	17.50	11.75	11.75		

Qualitative Cry Protein Evaluation

All the above entries were positive for Cry 1Ac Protein in qualitative ELISA Test

All the above entries were positive for Cry 2Ab Protein in qualitative ELISA Test

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect Pests

Table. Advance HxH Trial in Central Zone under protected conditions – Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)					
	Surat	Akola	Nagpur	Bharuch	Mean	Remarks*
SP 7686 BG II	2.04	0.93	2.60	3.43	2.25	BETL
Solar 111 BG II	2.42	0.98	3.55	3.80	2.69	BETL
NHH 44 BG II	2.80	1.24	3.02	3.10	2.54	BETL
GBCH 1801 BG II	2.67	1.02	2.50	2.33	2.13	BETL
RCH 969 BG II	1.38	1.18	2.88	3.33	2.19	BETL
Jadoo BG II (ZC)	1.49	1.40	2.16	3.47	2.13	BETL
G COT HY 12 BG II	2.69	1.18	-	2.87	2.24	BETL
ARCH 3001 BG II	2.56	1.47	3.43	2.90	2.59	BETL
MC 5459 BG II	1.29	1.09	2.98	2.67	2.01	BETL
RCH 962 BG II	1.71	1.02	2.93	2.73	2.10	BETL
VSCH 234 BG II	3.98	1.56	2.91	3.30	2.94	BETL
Neo 1656 BG II	4.89	1.33	2.76	2.20	2.80	BETL
ARCH 3106 BG II	3.84	1.29	2.83	3.40	2.84	BETL
BG II Local Check	1.64	0.87	3.11	2.43	2.01	BETL
SP 7675 BG II	2.04	1.58	2.85	1.30	1.94	BETL
US 704 BG II	1.82	1.71	2.65	1.20	1.85	BETL
Daftari 2244 BG II	3.16	0.96	3.11	4.37	2.90	BETL
C 9392 BG II	1.89	1.07	2.86	4.10	2.48	BETL

Table. Advance HxH Trial in Central Zone under protected conditions -- Jassid Injury Grade

Name of Entry	JIG (Average of 3 leaves/plant)			
	Akola	Nagpur	Mean	Remarks*
SP 7686 BG II	I	I		BETL
Solar 111 BG II	II	I		BETL
NHH 44 BG II	II	I		BETL
GBCH 1801 BG II	I	I		BETL
RCH 969 BG II	I	I		BETL
Jadoo BG II (ZC)	II	I		BETL
G COT HY 12 BG II	II	-		BETL
ARCH 3001 BG II	II	I		BETL
MC 5459 BG II	II	I		BETL
RCH 962 BG II	I	I		BETL
VSCH 234 BG II	II	I		BETL
Neo 1656 BG II	II	I		BETL
ARCH 3106 BG II	II	I		BETL
BG II Local Check	I	I		BETL
SP 7675 BG II	II	I		BETL
US 704 BG II	I	I		BETL
Daftari 2244 BG II	II	I		BETL
C 9392 BG II	I	I		BETL

Table. Advance HxH Trial in Central Zone under protected conditions – Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)					
	Surat	Akola	Nagpur	Bharuch	Mean	Remarks*
SP 7686 BG II	8.13	2.27	3.52	3.20	4.28	BETL
Solar 111 BG II	14.24	2.22	4.40	3.33	6.05	BETL
NHH 44 BG II	13.02	3.07	4.03	2.23	5.59	BETL
GBCH 1801 BG II	11.07	1.93	3.71	4.87	5.39	BETL
RCH 969 BG II	6.64	2.82	3.62	4.13	4.31	BETL
Jadoo BG II (ZC)	5.20	2.62	3.38	4.87	4.02	BETL
G COT HY 12 BG II	15.42	2.16	-	3.37	6.98	BETL
ARCH 3001 BG II	5.89	2.73	4.23	3.90	4.19	BETL
MC 5459 BG II	7.20	2.27	3.31	3.63	4.10	BETL
RCH 962 BG II	4.87	2.87	3.58	3.23	3.64	BETL
VSCH 234 BG II	17.27	1.78	3.41	3.20	6.41	BETL
Neo 1656 BG II	15.60	2.09	3.03	3.73	6.11	BETL
ARCH 3106 BG II	14.04	2.40	3.58	3.33	5.84	BETL
BG II Local Check	6.62	2.11	2.62	3.80	3.79	BETL
SP 7675 BG II	9.53	2.40	2.92	3.30	4.54	BETL
US 704 BG II	4.82	2.69	3.09	3.37	3.49	BETL
Daftari 2244 BG II	10.04	2.82	3.75	3.43	5.01	BETL
C 9392 BG II	7.64	2.27	3.35	2.50	3.94	BETL

Table. Advance HxH Trial in Central Zone under protected conditions -- Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)					
	Surat	Akola	Nagpur	Bharuch	Mean	Remarks*
SP 7686 BG II	0.96	2.71	3.2	4.03	2.73	BETL
Solar 111 BG II	1.24	3.09	3.8	3.53	2.92	BETL
NHH 44 BG II	1.56	4.87	4.57	3.57	3.64	BETL
GBCH 1801 BG II	1.71	3.73	3.61	2.50	2.89	BETL
RCH 969 BG II	1.31	5.69	3.9	3.23	3.53	BETL
Jadoo BG II (ZC)	1.18	3.36	3.98	2.63	2.79	BETL
G COT HY 12 BG II	1.49	3.64	-	3.07	2.73	BETL
ARCH 3001 BG II	1.89	3.42	4.31	2.67	3.07	BETL
MC 5459 BG II	1.13	4.22	4.31	2.87	3.13	BETL
RCH 962 BG II	1.29	4.36	2.9	2.57	2.78	BETL
VSCH 234 BG II	2.51	2.87	3.42	1.57	2.59	BETL
Neo 1656 BG II	2.16	2.91	3.1	1.83	2.50	BETL
ARCH 3106 BG II	1.71	3.07	3.5	2.53	2.70	BETL
BG II Local Check	1.27	3.22	3.05	3.30	2.71	BETL
SP 7675 BG II	1.47	2.96	3.35	2.83	2.65	BETL
US 704 BG II	1.02	3.22	3.36	2.30	2.48	BETL
Daftari 2244 BG II	1.27	3.04	3.55	2.20	2.52	BETL
C 9392 BG II	1.76	2.80	3.72	3.43	2.93	BETL

Table. Advance HxH Trial in Central Zone under protected conditions -- Natural Enemies

Name of Entry	Natural enemies (No./Plant)		
	Surat	Bharuch	Mean
SP 7686 BG II	0.06	0.10	0.08
Solar 111 BG II	0.09	0.13	0.11
NHH 44 BG II	0.12	0.17	0.14
GBCH 1801 BG II	0.06	0.10	0.08
RCH 969 BG II	0.10	0.13	0.12
Jadoo BG II (ZC)	0.08	0.10	0.09
G COT HY 12 BG II	0.12	0.13	0.13
ARCH 3001 BG II	0.11	0.13	0.12
MC 5459 BG II	0.09	0.07	0.08
RCH 962 BG II	0.06	0.07	0.06
VSCH 234 BG II	0.07	0.03	0.05
Neo 1656 BG II	0.09	0.07	0.08
ARCH 3106 BG II	0.10	0.13	0.12
BG II Local Check	0.16	0.13	0.14
SP 7675 BG II	0.12	0.07	0.09
US 704 BG II	0.12	0.13	0.13
Daftari 2244 BG II	0.20	0.13	0.17
C 9392 BG II	0.13	0.13	0.13

Table. Advance HxH Trial in Central Zone under protected conditions -- Bollworms – *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
SP 7686 BG II	0.00	0.00	0.00	0.00	BETL
Solar 111 BG II	0.00	0.00	0.00	0.00	BETL
NHH 44 BG II	0.00	0.00	0.00	0.00	BETL
GBCH 1801 BG II	0.00	0.00	0.00	0.00	BETL
RCH 969 BG II	0.00	0.00	0.00	0.00	BETL
Jadoo BG II (ZC)	0.00	0.00	0.00	0.00	BETL
G COT HY 12 BG II	0.00		0.00	0.00	BETL
ARCH 3001 BG II	0.00	0.00	0.00	0.00	BETL
MC 5459 BG II	0.00	0.00	0.00	0.00	BETL
RCH 962 BG II	0.00	0.00	0.00	0.00	BETL
VSCH 234 BG II	0.00	0.00	0.00	0.00	BETL
Neo 1656 BG II	0.00	0.00	0.00	0.00	BETL
ARCH 3106 BG II	0.00	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	0.00	BETL
SP 7675 BG II	0.00	0.00	0.00	0.00	BETL
US 704 BG II	0.00	0.00	0.00	0.00	BETL
Daftari 2244 BG II	0.00	0.00	0.00	0.00	BETL
C 9392 BG II	0.00	0.00	0.00	0.00	BETL

Table. Advance HxH Trial in Central Zone under protected conditions -- Bollworms - Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)			
	Surat	Bharuch	Mean	Remarks*
SP 7686 BG II	0.00	0.00	0.00	BETL
Solar 111 BG II	0.00	0.00	0.00	BETL
NHH 44 BG II	0.00	0.00	0.00	BETL
GBCH 1801 BG II	0.00	0.00	0.00	BETL
RCH 969 BG II	0.00	0.00	0.00	BETL
Jadoo BG II (ZC)	0.00	0.00	0.00	BETL
G COT HY 12 BG II	0.00	0.00	0.00	BETL
ARCH 3001 BG II	0.00	0.00	0.00	BETL
MC 5459 BG II	0.00	0.00	0.00	BETL
RCH 962 BG II	0.00	0.00	0.00	BETL
VSCH 234 BG II	0.00	0.00	0.00	BETL
Neo 1656 BG II	0.00	0.00	0.00	BETL
ARCH 3106 BG II	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	BETL
SP 7675 BG II	0.00	0.00	0.00	BETL
US 704 BG II	0.00	0.00	0.00	BETL
Daftari 2244 BG II	0.00	0.00	0.00	BETL
C 9392 BG II	0.00	0.00	0.00	BETL

Table. Advance HxH Trial in Central Zone under protected conditions -- Bollworms – *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)			
	Surat	Bharuch	Mean	Remarks*
SP 7686 BG II	0.00	0.00	0.00	BETL
Solar 111 BG II	0.00	0.00	0.00	BETL
NHH 44 BG II	0.00	0.00	0.00	BETL
GBCH 1801 BG II	0.00	0.00	0.00	BETL
RCH 969 BG II	0.00	0.00	0.00	BETL
Jadoo BG II (ZC)	0.00	0.00	0.00	BETL
G COT HY 12 BG II	0.00	0.00	0.00	BETL
ARCH 3001 BG II	0.00	0.00	0.00	BETL
MC 5459 BG II	0.00	0.00	0.00	BETL
RCH 962 BG II	0.00	0.00	0.00	BETL
VSCH 234 BG II	0.00	0.00	0.00	BETL
Neo 1656 BG II	0.00	0.00	0.00	BETL
ARCH 3106 BG II	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	BETL
SP 7675 BG II	0.00	0.00	0.00	BETL
US 704 BG II	0.00	0.00	0.00	BETL
Daftari 2244 BG II	0.00	0.00	0.00	BETL
C 9392 BG II	0.00	0.00	0.00	BETL

Table. Advance HxH Trial in Central Zone under protected conditions -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)					
	Surat	Akola	Nagpur	Bharuch	Mean	Remarks*
SP 7686 BG II	0.00	1.60	0.00	0.00	0.40	BETL
Solar 111 BG II	0.00	1.84	0.00	0.00	0.46	BETL
NHH 44 BG II	0.56	1.67	0.02	0.00	0.56	BETL
GBCH 1801 BG II	1.00	1.49	0.00	0.11	0.65	BETL
RCH 969 BG II	0.00	1.84	0.02	0.00	0.47	BETL
Jadoo BG II (ZC)	0.00	1.91	0.02	0.00	0.48	BETL
G COT HY 12 BG II	0.56	1.42		0.00	0.66	BETL
ARCH 3001 BG II	0.56	1.42	0.00	0.22	0.55	BETL
MC 5459 BG II	0.00	1.87	0.03	0.00	0.48	BETL
RCH 962 BG II	0.00	1.87	0.05	0.22	0.53	BETL
VSCH 234 BG II	0.89	1.64	0.00	0.00	0.63	BETL
Neo 1656 BG II	0.56	1.56	0.02	0.00	0.53	BETL
ARCH 3106 BG II	0.78	1.73	0.05	0.22	0.70	BETL
BG II Local Check	0.00	1.22	0.02	0.00	0.31	BETL
SP 7675 BG II	0.33	1.73	0.02	0.22	0.58	BETL
US 704 BG II	0.00	1.51	0.00	0.00	0.38	BETL
Daftari 2244 BG II	0.78	1.87	0.02	0.00	0.67	BETL
C 9392 BG II	0.00	1.89	0.02	0.22	0.53	BETL

Table. Advance HxH Trial in Central Zone under protected conditions -- Green Boll damage

Name of Entry	Green Boll damage (%)			
	Nagpur	Bharuch	Mean	Remarks*
SP 7686 BG II	0.00	0.00	0.00	BETL
Solar 111 BG II	0.00	0.00	0.00	BETL
NHH 44 BG II	0.00	0.00	0.00	BETL
GBCH 1801 BG II	0.00	0.33	0.17	BETL
RCH 969 BG II	0.00	1.11	0.56	BETL
Jadoo BG II (ZC)	0.00	0.78	0.39	BETL
G COT HY 12 BG II		0.89	0.89	BETL
ARCH 3001 BG II	0.00	0.67	0.33	BETL
MC 5459 BG II	0.00	0.56	0.28	BETL
RCH 962 BG II	0.00	0.78	0.39	BETL
VSCH 234 BG II	0.00	1.00	0.50	BETL
Neo 1656 BG II	0.00	0.78	0.39	BETL
ARCH 3106 BG II	0.00	1.00	0.50	BETL
BG II Local Check	0.00	0.89	0.44	BETL
SP 7675 BG II	0.00	1.22	0.61	BETL
US 704 BG II	0.00	0.67	0.33	BETL
Daftari 2244 BG II	0.00	0.67	0.33	BETL
C 9392 BG II	0.00	1.22	0.61	BETL

Table.Advance HxH Trial in Central Zone under protected conditions -- Open Boll damage

Name of Entry	Open Boll damage (%)				
	Surat	Akola	Bharuch	Mean	Remarks*
SP 7686 BG II	0.00	49.52	0.00	16.51	AETL
Solar 111 BG II	0.00	43.76	0.00	14.59	AETL
NHH 44 BG II	4.44	47.81	0.00	17.42	AETL
GBCH 1801 BG II	5.56	45.01	0.11	16.89	AETL
RCH 969 BG II	0.00	71.77	0.56	24.11	AETL
Jadoo BG II (ZC)	0.00	32.87	0.33	11.07	AETL
G COT HY 12 BG II	3.33	60.09	0.44	21.29	AETL
ARCH 3001 BG II	5.56	19.34	0.33	8.41	BETL
MC 5459 BG II	0.00	29.09	0.22	9.77	BETL
RCH 962 BG II	0.00	70.95	0.33	23.76	AETL
VSCH 234 BG II	7.78	51.51	0.56	19.95	AETL
Neo 1656 BG II	7.78	39.21	0.33	15.77	AETL
ARCH 3106 BG II	4.44	61.66	0.56	22.22	AETL
BG II Local Check	0.00	32.14	0.33	10.82	AETL
SP 7675 BG II	3.33	51.03	0.67	18.34	AETL
US 704 BG II	0.00	52.61	0.33	17.65	AETL
Daftari 2244 BG II	5.56	30.66	0.33	12.18	AETL
C 9392 BG II	0.00	48.87	0.78	16.55	AETL

Table. Advance HxH Trial in Central Zone under protected conditions -- Locule damage

Name of Entry	Locule damage (%)				
	Surat	Akola	Nagpur	Bharuch	Mean
SP 7686 BG II	0.00	26.65	0.00	0.00	6.66
Solar 111 BG II	0.00	21.02	0.00	0.00	5.26
NHH 44 BG II	1.67	20.02	0.42	0.00	5.53
GBCH 1801 BG II	2.22	20.64	0.00	0.00	5.72
RCH 969 BG II	0.00	39.76	0.88	0.22	10.21
Jadoo BG II (ZC)	0.00	14.18	0.85	0.00	3.76
G COT HY 12 BG II	1.39	28.36		0.00	9.92
ARCH 3001 BG II	1.94	6.94	0.00	0.11	2.25
MC 5459 BG II	0.00	11.45	2.98	0.00	3.61
RCH 962 BG II	0.00	33.99	1.67	0.11	8.94
VSCH 234 BG II	2.78	24.67	0.00	0.11	6.89
Neo 1656 BG II	3.61	16.88	0.83	0.00	5.33
ARCH 3106 BG II	1.94	29.08	1.67	0.11	8.20
BG II Local Check	0.00	14.06	2.08	0.00	4.04
SP 7675 BG II	1.11	20.92	1.28	0.22	5.88
US 704 BG II	0.00	29.86	0.42	0.00	7.57
Daftari 2244 BG II	1.94	11.70	0.43	0.00	3.52
C 9392 BG II	0.00	20.17	0.42	0.22	5.20

Table. Advance HxH Trial in Central Zone under protected conditions -- Number of sprays for sucking pests

Name of Entry	Sprays applied for sap sucking pests (Nos.)			
	Surat	Akola	Bharuch	Mean
SP 7686 BG II	5.00	2.00	5.00	4.00
Solar 111 BG II	5.00	2.00	5.00	4.00
NHH 44 BG II	5.00	2.00	5.00	4.00
GBCH 1801 BG II	5.00	2.00	5.00	4.00
RCH 969 BG II	5.00	2.00	5.00	4.00
Jadoo BG II (ZC)	5.00	2.00	5.00	4.00
G COT HY 12 BG II	5.00	2.00	5.00	4.00
ARCH 3001 BG II	5.00	2.00	5.00	4.00
MC 5459 BG II	5.00	2.00	5.00	4.00
RCH 962 BG II	5.00	2.00	5.00	4.00
VSCH 234 BG II	5.00	2.00	5.00	4.00
Neo 1656 BG II	5.00	2.00	5.00	4.00
ARCH 3106 BG II	5.00	2.00	5.00	4.00
BG II Local Check	5.00	2.00	5.00	4.00
SP 7675 BG II	5.00	2.00	5.00	4.00
US 704 BG II	5.00	2.00	5.00	4.00
Daftari 2244 BG II	5.00	2.00	5.00	4.00
C 9392 BG II	5.00	2.00	5.00	4.00

Reaction to Diseases

Table: Advanced Evaluation Trial of Intra-hirsutum Hybrids-I – Rainfed under protected condition

Entries	Average PDI & Disease Reaction (DR): Protected									
	Surat				Akola					
	BLB		ALB		BLB		MLS		GM	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
SP 7686 BG II	0.0	DF	0.0	DF	11.7	R	18.3	R	8.3	R
Solar 111 BG II	0.0	DF	0.0	DF	13.3	R	16.7	R	3.3	R
NHH 44 BG II	0.0	DF	0.0	DF	5.0	R	33.3	MR	8.3	R
GBCH 1801 BG II	0.0	DF	0.0	DF	3.3	R	16.7	R	6.7	R
RCH 969 BG II	0.0	DF	0.0	R	5.0	R	30.0	MR	11.7	R
Jadoo BG II (ZC)	0.0	DF	0.0	DF	5.0	R	48.3	MR	15.0	R
G COT HY 12 BG II	0.0	DF	0.0	DF	11.4	R	13.3	R	10.0	R
ARCH 3001 BG II	0.0	DF	0.0	DF	1.7	R	46.7	MR	6.7	R
MC 5459 BG II	0.0	R	0.0	DF	5.0	R	15.0	R	8.3	R
RCH 962 BG II	0.0	DF	0.0	DF	3.3	R	33.3	MR	11.7	R
VSCH 234 BG II	0.0	DF	0.0	DF	8.3	R	20.0	R	1.7	R
Neo 1656 BG II	0.0	DF	0.0	DF	3.3	R	13.3	R	3.3	R
ARCH 3106 BG II	0.0	DF	0.0	DF	11.7	R	28.3	MR	13.3	R
BG II LC	0.0	DF	0.0	DF	6.7	R	18.3	R	11.7	R
SP 7675 BG II	0.0	DF	0.0	DF	8.3	R	13.3	R	15.0	R
US 704 BG II	0.0	DF	0.0	DF	10.3	R	28.3	MR	23.3	R
Daftari 2244 BG II	0.0	DF	0.0	DF	1.7	R	10.0	R	11.7	R
C 9392 BG II	0.0	DF	0.0	DF	6.7	R	20.8	R	21.7	R

Evaluation under unprotected condition for insect pests and diseases:

Reaction to Insect Pests

Table. Advance HxH Trial in Central Zone under unprotected conditions -- Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
SP 7686 BG II	2.36	2.03	3.80	2.73	BETL
Solar 111 BG II	2.98	2.67	3.87	3.17	BETL
NHH 44 BG II	3.09	3.30	4.07	3.49	BETL
GBCH 1801 BG II	3.04	2.60	3.33	2.99	BETL
RCH 969 BG II	1.56	2.62	3.80	2.66	BETL
Jadoo BG II (ZC)	1.69	2.32	3.90	2.64	BETL
G COT HY 12 BG II	3.07	-	3.37	3.22	BETL
ARCH 3001 BG II	2.89	2.22	3.07	2.73	BETL
MC 5459 BG II	1.51	2.65	3.00	2.39	BETL
RCH 962 BG II	1.96	2.90	3.93	2.93	BETL
VSCH 234 BG II	4.89	2.57	3.43	3.63	BETL
Neo 1656 BG II	5.67	3.22	3.00	3.96	BETL
ARCH 3106 BG II	4.36	3.45	4.03	3.95	BETL
BG II Local Check	1.80	2.47	2.60	2.29	BETL
SP 7675 BG II	2.38	2.88	2.57	2.61	BETL
US 704 BG II	2.00	2.77	2.27	2.35	BETL
Daftari 2244 BG II	3.44	2.80	5.37	3.87	BETL
C 9392 BG II	2.07	2.95	5.63	3.55	BETL

Table. Advance HxH Trial in Central Zone under unprotected conditions -- Jassid Injury Grade

Name of Entry	Leafhopper (Average of 3 leaves/plant)
	Nagpur
SP 7686 BG II	I
Solar 111 BG II	I
NHH 44 BG II	I
GBCH 1801 BG II	I
RCH 969 BG II	I
Jadoo BG II (ZC)	I
G COT HY 12 BG II	-
ARCH 3001 BG II	I
MC 5459 BG II	I
RCH 962 BG II	I
VSCH 234 BG II	I
Neo 1656 BG II	I
ARCH 3106 BG II	I
BG II Local Check	I
SP 7675 BG II	I
US 704 BG II	I
Daftari 2244 BG II	I
C 9392 BG II	I

Table. Advance HxH Trial in Central Zone under unprotected conditions -- Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
SP 7686 BG II	8.82	2.75	3.80	5.12	BETL
Solar 111 BG II	15.24	3.37	3.03	7.22	BETL
NHH 44 BG II	14.16	4.07	3.63	7.29	BETL
GBCH 1801 BG II	12.02	3.03	4.20	6.42	BETL
RCH 969 BG II	7.09	2.94	4.80	4.94	BETL
Jadoo BG II (ZC)	5.96	3.95	4.83	4.91	BETL
G COT HY 12 BG II	16.29	-	3.73	10.01	BETL
ARCH 3001 BG II	6.73	3.45	4.17	4.78	BETL
MC 5459 BG II	7.82	3.15	3.90	4.96	BETL
RCH 962 BG II	5.31	3.08	3.33	3.91	BETL
VSCH 234 BG II	18.49	3.27	4.17	8.64	BETL
Neo 1656 BG II	16.27	3.00	3.87	7.71	BETL
ARCH 3106 BG II	15.49	3.62	3.37	7.49	BETL
BG II Local Check	7.13	2.20	4.20	4.51	BETL
SP 7675 BG II	10.36	2.12	3.70	5.39	BETL
US 704 BG II	5.47	2.60	3.63	3.90	BETL
Daftari 2244 BG II	10.67	3.36	3.83	5.95	BETL
C 9392 BG II	8.42	2.21	3.27	4.63	BETL

Table. Advance HxH Trial in Central Zone under unprotected conditions -- Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
SP 7686 BG II	1.36	3.09	4.33	2.93	BETL
Solar 111 BG II	1.73	3.44	4.07	3.08	BETL
NHH 44 BG II	2.07	4.15	4.07	3.43	BETL
GBCH 1801 BG II	2.51	3.56	3.47	3.18	BETL
RCH 969 BG II	1.64	2.57	3.23	2.48	BETL
Jadoo BG II (ZC)	1.62	3.34	3.17	2.71	BETL
G COT HY 12 BG II	2.24	-	3.20	2.72	BETL
ARCH 3001 BG II	2.47	3.41	3.10	2.99	BETL
MC 5459 BG II	1.47	2.67	3.23	2.46	BETL
RCH 962 BG II	1.56	3.42	3.23	2.74	BETL
VSCH 234 BG II	3.49	3.5	1.77	2.92	BETL
Neo 1656 BG II	2.96	3.52	2.23	2.90	BETL
ARCH 3106 BG II	2.78	4.1	2.90	3.26	BETL
BG II Local Check	1.56	3.67	3.47	2.90	BETL
SP 7675 BG II	2.11	2.77	3.10	2.66	BETL
US 704 BG II	1.38	3.05	2.60	2.34	BETL
Daftari 2244 BG II	2.07	3.45	2.30	2.61	BETL
C 9392 BG II	2.22	3.85	4.33	3.47	BETL

Table. Advance HxH Trial in Central Zone under unprotected conditions -- Natural Enemies

Name of Entry	Natural enemies (No./Plant)		
	Surat	Bharuch	Mean
SP 7686 BG II	0.13	0.17	0.15
Solar 111 BG II	0.16	0.17	0.16
NHH 44 BG II	0.20	0.13	0.17
GBCH 1801 BG II	0.14	0.10	0.12
RCH 969 BG II	0.17	0.33	0.25
Jadoo BG II (ZC)	0.16	0.13	0.14
G COT HY 12 BG II	0.23	0.13	0.18
ARCH 3001 BG II	0.14	0.17	0.16
MC 5459 BG II	0.23	0.10	0.17
RCH 962 BG II	0.16	0.13	0.14
VSCH 234 BG II	0.21	0.13	0.17
Neo 1656 BG II	0.19	0.10	0.14
ARCH 3106 BG II	0.11	0.13	0.12
BG II Local Check	0.24	0.17	0.21
SP 7675 BG II	0.19	0.13	0.16
US 704 BG II	0.26	0.13	0.19
Daftari 2244 BG II	0.22	0.13	0.18
C 9392 BG II	0.20	0.13	0.17

Table. Advance HxH Trial in Central Zone under unprotected conditions -- Bollworms – Helicoverpa armigera

Name of Entry	Helicoverpa armigera (No. / 5 plants)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
SP 7686 BG II	0.00	0.00	0.00	0.00	BETL
Solar 111 BG II	0.00	0.00	0.00	0.00	BETL
NHH 44 BG II	0.00	0.00	0.00	0.00	BETL
GBCH 1801 BG II	0.00	0.00	0.00	0.00	BETL
RCH 969 BG II	0.00	0.00	0.00	0.00	BETL
Jadoo BG II (ZC)	0.00	0.00	0.00	0.00	BETL
G COT HY 12 BG II	0.00		0.00	0.00	BETL
ARCH 3001 BG II	0.00	0.00	0.00	0.00	BETL
MC 5459 BG II	0.00	0.00	0.00	0.00	BETL
RCH 962 BG II	0.00	0.00	0.00	0.00	BETL
VSCH 234 BG II	0.00	0.00	0.00	0.00	BETL
Neo 1656 BG II	0.00	0.00	0.00	0.00	BETL
ARCH 3106 BG II	0.00	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	0.00	BETL
SP 7675 BG II	0.00	0.00	0.00	0.00	BETL
US 704 BG II	0.00	0.00	0.00	0.00	BETL
Daftari 2244 BG II	0.00	0.00	0.00	0.00	BETL
C 9392 BG II	0.00	0.00	0.00	0.00	BETL

Table. Advance HxH Trial in Central Zone under unprotected conditions -- Bollworms - Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)		
	Surat	Bharuch	Mean
SP 7686 BG II	0.00	0.00	0.00
Solar 111 BG II	0.00	0.00	0.00
NHH 44 BG II	0.00	0.00	0.00
GBCH 1801 BG II	0.00	0.00	0.00
RCH 969 BG II	0.00	0.00	0.00
Jadoo BG II (ZC)	0.00	0.00	0.00
G COT HY 12 BG II	0.00	0.00	0.00
ARCH 3001 BG II	0.00	0.00	0.00
MC 5459 BG II	0.00	0.00	0.00
RCH 962 BG II	0.00	0.00	0.00
VSCH 234 BG II	0.00	0.00	0.00
Neo 1656 BG II	0.00	0.00	0.00
ARCH 3106 BG II	0.00	0.00	0.00
BG II Local Check	0.00	0.00	0.00
SP 7675 BG II	0.00	0.00	0.00
US 704 BG II	0.00	0.00	0.00
Daftari 2244 BG II	0.00	0.00	0.00
C 9392 BG II	0.00	0.00	0.00

Table. Advance HxH Trial in Central Zone under unprotected conditions -- Bollworms – *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)		
	Surat	Bharuch	Mean
SP 7686 BG II	0.00	0.00	0.00
Solar 111 BG II	0.00	0.00	0.00
NHH 44 BG II	0.00	0.00	0.00
GBCH 1801 BG II	0.00	0.00	0.00
RCH 969 BG II	0.00	0.00	0.00
Jadoo BG II (ZC)	0.00	0.00	0.00
G COT HY 12 BG II	0.00	0.00	0.00
ARCH 3001 BG II	0.00	0.00	0.00
MC 5459 BG II	0.00	0.00	0.00
RCH 962 BG II	0.00	0.00	0.00
VSCH 234 BG II	0.00	0.00	0.00
Neo 1656 BG II	0.00	0.00	0.00
ARCH 3106 BG II	0.00	0.00	0.00
BG II Local Check	0.00	0.00	0.00
SP 7675 BG II	0.00	0.00	0.00
US 704 BG II	0.00	0.00	0.00
Daftari 2244 BG II	0.00	0.00	0.00
C 9392 BG II	0.00	0.00	0.00

Table. Advance HxH Trial in Central Zone under unprotected conditions -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
SP 7686 BG II	0.00	0.05	0.00	0.02	BETL
Solar 111 BG II	0.00	0.05	0.00	0.02	BETL
NHH 44 BG II	0.89	0.13	0.22	0.41	BETL
GBCH 1801 BG II	1.33	0.13	0.11	0.52	BETL
RCH 969 BG II	0.00	0.08	0.00	0.03	BETL
Jadoo BG II (ZC)	0.00	0.03	0.11	0.05	BETL
G COT HY 12 BG II	0.78		0.00	0.39	BETL
ARCH 3001 BG II	0.89	0.05	0.22	0.39	BETL
MC 5459 BG II	0.00	0.05	0.11	0.05	BETL
RCH 962 BG II	0.00	0.05	0.22	0.09	BETL
VSCH 234 BG II	1.44	0.05	0.00	0.50	BETL
Neo 1656 BG II	0.89	0.08	0.00	0.32	BETL
ARCH 3106 BG II	1.33	0.05	0.22	0.54	BETL
BG II Local Check	0.00	0.10	0.00	0.03	BETL
SP 7675 BG II	0.56	0.08	0.22	0.28	BETL
US 704 BG II	0.00	0.05	0.00	0.02	BETL
Daftari 2244 BG II	1.00	0.08	0.00	0.36	BETL
C 9392 BG II	0.00	0.05	0.22	0.09	BETL

Table. Advance HxH Trial in Central Zone under unprotected conditions -- Green Boll damage

Name of Entry	Green Boll damage (%)			
	Nagpur	Bharuch	Mean	Remarks*
SP 7686 BG II	0.00	0.78	0.39	BETL
Solar 111 BG II	0.21	0.67	0.44	BETL
NHH 44 BG II	0.00	0.78	0.39	BETL
GBCH 1801 BG II	0.00	0.78	0.39	BETL
RCH 969 BG II	0.00	0.89	0.44	BETL
Jadoo BG II (ZC)	0.00	0.78	0.39	BETL
G COT HY 12 BG II		1.00	1.00	BETL
ARCH 3001 BG II	0.00	0.78	0.39	BETL
MC 5459 BG II	0.00	0.67	0.34	BETL
RCH 962 BG II	0.00	1.00	0.50	BETL
VSCH 234 BG II	0.00	1.00	0.50	BETL
Neo 1656 BG II	0.00	1.00	0.50	BETL
ARCH 3106 BG II	0.00	1.00	0.50	BETL
BG II Local Check	0.00	1.00	0.50	BETL
SP 7675 BG II	0.00	1.22	0.61	BETL
US 704 BG II	0.00	0.78	0.39	BETL
Daftari 2244 BG II	0.00	0.67	0.33	BETL
C 9392 BG II	0.00	1.22	0.61	BETL

Table.Advance HxH Trial in Central Zone under unprotected conditions -- Open Boll damage

Name of Entry	Open Boll damage (%)			
	Surat	Bharuch	Mean	Remarks*
SP 7686 BG II	0.00	0.33	0.17	BETL
Solar 111 BG II	0.00	0.33	0.17	BETL
NHH 44 BG II	4.44	0.33	2.39	BETL
GBCH 1801 BG II	6.67	0.33	3.50	BETL
RCH 969 BG II	0.00	0.33	0.17	BETL
Jadoo BG II (ZC)	0.00	0.67	0.33	BETL
G COT HY 12 BG II	4.44	0.67	2.56	BETL
ARCH 3001 BG II	5.56	0.56	3.06	BETL
MC 5459 BG II	0.00	0.33	0.17	BETL
RCH 962 BG II	0.00	0.33	0.17	BETL
VSCH 234 BG II	10.00	0.67	5.34	BETL
Neo 1656 BG II	10.00	0.56	5.28	BETL
ARCH 3106 BG II	6.67	0.56	3.61	BETL
BG II Local Check	0.00	0.67	0.34	BETL
SP 7675 BG II	4.44	0.78	2.61	BETL
US 704 BG II	0.00	0.56	0.28	BETL
Daftari 2244 BG II	5.56	0.67	3.11	BETL
C 9392 BG II	0.00	1.00	0.50	BETL

Table. Advance HxH Trial in Central Zone under unprotected conditions -- Locule damage

Name of Entry	Locule damage (%)			
	Surat	Nagpur	Bharuch	Mean
SP 7686 BG II	0.00	3.70	0.00	1.23
Solar 111 BG II	0.00	7.01	0.11	2.37
NHH 44 BG II	1.67	5.93	0.11	2.57
GBCH 1801 BG II	2.78	4.10	0.00	2.29
RCH 969 BG II	0.00	2.63	0.00	0.88
Jadoo BG II (ZC)	0.00	1.96	0.11	0.69
G COT HY 12 BG II	1.67		0.22	0.94
ARCH 3001 BG II	2.22	2.01	0.11	1.45
MC 5459 BG II	0.00	2.08	0.11	0.73
RCH 962 BG II	0.00	3.42	0.00	1.14
VSCH 234 BG II	4.17	2.50	0.22	2.30
Neo 1656 BG II	4.44	5.79	0.11	3.45
ARCH 3106 BG II	2.78	1.97	0.00	1.58
BG II Local Check	0.00	5.79	0.22	2.00
SP 7675 BG II	1.67	3.40	0.33	1.80
US 704 BG II	0.00	3.21	0.11	1.11
Daftari 2244 BG II	2.22	5.84	0.22	2.76
C 9392 BG II	0.00	6.66	0.22	2.29

Reaction to Diseases

Table: Advanced Evaluation Trial of Intra-hirsutum Hybrids-I – Rainfed under unprotected condition

Entries	Average PDI & Disease Reaction (DR): Unprotected											
	Surat				Nagpur							
	BLB		ALB		*CoLS*		GM		TSV		BLB	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
SP 7686 BG II	0.0	DF	0.0	DF	16.7	R	4.2	R	0.0	DF	1.5	R
Solar 111 BG II	0.0	DF	0.0	DF	23.3	R	3.3	R	0.0	DF	1.7	R
NHH 44 BG II	0.0	DF	0.0	DF	19.2	R	2.5	R	0.0	DF	0.8	R
GBCH 1801 BG II	0.0	DF	0.0	DF	21.7	R	6.7	R	0.0	DF	5.0	R
RCH 969 BG II	0.0	DF	0.0	DF	15.8	R	3.3	R	0.0	DF	0.8	R
Jadoo BG II (ZC)	0.0	DF	0.0	DF	22.5	R	4.2	R	0.0	DF	3.6	R
G COT HY 12 BG II	16.8	R	0.0	DF	24.2	R	0.8	R	16.7	R	2.5	R
ARCH 3001 BG II	0.0	DF	0.0	DF	9.6	R	11.7	R	14.6	R	0.0	R
MC 5459 BG II	0.0	DF	0.0	DF	10.0	R	0.0	R	0.0	DF	3.3	R
RCH 962 BG II	6.0	R	0.0	DF	9.2	R	0.0	R	0.0	DF	4.8	R
VSCH 234 BG II	0.0	DF	0.0	DF	23.3	R	0.0	R	0.0	DF	0.8	R
Neo 1656 BG II	10.7	R	0.0	DF	16.7	R	1.7	R	15.8	R	2.5	R
ARCH 3106 BG II	0.0	DF	0.0	DF	13.3	R	0.0	R	0.0	DF	4.0	R
BG II (LC)	0.0	DF	0.0	DF	20.8	R	0.0	R	0.0	DF	0.7	R
SP 7675 BG II	0.0	DF	0.0	DF	16.7	R	0.0	R	0.0	DF	2.3	R
US 704 BG II	0.0	DF	0.0	DF	15.0	R	0.0	R	0.0	DF	5.0	R
Daftari 2244 BG II	0.0	DF	0.0	DF	22.5	R	0.0	R	0.0	DF	3.8	R
C 9392 BG II	0.0	DF	0.0	DF	23.3	R	0.0	R	0.0	DF	2.3	R

Advanced Evaluation Trial of Intra-Hirsutum Bt Hybrids (II) in Central Zone (2020-21) - Rainfed

Constitution of Trial

The trial was constituted with four Bt cotton hybrids containing MON 15985 event sponsored by various organization along with two different check hybrids as furnished below.

S. No.	Name of the Entry	Sponsored by
1	NBC 1811 BG II	Nath Bio Genes
2	Jadoo BG II (ZC)	
3	MC5401 BGII	Metahelix Life Sciences Ltd
4	BG II Local Check	
5	BIOGHH 102	Shriram Bioseed Genetics
6	NCS 2778 Bt2	Nuziveedu Seeds Pvt Ltd

The trial was conducted in five different locations and detail is furnished below.

Name of the trial location	Surat	Bharuch	Nagpur	Nanded
Local check Bt hybrid	MRC 7347 BG II	MRC 7347 BG II	MRC 7347 BG II	MRC 7347 BG II

Spacing: Recommended spacing for the hybrid has been followed.

Number of rows:4 rows of 6 meters per entry with four replications

Data recorded:

Biometric evaluation

Plant height (cm) at harvest in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Surat	Nanded	Nagpur	Mean
1	NBC 1811 BG II	144.3	189.3	158.2	**163.9**
2	Jadoo BG II (ZC)	139.1	179.5	142.3	**153.6**
3	MC5401 BGII	137.6	169.3	139.8	**148.9**
4	BG II Local Check	114.2	166.8	136.5	**139.2**
5	BIOGHH 102	144.2	183.8	153.4	**160.5**
6	NCS 2778 Bt2	126.1	170.3	145.3	**147.2**
	CD @ 5%	9.1	15.1	NS	
	CV %	4.5	5.7	7.8	

Number of monopodia in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Surat	Nanded	Nagpur	Mean
1	NBC 1811 BG II	2.1	1.1	3.0	**2.1**
2	Jadoo BG II (ZC)	2.0	0.7	2.7	**1.8**
3	MC5401 BGII	1.8	1.2	2.4	**1.8**
4	BG II Local Check	3.6	1.0	1.8	**2.1**
5	BIOGHH 102	1.7	0.7	2.1	**1.5**
6	NCS 2778 Bt2	1.9	0.7	2.4	**1.7**
	CD @ 5%	0.5	0.5	0.4	
	CV %	16.5	35.6	12.1	

Number of sympodia in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Surat	Nanded	Nagpur	Mean
1	NBC 1811 BG II	15.3	28.2	25.8	**23.1**
2	Jadoo BG II (ZC)	15.2	27.0	26.3	**22.8**
3	MC5401 BGII	17.2	27.9	29.5	**24.9**
4	BG II Local Check	14.9	26.8	26.0	**22.6**
5	BIOGHH 102	17.0	31.0	28.5	**25.5**
6	NCS 2778 Bt2	16.3	27.9	26.5	**23.6**
	CD @ 5%	NS	3.6	2.2	
	CV %	8.0	8.5	5.5	

Number of bolls / plant in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Surat	Bharuch	Nanded	Nagpur	Mean
1	NBC 1811 BG II	25.7	19.0	21.1	29.4	**23.8**
2	Jadoo BG II (ZC)	16.7	22.7	20.0	23.9	**20.8**
3	MC5401 BGII	24.3	21.7	17.6	19.1	**20.7**
4	BG II Local Check	21.8	21.8	20.2	29.4	**23.3**
5	BIOGHH 102	15.0	18.5	23.1	26.4	**20.8**
6	NCS 2778 Bt2	16.8	18.3	27.2	23.7	**21.5**
	SE (d)	3.3	6.5	4.8	NS	
	CV %	11.1	19.9	14.9	24.4	

Number of bolls / sq.m. in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Surat	Bharuch	Nanded	Nagpur	Mean
1	NBC 1811 BG II	47.5	57.0	39.8	87.0	**57.8**
2	Jadoo BG II (ZC)	30.8	68.0	38.5	70.7	**52.0**
3	MC5401 BGII	45.0	65.0	30.8	56.6	**49.4**
4	BG II Local Check	40.4	65.5	34.3	87.0	**56.8**
5	BIOGHH 102	27.8	55.5	39.5	78.2	**50.3**
6	NCS 2778 Bt2	31.0	54.8	47.0	70.1	**50.7**
	CD @ 5%	6.2		4.8	NS	
	CV %	11.1		14.9	24.4	

Lint Index (g) in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Surat	Bharuch	Nanded	Nagpur	Mean
1	NBC 1811 BG II	5.7	6.1	4.4	4.8	**5.3**
2	Jadoo BG II (ZC)	5.2	5.4	4.7	4.5	**5.0**
3	MC5401 BGII	5.4	5.5	4.2	5.1	**5.1**
4	BG II Local Check	5.3	5.1	5.2	5.0	**5.2**
5	BIOGHH 102	5.4	5.9	6.2	5.3	**5.7**
6	NCS 2778 Bt2	5.1	5.2	5.9	4.7	**5.2**
	CD @ 5%	NS	0.2	0.7		
	CV %	4.9	2.1	9.7		

Seed Index (g) in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Surat	Bharuch	Nanded	Nagpur	Mean
1	NBC 1811 BG II	9.1	11.3	8.0	8.5	**9.2**
2	Jadoo BG II (ZC)	9.0	12.1	9.0	8.5	**9.7**
3	MC5401 BGII	8.5	11.3	7.7	8.5	**9.0**
4	BG II Local Check	9.1	10.1	10.1	9.0	**9.6**
5	BIOGHH 102	9.5	12.3	10.7	10.5	**10.8**
6	NCS 2778 Bt2	9.4	11.4	12.1	10.0	**10.7**
	CD @ 5%	NS	0.2	0.9		
	CV %	5.2	1.3	6.3		

Ginning outturn (%) in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Surat	Bharuch	Nanded	Nagpur	Mean
1	NBC 1811 BG II	38.4	34.9	35.4	36.3	**36.3**
2	Jadoo BG II (ZC)	36.6	31.0	34.1	34.4	**34.0**
3	MC5401 BGII	38.9	32.9	35.6	37.5	**36.2**
4	BG II Local Check	36.7	33.8	33.9	35.5	**35.0**
5	BIOGHH 102	36.3	32.3	36.8	33.4	**34.7**
6	NCS 2778 Bt2	35.1	31.4	32.6	32.2	**32.8**
	CD @ 5%	1.3	0.6	2.3		
	CV %	2.3	1.1	4.4		

Upper Half Mean Length (mm) under HVI Mode in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Surat	Bharuch	Nanded	Nagpur	Mean
1	NBC 1811 BG II	25.6	28.3	25.6	25.3	**26.2**
2	Jadoo BG II (ZC)	29.7	31.7	29.4	27.5	**29.6**
3	MC5401 BGII	25.4	26.7	24.9	24.8	**25.5**
4	BG II Local Check	25.6	26.9	31.1	25.1	**27.2**
5	BIOGHH 102	29.1	29.8	29.9	32.1	**30.2**
6	NCS 2778 Bt2	31.5	30.5	31.3	29.1	**30.6**

Uniformity index under HVI Mode in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Surat	Bharuch	Nanded	Nagpur	Mean
1	NBC 1811 BG II	86.0	85.0	84.0	83.0	**84.5**
2	Jadoo BG II (ZC)	85.0	84.0	83.0	82.0	**83.5**
3	MC5401 BGII	84.0	84.0	83.0	83.0	**83.5**
4	BG II Local Check	84.0	81.0	84.0	82.0	**82.8**
5	BIOGHH 102	86.0	84.0	85.0	81.0	**84.0**
6	NCS 2778 Bt2	86.0	83.0	85.0	86.0	**85.0**

Micronaire under HVI Mode in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Surat	Bharuch	Nanded	Nagpur	Mean
1	NBC 1811 BG II	5.5	4.7	4.7	5.1	**5.0**
2	Jadoo BG II (ZC)	5.3	3.8	4.4	4.9	**4.6**
3	MC5401 BGII	4.9	3.8	4.0	4.7	**4.4**
4	BG II Local Check	4.5	3.2	3.8	4.6	**4.0**
5	BIOGHH 102	5.0	3.9	4.2	4.7	**4.5**
6	NCS 2778 Bt2	4.7	4.0	4.7	5.1	**4.6**

Tenacity under HVI Mode in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Surat	Bharuch	Nanded	Nagpur	Mean
1	NBC 1811 BG II	27.3	28.2	25.9	30.5	**28.0**
2	Jadoo BG II (ZC)	28.0	30.6	27.2	32.2	**29.5**
3	MC5401 BGII	25.9	27.7	25.4	28.9	**27.0**
4	BG II Local Check	26.4	26.1	29.8	27.9	**27.6**
5	BIOGHH 102	29.8	31.1	29.3	31.8	**30.5**
6	NCS 2778 Bt2	29.3	29.4	30.0	30.4	**29.8**

Seed Cotton Yield (q/ha) in Advanced Evaluation Trial of H X H hybrids - II

S. No.	Name of the Entry	Surat	Bharuch	Nanded	Nagpur	Mean	Rank
1	NBC 1811 BG II	20.20	12.46	10.06	20.25	**15.74**	2
2	Jadoo BG II (ZC)	16.92	13.97	10.49	18.48	**14.97**	4
3	MC5401 BGII	20.07	13.33	9.42	14.46	**14.32**	6
4	BG II Local Check	15.90	11.88	10.95	21.64	**15.09**	3
5	BIOGHH 102	13.90	15.49	11.54	18.08	**14.75**	5
6	NCS 2778 Bt2	14.23	14.03	14.20	22.48	**16.24**	1
	CD @ 5%	4.11	3.75	1.51	3.76		
	CV %	16.10	17.60	9.81	12.97		

Quantity of Cry 1Ac Protein (ppm) at Nagpur in Advanced Evaluation Trial of H X H hybrids - II

Entry	Leaf				Square			Bolls	
	30 D	60 D	90 D	120 D	60 D	90 D	120 D	90 D	120 D
NBC 1811 BG II	3.79	8.28	4.97	1.32	3.90	5.12	0.68	2.03	1.45
Jadoo BG II (ZC)	4.31	6.68	6.21	1.48	3.89	5.17	0.42	2.16	1.61
MC5401 BGII	5.56	6.32	6.24	1.45	3.93	5.27	1.07	2.01	1.11
BG II Local Check	5.12	6.44	6.78	1.65	4.07	3.39	0.55	1.88	1.14
BIOGHH 102	5.05	7.16	7.35	1.16	2.86	3.87	1.23	2.24	1.01
NCS 2778 Bt2	3.40	4.70	6.73	1.28	3.07	3.34	0.71	2.12	1.56

Quantity of Cry 1Ac Protein (ppm) at Surat in Advanced Evaluation Trial of H X H hybrids - II

Entry	Leaf				Square			Bolls	
	30D	60D	90D	120D	60D	90D	120D	90D	120D
NBC 1811 BG II	1.22	4.16	4.22	1.77	2.46	3.90	1.96	3.39	3.68
Jadoo BG II (ZC)	1.33	4.04	4.58	2.38	1.57	3.38	1.69	1.93	2.61
MC5401 BGII	1.27	4.32	4.63	1.54	2.78	3.23	2.36	4.20	3.20
BG II Local Check	2.20	4.02	4.27	2.26	3.81	3.55	2.34	3.21	2.23
BIOGHH 102	1.26	3.38	4.13	1.03	2.32	2.33	1.84	3.79	2.27
NCS 2778 Bt2	2.51	4.21	4.62	2.30	2.25	2.85	1.69	2.86	1.50

Quantity of Cry 2Ab Protein (ppm) at Nagpur in Advanced Evaluation Trial of H X H hybrids - II

Entry	Leaf				Square			Bolls	
	30 D	60 D	90 D	120 D	60 D	90 D	120 D	90 D	120 D
NBC 1811 BG II	154.55	213.49	282.46	136.22	171.32	264.08	133.88	171.04	105.30
Jadoo BG II (ZC)	174.41	198.63	286.62	98.65	131.17	199.94	155.50	215.26	119.85
MC5401 BGII	165.93	229.28	298.22	130.45	113.06	148.99	53.71	357.03	159.10
BG II Local Check	260.91	398.39	309.75	213.02	239.60	287.41	133.97	362.09	153.84
BIOGHH 102	234.75	295.10	281.02	167.83	243.50	237.92	84.25	315.95	161.89
NCS 2778 Bt2	242.87	295.89	299.34	109.89	175.09	234.88	65.27	300.41	134.27

Quantity of Cry 2Ab Protein (ppm) at Surat in Advanced Evaluation Trial of H X H hybrids - II

Entry	Leaf				Square			Bolls	
	30D	60D	90D	120D	60D	90D	120D	90D	120D
NBC 1811 BG II	134.49	230.40	297.34	201.40	219.50	254.34	124.91	185.74	139.09
Jadoo BG II (ZC)	133.23	282.48	288.48	198.51	225.00	277.36	123.21	171.49	214.41
MC5401 BGII	100.95	261.39	295.32	185.32	132.96	177.57	117.29	146.05	159.33
BG II Local Check	104.67	232.15	282.27	212.14	128.65	204.44	106.26	212.32	128.81
BIOGHH 102	139.30	283.81	287.87	167.70	186.61	280.40	100.31	157.78	120.05
NCS 2778 Bt2	113.27	242.80	291.41	194.19	191.18	287.84	161.77	195.94	142.09

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect Pests

Table. Advance HxH Trial in Central Zone under protected conditions -- Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
NBC 1811 BG II	2.33	2.45	2.37	2.38	BETL
Jadoo BG II (ZC)	4.47	2.94	2.43	3.28	BETL
MC5401 BGII	4.43	3.1	3.47	3.67	BETL
BG II Local Check	1.93	2.83	2.63	2.47	BETL
BIOGHH 102	1.59	3.32	2.73	2.55	BETL
NCS 2778 Bt2	4.18	2.96	2.96	3.37	BETL

Table. Advance HxH Trial in Central Zone under protected conditions -- Jassid Injury Grade

Name of Entry	JIG(Average of 3 leaves/plant)
	Nagpur
NBC 1811 BG II	I
Jadoo BG II (ZC)	I
MC5401 BGII	I
BG II Local Check	I
BIOGHH 102	I
NCS 2778 Bt2	I

Table. Advance HxH Trial in Central Zone under protected conditions -- Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
NBC 1811 BG II	8.25	3.08	3.27	4.87	BETL
Jadoo BG II (ZC)	20.52	3.24	2.53	8.76	BETL
MC5401 BGII	13.30	3.73	3.60	6.88	BETL
BG II Local Check	8.13	3.78	3.87	5.26	BETL
BIOGHH 102	8.42	3.58	3.17	5.05	BETL
NCS 2778 Bt2	14.85	3.76	3.83	7.48	BETL

Table. Advance HxH Trial in Central Zone under protected conditions -- Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
NBC 1811 BG II	1.60	3.87	1.57	2.35	BETL
Jadoo BG II (ZC)	1.95	3.56	1.60	2.37	BETL
MC5401 BGII	2.38	4.13	2.80	3.10	BETL
BG II Local Check	1.37	4.01	1.57	2.31	BETL
BIOGHH 102	1.73	4.71	2.43	2.96	BETL
NCS 2778 Bt2	2.23	4.22	3.23	3.23	BETL

Table. Advance HxH Trial in Central Zone under protected conditions -- Natural Enemies

Name of Entry	Natural enemies (No./Plant)		
	Surat	Bharuch	Mean
NBC 1811 BG II	0.08	0.10	0.09
Jadoo BG II (ZC)	0.09	0.13	0.11
MC5401 BGII	0.17	0.13	0.15
BG II Local Check	0.12	0.13	0.13
BIOGHH 102	0.10	0.13	0.12
NCS 2778 Bt2	0.11	0.13	0.12

Table. Advance HxH Trial in Central Zone under protected conditions -- Bollworms – *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
NBC 1811 BG II	0.00	0.00	0.00	0.00	BETL
Jadoo BG II (ZC)	0.00	0.00	0.00	0.00	BETL
MC5401 BGII	0.00	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	0.00	BETL
BIOGHH 102	0.00	0.00	0.00	0.00	BETL
NCS 2778 Bt2	0.00	0.00	0.00	0.00	BETL

Table. Advance HxH Trial in Central Zone under protected conditions -- Bollworms - Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)			
	Surat	Bharuch	Mean	Remarks*
NBC 1811 BG II	0.00	0.00	0.00	BETL
Jadoo BG II (ZC)	0.00	0.00	0.00	BETL
MC5401 BGII	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	BETL
BIOGHH 102	0.00	0.00	0.00	BETL
NCS 2778 Bt2	0.00	0.00	0.00	BETL

Table. Advance HxH Trial in Central Zone under protected conditions -- Bollworms – *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)			
	Surat	Bharuch	Mean	Remarks*
NBC 1811 BG II	0.00	0.00	0.00	BETL
Jadoo BG II (ZC)	0.00	0.00	0.00	BETL
MC5401 BGII	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	BETL
BIOGHH 102	0.00	0.00	0.00	BETL
NCS 2778 Bt2	0.00	0.00	0.00	BETL

Table. Advance HxH Trial in Central Zone under protected conditions -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
NBC 1811 BG II	0.08	0.09	0.22	0.13	BETL
Jadoo BG II (ZC)	0.50	0.01	0.22	0.24	BETL
MC5401 BGII	0.25	0.03	0.22	0.17	BETL
BG II Local Check	0.00	0.05	0.00	0.02	BETL
BIOGHH 102	0.42	0.11	0.00	0.18	BETL
NCS 2778 Bt2	0.00	0.01	0.22	0.08	BETL

Table. Advance HxH Trial in Central Zone under protected conditions -- Green Boll damage

Name of Entry	Green Boll damage (%)			
	Nagpur	Bharuch	Mean	Remarks*
NBC 1811 BG II	0.00	0.78	0.39	BETL
Jadoo BG II (ZC)	0.10	0.67	0.39	BETL
MC5401 BGII	0.34	0.78	0.56	BETL
BG II Local Check	0.39	0.78	0.58	BETL
BIOGHH 102	0.21	0.89	0.55	BETL
NCS 2778 Bt2	0.24	0.78	0.51	BETL

Table.Advance HxH Trial in Central Zone under protected conditions -- Open Boll damage

Name of Entry	Open Boll damage (%)			
	Surat	Bharuch	Mean	Remarks*
NBC 1811 BG II	0.83	0.33	0.58	BETL
Jadoo BG II (ZC)	3.33	0.33	1.83	BETL
MC5401 BGII	2.50	0.33	1.42	BETL
BG II Local Check	0.00	0.33	0.17	BETL
BIOGHH 102	4.17	0.33	2.25	BETL
NCS 2778 Bt2	0.00	0.67	0.33	BETL

Table. Advance HxH Trial in Central Zone under protected conditions -- Locule damage

Name of Entry	Locule damage (%)			
	Surat	Nagpur	Bharuch	Mean
NBC 1811 BG II	0.21	4.18	0.11	1.50
Jadoo BG II (ZC)	1.46	1.22	0.11	0.93
MC5401 BGII	1.04	0.37	0.11	0.51
BG II Local Check	0.00	3.85	0.00	1.28
BIOGHH 102	1.88	4.07	0.00	1.98
NCS 2778 Bt2	0.00	0.63	0.22	0.29

Table. Advance HxH Trial in Central Zone under protected conditions -- Number of sprays for sucking pests

Name of Entry	Sprays applied for sap sucking pests (Nos.)		
	Surat	Bharuch	Mean
NBC 1811 BG II	5.00	5.00	5.00
Jadoo BG II (ZC)	5.00	5.00	5.00
MC5401 BGII	5.00	5.00	5.00
BG II Local Check	5.00	5.00	5.00
BIOGHH 102	5.00	5.00	5.00
NCS 2778 Bt2	5.00	5.00	5.00

Reaction to Diseases

Table: Advanced Evaluation Trial of Intra-hirsutum Hybrids-II – Rainfed under protected condition

Entries	Average PDI & Disease Reaction (DR): Protected									
	BLB				ALB				GM	
	Surat		Nanded		Surat		Nanded		Nanded	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
NBC 1811 BG II	0.0	DF	8.3	R	0.0	DF	6.0	R	25.4	MR
Jadoo BG II (ZC)	0.0	DF	8.8	R	0.0	DF	5.6	R	27.9	MR
MC5401 BGII	0.0	DF	9.6	R	0.0	DF	8.1	R	21.1	R
BG II (LC)	0.0	DF	11.5	R	0.0	DF	10.1	R	24.4	R
BIOGHH 102	0.0	DF	9.4	R	0.0	DF	6.9	R	23.8	R
NCS 2778 Bt2	0.0	DF	9.3	R	0.0	DF	10.3	R	19.8	R

Evaluation under unprotected condition for insect pests and diseases:

Reaction to Insect Pests

Table. Advance HxH Trial in Central Zone under unprotected conditions -- Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)					
	Surat	Nanded	Nagpur	Bharuch	Mean	Remarks*
NBC 1811 BG II	2.67	1.33	3.07	3.07	2.53	BETL
Jadoo BG II (ZC)	5.17	1.50	3.02	2.63	3.08	BETL
MC5401 BGII	5.08	1.52	3.92	3.83	3.59	BETL
BG II Local Check	2.35	1.35	3.00	3.03	2.43	BETL
BIOGHH 102	2.02	1.28	3.00	3.10	2.35	BETL
NCS 2778 Bt2	4.65	1.42	4.07	3.43	3.39	BETL

Table. Advance HxH Trial in Central Zone under unprotected conditions -- Jassid Injury Grade

Name of Entry	JIG(Average of 3 leaves/plant)
	Nagpur
NBC 1811 BG II	I
Jadoo BG II (ZC)	I
MC5401 BGII	I
BG II Local Check	I
BIOGHH 102	I
NCS 2778 Bt2	I

Table. Advance HxH Trial in Central Zone under unprotected conditions -- Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)					
	Surat	Nanded	Nagpur	Bharuch	Mean	Remarks*
NBC 1811 BG II	9.08	7.53	3.77	3.63	6.00	BETL
Jadoo BG II (ZC)	21.05	7.75	4.42	3.00	9.06	BETL
MC5401 BGII	13.98	7.25	3.67	3.63	7.13	BETL
BG II Local Check	8.37	7.75	3.85	4.20	6.04	BETL
BIOGHH 102	8.93	8.08	3.97	3.30	6.07	BETL
NCS 2778 Bt2	15.82	8.05	4.17	3.37	7.85	BETL

Table. Advance HxH Trial in Central Zone under unprotected conditions -- Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)					
	Surat	Nanded	Nagpur	Bharuch	Mean	Remarks*
NBC 1811 BG II	1.83	5.15	3.10	2.43	3.13	BETL
Jadoo BG II (ZC)	2.28	4.98	2.82	2.77	3.21	BETL
MC5401 BGII	2.80	5.1	2.85	3.23	3.50	BETL
BG II Local Check	1.95	5.28	3.32	2.47	3.25	BETL
BIOGHH 102	2.20	4.23	2.76	2.80	3.00	BETL
NCS 2778 Bt2	2.70	5.35	3.30	3.47	3.70	BETL

Table. Advance HxH Trial in Central Zone under unprotected conditions -- Natural Enemies

Name of Entry	Natural enemies (No./Plant)			
	Surat	Nanded	Bharuch	Mean
NBC 1811 BG II	0.16	0.50	0.17	0.27
Jadoo BG II (ZC)	0.16	0.53	0.13	0.27
MC5401 BGII	0.20	0.59	0.13	0.31
BG II Local Check	0.17	0.51	0.17	0.28
BIOGHH 102	0.16	0.46	0.13	0.25
NCS 2778 Bt2	0.18	0.47	0.17	0.27

Table. Advance HxH Trial in Central Zone under unprotected conditions -- Bollworms – *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)					
	Surat	Nanded	Nagpur	Bharuch	Mean	Remarks*
NBC 1811 BG II	0.00	0.18	0.00	0.00	0.05	BETL
Jadoo BG II (ZC)	0.00	0.14	0.00	0.00	0.04	BETL
MC5401 BGII	0.00	0.18	0.00	0.00	0.05	BETL
BG II Local Check	0.00	0.13	0.00	0.00	0.03	BETL
BIOGHH 102	0.00	0.17	0.00	0.00	0.04	BETL
NCS 2778 Bt2	0.00	0.13	0.00	0.00	0.03	BETL

Table. Advance HxH Trial in Central Zone under unprotected conditions -- Bollworms - Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)				
	Surat	Nanded	Bharuch	Mean	Remarks*
NBC 1811 BG II	0.00	0.06	0.00	0.02	BETL
Jadoo BG II (ZC)	0.00	0.08	0.00	0.03	BETL
MC5401 BGII	0.00	0.13	0.00	0.04	BETL
BG II Local Check	0.00	0.08	0.00	0.03	BETL
BIOGHH 102	0.00	0.09	0.00	0.03	BETL
NCS 2778 Bt2	0.00	0.09	0.00	0.03	BETL

Table. Advance HxH Trial in Central Zone under unprotected conditions -- Bollworms – Spodoptera litura

Name of Entry	Spodoptera litura (No. / 5 plants)				
	Surat	Nanded	Bharuch	Mean	Remarks*
NBC 1811 BG II	0.00	0.10	0.00	0.03	BETL
Jadoo BG II (ZC)	0.00	0.08	0.00	0.03	BETL
MC5401 BGII	0.00	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.08	0.00	0.03	BETL
BIOGHH 102	0.00	0.05	0.00	0.02	BETL
NCS 2778 Bt2	0.00	0.05	0.00	0.02	BETL

Table. Advance HxH Trial in Central Zone under unprotected conditions -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)					
	Surat	Nanded	Nagpur	Bharuch	Mean	Remarks*
NBC 1811 BG II	0.17	1.25	0.03	0.22	0.42	BETL
Jadoo BG II (ZC)	0.75	1.13	0.03	0.33	0.56	BETL
MC5401 BGII	0.42	1.38	0.10	0.22	0.53	BETL
BG II Local Check	0.00	1.13	0.05	0.22	0.35	BETL
BIOGHH 102	0.67	1.25	0.00	0.00	0.48	BETL
NCS 2778 Bt2	0.00	1.13	0.03	0.33	0.37	BETL

Table. Advance HxH Trial in Central Zone under unprotected conditions -- Green Boll damage

Name of Entry	Green Boll damage (%)				
	Nanded	Nagpur	Bharuch	Mean	Remarks*
NBC 1811 BG II	14.97	0.00	0.89	5.29	BETL
Jadoo BG II (ZC)	18.86	0.00	0.78	6.55	BETL
MC5401 BGII	15.36	0.00	0.78	5.38	BETL
BG II Local Check	14.65	0.00	0.78	5.14	BETL
BIOGHH 102	13.38	0.00	0.89	4.76	BETL
NCS 2778 Bt2	11.36	0.00	0.89	4.08	BETL

Table Advance HxH Trial in Central Zone under unprotected conditions -- Open Boll damage

Name of Entry	Open Boll damage (%)				
	Surat	Nanded	Bharuch	Mean	Remarks*
NBC 1811 BG II	1.67	6.85	0.67	3.06	BETL
Jadoo BG II (ZC)	5.83	5.2	0.33	3.79	BETL
MC5401 BGII	4.17	5.46	0.33	3.32	BETL
BG II Local Check	0.00	5.86	0.33	2.06	BETL
BIOGHH 102	6.67	5.67	0.33	4.22	BETL
NCS 2778 Bt2	0.00	5.57	0.67	2.08	BETL

Table. Advance HxH Trial in Central Zone under unprotected conditions -- Locule damage

Name of Entry	Locule damage (%)				
	Surat	Nanded	Nagpur	Bharuch	Mean
NBC 1811 BG II	0.63	5.68	2.27	0.22	2.20
Jadoo BG II (ZC)	2.29	5.75	5.63	0.11	3.44
MC5401 BGII	1.88	6.77	3.16	0.11	2.98
BG II Local Check	0.00	5.69	0.63	0.11	1.61
BIOGHH 102	2.71	6.33	0.63	0.00	2.42
NCS 2778 Bt2	0.00	6.13	3.21	0.22	2.39

Table. *Helicoverpa armigera* bioassay on Advance HxH hybrid trial in leaf in laboratory condition at MCRS, NAU, Surat and CICR Nagpur

Name of Entry	% Mortality					
	Surat					
	30DAS	60 DAS	90 DAS	120 DAS	140 DAS	Mean
NBC 1811 BG II	100.00	100.00	100.00	100.00	100.00	100.00
Jadoo BG II (ZC)	100.00	100.00	100.00	100.00	100.00	100.00
MC5401 BGII	100.00	100.00	100.00	100.00	100.00	100.00
BG II Local Check	100.00	100.00	100.00	100.00	100.00	100.00
BIOGHH 102	100.00	100.00	100.00	100.00	100.00	100.00
NCS 2778 Bt2	100.00	100.00	100.00	100.00	100.00	100.00

Name of Entry	% Mortality						
	Nagpur						OM
	30DAS	60 DAS	90 DAS	120 DAS	150 DAS	Mean	Mean
NBC 1811 BG II	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Jadoo BG II (ZC)	100.00	100.00	100.00	100.00	100.00	100.00	100.00
MC5401 BGII	100.00	100.00	100.00	100.00	100.00	100.00	100.00
BG II Local Check	100.00	100.00	100.00	100.00	100.00	100.00	100.00
BIOGHH 102	100.00	100.00	100.00	100.00	100.00	100.00	100.00
NCS 2778 Bt2	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table. *Helicoverpa armigera* bioassay on Advance HxH hybrid trial in Square, flower and bolls in laboratory condition at MCRS, NAU, Surat and CICR Nagpur

Name of Entry	Mortality (%)			
	Surat			
	Square (45DAS)	Flower (60DAS)	Bolls (100)	Mean
NBC 1811 BG II	100.00	100.00	100	100.
Jadoo BG II (ZC)	100.00	100.00	100	100
MC5401 BGII	100.00	100.00	100	100
BG II Local Check	100.00	100.00	100	100
BIOGHH 102	100.00	100.00	100	100
NCS 2778 Bt2	100.00	100.00	100.	100

Name of Entry	Mortality (%)									
	Nagpur									
	Square (60DAS)	Square (90DAS)	Square (120DAS)	Mean	Flower (60DAS)	Flower (90DAS)	Mean	Boll (120DAS)	Boll (150DAS)	Mean
NBC 1811 BG II	100.00	100.00	100.00	100	100.00	100.00	100.0	100	100.00	100.0
Jadoo BG II (ZC)	100.00	100.00	100.00	100	100.00	100.00	100.0	100	100.00	100.0
MC5401 BGII	100.00	100.00	100.00	100	100.00	100.00	100.0	100	100.00	100.0
BG II Local Check	100.00	100.00	100.00	100	100.00	100.00	100.0	100	100.00	100.0
BIOGHH 102	100.00	100.00	100.00	100	100.00	100.00	100.0	100.	100.00	100.0
NCS 2778 Bt2	100.00	100.00	100.00	100	100.00	100.00	100.0	100	100.00	100.0

Table 76. Pink bollworm bioassay on Advance HxH hybrid trial in Square, flower and bolls in laboratory condition at MCRS, NAU, Surat

Name of Entry	Mortality (%)			
	Square (45DAS)	Flower (60DAS)	Bolls(100)	Mean
NBC 1811 BG II	88.00	85.33	80.00	84.44
Jadoo BG II (ZC)	81.33	77.33	57.33	72.00
MC5401 BGII	82.67	84.00	68.00	78.22
BG II Local Check	88.00	88.00	78.67	84.89
BIOGHH 102	76.00	72.00	62.67	70.22
NCS 2778 Bt2	88.00	86.67	78.67	84.44

Reaction to Diseases

Table: Advanced Evaluation Trial of Intra-hirsutum Hybrids-II – Rainfed under unprotected condition

Entries	Average PDI & Disease Reaction (DR): Unprotected									
	BLB						ALB			
	Surat		Nanded		Nagpur		Surat		Nanded	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
NBC 1811 BG II	5.5	R	9.4	R	4.2	R	0.0	DF	7.4	R
Jadoo BG II (ZC)	0.0	DF	10.1	R	6.7	R	0.0	DF	7.1	R
MC5401 BGII	0.0	DF	11.0	R	11.7	R	0.0	DF	9.4	R
BG II (LC)	16.7	R	14.1	R	10.8	R	0.0	DF	11.7	R
BIOGHH 102	0.0	DF	10.6	R	9.2	R	0.0	DF	8.4	R
NCS 2778 Bt2	0.0	DF	11.0	R	10.8	R	0.0	DF	11.4	R

Entries	Average PDI & Disease Reaction (DR): Unprotected							
	GM				TSV		*CoLS*	
	Nanded		Nagpur		Nagpur			
	PDI	DR	PDI	DR	PDI	DR	PDI	DR
NBC 1811 BG II	27.1	MR	13.3	R	0.0	DF	11.7	R
Jadoo BG II (ZC)	29.6	MR	16.7	R	0.0	DF	10.0	R
MC5401 BGII	23.2	R	22.5	R	0.8	R	11.7	R
BG II (LC)	26.6	MR	11.7	R	2.5	R	14.2	R
BIOGHH 102	25.9	MR	15.0	R	1.8	R	5.8	R
NCS 2778 Bt2	23.0	R	19.2	R	0.0	DF	11.7	R

Initial Evaluation Trial of Hirsutum Varieties in Central Zone (2020-21) - Rainfed

Constitution of Trial

The trial was constituted with nine Bt cotton varieties containing deregulated event along with three different check varieties as furnished below.

S. No.	Name of the Entry	Sponsored by	S. No.	Name of the Entry	Sponsored by
1	CICR 18 Bt	CICR, Nagpur	8	NH 1902 Bt	VNMKV, Nanded
2	NH 1901 Bt	VNMKV, Nanded	9	CICR Bt 1142	CICR, Nagpur
3	Suraj Bt (ZC)		10	ARCV 33 Bt	Ankur Seeds Pvt Ltd
4	CICR Bt 20-31	CICR, Nagpur	11	Local Check NBt	
5	NH 1903 Bt	VNMKV, Nanded	12	CICR Bt 1141	CICR, Nagpur
6	ARCV 55 Bt	Ankur Seeds Pvt Ltd	13	NH 1904 Bt	VNMKV, Nanded
7	NH 615 (ZC NBt)		14	CICR 19 Bt	CICR, Nagpur

The trial was conducted in four different locations and detail is furnished below.

Name of the trial location	Surat	Bharuch	Nagpur	Akola
Local check Non Bt Variety	G Cot 16	G Cot 16	AKH 8828	AKH 8828

Spacing: Recommended spacing for the variety has been followed.
Number of rows:4 rows of 6 meters per entry with three replications

Data recorded:

Biometric evaluation

Plant height (cm) at harvest in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Surat	Akola	Nagpur	Mean
1	CICR 18 Bt	135.7	106.7	81.4	**107.9**
2	NH 1901 Bt	145.0	106.1	97.7	**116.3**
3	Suraj Bt (Zonal Check)	102.7	94.4	73.4	**90.2**
4	CICR Bt 20-31	128.3	93.5	87.1	**103.0**
5	NH 1903 Bt	144.3	111.7	92.9	**116.3**
6	ARCV 55 Bt	141.7	102.2	115.3	**119.7**
7	NH 615 (Zonal Check NBt)	113.0	87.2	73.5	**91.2**
8	NH 1902 Bt	168.7	103.3	92.7	**121.6**
9	CICR Bt 1142	130.3	90.0	96.0	**105.4**
10	ARCV 33 Bt	124.7	120.6	109.9	**118.4**
11	Local Check NBt	106.0	125.6	81.7	**104.4**
12	CICR Bt 1141	116.7	98.3	90.0	**101.7**
13	NH 1904 Bt	146.7	97.2	91.4	**111.8**
14	CICR 19 Bt	147.7	101.7	82.2	**110.5**
	CD @ 5%	11.8	9.0	10.7	
	CV %	5.3	9.1	7.0	

Number of monopodia in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Surat	Akola	Nagpur	Mean
1	CICR 18 Bt	2.3	1.3	1.6	**1.7**
2	NH 1901 Bt	2.3	1.8	0.5	**1.5**
3	Suraj Bt (Zonal Check)	2.7	1.6	2.4	**2.2**
4	CICR Bt 20-31	2.7	2.0	1.1	**1.9**
5	NH 1903 Bt	3.0	1.6	0.8	**1.8**
6	ARCV 55 Bt	2.7	1.7	1.6	**2.0**
7	NH 615 (Zonal Check NBt)	2.0	1.7	2.3	**2.0**
8	NH 1902 Bt	1.7	1.3	0.2	**1.1**
9	CICR Bt 1142	3.0	1.8	1.5	**2.1**
10	ARCV 33 Bt	2.0	1.7	1.2	**1.6**
11	Local Check NBt	2.3	1.8	1.4	**1.8**
12	CICR Bt 1141	2.3	1.6	1.4	**1.8**
13	NH 1904 Bt	2.0	1.9	0.5	**1.5**
14	CICR 19 Bt	2.7	1.7	4.0	**2.8**
	CD @ 5%	0.8	0.3	0.9	
	CV %	18.7	19.3	38.6	

Number of sympodia in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Surat	Akola	Nagpur	Mean
1	CICR 18 Bt	12.0	17.6	19.5	**16.4**
2	NH 1901 Bt	12.0	17.6	21.8	**17.1**
3	Suraj Bt (Zonal Check)	10.0	18.4	17.9	**15.4**
4	CICR Bt 20-31	13.7	16.1	20.9	**16.9**
5	NH 1903 Bt	13.3	19.2	20.8	**17.8**
6	ARCV 55 Bt	13.0	15.1	22.3	**16.8**
7	NH 615 (Zonal Check NBt)	10.3	17.8	17.2	**15.1**
8	NH 1902 Bt	21.0	16.4	20.9	**19.4**
9	CICR Bt 1142	13.0	14.8	16.6	**14.8**
10	ARCV 33 Bt	15.3	20.1	20.5	**18.6**
11	Local Check NBt	14.0	18.1	18.1	**16.7**
12	CICR Bt 1141	13.7	17.0	18.9	**16.5**
13	NH 1904 Bt	19.7	15.8	22.3	**19.3**
14	CICR 19 Bt	11.7	16.1	17.1	**15.0**
	CD @ 5%	2.9	1.3	2.8	
	CV %	1.3	7.9	8.6	

Number of bolls / plant in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	CICR 18 Bt	37.3	13.1	21.2	14.9	**21.6**
2	NH 1901 Bt	30.9	18.6	24.2	15.3	**22.3**
3	Suraj Bt (Zonal Check)	29.6	18.8	17.9	13.5	**20.0**
4	CICR Bt 20-31	36.1	16.3	18.0	13.8	**21.1**
5	NH 1903 Bt	35.8	13.1	19.8	16.0	**21.2**
6	ARCV 55 Bt	14.5	8.4	13.0	7.5	**10.9**
7	NH 615 (Zonal Check NBt)	17.1	11.0	19.1	14.7	**15.5**
8	NH 1902 Bt	37.0	16.6	19.6	14.7	**22.0**
9	CICR Bt 1142	16.2	12.6	13.1	7.9	**12.5**
10	ARCV 33 Bt	15.2	14.0	12.6	8.5	**12.6**
11	Local Check NBt	14.2	6.1	15.8	9.3	**11.4**
12	CICR Bt 1141	15.9	8.8	14.6	11.0	**12.6**
13	NH 1904 Bt	33.3	13.9	15.2	16.2	**19.7**
14	CICR 19 Bt	14.5	14.8	18.2	4.3	**13.0**
	CD @ 5%	6.2	4.2	2.1	4.5	
	CV %	14.8	18.7	12.4	22.2	

Number of bolls / sq. m. in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	CICR 18 Bt	69.1	39.4	70.7	83.0	**65.6**
2	NH 1901 Bt	57.2	55.7	63.0	85.2	**65.3**
3	Suraj Bt (Zonal Check)	54.7	56.3	55.7	74.8	**60.4**
4	CICR Bt 20-31	66.7	48.9	57.7	76.7	**62.5**
5	NH 1903 Bt	66.3	39.4	67.7	88.9	**65.6**
6	ARCV 55 Bt	26.8	25.2	28.3	41.9	**30.6**
7	NH 615 (Zonal Check NBt)	31.7	33.0	94.0	81.5	**60.1**
8	NH 1902 Bt	68.5	49.9	80.7	81.5	**70.2**
9	CICR Bt 1142	30.0	37.8	50.0	44.1	**40.5**
10	ARCV 33 Bt	28.1	42.0	41.0	47.0	**39.5**
11	Local Check NBt	26.3	18.4	62.0	51.9	**39.7**
12	CICR Bt 1141	29.5	26.3	45.7	61.1	**40.7**
13	NH 1904 Bt	61.7	41.8	48.0	90.0	**60.4**
14	CICR 19 Bt	26.8	44.5	53.7	23.7	**37.2**
	CD @ 5%	11.4		7.1	24.8	
	CV %	14.8		12.5	22.2	

Lint Index (g) in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	CICR 18 Bt	4.6	5.1	4.0	4.4	**4.5**
2	NH 1901 Bt	4.8	5.0	4.4	4.6	**4.7**
3	Suraj Bt (Zonal Check)	3.5	5.4	3.8	4.2	**4.2**
4	CICR Bt 20-31	4.4	5.8	4.0	4.8	**4.8**
5	NH 1903 Bt	4.6	5.3	4.8	4.9	**4.9**
6	ARCV 55 Bt	4.3	4.9	4.2	4.7	**4.5**
7	NH 615 (Zonal Check NBt)	4.4	4.7	3.9	4.3	**4.3**
8	NH 1902 Bt	4.3	5.3	3.7	4.8	**4.5**
9	CICR Bt 1142	4.9	5.9	3.8	5.0	**4.9**
10	ARCV 33 Bt	4.7	4.9	5.1	4.2	**4.7**
11	Local Check NBt	4.1	5.1	5.0	4.4	**4.7**
12	CICR Bt 1141	4.6	5.9	4.6	5.2	**5.1**
13	NH 1904 Bt	4.7	6.1	4.6	4.3	**4.9**
14	CICR 19 Bt	3.9	5.9	4.5	3.8	**4.5**
	CD @ 5%	0.6	0.4	0.4		
	CV %	7.5	4.8	9.9		

Seed Index (g) in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	CICR 18 Bt	7.2	10.0	6.8	8.0	**8.0**
2	NH 1901 Bt	8.0	9.0	6.8	7.5	**7.8**
3	Suraj Bt (Zonal Check)	7.0	10.0	7.5	8.0	**8.1**
4	CICR Bt 20-31	7.3	10.2	7.2	7.0	**7.9**
5	NH 1903 Bt	8.0	9.8	7.7	8.0	**8.4**
6	ARCV 55 Bt	8.0	11.6	6.5	8.5	**8.7**
7	NH 615 (Zonal Check NBt)	8.3	10.5	6.3	7.5	**8.2**
8	NH 1902 Bt	6.8	9.6	6.8	8.0	**7.8**
9	CICR Bt 1142	8.7	11.0	7.2	8.5	**8.9**
10	ARCV 33 Bt	9.8	11.0	8.8	8.5	**9.5**
11	Local Check NBt	8.5	11.3	9.3	8.0	**9.3**
12	CICR Bt 1141	8.3	11.2	7.8	8.5	**9.0**
13	NH 1904 Bt	7.7	10.4	7.5	7.5	**8.3**
14	CICR 19 Bt	7.2	11.0	7.2	6.5	**8.0**
	CD @ 5%	0.8	0.8	0.5		
	CV %	6.0	4.8	6.3		

Ginning outturn (%) in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	CICR 18 Bt	38.9	33.7	37.0	35.5	**36.3**
2	NH 1901 Bt	37.6	35.7	36.9	38.2	**37.1**
3	Suraj Bt (Zonal Check)	33.2	34.9	34.5	34.7	**34.3**
4	CICR Bt 20-31	37.4	36.3	36.0	40.8	**37.6**
5	NH 1903 Bt	36.6	34.9	37.3	38.1	**36.7**
6	ARCV 55 Bt	34.8	29.5	38.0	35.5	**34.5**
7	NH 615 (Zonal Check NBt)	34.6	30.9	36.8	36.5	**34.7**
8	NH 1902 Bt	38.4	35.6	34.6	37.6	**36.6**
9	CICR Bt 1142	36.0	34.7	34.9	37.0	**35.7**
10	ARCV 33 Bt	32.3	30.9	36.7	33.2	**33.3**
11	Local Check NBt	32.8	31.3	34.5	35.2	**33.5**
12	CICR Bt 1141	35.7	34.5	35.9	37.8	**36.0**
13	NH 1904 Bt	38.2	36.8	37.4	36.4	**37.2**
14	CICR 19 Bt	35.4	34.9	36.4	36.9	**35.9**
	CD @ 5%	1.6	0.3	1.0		
	CV %	2.7	0.6	2.7		

Upper Half Mean Length (mm) under HVI Mode in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	CICR 18 Bt	22.7	24.5	22.7	21.2	**22.8**
2	NH 1901 Bt	25.4	25.7	23.8	22.9	**24.5**
3	Suraj Bt (Zonal Check)	24.4	25.9	24.3	25.5	**25.0**
4	CICR Bt 20-31	24.1	26.1	24.7	26.4	**25.3**
5	NH 1903 Bt	24.4	26.0	24.5	23.8	**24.7**
6	ARCV 55 Bt	28.5	29.4	26.4	26.2	**27.6**
7	NH 615 (Zonal Check NBt)	27.5	28.2	27.0	27.3	**27.5**
8	NH 1902 Bt	24.5	24.8	24.6	23.3	**24.3**
9	CICR Bt 1142	25.4	25.4	24.3	23.5	**24.7**
10	ARCV 33 Bt	25.7	30.0	25.5	25.3	**26.6**
11	Local Check NBt	24.6	25.3	28.8	25.6	**26.1**
12	CICR Bt 1141	25.9	26.5	27.0	23.5	**25.7**
13	NH 1904 Bt	24.7	24.4	26.5	23.6	**24.8**
14	CICR 19 Bt	25.3	26.8	24.1	26.5	**25.7**

Uniformity index under HVI Mode in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	CICR 18 Bt	81.0	82.0	82.0	78.0	**80.8**
2	NH 1901 Bt	83.0	81.0	82.0	79.0	**81.3**
3	Suraj Bt (Zonal Check)	83.0	78.0	83.0	80.0	**81.0**
4	CICR Bt 20-31	83.0	82.0	83.0	83.0	**82.8**
5	NH 1903 Bt	82.0	83.0	81.0	79.0	**81.3**
6	ARCV 55 Bt	86.0	83.0	84.0	83.0	**84.0**
7	NH 615 (Zonal Check NBt)	86.0	83.0	83.0	81.0	**83.3**
8	NH 1902 Bt	84.0	81.0	84.0	80.0	**82.3**
9	CICR Bt 1142	84.0	82.0	83.0	80.0	**82.3**
10	ARCV 33 Bt	85.0	81.0	84.0	82.0	**83.0**
11	Local Check NBt	83.0	80.0	86.0	82.0	**82.8**
12	CICR Bt 1141	84.0	81.0	84.0	80.0	**82.3**
13	NH 1904 Bt	84.0	81.0	81.0	79.0	**81.3**
14	CICR 19 Bt	82.0	82.0	82.0	81.0	**81.8**

Micronaire under HVI Mode in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	CICR 18 Bt	4.4	4.0	4.9	5.1	**4.6**
2	NH 1901 Bt	3.8	3.3	4.6	4.4	**4.0**
3	Suraj Bt (Zonal Check)	4.1	3.3	4.8	4.1	**4.1**
4	CICR Bt 20-31	5.1	5.0	4.5	5.4	**5.0**
5	NH 1903 Bt	4.3	3.8	4.7	4.4	**4.3**
6	ARCV 55 Bt	4.8	4.4	4.6	4.7	**4.6**
7	NH 615 (Zonal Check NBt)	4.1	3.6	4.2	3.9	**4.0**
8	NH 1902 Bt	4.2	4.0	4.8	4.5	**4.4**
9	CICR Bt 1142	5.3	4.8	5.3	5.7	**5.3**
10	ARCV 33 Bt	3.8	3.6	4.0	3.9	**3.8**
11	Local Check NBt	4.4	4.0	4.7	4.7	**4.5**
12	CICR Bt 1141	5.2	4.3	4.6	4.4	**4.6**
13	NH 1904 Bt	4.3	3.9	4.5	4.6	**4.3**
14	CICR 19 Bt	4.1	3.6	4.8	4.0	**4.1**

Tenacity under HVI Mode in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	CICR 18 Bt	23.0	25.5	25.0	26.9	**25.1**
2	NH 1901 Bt	25.7	24.9	24.1	26.3	**25.3**
3	Suraj Bt (Zonal Check)	24.9	26.3	24.0	28.5	**25.9**
4	CICR Bt 20-31	25.5	26.3	26.7	28.0	**26.6**
5	NH 1903 Bt	24.9	25.2	25.4	28.4	**26.0**
6	ARCV 55 Bt	27.0	29.0	26.4	28.9	**27.8**
7	NH 615 (Zonal Check NBt)	26.2	28.6	26.9	29.5	**27.8**
8	NH 1902 Bt	25.1	25.6	24.6	27.1	**25.6**
9	CICR Bt 1142	27.0	27.7	25.6	27.5	**27.0**
10	ARCV 33 Bt	24.5	30.2	25.9	28.0	**27.2**
11	Local Check NBt	25.7	26.5	28.2	27.2	**26.9**
12	CICR Bt 1141	27.1	27.9	26.4	26.2	**26.9**
13	NH 1904 Bt	25.7	24.8	26.7	27.0	**26.1**
14	CICR 19 Bt	25.3	25.8	24.4	25.0	**25.1**

Seed Cotton Yield (q/ha) in Initial Evaluation Trial of Hirsutum Variety

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean	Rank
1	CICR 18 Bt	21.93	6.29	13.19	15.28	**14.17**	2
2	NH 1901 Bt	18.38	8.99	11.88	14.72	**13.49**	4
3	Suraj Bt (Zonal Check)	16.24	8.48	8.74	8.86	**10.58**	7
4	CICR Bt 20-31	21.02	8.65	7.41	14.15	**12.81**	5
5	NH 1903 Bt	19.30	6.75	13.79	14.25	**13.52**	3
6	ARCV 55 Bt	9.70	5.96	4.80	9.07	**7.38**	12
7	NH 615 (Zonal Check NBt)	10.59	5.30	12.65	11.64	**10.05**	8
8	NH 1902 Bt	21.32	9.12	13.66	14.81	**14.73**	1
9	CICR Bt 1142	12.00	6.90	4.94	12.26	**9.03**	10
10	ARCV 33 Bt	11.31	9.19	7.54	9.40	**9.36**	9
11	Local Check NBt	7.73	3.04	8.36	7.80	**6.73**	14
12	CICR Bt 1141	11.94	5.13	5.09	11.50	**8.42**	11
13	NH 1904 Bt	18.92	7.33	4.60	13.40	**11.06**	6
14	CICR 19 Bt	8.60	8.20	8.83	3.00	**7.16**	13
	CD @ 5%	2.89	2.37	1.45	3.53		
	CV %	11.50	18.50	16.67	18.37		

Qualitative Cry Protein Evaluation

All the above entries were positive for Cry 1Ac Protein in qualitative ELISA Test

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect pests

Table. Initial Variety Trial under protected conditions in Central Zone -- Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)					
	Surat	Akola	Nagpur	Bharuch	Mean	Remarks*
CICR 18 Bt	3.69	1.67	1.83	2.70	2.47	BETL
NH 1901 Bt	3.04	1.76	1.75	2.73	2.32	BETL
Suraj Bt (Zonal Check)	4.16	2.07	2.68	3.33	3.06	BETL
CICR Bt 20-31	2.73	1.84	1.93	2.20	2.18	BETL
NH 1903 Bt	3.44	1.16	1.71	3.30	2.40	BETL
ARCV 55 Bt	1.18	1.38	1.85	3.40	1.95	BETL
NH 615 (Zonal Check NBt)	1.20	1.24	1.63	2.50	1.64	BETL
NH 1902 Bt	0.91	1.87	1.83	2.40	1.75	BETL
CICR Bt 1142	0.89	1.69	1.96	3.43	1.99	BETL
ARCV 33 Bt	4.18	2.80	2.56	3.47	3.25	BETL
Local Check NBt	3.67	1.82	2.17	2.83	2.62	BETL
CICR Bt 1141	3.29	1.64	2.08	2.90	2.48	BETL
NH 1904 Bt	2.69	1.40	2.01	2.70	2.20	BETL
CICR 19 Bt	4.44	1.44	2.03	2.70	2.65	BETL

Table. Initial Variety Trial in Central Zone under protected conditions -- Jassid Injury Grade

Name of Entry	JIG(Average of 3 leaves/plant)
	Nagpur
CICR 18 Bt	I
NH 1901 Bt	I
Suraj Bt (Zonal Check)	I
CICR Bt 20-31	I
NH 1903 Bt	I
ARCV 55 Bt	I
NH 615 (Zonal Check NBt)	I
NH 1902 Bt	I
CICR Bt 1142	I
ARCV 33 Bt	I
Local Check NBt	I
CICR Bt 1141	I
NH 1904 Bt	I
CICR 19 Bt	I

Table. Initial Variety Trial under protected conditions in Central Zone -- Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)					
	Surat	Akola	Nagpur	Bharuch	Mean	Remarks*
CICR 18 Bt	4.33	2.36	2.43	3.27	3.10	BETL
NH 1901 Bt	4.67	3.18	2.91	2.37	3.28	BETL
Suraj Bt (Zonal Check)	7.38	2.93	3.48	2.20	4.00	BETL
CICR Bt 20-31	5.18	2.87	2.55	4.87	3.87	BETL
NH 1903 Bt	4.80	3.49	3.21	4.13	3.91	BETL
ARCV 55 Bt	1.42	3.38	3.81	3.23	2.96	BETL
NH 615 (Zonal Check NBt)	1.42	3.56	3.10	2.53	2.65	BETL
NH 1902 Bt	1.73	3.93	2.88	5.17	3.43	BETL
CICR Bt 1142	1.84	4.20	3.23	3.60	3.22	BETL
ARCV 33 Bt	5.47	3.38	3.31	3.23	3.85	BETL
Local Check NBt	4.69	3.87	3.05	3.83	3.86	BETL
CICR Bt 1141	2.13	4.00	3.10	3.70	3.23	BETL
NH 1904 Bt	3.76	3.00	2.95	3.33	3.26	BETL
CICR 19 Bt	5.16	3.73	2.80	3.83	3.88	BETL

Table. Initial Variety Trial under protected conditions in Central Zone -- Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)					
	Surat	Akola	Nagpur	Bharuch	Mean	Remarks*
CICR 18 Bt	0.47	4.78	3.68	3.47	3.10	BETL
NH 1901 Bt	0.47	4.18	3.40	4.63	3.17	BETL
Suraj Bt (Zonal Check)	0.47	5.29	3.73	4.30	3.45	BETL
CICR Bt 20-31	0.56	4.13	3.76	4.77	3.30	BETL
NH 1903 Bt	0.56	3.91	3.56	4.03	3.02	BETL
ARCV 55 Bt	0.38	3.62	3.35	2.30	2.41	BETL
NH 615 (Zonal Check NBt)	1.00	4.11	3.63	2.63	2.84	BETL
NH 1902 Bt	0.51	4.18	4.76	1.17	2.65	BETL
CICR Bt 1142	0.60	4.07	4.11	2.10	2.72	BETL
ARCV 33 Bt	0.51	4.33	4.70	2.60	3.04	BETL
Local Check NBt	0.38	3.91	3.78	2.10	2.54	BETL
CICR Bt 1141	0.62	4.24	4.90	2.40	3.04	BETL
NH 1904 Bt	0.58	3.20	3.35	2.33	2.37	BETL
CICR 19 Bt	0.58	3.80	5.20	4.07	3.41	BETL

Table. Initial Variety Trial under protected conditions in Central Zone -- Natural Enemies

Name of Entry	Natural enemies (No./Plant)		
	Surat	Bharuch	Mean
CICR 18 Bt	0.09	0.10	0.09
NH 1901 Bt	0.09	0.10	0.09
Suraj Bt (Zonal Check)	0.09	0.13	0.11
CICR Bt 20-31	0.10	0.07	0.08
NH 1903 Bt	0.07	0.20	0.13
ARCV 55 Bt	0.14	0.07	0.11
NH 615 (Zonal Check NBt)	0.12	0.13	0.13
NH 1902 Bt	0.10	0.10	0.10
CICR Bt 1142	0.06	0.17	0.11
ARCV 33 Bt	0.16	0.13	0.14
Local Check NBt	0.08	0.07	0.07
CICR Bt 1141	0.13	0.10	0.12
NH 1904 Bt	0.07	0.13	0.10
CICR 19 Bt	0.13	0.10	0.12

Table. Initial Variety Trial under protected conditions in Central Zone-- Bollworms – *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
CICR 18 Bt	0.00	0.00	0.00	0.00	BETL
NH 1901 Bt	0.00	0.00	0.00	0.00	BETL
Suraj Bt (Zonal Check)	0.00	0.00	0.00	0.00	BETL
CICR Bt 20-31	0.00	0.00	0.00	0.00	BETL
NH 1903 Bt	0.00	0.00	0.00	0.00	BETL
ARCV 55 Bt	0.00	0.00	0.00	0.00	BETL
NH 615 (Zonal Check NBt)	1.89	0.00	0.00	0.63	BETL
NH 1902 Bt	0.00	0.00	0.00	0.00	BETL
CICR Bt 1142	0.00	0.00	0.00	0.00	BETL
ARCV 33 Bt	0.00	0.00	0.00	0.00	BETL
Local Check NBt	1.22	0.00	0.00	0.41	BETL
CICR Bt 1141	0.00	0.00	0.00	0.00	BETL
NH 1904 Bt	0.00	0.00	0.00	0.00	BETL
CICR 19 Bt	0.00	0.00	0.00	0.00	BETL

Table. Initial Variety Trial under protected conditions in Central Zone- -- Bollworms - Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)			
	Surat	Bharuch	Mean	Remarks*
CICR 18 Bt	0.00	0.00	0.00	BETL
NH 1901 Bt	0.00	0.00	0.00	BETL
Suraj Bt (Zonal Check)	0.00	0.00	0.00	BETL
CICR Bt 20-31	0.00	0.00	0.00	BETL
NH 1903 Bt	0.00	0.00	0.00	BETL
ARCV 55 Bt	0.00	0.00	0.00	BETL
NH 615 (Zonal Check NBt)	0.00	0.00	0.00	BETL
NH 1902 Bt	0.00	0.00	0.00	BETL
CICR Bt 1142	0.00	0.00	0.00	BETL
ARCV 33 Bt	0.00	0.00	0.00	BETL
Local Check NBt	0.00	0.00	0.00	BETL
CICR Bt 1141	0.00	0.00	0.00	BETL
NH 1904 Bt	0.00	0.00	0.00	BETL
CICR 19 Bt	0.00	0.00	0.00	BETL

Table. Initial Variety Trial under protected conditions in Central Zone -- Bollworms – *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)			
	Surat	Bharuch	Mean	Remarks*
CICR 18 Bt	0.00	0.00	0.00	BETL
NH 1901 Bt	0.00	0.00	0.00	BETL
Suraj Bt (Zonal Check)	0.00	0.00	0.00	BETL
CICR Bt 20-31	0.00	0.00	0.00	BETL
NH 1903 Bt	0.00	0.00	0.00	BETL
ARCV 55 Bt	0.00	0.00	0.00	BETL
NH 615 (Zonal Check NBt)	0.00	0.00	0.00	BETL
NH 1902 Bt	0.00	0.00	0.00	BETL
CICR Bt 1142	0.00	0.00	0.00	BETL
ARCV 33 Bt	0.00	0.00	0.00	BETL
Local Check NBt	0.00	0.00	0.00	BETL
CICR Bt 1141	0.00	0.00	0.00	BETL
NH 1904 Bt	0.00	0.00	0.00	BETL
CICR 19 Bt	0.00	0.00	0.00	BETL

Table. Initial Variety Trial under protected conditions in Central Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)					
	Surat	Akola	Nagpur	Bharuch	Mean	Remarks*
CICR 18 Bt	0.00	0.62	0.00	0.22	0.21	BETL
NH 1901 Bt	0.00	0.78	0.07	0.00	0.21	BETL
Suraj Bt (Zonal Check)	0.00	0.84	0.05	0.00	0.22	BETL
CICR Bt 20-31	0.00	1.02	0.03	0.22	0.32	BETL
NH 1903 Bt	0.33	0.87	0.00	0.33	0.38	BETL
ARCV 55 Bt	0.00	1.33	0.02	0.22	0.39	BETL
NH 615 (Zonal Check NBt)	0.89	1.44	0.03	0.33	0.68	BETL
NH 1902 Bt	0.00	1.22	0.00	0.33	0.39	BETL
CICR Bt 1142	0.00	1.04	0.00	0.11	0.29	BETL
ARCV 33 Bt	0.22	1.02	0.02	0.11	0.34	BETL
Local Check NBt	1.00	1.24	0.03	0.00	0.57	BETL
CICR Bt 1141	0.00	0.89	0.03	0.11	0.26	BETL
NH 1904 Bt	0.00	1.18	0.00	0.11	0.32	BETL
CICR 19 Bt	0.00	1.24	0.02	0.22	0.37	BETL

Table. Initial Variety Trial under protected conditions in Central Zone -- Green Boll damage

Name of Entry	Green Boll damage (%)			
	Nagpur	Bharuch	Mean	Remarks*
CICR 18 Bt	0.44	0.56	0.50	BETL
NH 1901 Bt	1.34	0.33	0.83	BETL
Suraj Bt (Zonal Check)	0.43	0.33	0.38	BETL
CICR Bt 20-31	0.42	0.78	0.60	BETL
NH 1903 Bt	0.00	0.33	0.17	BETL
ARCV 55 Bt	0.36	0.44	0.40	BETL
NH 615 (Zonal Check NBt)	0.00	0.44	0.22	BETL
NH 1902 Bt	0.00	0.78	0.39	BETL
CICR Bt 1142	0.00	0.33	0.17	BETL
ARCV 33 Bt	0.62	0.33	0.48	BETL
Local Check NBt	1.39	0.78	1.08	BETL
CICR Bt 1141	0.16	0.22	0.19	BETL
NH 1904 Bt	0.84	0.56	0.70	BETL
CICR 19 Bt	0.00	0.78	0.39	BETL

Table. Initial Variety Trial under protected conditions in Central Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)				
	Surat	Akola	Bharuch	Mean	Remarks*
CICR 18 Bt	0.00	30.73	0.33	10.36	AETL
NH 1901 Bt	0.00	32.81	0.78	11.20	AETL
Suraj Bt (Zonal Check)	0.00	29.73	0.33	10.02	AETL
CICR Bt 20-31	0.00	22.41	0.67	7.69	BETL
NH 1903 Bt	3.33	36.18	0.33	13.28	AETL
ARCV 55 Bt	0.00	56.30	0.67	18.99	AETL
NH 615 (Zonal Check NBt)	10.00	41.29	0.56	17.28	AETL
NH 1902 Bt	0.00	26.38	0.67	9.01	BETL
CICR Bt 1142	0.00	53.49	0.22	17.90	AETL
ARCV 33 Bt	0.00	45.24	0.11	15.12	AETL
Local Check NBt	7.78	43.10	0.78	17.22	AETL
CICR Bt 1141	0.00	29.90	0.44	10.11	AETL
NH 1904 Bt	0.00	46.03	0.22	15.42	AETL
CICR 19 Bt	0.00	33.55	0.44	11.33	AETL

Table. Initial Variety Trial under protected conditions in Central Zone -- Locule damage

Name of Entry	Locule damage (%)				
	Surat	Akola	Nagpur	Bharuch	Mean
CICR 18 Bt	0.00	13.04	0.00	0.11	3.29
NH 1901 Bt	0.00	12.87	5.49	0.33	4.67
Suraj Bt (Zonal Check)	0.00	9.47	1.70	0.00	2.79
CICR Bt 20-31	0.00	8.28	1.32	0.22	2.45
NH 1903 Bt	0.83	13.19	2.59	0.11	4.18
ARCV 55 Bt	0.00	19.89	1.25	0.33	5.37
NH 615 (Zonal Check NBt)	2.78	15.71	1.30	0.22	5.00
NH 1902 Bt	0.00	10.13	0.00	0.22	2.59
CICR Bt 1142	0.00	25.61	1.35	0.11	6.77
ARCV 33 Bt	0.00	14.98	2.58	0.00	4.39
Local Check NBt	1.67	15.63	2.14	0.44	4.97
CICR Bt 1141	0.00	10.30	1.67	0.11	3.02
NH 1904 Bt	0.00	22.68	0.00	0.11	5.70
CICR 19 Bt	0.00	18.96	2.56	0.00	5.38

Table. Initial Variety Trial under protected conditions in Central Zone -- Number of sprays for sucking pests

Name of Entry	Sprays applied for sap sucking pests (Nos.)			
	Surat	Akola	Bharuch	Mean
CICR 18 Bt	5.00	2.00	5.00	4.00
NH 1901 Bt	5.00	2.00	5.00	4.00
Suraj Bt (Zonal Check)	5.00	2.00	5.00	4.00
CICR Bt 20-31	5.00	2.00	5.00	4.00
NH 1903 Bt	5.00	2.00	5.00	4.00
ARCV 55 Bt	5.00	2.00	5.00	4.00
NH 615 (Zonal Check NBt)	5.00	2.00	5.00	4.00
NH 1902 Bt	5.00	2.00	5.00	4.00
CICR Bt 1142	5.00	2.00	5.00	4.00
ARCV 33 Bt	5.00	2.00	5.00	4.00
Local Check NBt	5.00	2.00	5.00	4.00
CICR Bt 1141	5.00	2.00	5.00	4.00
NH 1904 Bt	5.00	2.00	5.00	4.00
CICR 19 Bt	5.00	2.00	5.00	4.00

Reaction to Diseases

Table: Initial Evaluation Trial of Hirsutum Varieties- Rainfed under protected condition

Entries	Average PDI & Disease Reaction (DR): Protected									
	Surat				Akola					
	BLB		ALB		BLB		MLS		GM	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
CICR 18 Bt	0.0	DF	0.0	DF	6.7	R	8.3	R	3.3	R
NH 1901 Bt	0.0	DF	0.0	DF	5.0	R	3.3	R	1.7	R
Suraj Bt (ZC)	0.0	DF	0.0	DF	8.3	R	6.7	R	5.0	R
CICR Bt 20-31	3.2	R	0.0	DF	8.9	R	10.0	R	1.7	R
NH 1903 Bt	0.0	DF	0.0	DF	3.6	R	1.1	R	3.3	R
ARCV 55 Bt	0.0	DF	0.0	DF	13.3	R	18.3	R	5.0	R
NH 615 (ZC NBt)	0.0	DF	0.0	DF	11.7	R	20.0	R	1.7	R
NH 1902 Bt	0.0	DF	0.0	DF	3.3	R	1.7	R	3.3	R
CICR Bt 1142	2.3	R	0.0	DF	16.7	R	16.7	R	5.0	R
ARCV 33 Bt	0.0	DF	0.0	DF	1.7	R	10.0	R	5.0	R
(LC) NBt	1.8	R	0.0	DF	8.3	R	8.3	R	16.7	R
CICR Bt 1141	0.0	DF	0.0	DF	5.0	R	5.0	R	8.0	R
NH 1904 Bt	2.2	R	0.0	DF	6.7	R	6.7	R	5.0	R
CICR 19 Bt	0.0	DF	0.0	DF	3.3	R	3.3	R	11.7	R

Evaluation under unprotected condition for insect pests and diseases:

Reaction to Insect Pests

Table. Initial Variety Trial under unprotected conditions in Central Zone -- Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
CICR 18 Bt	4.42	1.77	2.80	3.00	BETL
NH 1901 Bt	3.31	2.82	2.67	2.93	BETL
Suraj Bt (Zonal Check)	5.47	2.2	3.47	3.71	BETL
CICR Bt 20-31	3.04	1.97	3.30	2.77	BETL
NH 1903 Bt	3.93	2.02	3.47	3.14	BETL
ARCV 55 Bt	1.31	1.9	3.20	2.14	BETL
NH 615 (Zonal Check NBt)	1.40	1.55	2.73	1.89	BETL
NH 1902 Bt	1.02	2.11	2.93	2.02	BETL
CICR Bt 1142	1.07	2.3	3.80	2.39	BETL
ARCV 33 Bt	4.78	2.71	3.50	3.66	BETL
Local Check NBt	3.87	1.64	3.13	2.88	BETL
CICR Bt 1141	3.60	1.98	2.90	2.83	BETL
NH 1904 Bt	2.98	1.52	3.00	2.50	BETL
CICR 19 Bt	5.20	2.43	2.87	3.50	BETL

Table. Initial Variety Trial in Central Zone under unprotected conditions -- Jassid Injury Grade

Name of Entry	JIG(Average of 3 leaves/plant)
	Nagpur
CICR 18 Bt	I
NH 1901 Bt	I
Suraj Bt (Zonal Check)	I
CICR Bt 20-31	I
NH 1903 Bt	I
ARCV 55 Bt	I
NH 615 (Zonal Check NBt)	I
NH 1902 Bt	I
CICR Bt 1142	I
ARCV 33 Bt	I
Local Check NBt	I
CICR Bt 1141	I
NH 1904 Bt	I
CICR 19 Bt	I

Table. Initial Variety Trial under unprotected conditions in Central Zone -- Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
CICR 18 Bt	8.42	2.0	3.33	4.59	BETL
NH 1901 Bt	12.20	2.3	2.53	5.66	BETL
Suraj Bt (Zonal Check)	13.16	1.6	3.27	5.99	BETL
CICR Bt 20-31	6.24	1.0	5.17	4.14	BETL
NH 1903 Bt	6.42	1.8	5.17	4.45	BETL
ARCV 55 Bt	2.96	2.5	3.60	3.01	BETL
NH 615 (Zonal Check NBt)	3.07	1.4	3.30	2.60	BETL
NH 1902 Bt	3.93	1.8	5.20	3.64	BETL
CICR Bt 1142	3.82	1.7	3.90	3.15	BETL
ARCV 33 Bt	9.20	1.1	3.60	4.63	BETL
Local Check NBt	5.71	1.4	4.23	3.79	BETL
CICR Bt 1141	3.22	1.4	3.90	2.85	BETL
NH 1904 Bt	4.80	1.1	3.90	3.27	BETL
CICR 19 Bt	14.13	1.5	4.20	6.59	BETL

Table. Initial Variety Trial under unprotected conditions in Central Zone -- Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
CICR 18 Bt	0.84	3.65	4.10	2.86	BETL
NH 1901 Bt	0.62	2.75	4.80	2.72	BETL
Suraj Bt (Zonal Check)	1.00	3.62	4.67	3.10	BETL
CICR Bt 20-31	0.96	3.60	4.63	3.06	BETL
NH 1903 Bt	0.96	4.12	4.07	3.05	BETL
ARCV 55 Bt	0.87	3.05	2.60	2.17	BETL
NH 615 (Zonal Check NBt)	1.42	3.62	2.60	2.55	BETL
NH 1902 Bt	1.07	2.25	2.13	1.82	BETL
CICR Bt 1142	1.07	2.62	2.57	2.08	BETL
ARCV 33 Bt	1.02	2.57	3.47	2.35	BETL
Local Check NBt	0.64	2.50	3.27	2.14	BETL
CICR Bt 1141	0.98	2.30	2.23	1.84	BETL
NH 1904 Bt	0.93	3.12	3.43	2.50	BETL
CICR 19 Bt	0.80	2.15	4.63	2.53	BETL

Table. Initial Variety Trial under unprotected conditions in Central Zone -- Natural Enemies

Name of Entry	Natural enemies (No./Plant)		
	Surat	Bharuch	Mean
CICR 18 Bt	0.11	0.13	0.12
NH 1901 Bt	0.10	0.13	0.12
Suraj Bt (Zonal Check)	0.08	0.13	0.11
CICR Bt 20-31	0.09	0.17	0.13
NH 1903 Bt	0.13	0.20	0.17
ARCV 55 Bt	0.12	0.13	0.13
NH 615 (Zonal Check NBt)	0.09	0.13	0.11
NH 1902 Bt	0.12	0.17	0.14
CICR Bt 1142	0.13	0.10	0.12
ARCV 33 Bt	0.14	0.13	0.14
Local Check NBt	0.09	0.13	0.11
CICR Bt 1141	0.17	0.17	0.17
NH 1904 Bt	0.14	0.13	0.14
CICR 19 Bt	0.20	0.17	0.18

Table. Initial Variety Trial under unprotected conditions in Central Zone-- Bollworms – *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
CICR 18 Bt	0.00	0.00	0.00	0.00	BETL
NH 1901 Bt	0.00	0.27	0.00	0.09	BETL
Suraj Bt (Zonal Check)	0.00	0.00	0.00	0.00	BETL
CICR Bt 20-31	0.00	0.00	0.00	0.00	BETL
NH 1903 Bt	0.00	0.00	0.00	0.00	BETL
ARCV 55 Bt	0.00	0.00	0.00	0.00	BETL
NH 615 (Zonal Check NBt)	2.56	0.17	0.00	0.91	BETL
NH 1902 Bt	0.00	0.00	0.00	0.00	BETL
CICR Bt 1142	0.00	0.00	0.00	0.00	BETL
ARCV 33 Bt	0.00	0.00	0.00	0.00	BETL
Local Check NBt	1.78	0.17	0.00	0.65	BETL
CICR Bt 1141	0.00	0.00	0.00	0.00	BETL
NH 1904 Bt	0.00	0.00	0.00	0.00	BETL
CICR 19 Bt	0.00	0.00	0.00	0.00	BETL

Table. Initial Variety Trial under unprotected conditions in Central Zone- -- Bollworms - Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)			
	Surat	Bharuch	Mean	Remarks*
CICR 18 Bt	0.00	0.00	0.00	BETL
NH 1901 Bt	0.00	0.00	0.00	BETL
Suraj Bt (Zonal Check)	0.00	0.00	0.00	BETL
CICR Bt 20-31	0.00	0.00	0.00	BETL
NH 1903 Bt	0.00	0.00	0.00	BETL
ARCV 55 Bt	0.00	0.00	0.00	BETL
NH 615 (Zonal Check NBt)	0.00	0.00	0.00	BETL
NH 1902 Bt	0.00	0.00	0.00	BETL
CICR Bt 1142	0.00	0.00	0.00	BETL
ARCV 33 Bt	0.00	0.00	0.00	BETL
Local Check NBt	0.00	0.00	0.00	BETL
CICR Bt 1141	0.00	0.00	0.00	BETL
NH 1904 Bt	0.00	0.00	0.00	BETL
CICR 19 Bt	0.00	0.00	0.00	BETL

Table. Initial Variety Trial under unprotected conditions in Central Zone -- Bollworms – *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)			
	Surat	Bharuch	Mean	Remarks*
CICR 18 Bt	0.00	0.00	0.00	BETL
NH 1901 Bt	0.00	0.00	0.00	BETL
Suraj Bt (Zonal Check)	0.00	0.00	0.00	BETL
CICR Bt 20-31	0.00	0.00	0.00	BETL
NH 1903 Bt	0.00	0.00	0.00	BETL
ARCV 55 Bt	0.00	0.00	0.00	BETL
NH 615 (Zonal Check NBt)	0.00	0.00	0.00	BETL
NH 1902 Bt	0.00	0.00	0.00	BETL
CICR Bt 1142	0.00	0.00	0.00	BETL
ARCV 33 Bt	0.00	0.00	0.00	BETL
Local Check NBt	0.00	0.00	0.00	BETL
CICR Bt 1141	0.00	0.00	0.00	BETL
NH 1904 Bt	0.00	0.00	0.00	BETL
CICR 19 Bt	0.00	0.00	0.00	BETL

Table. Initial Variety Trial under unprotected conditions in Central Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
CICR 18 Bt	0.00	0.03	0.33	0.12	BETL
NH 1901 Bt	0.00	0.00	0.00	0.00	BETL
Suraj Bt (Zonal Check)	0.22	0.08	0.22	0.17	BETL
CICR Bt 20-31	0.00	0.03	0.22	0.08	BETL
NH 1903 Bt	0.67	0.03	0.33	0.34	BETL
ARCV 55 Bt	0.00	0.03	0.33	0.12	BETL
NH 615 (Zonal Check NBt)	1.44	0.05	0.33	0.61	BETL
NH 1902 Bt	0.00	0.05	0.33	0.13	BETL
CICR Bt 1142	0.00	0.03	0.22	0.08	BETL
ARCV 33 Bt	0.78	0.03	0.11	0.30	BETL
Local Check NBt	1.11	0.10	0.11	0.44	BETL
CICR Bt 1141	0.00	0.03	0.11	0.05	BETL
NH 1904 Bt	0.00	0.03	0.33	0.12	BETL
CICR 19 Bt	0.00	0.05	0.22	0.09	BETL

Table. Initial Variety Trial under unprotected conditions in Central Zone -- Green Boll damage

Name of Entry	Green Boll damage (%)			
	Nagpur	Bharuch	Mean	Remarks*
CICR 18 Bt	0.00	0.78	0.39	BETL
NH 1901 Bt	0.13	0.33	0.23	BETL
Suraj Bt (Zonal Check)	0.00	0.56	0.28	BETL
CICR Bt 20-31	0.00	0.78	0.39	BETL
NH 1903 Bt	0.00	0.44	0.22	BETL
ARCV 55 Bt	0.00	0.56	0.28	BETL
NH 615 (Zonal Check NBt)	0.18	0.44	0.31	BETL
NH 1902 Bt	0.00	0.78	0.39	BETL
CICR Bt 1142	0.00	0.33	0.17	BETL
ARCV 33 Bt	0.00	0.78	0.39	BETL
Local Check NBt	0.19	0.78	0.48	BETL
CICR Bt 1141	0.00	0.56	0.28	BETL
NH 1904 Bt	0.00	0.56	0.28	BETL
CICR 19 Bt	0.00	0.78	0.39	BETL

Table. Initial Variety Trial under unprotected conditions in Central Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)			
	Surat	Bharuch	Mean	Remarks*
CICR 18 Bt	0.00	0.67	0.34	BETL
NH 1901 Bt	0.00	0.78	0.39	BETL
Suraj Bt (Zonal Check)	2.22	0.33	1.28	BETL
CICR Bt 20-31	0.00	0.78	0.39	BETL
NH 1903 Bt	7.78	0.67	4.22	BETL
ARCV 55 Bt	0.00	0.67	0.33	BETL
NH 615 (Zonal Check NBt)	15.56	0.78	8.17	BETL
NH 1902 Bt	0.00	0.67	0.33	BETL
CICR Bt 1142	0.00	0.22	0.11	BETL
ARCV 33 Bt	2.22	0.22	1.22	BETL
Local Check NBt	8.89	0.78	4.83	BETL
CICR Bt 1141	0.00	0.67	0.34	BETL
NH 1904 Bt	0.00	0.22	0.11	BETL
CICR 19 Bt	0.00	0.67	0.34	BETL

Table. Initial Variety Trial under unprotected conditions in Central Zone -- Locule damage

Name of Entry	Locule damage (%)			
	Surat	Nagpur	Bharuch	Mean
CICR 18 Bt	0.00	1.25	0.22	0.49
NH 1901 Bt	0.00	0.00	0.33	0.11
Suraj Bt (Zonal Check)	0.83	8.97	0.11	3.31
CICR Bt 20-31	0.00	1.92	0.00	0.64
NH 1903 Bt	2.22	1.92	0.22	1.46
ARCV 55 Bt	0.00	1.22	0.22	0.48
NH 615 (Zonal Check NBt)	4.44	5.56	0.33	3.45
NH 1902 Bt	0.00	7.64	0.22	2.62
CICR Bt 1142	0.00	0.63	0.00	0.21
ARCV 33 Bt	0.56	1.25	0.00	0.60
Local Check NBt	2.50	6.94	0.33	3.26
CICR Bt 1141	0.00	2.50	0.22	0.91
NH 1904 Bt	0.00	3.86	0.00	1.29
CICR 19 Bt	0.00	7.50	0.22	2.57

Table. Advance Variety Trial under protected conditions in Central Zone -- Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)				
	Surat	Akola	Nagpur	Mean	Remarks*
CICR Bt 19-32	4.09	1.27	1.90	2.42	BETL
Suraj Bt (Zonal Check)	4.20	1.89	2.25	2.78	BETL
CICR 24 Bt	5.00	2.20	2.31	3.17	BETL
Bt 183059-4	3.02	1.89	2.40	2.44	BETL
G. COT 10 Cry 1Ac	1.29	1.58	1.61	1.49	BETL
CICR Bt 19-33	1.71	1.20	2.51	1.81	BETL
NH 615 (Zonal Check NBt)	2.33	1.02	2.06	1.81	BETL
Rasi 66 Bt	2.69	1.18	1.46	1.78	BETL
Bt 183059-5	4.11	1.93	2.30	2.78	BETL
G. COT 16 Cry 1Ac	2.20	1.82	2.41	2.14	BETL
Local Check NBt	2.00	1.13	2.00	1.71	BETL
Rasi 99 Bt	2.33	1.18	2.10	1.87	BETL

Table Advance Variety Trial under protected conditions in Central Zone -- Jassid Injury Grade

Name of Entry	JIG (Average of 3 leaves/plant)		
	Akola	Nagpur	Remarks*
CICR Bt 19-32	II	I	BETL
Suraj Bt (Zonal Check)	II	I	BETL
CICR 24 Bt	II	I	BETL
Bt 183059-4	II	I	BETL
G. COT 10 Cry 1Ac	II	I	BETL
CICR Bt 19-33	II	I	BETL
NH 615 (Zonal Check NBt)	II	I	BETL
Rasi 66 Bt	I	I	BETL
Bt 183059-5	II	I	BETL
G. COT 16 Cry 1Ac	II	I	BETL
Local Check NBt	II	I	BETL
Rasi 99 Bt	I	I	BETL

Table.Advance Variety Trial under protected conditions in Central Zone -- Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)				
	Surat	Akola	Nagpur	Mean	Remarks*
CICR Bt 19-32	12.11	2.56	2.86	5.84	BETL
Suraj Bt (Zonal Check)	8.71	2.31	2.85	4.62	BETL
CICR 24 Bt	10.38	2.76	2.8	5.31	BETL
Bt 183059-4	5.02	2.98	2.15	3.38	BETL
G. COT 10 Cry 1Ac	8.62	2.58	2.55	4.58	BETL
CICR Bt 19-33	5.38	3.38	3.31	4.02	BETL
NH 615 (Zonal Check NBt)	7.22	2.60	2.86	4.23	BETL
Rasi 66 Bt	5.07	2.69	1.83	3.20	BETL
Bt 183059-5	9.09	2.89	2.78	4.92	BETL
G. COT 16 Cry 1Ac	5.87	2.52	3.18	3.86	BETL
Local Check NBt	5.51	2.51	2.26	3.43	BETL
Rasi 99 Bt	4.98	2.73	2.75	3.49	BETL

Table.Advance Variety Trial under protected conditions in Central Zone -- Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)				
	Surat	Akola	Nagpur	Mean	Remarks*
CICR Bt 19-32	1.09	2.62	3.51	2.41	BETL
Suraj Bt (Zonal Check)	0.69	3.73	3.73	2.72	BETL
CICR 24 Bt	0.76	3.00	3.61	2.46	BETL
Bt 183059-4	1.67	2.38	3.15	2.40	BETL
G. COT 10 Cry 1Ac	0.58	2.71	3.30	2.20	BETL
CICR Bt 19-33	0.53	2.53	3.10	2.06	BETL
NH 615 (Zonal Check NBt)	0.67	2.47	3.41	2.18	BETL
Rasi 66 Bt	1.22	2.60	3.46	2.43	BETL
Bt 183059-5	0.58	2.64	3.35	2.19	BETL
G. COT 16 Cry 1Ac	1.02	2.98	3.60	2.53	BETL
Local Check NBt	0.58	3.24	3.30	2.37	BETL
Rasi 99 Bt	1.04	2.62	3.01	2.23	BETL

Reaction to Diseases

Table: Initial Evaluation Trial of Hirsutum Varieties - Rainfedunder unprotected condition

Entries	Average PDI & Disease Reaction (DR): Un-protected											
	BLB				ALB		CoLS		GM		TSV	
	Surat		Nagpur		Surat		Nagpur					
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
CICR 18 Bt	0.0	DF	11.7	R	0.0	DF	0.0	DF	4.2	R	0.0	DF
NH 1901 Bt	0.0	DF	9.2	R	0.0	DF	5.8	R	0.0	DF	0.0	DF
Suraj Bt (ZC)	0.0	DF	21.7	R	0.0	DF	4.2	R	0.0	DF	0.0	DF
CICR Bt 20-31	4.2	R	12.5	R	0.0	DF	4.2	R	0.8	R	5.0	R
NH 1903 Bt	0.0	DF	15.8	R	0.0	DF	4.2	R	0.0	DF	8.3	R
ARCV 55 Bt	0.0	DF	10.8	R	0.0	DF	10.0	R	0.0	DF	0.0	DF
NH 615 (ZC NBt)	0.0	DF	10.8	R	0.0	DF	0.0	DF	0.0	DF	0.0	DF
NH 1902 Bt	0.0	DF	8.3	R	0.0	DF	5.8	R	0.8	R	0.0	DF
CICR Bt 1142	3.2	R	12.5	R	0.0	DF	0.8	R	0.0	DF	0.0	DF
ARCV 33 Bt	0.0	DF	11.7	R	0.0	DF	0.8	D	0.0	DF	8.3	R
(LC) NBt	2.3	R	16.7	R	0.0	DF	2.5	R	0.0	DF	5.0	R
CICR Bt 1141	0.0	DF	27.5	R	0.0	DF	7.5	R	0.0	DF	8.3	R
NH 1904 Bt	0.0	DF	6.7	R	0.0	DF	6.7	R	1.7	R	0.0	DF
CICR 19 Bt	0.0	DF	16.7	R	0.0	DF	5.0	R	0.0	DF	7.5	R

Advanced Evaluation Trial of Hirsutum Varieties (I) in Central Zone (2020-21) - Rainfed

Constitution of Trial

The trial was constituted with nine Bt cotton varieties containing deregulated event along with three different check varieties as furnished below.

S. No.	Name of the Entry		S. No.	Name of the Entry
1	CICR Bt 19-32		7	NH 615 (Zonal Check NBt)
2	Suraj Bt (Zonal Check)		8	Rasi 66 Bt
3	CICR 24 Bt		9	Bt 183059-5
4	Bt 183059-4		10	G. COT 16 Cry 1Ac
5	G. COT 10 Cry 1Ac		11	Local Check NBt
6	CICR Bt 19-33		12	Rasi 99 Bt

The trial was conducted in four different locations and detail is furnished below.

Name of the trial location	Surat	Bharuch	Nagpur	Akola
Local check Non Bt Variety	G Cot 16	G Cot 16	AKH 8828	AKH 8828

Spacing: Two separate trials viz., one with recommended spacing for the variety and another with half the spacing between plants have been followed.
Number of rows:4 rows of 6 meters per entry with three replications

Data recorded:

Biometric evaluation

Plant height (cm) at harvest in Advanced Evaluation Trial of Hirsutum Varieties (I)

S. No.	Name of the Entry	Surat	Akola	Nagpur	Mean
1	CICR Bt 19-32	127.7	91.2	80.6	**99.8**
2	Suraj Bt (Zonal Check)	108.3	87.2	71.2	**88.9**
3	CICR 24 Bt	132.0	117.2	116.1	**121.8**
4	Bt 183059-4	129.7	90.6	80.8	**100.4**
5	G. COT 10 Cry 1Ac	126.7	84.4	82.4	**97.8**
6	CICR Bt 19-33	127.3	90.5	78.1	**98.6**
7	NH 615 (Zonal Check NBt)	103.7	94.0	71.1	**89.6**
8	Rasi 66 Bt	133.3	103.3	80.8	**105.8**
9	Bt 183059-5	125.3	85.0	83.7	**98.0**
10	G. COT 16 Cry 1Ac	113.0	98.7	90.9	**100.9**
11	Local Check NBt	90.3	119.4	87.2	**99.0**
12	Rasi 99 Bt	125.3	82.8	79.0	**95.7**
	CD @ 5%	NS	5.9	10.3	
	CV %	17.8	6.4	7.3	

Number of monopodia in Advanced Evaluation Trial of Hirsutum Varieties (I)

S. No.	Name of the Entry	Surat	Akola	Nagpur	Mean
1	CICR Bt 19-32	3.3	1.6	1.6	**2.2**
2	Suraj Bt (Zonal Check)	2.3	3.6	4.1	**3.3**
3	CICR 24 Bt	2.7	1.9	1.5	**2.0**
4	Bt 183059-4	3.0	1.2	1.3	**1.8**
5	G. COT 10 Cry 1Ac	3.3	2.7	3.5	**3.2**
6	CICR Bt 19-33	2.3	1.6	1.1	**1.7**
7	NH 615 (Zonal Check NBt)	2.3	1.4	1.5	**1.7**
8	Rasi 66 Bt	2.3	1.4	1.3	**1.7**
9	Bt 183059-5	2.3	1.0	0.7	**1.3**
10	G. COT 16 Cry 1Ac	2.3	1.7	1.5	**1.8**
11	Local Check NBt	2.3	1.7	1.8	**1.9**
12	Rasi 99 Bt	1.0	1.8	1.1	**1.3**
	CD @ 5%	0.8	0.3	0.9	
	CV %	19.5	18.7	29.3	

Number of sympodia in Advanced Evaluation Trial of Hirsutum Varieties (I)

S. No.	Name of the Entry	Surat	Akola	Nagpur	Mean
1	CICR Bt 19-32	19.0	16.3	19.4	**18.2**
2	Suraj Bt (Zonal Check)	18.7	14.2	16.6	**16.5**
3	CICR 24 Bt	17.3	18.2	22.0	**19.2**
4	Bt 183059-4	18.7	16.7	19.5	**18.3**
5	G. COT 10 Cry 1Ac	19.0	15.5	17.9	**17.5**
6	CICR Bt 19-33	16.3	16.1	20.8	**17.7**
7	NH 615 (Zonal Check NBt)	14.7	16.3	17.3	**16.1**
8	Rasi 66 Bt	19.7	15.9	18.0	**17.9**
9	Bt 183059-5	18.7	16.0	20.7	**18.5**
10	G. COT 16 Cry 1Ac	17.3	17.1	21.0	**18.5**
11	Local Check NBt	15.0	16.0	18.9	**16.6**
12	Rasi 99 Bt	15.7	13.8	16.9	**15.5**
	CD @ 5%	2.7	0.7	2.6	
	CV %	9.0	4.2	8.1	

Number of bolls / plant in Advanced Evaluation Trial of Hirsutum Varieties (I)

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	CICR Bt 19-32	26.4	20.4	13.2	14.6	**18.7**
2	Suraj Bt (Zonal Check)	24.7	16.3	17.4	11.3	**17.4**
3	CICR 24 Bt	16.5	7.7	16.3	11.7	**13.1**
4	Bt 183059-4	21.3	11.8	18.6	11.2	**15.7**
5	G. COT 10 Cry 1Ac	23.7	16.9	15.0	11.5	**16.8**
6	CICR Bt 19-33	21.0	16.2	13.3	12.0	**15.6**
7	NH 615 (Zonal Check NBt)	14.7	12.9	16.8	13.9	**14.6**
8	Rasi 66 Bt	16.5	12.1	18.9	13.5	**15.3**
9	Bt 183059-5	22.8	14.4	13.7	14.0	**16.2**
10	G. COT 16 Cry 1Ac	17.9	12.4	15.8	9.3	**13.9**
11	Local Check NBt	11.3	12.6	14.0	9.4	**11.8**
12	Rasi 99 Bt	17.3	10.9	14.8	11.5	**13.6**
	CD @ 5%	4.9	3.4	1.9	NS	
	CV %	15.1	14.6	12.2	19.0	

Number of bolls / sq. m. in Advanced Evaluation Trial of Hirsutum Varieties (I)

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	CICR Bt 19-32	48.8	61.1	48.3	81.1	**59.8**
2	Suraj Bt (Zonal Check)	45.7	48.9	58.7	62.6	**54.0**
3	CICR 24 Bt	30.6	23.1	40.0	64.8	**39.6**
4	Bt 183059-4	39.5	35.5	47.3	62.2	**46.1**
5	G. COT 10 Cry 1Ac	44.0	50.8	42.3	63.7	**50.2**
6	CICR Bt 19-33	38.9	48.5	57.3	66.7	**52.9**
7	NH 615 (Zonal Check NBt)	27.2	38.7	66.3	77.0	**52.3**
8	Rasi 66 Bt	30.6	36.4	40.3	74.8	**45.5**
9	Bt 183059-5	42.2	43.2	55.7	77.8	**54.7**
10	G. COT 16 Cry 1Ac	33.2	37.3	50.3	51.5	**43.1**
11	Local Check NBt	21.0	37.8	54.0	52.2	**41.3**
12	Rasi 99 Bt	32.0	32.6	53.0	64.1	**45.4**
	CD @ 5%	9.2		6.1	NS	
	CV %	15.1		12.2	19.0	

Lint Index (g) in Advanced Evaluation Trial of Hirsutum Varieties (I)

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	CICR Bt 19-32	4.6	6.1	3.9	5.7	**5.1**
2	Suraj Bt (Zonal Check)	3.9	4.4	3.6	3.7	**3.9**
3	CICR 24 Bt	3.6	4.5	3.7	3.4	**3.8**
4	Bt 183059-4	3.9	6.1	3.7	4.6	**4.6**
5	G. COT 10 Cry 1Ac	4.4	5.2	4.1	2.9	**4.2**
6	CICR Bt 19-33	4.6	6.4	3.8	4.4	**4.8**
7	NH 615 (Zonal Check NBt)	4.1	5.2	3.8	4.3	**4.4**
8	Rasi 66 Bt	4.4	5.3	4.7	4.6	**4.8**
9	Bt 183059-5	5.0	5.7	4.2	4.8	**4.9**
10	G. COT 16 Cry 1Ac	4.7	4.9	5.2	3.6	**4.6**
11	Local Check NBt	4.1	6.1	5.2	4.3	**4.9**
12	Rasi 99 Bt	4.5	5.9	4.6	4.7	**4.9**
	CD @ 5%	0.5	0.3	0.2		
	CV %	6.3	2.9	5.9		

Seed Index (g) in Advanced Evaluation Trial of Hirsutum Varieties (I)

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	CICR Bt 19-32	7.5	10.2	6.8	8.5	**8.3**
2	Suraj Bt (Zonal Check)	7.0	8.1	6.5	6.5	**7.0**
3	CICR 24 Bt	7.5	10.0	6.8	7.5	**8.0**
4	Bt 183059-4	7.8	11.0	6.7	7.5	**8.3**
5	G. COT 10 Cry 1Ac	8.0	9.9	7.5	6.5	**8.0**
6	CICR Bt 19-33	6.8	10.3	6.7	6.5	**7.6**
7	NH 615 (Zonal Check NBt)	7.3	9.9	7.0	7.5	**7.9**
8	Rasi 66 Bt	8.2	10.9	8.2	8.5	**9.0**
9	Bt 183059-5	7.8	9.9	7.5	8.0	**8.3**
10	G. COT 16 Cry 1Ac	8.5	11.2	9.3	8.0	**9.3**
11	Local Check NBt	8.5	11.9	9.5	8.0	**9.5**
12	Rasi 99 Bt	9.0	11.7	8.7	9.5	**9.7**
	CD @ 5%	0.6	0.4	0.3		
	CV %	4.9	2.2	4.0		

Ginning outturn (%) in Advanced Evaluation Trial of Hirsutum Varieties (I)

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	CICR Bt 19-32	38.2	37.5	36.3	40.0	**38.0**
2	Suraj Bt (Zonal Check)	36.0	35.1	35.5	36.1	**35.7**
3	CICR 24 Bt	32.2	31.0	35.1	31.3	**32.4**
4	Bt 183059-4	33.3	35.6	35.8	37.8	**35.6**
5	G. COT 10 Cry 1Ac	35.5	34.3	35.5	31.0	**34.1**
6	CICR Bt 19-33	40.4	38.5	36.4	40.4	**38.9**
7	NH 615 (Zonal Check NBt)	36.0	34.5	35.4	36.3	**35.6**
8	Rasi 66 Bt	35.0	32.6	36.6	35.1	**34.8**
9	Bt 183059-5	39.1	36.6	36.0	37.7	**37.4**
10	G. COT 16 Cry 1Ac	35.4	30.4	35.9	31.1	**33.2**
11	Local Check NBt	32.6	33.7	35.2	35.2	**34.2**
12	Rasi 99 Bt	33.5	33.4	34.7	33.0	**33.7**
	CD @ 5%	1.4	0.8	1.0		
	CV %	2.3	1.3	2.8		

Upper Half Mean Length (mm) under HVI Mode in Advanced Evaluation Trial of Hirsutum Varieties (I)

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	CICR Bt 19-32	23.2	24.8	22.7	23.7	**23.6**
2	Suraj Bt (Zonal Check)	25.5	25.3	24.8	24.1	**24.9**
3	CICR 24 Bt	26.6	27.6	28.6	26.7	**27.4**
4	Bt 183059-4	26.4	24.9	24.0	23.2	**24.6**
5	G. COT 10 Cry 1Ac	26.5	26.2	25.5	25.0	**25.8**
6	CICR Bt 19-33	23.4	23.4	22.4	23.1	**23.1**
7	NH 615 (Zonal Check NBt)	28.7	27.4	27.8	26.0	**27.5**
8	Rasi 66 Bt	28.9	28.8	27.8	30.1	**28.9**
9	Bt 183059-5	23.4	24.9	23.8	23.0	**23.8**
10	G. COT 16 Cry 1Ac	26.0	28.9	29.4	30.3	**28.7**
11	Local Check NBt	27.4	27.5	27.8	25.7	**27.1**
12	Rasi 99 Bt	28.2	29.7	27.7	29.4	**28.8**

Uniformity index under HVI Mode in Advanced Evaluation Trial of Hirsutum Varieties (I)

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	CICR Bt 19-32	84.0	83.0	83.0	82.0	**83.0**
2	Suraj Bt (Zonal Check)	82.0	78.0	83.0	80.0	**80.8**
3	CICR 24 Bt	85.0	83.0	86.0	83.0	**84.3**
4	Bt 183059-4	85.0	81.0	83.0	79.0	**82.0**
5	G. COT 10 Cry 1Ac	84.0	81.0	82.0	79.0	**81.5**
6	CICR Bt 19-33	82.0	82.0	83.0	80.0	**81.8**
7	NH 615 (Zonal Check NBt)	85.0	81.0	85.0	82.0	**83.3**
8	Rasi 66 Bt	82.0	82.0	86.0	84.0	**83.5**
9	Bt 183059-5	84.0	82.0	84.0	82.0	**83.0**
10	G. COT 16 Cry 1Ac	83.0	83.0	85.0	84.0	**83.8**
11	Local Check NBt	85.0	82.0	83.0	80.0	**82.5**
12	Rasi 99 Bt	84.0	84.0	85.0	84.0	**84.3**

Micronaire under HVI Mode in Advanced Evaluation Trial of Hirsutum Varieties (I)

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	CICR Bt 19-32	5.4	5.0	5.4	6.0	**5.5**
2	Suraj Bt (Zonal Check)	3.9	3.4	4.2	3.9	**3.9**
3	CICR 24 Bt	4.6	3.2	4.6	3.6	**4.0**
4	Bt 183059-4	3.9	4.3	5.2	5.1	**4.6**
5	G. COT 10 Cry 1Ac	4.4	3.9	4.4	4.3	**4.3**
6	CICR Bt 19-33	4.8	5.0	5.1	5.6	**5.1**
7	NH 615 (Zonal Check NBt)	3.9	3.6	3.9	3.8	**3.8**
8	Rasi 66 Bt	3.8	3.3	4.0	4.2	**3.8**
9	Bt 183059-5	5.7	5.0	5.1	6.0	**5.5**
10	G. COT 16 Cry 1Ac	4.4	3.9	4.1	3.9	**4.1**
11	Local Check NBt	4.4	4.3	4.2	4.9	**4.5**
12	Rasi 99 Bt	3.9	4.0	3.8	4.0	**3.9**

Tenacity under HVI Mode in Advanced Evaluation Trial of Hirsutum Varieties (I)

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean
1	CICR Bt 19-32	24.2	25.1	24.6	25.9	**25.0**
2	Suraj Bt (Zonal Check)	25.8	24.6	25.7	26.3	**25.6**
3	CICR 24 Bt	27.0	28.5	25.3	30.1	**27.7**
4	Bt 183059-4	27.7	25.2	25.3	27.3	**26.4**
5	G. COT 10 Cry 1Ac	26.1	26.0	26.7	28.7	**26.9**
6	CICR Bt 19-33	24.3	24.2	24.6	25.6	**24.7**
7	NH 615 (Zonal Check NBt)	27.4	28.6	26.7	28.5	**27.8**
8	Rasi 66 Bt	28.1	27.2	25.5	29.2	**27.5**
9	Bt 183059-5	24.2	26.4	23.4	28.5	**25.6**
10	G. COT 16 Cry 1Ac	25.2	28.3	28.4	27.8	**27.4**
11	Local Check NBt	27.2	29.4	26.2	25.6	**27.1**
12	Rasi 99 Bt	27.0	28.4	26.5	30.8	**28.2**

Seed Cotton Yield (q/ha) in Advanced Evaluation Trial of Hirsutum Varieties (I) under normal spacing

S. No.	Name of the Entry	Surat	Bharuch	Akola	Nagpur	Mean	Rank
1	CICR Bt 19-32	15.97	10.00	9.62	11.21	**11.70**	3
2	Suraj Bt (Zonal Check)	13.75	6.93	4.63	7.97	**8.32**	10
3	CICR 24 Bt	10.55	4.57	3.28	8.97	**6.84**	12
4	Bt 183059-4	13.85	6.75	10.13	9.69	**10.11**	6
5	G. COT 10 Cry 1Ac	15.17	9.29	4.32	8.34	**9.28**	7
6	CICR Bt 19-33	13.82	7.51	11.75	11.48	**11.14**	5
7	NH 615 (Zonal Check NBt)	8.82	5.96	8.90	9.61	**8.32**	9
8	Rasi 66 Bt	12.33	9.43	11.70	14.56	**12.01**	2
9	Bt 183059-5	16.11	7.33	10.83	14.84	**12.28**	1
10	G. COT 16 Cry 1Ac	10.94	6.85	7.90	10.57	**9.07**	8
11	Local Check NBt	6.49	5.75	9.08	7.73	**7.26**	11
12	Rasi 99 Bt	13.97	7.19	12.78	12.41	**11.59**	4
	CD @ 5%	2.75	1.80	1.44	2.74		
	CV %	12.90	13.50	16.90	15.25		

Number of bolls / sq. m. in Advanced Evaluation Trial of Hirsutum Varieties (I) under closer spacing

S. No.	Name of the Entry	Surat	Bharuch	Nagpur	Mean
1	CICR Bt 19-32	77.5	116.4	103.0	**99.0**
2	Suraj Bt (Zonal Check)	51.8	121.2	116.3	**96.4**
3	CICR 24 Bt	25.9	73.5	64.4	**54.6**
4	Bt 183059-4	56.2	106.7	68.1	**77.0**
5	G. COT 10 Cry 1Ac	52.8	90.8	61.5	**68.4**
6	CICR Bt 19-33	50.7	103.9	111.9	**88.8**
7	NH 615 (Zonal Check NBt)	42.4	71.7	71.1	**61.7**
8	Rasi 66 Bt	26.4	100.4	-	**63.4**
9	Bt 183059-5	66.1	74.4	71.9	**70.8**
10	G. COT 16 Cry 1Ac	40.4	82.0	61.5	**61.3**
11	Local Check NBt	40.7	67.7	60.0	**56.1**
12	Rasi 99 Bt	55.7	58.7	-	**57.2**
	CD @ 5%	8.3		31.0	
	CV %	10.1		22.9	

Seed Cotton Yield (q/ha) in Advanced Evaluation Trial of Hirsutum Varieties (I) under closer spacing

S. No.	Name of the Entry	Surat	Bharuch	Nagpur	Mean	Rank
1	CICR Bt 19-32	20.72	11.33	12.35	**14.80**	1
2	Suraj Bt (Zonal Check)	13.54	10.71	9.11	**11.12**	7
3	CICR 24 Bt	5.56	7.51	7.79	**6.95**	12
4	Bt 183059-4	19.98	10.32	10.82	**13.71**	5
5	G. COT 10 Cry 1Ac	17.55	10.31	8.34	**12.07**	6
6	CICR Bt 19-33	17.14	10.26	14.63	**14.01**	4
7	NH 615 (Zonal Check NBt)	13.84	6.87	12.32	**11.01**	8
8	Rasi 66 Bt	8.20	12.70	-	**10.45**	10
9	Bt 183059-5	22.11	8.23	12.75	**14.36**	3
10	G. COT 16 Cry 1Ac	12.58	9.35	10.11	**10.68**	9
11	Local Check NBt	12.23	6.75	7.97	**8.98**	11
12	Rasi 99 Bt	21.45	8.06	-	**14.76**	2
	CD @ 5%	5.01	2.63	1.86		
	CV %	19.20	15.30	10.23		

Qualitative Cry Protein Evaluation

All the above entries were positive for Cry 1Ac Protein in qualitative ELISA Test

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect pests

Table.Advance Variety Trial under protected conditions in Central Zone -- Natural Enemies

Name of Entry	Natural enemies (No./Plant)	
	Surat	Mean
CICR Bt 19-32	0.03	0.03
Suraj Bt (Zonal Check)	0.12	0.12
CICR 24 Bt	0.09	0.09
Bt 183059-4	0.04	0.04
G. COT 10 Cry 1Ac	0.04	0.04
CICR Bt 19-33	0.02	0.02
NH 615 (Zonal Check NBt)	0.01	0.01
Rasi 66 Bt	0.04	0.04
Bt 183059-5	0.08	0.08
G. COT 16 Cry 1Ac	0.04	0.04
Local Check NBt	0.06	0.06
Rasi 99 Bt	0.03	0.03

Table. Advance Variety Trial under protected conditions in Central Zone-- Bollworms – *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)			
	Surat	Nagpur	Mean	Remarks*
CICR Bt 19-32	0.00	0.00	0.00	BETL
Suraj Bt (Zonal Check)	1.56	0.00	0.78	BETL
CICR 24 Bt	1.11	0.00	0.56	BETL
Bt 183059-4	0.00	0.00	0.00	BETL
G. COT 10 Cry 1Ac	0.00	0.00	0.00	BETL
CICR Bt 19-33	1.44	0.00	0.72	BETL
NH 615 (Zonal Check NBt)	0.00	0.00	0.00	BETL
Rasi 66 Bt	0.00	0.00	0.00	BETL
Bt 183059-5	0.00	0.00	0.00	BETL
G. COT 16 Cry 1Ac	0.00	0.00	0.00	BETL
Local Check NBt	0.00	0.00	0.00	BETL
Rasi 99 Bt	0.00	0.00	0.00	BETL

Table.Advance Variety Trial under protected conditions in Central Zone- -- Bollworms - Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)		
	Surat	Mean	Remarks*
CICR Bt 19-32	0.00	0.00	BETL
Suraj Bt (Zonal Check)	0.00	0.00	BETL
CICR 24 Bt	0.00	0.00	BETL
Bt 183059-4	0.00	0.00	BETL
G. COT 10 Cry 1Ac	0.00	0.00	BETL
CICR Bt 19-33	0.00	0.00	BETL
NH 615 (Zonal Check NBt)	0.00	0.00	BETL
Rasi 66 Bt	0.00	0.00	BETL
Bt 183059-5	0.00	0.00	BETL
G. COT 16 Cry 1Ac	0.00	0.00	BETL
Local Check NBt	0.00	0.00	BETL
Rasi 99 Bt	0.00	0.00	BETL

Table.Advance Variety Trial under protected conditions in Central Zone -- Bollworms – *Spodoptera itura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)		
	Surat	Mean	Remarks*
CICR Bt 19-32	0.00	0.00	BETL
Suraj Bt (Zonal Check)	0.00	0.00	BETL
CICR 24 Bt	0.00	0.00	BETL
Bt 183059-4	0.00	0.00	BETL
G. COT 10 Cry 1Ac	0.00	0.00	BETL
CICR Bt 19-33	0.00	0.00	BETL
NH 615 (Zonal Check NBt)	0.00	0.00	BETL
Rasi 66 Bt	0.00	0.00	BETL
Bt 183059-5	0.00	0.00	BETL
G. COT 16 Cry 1Ac	0.00	0.00	BETL
Local Check NBt	0.00	0.00	BETL
Rasi 99 Bt	0.00	0.00	BETL

Table. Advance Variety Trial under protected conditions in Central Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)				
	Surat	Akola	Nagpur	Mean	Remarks*
CICR Bt 19-32	0.56	1.04	0.02	0.54	BETL
Suraj Bt (Zonal Check)	1.89	1.16	0.00	1.01	AETL
CICR 24 Bt	0.67	1.38	0.02	0.69	BETL
Bt 183059-4	0.00	1.31	0.00	0.44	BETL
G. COT 10 Cry 1Ac	0.00	1.36	0.05	0.47	BETL
CICR Bt 19-33	1.67	1.71	0.02	1.13	AETL
NH 615 (Zonal Check NBt)	0.78	1.62	0.05	0.82	BETL
Rasi 66 Bt	0.00	1.69	0.05	0.58	BETL
Bt 183059-5	0.00	1.09	0.05	0.38	BETL
G. COT 16 Cry 1Ac	0.00	1.71	0.03	0.58	BETL
Local Check NBt	0.00	1.31	0.03	0.45	BETL
Rasi 99 Bt	0.56	1.11	0.02	0.56	BETL

Table.Advance Variety Trial under protected conditions in Central Zone -- Green Boll damage

Name of Entry	Green Boll damage (%)		
	Nagpur	Mean	Remarks*
CICR Bt 19-32	0.00	0.00	BETL
Suraj Bt (Zonal Check)	0.00	0.00	BETL
CICR 24 Bt	2.02	2.02	BETL
Bt 183059-4	0.62	0.62	BETL
G. COT 10 Cry 1Ac	0.00	0.00	BETL
CICR Bt 19-33	0.98	0.98	BETL
NH 615 (Zonal Check NBt)	1.96	1.96	BETL
Rasi 66 Bt	0.40	0.40	BETL
Bt 183059-5	0.23	0.23	BETL
G. COT 16 Cry 1Ac	0.00	0.00	BETL
Local Check NBt	3.29	3.29	BETL
Rasi 99 Bt	0.00	0.00	BETL

Table. Advance Variety Trial under protected conditions in Central Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)			
	Surat	Akola	Mean	Remarks*
CICR Bt 19-32	3.33	41.24	22.29	AETL
Suraj Bt (Zonal Check)	12.22	21.89	17.05	AETL
CICR 24 Bt	5.56	59.93	32.74	AETL
Bt 183059-4	0.00	35.94	17.97	AETL
G. COT 10 Cry 1Ac	0.00	35.48	17.74	AETL
CICR Bt 19-33	10.00	25.56	17.78	AETL
NH 615 (Zonal Check NBt)	3.33	44.15	23.74	AETL
Rasi 66 Bt	0.00	26.30	13.15	AETL
Bt 183059-5	0.00	24.62	12.31	AETL
G. COT 16 Cry 1Ac	0.00	45.93	22.96	AETL
Local Check NBt	0.00	35.83	17.92	AETL
Rasi 99 Bt	2.22	42.09	22.16	AETL

Table. Advance Variety Trial under protected conditions in Central Zone -- Locule damage

Name of Entry	Locule damage (%)			
	Surat	Akola	Nagpur	Mean
CICR Bt 19-32	1.11	16.79	3.42	7.11
Suraj Bt (Zonal Check)	5.56	9.36	5.83	6.92
CICR 24 Bt	1.94	37.41	1.73	13.69
Bt 183059-4	0.00	13.86	0.83	4.90
G. COT 10 Cry 1Ac	0.00	15.77	2.13	5.97
CICR Bt 19-33	3.89	11.83	7.57	7.76
NH 615 (Zonal Check NBt)	1.67	23.34	4.62	9.88
Rasi 66 Bt	0.00	11.76	5.00	5.59
Bt 183059-5	0.00	7.16	2.79	3.32
G. COT 16 Cry 1Ac	0.00	9.97	7.06	5.68
Local Check NBt	0.00	14.64	3.46	6.03
Rasi 99 Bt	0.83	18.48	3.75	7.69

Table. Advance Variety Trial under protected conditions in Central Zone -- Number of sprays for sucking pests

Name of Entry	Sprays applied for sap sucking pests (Nos.)		
	Surat	Akola	Mean
CICR Bt 19-32	5.00	2.00	3.50
Suraj Bt (Zonal Check)	5.00	2.00	3.50
CICR 24 Bt	5.00	2.00	3.50
Bt 183059-4	5.00	2.00	3.50
G. COT 10 Cry 1Ac	5.00	2.00	3.50
CICR Bt 19-33	5.00	2.00	3.50
NH 615 (Zonal Check NBt)	5.00	2.00	3.50
Rasi 66 Bt	5.00	2.00	3.50
Bt 183059-5	5.00	2.00	3.50
G. COT 16 Cry 1Ac	5.00	2.00	3.50
Local Check NBt	5.00	2.00	3.50
Rasi 99 Bt	5.00	2.00	3.50

Table. Advance Variety Trial under protected conditions in Central Zone -- Leafhopper (HDPS)

Name of Entry	Leafhopper (Average of 3 leaves/plant)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
CICR Bt 19-32	4.47	2.08	4.03	3.53	BETL
Suraj Bt (Zonal Check)	4.73	2.96	3.00	3.56	BETL
CICR 24 Bt	5.56	3.01	2.63	3.73	BETL
Bt 183059-4	3.27	2.66	2.40	2.78	BETL
G. COT 10 Cry 1Ac	1.47	2.12	2.40	2.00	BETL
CICR Bt 19-33	1.96	2.25	3.43	2.55	BETL
NH 615 (Zonal Check NBt)	2.58	1.86	2.57	2.33	BETL
Rasi 66 Bt	2.91		2.77	2.84	BETL
Bt 183059-5	4.49	2.00	2.97	3.15	BETL
G. COT 16 Cry 1Ac	2.47	2.56	3.27	2.76	BETL
Local Check NBt	2.18	2.25	2.23	2.22	BETL
Rasi 99 Bt	2.53		2.70	2.62	BETL

Table Advance Variety Trial under protected conditions in Central Zone -- Jassid Injury Grade HDPS

Name of Entry	JIG (Average of 3 leaves/plant)
	Nagpur
CICR Bt 19-32	1
Suraj Bt (Zonal Check)	1
CICR 24 Bt	1
Bt 183059-4	1
G. COT 10 Cry 1Ac	1
CICR Bt 19-33	1
NH 615 (Zonal Check NBt)	1
Rasi 66 Bt	1
Bt 183059-5	1
G. COT 16 Cry 1Ac	1
Local Check NBt	1
Rasi 99 Bt	1

Table.Advance Variety Trial under protected conditions in Central Zone -- Thrips (HDPS)

Name of Entry	Thrips (Average of 3 leaves/plant)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
CICR Bt 19-32	12.84	1.86	3.23	5.98	BETL
Suraj Bt (Zonal Check)	9.49	2.55	2.53	4.86	BETL
CICR 24 Bt	11.02	2.28	5.17	6.16	BETL
Bt 183059-4	5.24	2.23	3.63	3.70	BETL
G. COT 10 Cry 1Ac	9.09	2.13	3.27	4.83	BETL
CICR Bt 19-33	5.69	2.53	3.87	4.03	BETL
NH 615 (Zonal Check NBt)	7.62	2.26	3.67	4.52	BETL
Rasi 66 Bt	5.36		3.30	4.33	BETL
Bt 183059-5	9.64	2.27	3.87	5.26	BETL
G. COT 16 Cry 1Ac	6.29	2.75	3.93	4.32	BETL
Local Check NBt	5.82	2.73	4.17	4.24	BETL
Rasi 99 Bt	5.24		2.23	3.74	BETL

Table.Advance Variety Trial under protected conditions in Central Zone -- Whitefly (HDPS)

Name of Entry	Whitefly (Average of 3 leaves/plant)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
CICR Bt 19-32	1.80	4.19	2.67	2.89	BETL
Suraj Bt (Zonal Check)	0.84	5.43	3.13	3.14	BETL
CICR 24 Bt	1.02	3.03	2.70	2.25	BETL
Bt 183059-4	2.02	3.91	2.83	2.92	BETL
G. COT 10 Cry 1Ac	0.82	3.71	2.57	2.37	BETL
CICR Bt 19-33	0.71	2.88	1.53	1.71	BETL
NH 615 (Zonal Check NBt)	0.84	3.58	1.80	2.07	BETL
Rasi 66 Bt	1.51		2.43	1.97	BETL
Bt 183059-5	0.76	3.23	3.23	2.41	BETL
G. COT 16 Cry 1Ac	1.24	4.65	3.43	3.11	BETL
Local Check NBt	0.73	3.60	3.23	2.52	BETL
Rasi 99 Bt	1.44		2.47	1.96	BETL

Table. Advance Variety Trial under protected conditions in Central Zone -- Natural Enemies (HDPS)

Name of Entry	Natural enemies (No./Plant)		
	Surat	Bharuch	Mean
CICR Bt 19-32	0.07	0.20	0.13
Suraj Bt (Zonal Check)	0.16	0.00	0.08
CICR 24 Bt	0.17	0.10	0.13
Bt 183059-4	0.08	0.10	0.09
G. COT 10 Cry 1Ac	0.13	0.10	0.12
CICR Bt 19-33	0.09	0.10	0.09
NH 615 (Zonal Check NBt)	0.10	0.10	0.10
Rasi 66 Bt	0.10	0.10	0.10
Bt 183059-5	0.13	0.10	0.12
G. COT 16 Cry 1Ac	0.13	0.20	0.17
Local Check NBt	0.13	0.20	0.17
Rasi 99 Bt	0.14	0.10	0.12

Table. Advance Variety Trial under protected conditions in Central Zone-- Bollworms – Helicoverpa armigera (HDPS)

Name of Entry	Helicoverpa armigera (No. / 5 plants)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
CICR Bt 19-32	0.00	0.00	0.00	0.00	BETL
Suraj Bt (Zonal Check)	2.11	0.00	0.00	0.70	BETL
CICR 24 Bt	1.44	0.00	0.00	0.48	BETL
Bt 183059-4	0.00	0.00	0.00	0.00	BETL
G. COT 10 Cry 1Ac	0.00	0.00	0.00	0.00	BETL
CICR Bt 19-33	2.00	0.00	0.00	0.67	BETL
NH 615 (Zonal Check NBt)	0.00	0.00	0.00	0.00	BETL
Rasi 66 Bt	0.00		0.00	0.00	BETL
Bt 183059-5	0.00	0.00	0.00	0.00	BETL
G. COT 16 Cry 1Ac	0.00	0.00	0.00	0.00	BETL
Local Check NBt	0.00	0.00	0.00	0.00	BETL
Rasi 99 Bt	0.00		0.00	0.00	BETL

Table.Advance Variety Trial under protected conditions in Central Zone- -- Bollworms - Spotted Bollworms (HDPS)

Name of Entry	Spotted Bollworms (No. / 5 plants)			
	Surat	Bharuch	Mean	Remarks*
CICR Bt 19-32	0.00	0.00	0.00	BETL
Suraj Bt (Zonal Check)	0.00	0.00	0.00	BETL
CICR 24 Bt	0.00	0.00	0.00	BETL
Bt 183059-4	0.00	0.00	0.00	BETL
G. COT 10 Cry 1Ac	0.00	0.00	0.00	BETL
CICR Bt 19-33	0.00	0.00	0.00	BETL
NH 615 (Zonal Check NBt)	0.00	0.00	0.00	BETL
Rasi 66 Bt	0.00	0.00	0.00	BETL
Bt 183059-5	0.00	0.00	0.00	BETL
G. COT 16 Cry 1Ac	0.00	0.00	0.00	BETL
Local Check NBt	0.00	0.00	0.00	BETL
Rasi 99 Bt	0.00	0.00	0.00	BETL

Table.Advance Variety Trial under protected conditions in Central Zone -- Bollworms – Spodoptera litura (HDPS)

Name of Entry	Spodoptera litura (No. / 5 plants)			
	Surat	Bharuch	Mean	Remarks*
CICR Bt 19-32	0.00	0.00	0.00	BETL
Suraj Bt (Zonal Check)	0.00	0.00	0.00	BETL
CICR 24 Bt	0.00	0.00	0.00	BETL
Bt 183059-4	0.00	0.00	0.00	BETL
G. COT 10 Cry 1Ac	0.00	0.00	0.00	BETL
CICR Bt 19-33	0.00	0.00	0.00	BETL
NH 615 (Zonal Check NBt)	0.00	0.00	0.00	BETL
Rasi 66 Bt	0.00	0.00	0.00	BETL
Bt 183059-5	0.00	0.00	0.00	BETL
G. COT 16 Cry 1Ac	0.00	0.00	0.00	BETL
Local Check NBt	0.00	0.00	0.00	BETL
Rasi 99 Bt	0.00	0.00	0.00	BETL

Table. Advance Variety Trial under protected conditions in Central Zone -- Pink bollworm (HDPS)

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)				
	Surat	Nagpur	Bharuch	Mean	Remarks*
CICR Bt 19-32	0.89	0.42	0.22	0.51	BETL
Suraj Bt (Zonal Check)	2.56	0.00	0.00	0.85	BETL
CICR 24 Bt	1.11	0.02	0.11	0.41	BETL
Bt 183059-4	0.00	0.42	0.11	0.18	BETL
G. COT 10 Cry 1Ac	0.00	0.00	0.00	0.00	BETL
CICR Bt 19-33	2.22	0.83	0.11	1.05	AETL
NH 615 (Zonal Check NBt)	1.11	2.97	0.11	1.40	BETL
Rasi 66 Bt	0.00		0.22	0.11	BETL
Bt 183059-5	0.00	0.88	0.00	0.29	BETL
G. COT 16 Cry 1Ac	0.00	0.00	0.22	0.07	BETL
Local Check NBt	0.00	0.85	0.33	0.40	BETL
Rasi 99 Bt	0.78		0.22	0.50	BETL

Table.Advance Variety Trial under protected conditions in Central Zone -- Green Boll damage (HDPS)

Name of Entry	Green Boll damage (%)			
	Nagpur	Bharuch	Mean	Remarks*
CICR Bt 19-32	0.00	0.56	0.28	BETL
Suraj Bt (Zonal Check)	0.14	0.33	0.24	BETL
CICR 24 Bt	1.10	0.33	0.72	BETL
Bt 183059-4	0.25	0.33	0.29	BETL
G. COT 10 Cry 1Ac	0.00	0.78	0.39	BETL
CICR Bt 19-33	0.58	0.22	0.40	BETL
NH 615 (Zonal Check NBt)	0.25	0.56	0.40	BETL
Rasi 66 Bt		0.78	0.78	BETL
Bt 183059-5	0.01	0.33	0.17	BETL
G. COT 16 Cry 1Ac	0.36	0.78	0.57	BETL
Local Check NBt	0.72	0.33	0.52	BETL
Rasi 99 Bt		0.44	0.44	BETL

Table. Advance Variety Trial under protected conditions in Central Zone -- Open Boll damage (HDPS)

Name of Entry	Open Boll damage (%)			
	Surat	Bharuch	Mean	Remarks*
CICR Bt 19-32	4.44	0.33	2.39	BETL
Suraj Bt (Zonal Check)	14.44	0.78	7.61	BETL
CICR 24 Bt	7.78	0.22	4.00	BETL
Bt 183059-4	0.00	0.11	0.06	BETL
G. COT 10 Cry 1Ac	0.00	0.78	0.39	BETL
CICR Bt 19-33	12.22	0.44	6.33	BETL
NH 615 (Zonal Check NBt)	4.44	0.22	2.33	BETL
Rasi 66 Bt	0.00	0.44	0.22	BETL
Bt 183059-5	0.00	0.33	0.17	BETL
G. COT 16 Cry 1Ac	0.00	0.67	0.33	BETL
Local Check NBt	0.00	0.33	0.17	BETL
Rasi 99 Bt	3.33	0.67	2.00	BETL

Table. Advance Variety Trial under protected conditions in Central Zone -- Locule damage (HDPS)

Name of Entry	Locule damage (%)			
	Surat	Nagpur	Bharuch	Mean
CICR Bt 19-32	1.67	0.44	0.11	0.74
Suraj Bt (Zonal Check)	6.00	0.43	0.33	2.25
CICR 24 Bt	2.50	1.28	0.11	1.30
Bt 183059-4	0.00	0.00	0.00	0.00
G. COT 10 Cry 1Ac	0.00	0.00	0.44	0.15
CICR Bt 19-33	5.25	0.85	0.11	2.07
NH 615 (Zonal Check NBt)	1.67	2.59	0.11	1.46
Rasi 66 Bt	0.00		0.00	0.00
Bt 183059-5	0.00	1.70	0.00	0.57
G. COT 16 Cry 1Ac	0.00	0.00	0.22	0.07
Local Check NBt	0.00	0.02	0.11	0.04
Rasi 99 Bt	1.11		0.33	0.72

Table. Advance Variety Trial under protected conditions in Central Zone -- Number of sprays for sucking pests (HDPS)

Name of Entry	Sprays applied for sap sucking pests (Nos.)		
	Surat	Bharuch	Mean
CICR Bt 19-32	5.00	5.00	5.00
Suraj Bt (Zonal Check)	5.00	5.00	5.00
CICR 24 Bt	5.00	5.00	5.00
Bt 183059-4	5.00	5.00	5.00
G. COT 10 Cry 1Ac	5.00	5.00	5.00
CICR Bt 19-33	5.00	5.00	5.00
NH 615 (Zonal Check NBt)	5.00	5.00	5.00
Rasi 66 Bt	5.00	5.00	5.00
Bt 183059-5	5.00	5.00	5.00
G. COT 16 Cry 1Ac	5.00	5.00	5.00
Local Check NBt	5.00	5.00	5.00
Rasi 99 Bt	5.00	5.00	5.00

Reaction to Diseases

Table: Advanced Evaluation Trial of Hirsutum Varieties - I – Rainfed under Protected conditions

Entries	Average PDI & Disease Reaction (DR): Protected (Normal Spacing)									
	Surat				Akola					
	BLB		ALB		BLB		MLS		GM	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
CICR Bt 19-32	0.0	DF	0.0	DF	3.3	R	15.0	R	8.3	R
Suraj Bt (Zonal Check)	0.0	DF	0.0	DF	1.7	R	20.0	R	3.3	R
CICR 24 Bt	0.0	DF	0.0	DF	8.3	R	11.7	R	11.7	R
Bt 183059-4	0.0	DF	0.0	DF	3.3	R	13.3	R	21.7	R
G. COT 10 Cry 1Ac	0.0	DF	0.0	DF	11.7	R	11.7	R	36.7	MR
CICR Bt 19-33	0.0	DF	2.2	R	13.3	R	6.7	R	10.0	R
NH 615 (Zonal Check NBt)	12.2	R	0.0	DF	30.0	MR	10.0	R	13.3	R
Rasi 66 Bt	0.0	DF	0.0	DF	8.3	R	15.0	R	23.3	R
Bt 183059-5	9.0	R	0.0	DF	1.7	R	8.3	R	11.7	R
G. COT 16 Cry 1Ac	15.7	R	0.0	DF	10.0	R	6.7	R	15.0	R
(LC) NBt	25.2	MR	0.0	DF	5.0	R	18.3	R	28.3	MR
Rasi 99 Bt	0.0	DF	0.0	DF	6.7	R	11.7	R	11.7	R

Table: Advanced Evaluation Trial of Hirsutum Varieties - I – Rainfed under protected condition (Surat)

Entries	Average PDI & Disease Reaction (DR): Protected (Closer spacing) (Surat)			
	BLB		CoLS	
	PDI	DR	PDI	DR
CICR Bt 19-32	0.0	DF	13.2	R
Suraj Bt (ZC)	0.0	DF	23.0	R
CICR 24 Bt	0.0	DF	5.7	R
Bt 183059-4	0.0	DF	34.0	MR
G. COT 10 Cry 1Ac	0.0	DF	24.7	R
CICR Bt 19-33	0.0	DF	18.2	R
NH 615 (ZC NBt)	10.5	R	10.5	R
Rasi 66 Bt	0.0	DF	24.8	R
Bt 183059-5	0.0	DF	16.3	R
G. COT 16 Cry 1Ac	0.0	DF	0.0	DF
(LC) NBt	0.0	DF	0.0	DF
Rasi 99 Bt	0.00	DF	0.00	DF

Evaluation under unprotected condition for insect pests and diseases:

Reaction to Insect Pests

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)			
	Surat	Nagpur	Mean	Remarks*
CICR Bt 19-32	5.71	2.72	4.22	BETL
Suraj Bt (Zonal Check)	5.62	3.47	4.55	BETL
CICR 24 Bt	6.98	3.65	5.31	BETL
Bt 183059-4	3.56	3.82	3.69	BETL
G. COT 10 Cry 1Ac	1.98	2.82	2.40	BETL
CICR Bt 19-33	2.38	2.70	2.54	BETL
NH 615 (Zonal Check NBt)	3.53	2.50	3.02	BETL
Rasi 66 Bt	4.22	2.15	3.19	BETL
Bt 183059-5	6.49	3.52	5.00	BETL
G. COT 16 Cry 1Ac	2.98	2.60	2.79	BETL
Local Check NBt	2.76	2.76	2.76	BETL
Rasi 99 Bt	3.22	2.17	2.70	BETL

Table Advance Variety Trial under unprotected conditions in Central Zone -- Jassid Injury Grade

Name of Entry	JIG (Average of 3 leaves/plant)	
	Nagpur	Remarks*
CICR Bt 19-32	1	BETL
Suraj Bt (Zonal Check)	1	BETL
CICR 24 Bt	1	BETL
Bt 183059-4	1	BETL
G. COT 10 Cry 1Ac	1	BETL
CICR Bt 19-33	1	BETL
NH 615 (Zonal Check NBt)	1	BETL
Rasi 66 Bt	1	BETL
Bt 183059-5	1	BETL
G. COT 16 Cry 1Ac	1	BETL
Local Check NBt	1	BETL
Rasi 99 Bt	1	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)			
	Surat	Nagpur	Mean	Remarks*
CICR Bt 19-32	15.93	3.95	9.94	BETL
Suraj Bt (Zonal Check)	14.11	2.57	8.34	BETL
CICR 24 Bt	14.62	3.77	9.20	BETL
Bt 183059-4	7.13	3.82	5.48	BETL
G. COT 10 Cry 1Ac	12.11	3.47	7.79	BETL
CICR Bt 19-33	7.20	2.7	4.95	BETL
NH 615 (Zonal Check NBt)	12.51	1.85	7.18	BETL
Rasi 66 Bt	6.49	2.1	4.29	BETL
Bt 183059-5	16.22	2.85	9.54	BETL
G. COT 16 Cry 1Ac	9.38	1.62	5.50	BETL
Local Check NBt	6.80	2.1	4.45	BETL
Rasi 99 Bt	5.73	1.97	3.85	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)			
	Surat	Nagpur	Mean	Remarks*
CICR Bt 19-32	2.09	4.15	3.12	BETL
Suraj Bt (Zonal Check)	1.62	2.85	2.24	BETL
CICR 24 Bt	2.04	3.97	3.01	BETL
Bt 183059-4	3.47	3.37	3.42	BETL
G. COT 10 Cry 1Ac	2.36	3.75	3.05	BETL
CICR Bt 19-33	2.27	2.92	2.59	BETL
NH 615 (Zonal Check NBt)	1.91	2.76	2.34	BETL
Rasi 66 Bt	2.47	4.22	3.34	BETL
Bt 183059-5	2.53	3.67	3.10	BETL
G. COT 16 Cry 1Ac	2.13	2.57	2.35	BETL
Local Check NBt	1.96	2.51	2.23	BETL
Rasi 99 Bt	2.51	3.05	2.78	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Natural Enemies

Name of Entry	Natural enemies (No./Plant)	
	Surat	Mean
CICR Bt 19-32	0.14	0.14
Suraj Bt (Zonal Check)	0.22	0.22
CICR 24 Bt	0.21	0.21
Bt 183059-4	0.20	0.20
G. COT 10 Cry 1Ac	0.13	0.13
CICR Bt 19-33	0.22	0.22
NH 615 (Zonal Check NBt)	0.10	0.10
Rasi 66 Bt	0.22	0.22
Bt 183059-5	0.42	0.42
G. COT 16 Cry 1Ac	0.12	0.12
Local Check NBt	0.20	0.20
Rasi 99 Bt	0.23	0.23

Table. Advance Variety Trial under unprotected conditions in Central Zone-- Bollworms – *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)			
	Surat	Nagpur	Mean	Remarks*
CICR Bt 19-32	0.00	0.25	0.13	BETL
Suraj Bt (Zonal Check)	2.56	0.00	1.28	BETL
CICR 24 Bt	1.00	0.00	0.50	BETL
Bt 183059-4	0.00	0.00	0.00	BETL
G. COT 10 Cry 1Ac	0.00	0.00	0.00	BETL
CICR Bt 19-33	2.11	0.00	1.06	BETL
NH 615 (Zonal Check NBt)	0.00	0.17	0.08	BETL
Rasi 66 Bt	0.00	1.00	0.50	BETL
Bt 183059-5	0.00	0.00	0.00	BETL
G. COT 16 Cry 1Ac	0.00	0.00	0.00	BETL
Local Check NBt	0.00	0.00	0.00	BETL
Rasi 99 Bt	0.00	0.00	0.00	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone- -- Bollworms - Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)		
	Surat	Mean	Remarks*
CICR Bt 19-32	0.00	0.00	BETL
Suraj Bt (Zonal Check)	0.00	0.00	BETL
CICR 24 Bt	0.00	0.00	BETL
Bt 183059-4	0.00	0.00	BETL
G. COT 10 Cry 1Ac	0.00	0.00	BETL
CICR Bt 19-33	0.00	0.00	BETL
NH 615 (Zonal Check NBt)	0.00	0.00	BETL
Rasi 66 Bt	0.00	0.00	BETL
Bt 183059-5	0.00	0.00	BETL
G. COT 16 Cry 1Ac	0.00	0.00	BETL
Local Check NBt	0.00	0.00	BETL
Rasi 99 Bt	0.00	0.00	BETL

Table.Advance Variety Trial under unprotected conditions in Central Zone -- Bollworms – *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)		
	Surat	Mean	Remarks*
CICR Bt 19-32	0.00	0.00	BETL
Suraj Bt (Zonal Check)	0.00	0.00	BETL
CICR 24 Bt	0.00	0.00	BETL
Bt 183059-4	0.00	0.00	BETL
G. COT 10 Cry 1Ac	0.00	0.00	BETL
CICR Bt 19-33	0.00	0.00	BETL
NH 615 (Zonal Check NBt)	0.00	0.00	BETL
Rasi 66 Bt	0.00	0.00	BETL
Bt 183059-5	0.00	0.00	BETL
G. COT 16 Cry 1Ac	0.00	0.00	BETL
Local Check NBt	0.00	0.00	BETL
Rasi 99 Bt	0.00	0.00	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)			
	Surat	Nagpur	Mean	Remarks*
CICR Bt 19-32	1.22	0.03	0.62	BETL
Suraj Bt (Zonal Check)	2.67	0.03	1.35	AETL
CICR 24 Bt	1.22	0.13	0.67	BETL
Bt 183059-4	0.00	0.03	0.01	BETL
G. COT 10 Cry 1Ac	0.11	0.00	0.06	BETL
CICR Bt 19-33	2.22	0.05	1.14	AETL
NH 615 (Zonal Check NBt)	1.11	0.10	0.61	BETL
Rasi 66 Bt	0.11	0.05	0.08	BETL
Bt 183059-5	0.00	0.00	0.00	BETL
G. COT 16 Cry 1Ac	0.00	0.03	0.01	BETL
Local Check NBt	0.00	0.05	0.03	BETL
Rasi 99 Bt	0.89	0.03	0.46	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Green Boll damage

Name of Entry	Green Boll damage (%)		
	Nagpur	Mean	Remarks*
CICR Bt 19-32	0.22	0.22	BETL
Suraj Bt (Zonal Check)	0.00	0.00	BETL
CICR 24 Bt	0.00	0.00	BETL
Bt 183059-4	0.00	0.00	BETL
G. COT 10 Cry 1Ac	0.00	0.00	BETL
CICR Bt 19-33	0.00	0.00	BETL
NH 615 (Zonal Check NBt)	0.31	0.31	BETL
Rasi 66 Bt	0.69	0.69	BETL
Bt 183059-5	0.00	0.00	BETL
G. COT 16 Cry 1Ac	0.00	0.00	BETL
Local Check NBt	0.00	0.00	BETL
Rasi 99 Bt	0.00	0.00	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)		
	Surat	Mean	Remarks*
CICR Bt 19-32	4.44	4.44	BETL
Suraj Bt (Zonal Check)	20.00	20.00	AETL
CICR 24 Bt	10.00	10.00	ETL
Bt 183059-4	0.00	0.00	BETL
G. COT 10 Cry 1Ac	0.00	0.00	BETL
CICR Bt 19-33	14.44	14.44	AETL
NH 615 (Zonal Check NBt)	6.67	6.67	BETL
Rasi 66 Bt	0.00	0.00	BETL
Bt 183059-5	0.00	0.00	BETL
G. COT 16 Cry 1Ac	0.00	0.00	BETL
Local Check NBt	0.00	0.00	BETL
Rasi 99 Bt	5.56	5.56	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Locule damage

Name of Entry	Locule damage (%)		
	Surat	Nagpur	Mean
CICR Bt 19-32	1.67	8.88	5.27
Suraj Bt (Zonal Check)	6.94	10.71	8.83
CICR 24 Bt	3.61	9.46	6.54
Bt 183059-4	0.00	4.46	2.23
G. COT 10 Cry 1Ac	0.00	4.38	2.19
CICR Bt 19-33	5.28	7.50	6.39
NH 615 (Zonal Check NBt)	2.22	11.25	6.74
Rasi 66 Bt	0.00	10.20	5.10
Bt 183059-5	0.00	3.18	1.59
G. COT 16 Cry 1Ac	0.00	2.64	1.32
Local Check NBt	0.00	16.25	8.13
Rasi 99 Bt	1.67	9.64	5.65

Reaction to Diseases

Table: Advanced Evaluation Trial of Hirsutum Varieties - I – Rainfed under unprotected condition

Entries	Average PDI & Disease Reaction (DR): Surat Un-protected(Normal spacing)											
	Surat				Nagpur							
	BLB		ALB		CoLS		GM		TSV		BLB	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
CICR Bt 19-32	11.2	R	0.0	DF	12.5	R	0.0	DF	0.0	DF	13.3	R
Suraj Bt (ZC)	0.0	DF	0.0	DF	9.2	R	0.0	DF	25.0	R	18.3	R
CICR 24 Bt	0.0	DF	0.0	DF	7.5	R	4.2	R	13.3	R	15.8	R
Bt 183059-4	0.0	DF	0.0	DF	12.7	R	0.0	DF	5.0	R	27.5	MR
G. COT 10 Cry 1Ac	0.0	DF	0.0	DF	14.2	R	0.0	DF	8.3	R	19.2	R
CICR Bt 19-33	3.0	R	0.0	DF	10.0	R	0.0	DF	7.5	R	24.2	R
NH 615 (ZC NBt)	7.5	R	0.0	DF	9.2	R	1.7	R	0.0	DF	10.0	R
Rasi 66 Bt	0.0	DF	0.0	DF	7.5	R	0.0	DF	0.0	DF	15.8	R
Bt 183059-5	11.2	R	0.0	DF	12.5	R	0.0	DF	0.0	DF	13.3	R
G. COT 16 Cry 1Ac	0.0	DF	0.0	DF	9.2	R	0.0	DF	25.0	R	18.3	R
(LC) NBt	0.0	DF	0.0	DF	7.5	R	4.2	R	13.3	R	15.8	R
Rasi 99 Bt	0.0	DF	0.0	DF	12.7	R	0.0	DF	5.0	R	27.5	R

Advanced Evaluation Trial of Hirsutum Varieties (II) in Central Zone (2020-21) - Rainfed

Constitution of Trial

The trial was constituted with four Bt cotton varieties containing deregulated event along with three different check varieties as furnished below.

S. No.	Name of the Entry
1	Suraj Bt (Zonal Check)
2	NC 369 Bt2
3	NH 615 (Zonal Check NBt)
4	CICR 22 Bt
5	CICR 20 Bt
6	Local Check NBt
7	CICR 21 Bt

The trial was conducted in four different locations and detail is furnished below.

Name of the trial location	Surat	Bharuch	Nagpur	Akola
Local check Non Bt Variety	G Cot 16	G Cot 16	AKH 8828	AKH 8828

Spacing: Two separate trials viz., one with recommended spacing for the variety and another with half the spacing between plants have been followed.

Number of rows:4 rows of 6 meters per entry with three replications

Data recorded:

Biometric evaluation

Plant height (cm) at harvest in Advanced Evaluation Trial of Hirsutum Varieties (II)

S. No.	Name of the Entry	Akola	Nagpur	Nanded	Mean
1	Suraj Bt (Zonal Check)	119.2	87.4	127.0	**111.2**
2	NC 369 Bt2	120.0	131.8	182.3	**144.7**
3	NH 615 (Zonal Check NBt)	85.2	84.8	132.3	**100.8**
4	CICR 22 Bt	105.3	83.4	123.3	**104.0**
5	CICR 20 Bt	91.0	94.8	165.0	**116.9**
6	Local Check NBt	118.7	96.8	146.7	**120.7**
7	CICR 21 Bt	91.1	84.6	128.0	**101.2**
	CD @ 5%	6.4	14.0	17.1	
	CV %	5.9	8.3	6.8	

Number of monopodia in Advanced Evaluation Trial of Hirsutum Varieties (II)

S. No.	Name of the Entry	Akola	Nagpur	Nanded	Mean
1	Suraj Bt (Zonal Check)	2.0	3.2	1.1	**2.1**
2	NC 369 Bt2	1.7	2.3	0.4	**1.5**
3	NH 615 (Zonal Check NBt)	1.8	2.6	0.5	**1.6**
4	CICR 22 Bt	2.2	2.7	1.4	**2.1**
5	CICR 20 Bt	1.8	3.9	0.5	**2.1**
6	Local Check NBt	2.0	2.9	1.1	**2.0**
7	CICR 21 Bt	2.1	2.6	0.8	**1.8**
	CD @ 5%	0.3	0.8	0.8	
	CV %	15.2	15.8	54.3	

Number of sympodia in Advanced Evaluation Trial of Hirsutum Varieties (II)

S. No.	Name of the Entry	Akola	Nagpur	Nanded	Mean
1	Suraj Bt (Zonal Check)	14.6	16.9	18.5	**16.7**
2	NC 369 Bt2	14.3	20.9	21.5	**18.9**
3	NH 615 (Zonal Check NBt)	13.1	17.6	22.3	**17.7**
4	CICR 22 Bt	14.6	19.4	22.0	**18.7**
5	CICR 20 Bt	15.1	18.1	22.4	**18.5**
6	Local Check NBt	14.6	18.1	23.3	**18.7**
7	CICR 21 Bt	14.0	19.3	21.0	**18.1**
	CD @ 5%	1.5	1.9	6.0	
	CV %	10.2	5.9	16.0	

Number of bolls / plant in Advanced Evaluation Trial of Hirsutum Varieties (II)

S. No.	Name of the Entry	Bharuch	Akola	Nagpur	Nanded	Mean
1	Suraj Bt (Zonal Check)	12.6	18.7	12.2	15.3	**14.7**
2	NC 369 Bt2	6.6	14.3	8.5	14.7	**11.0**
3	NH 615 (Zonal Check NBt)	3.6	17.1	10.9	19.6	**12.8**
4	CICR 22 Bt	4.7	15.1	14.1	14.2	**12.0**
5	CICR 20 Bt	7.1	16.5	14.9	15.3	**13.5**
6	Local Check NBt	9.6	18.7	12.4	14.3	**13.8**
7	CICR 21 Bt	7.9	20.2	11.4	15.2	**13.7**
	CD @ 5%	2.3	1.9	3.4	3.1	
	CV %	17.3	10.6	16.0	11.3	

Number of bolls / sq. m. in Advanced Evaluation Trial of Hirsutum Varieties (II)

S. No.	Name of the Entry	Bharuch	Akola	Nagpur	Nanded	Mean
1	Suraj Bt (Zonal Check)	37.7	26.3	67.8	87.6	**54.9**
2	NC 369 Bt2	19.9	27.0	47.0	81.3	**43.8**
3	NH 615 (Zonal Check NBt)	10.9	49.0	60.7	105.5	**56.5**
4	CICR 22 Bt	14.2	41.3	78.1	80.1	**53.4**
5	CICR 20 Bt	21.3	29.7	82.6	84.7	**54.6**
6	Local Check NBt	28.9	47.0	68.9	79.1	**56.0**
7	CICR 21 Bt	23.6	24.7	63.3	83.6	**48.8**
	CD @ 5%		3.5	19.0	14.1	
	CV %		9.6	16.0	9.3	

Lint Index (g) in Advanced Evaluation Trial of Hirsutum Varieties (II)

S. No.	Name of the Entry	Bharuch	Akola	Nagpur	Nanded	Mean
1	Suraj Bt (Zonal Check)	5.9	3.7	3.7	3.8	**4.3**
2	NC 369 Bt2	5.6	4.4	4.0	3.6	**4.4**
3	NH 615 (Zonal Check NBt)	5.4	3.3	3.7	4.2	**4.2**
4	CICR 22 Bt	5.4	3.8	4.0	3.8	**4.3**
5	CICR 20 Bt	5.2	3.5	4.2	3.3	**4.1**
6	Local Check NBt	5.2	5.9	5.1	4.0	**5.1**
7	CICR 21 Bt	4.4	3.2	3.7	3.2	**3.6**
	CD @ 5%	0.4	0.5		0.7	
	CV %	4.4	11.7		11.4	

Seed Index (g) in Advanced Evaluation Trial of Hirsutum Varieties (II)

S. No.	Name of the Entry	Bharuch	Akola	Nagpur	Nanded	Mean
1	Suraj Bt (Zonal Check)	11.2	6.5	6.5	7.2	**7.9**
2	NC 369 Bt2	10.2	8.0	8.0	8.1	**8.6**
3	NH 615 (Zonal Check NBt)	11.0	6.0	6.5	8.1	**7.9**
4	CICR 22 Bt	11.0	6.8	8.0	8.1	**8.5**
5	CICR 20 Bt	11.2	6.0	8.0	6.3	**7.9**
6	Local Check NBt	11.3	10.2	8.0	7.6	**9.3**
7	CICR 21 Bt	9.9	6.2	7.5	6.6	**7.6**
	CD @ 5%	0.7	0.7		0.9	
	CV %	3.7	9.7		7.3	

Ginning outturn (%) in Advanced Evaluation Trial of Hirsutum Varieties (II)

S. No.	Name of the Entry	Bharuch	Akola	Nagpur	Nanded	Mean
1	Suraj Bt (Zonal Check)	34.5	36.3	36.3	34.7	**35.5**
2	NC 369 Bt2	35.5	35.7	33.3	31.0	**33.9**
3	NH 615 (Zonal Check NBt)	33.0	35.7	36.3	33.8	**34.7**
4	CICR 22 Bt	33.0	35.7	33.5	32.0	**33.6**
5	CICR 20 Bt	31.8	36.8	34.5	34.3	**34.4**
6	Local Check NBt	31.4	36.7	39.1	34.8	**35.5**
7	CICR 21 Bt	30.9	34.1	33.1	32.9	**32.8**
	CD @ 5%	0.8	1.7		3.9	
	CV %	1.5	4.6		6.7	

Upper Half Mean Length (mm) under HVI Mode in Advanced Evaluation Trial of Hirsutum Varieties (II)

S. No.	Name of the Entry	Bharuch	Akola	Nagpur	Nanded	Mean
1	Suraj Bt (Zonal Check)	26.0	25.3	26.4	25.7	**25.9**
2	NC 369 Bt2	28.1	27.8	28.6	27.7	**28.1**
3	NH 615 (Zonal Check NBt)	27.9	26.8	28.7	28.1	**27.9**
4	CICR 22 Bt	25.6	25.0	25.2	27.1	**25.7**
5	CICR 20 Bt	26.7	24.3	24.0	24.9	**25.0**
6	Local Check NBt	29.7	29.0	25.0	25.6	**27.3**
7	CICR 21 Bt	27.8	27.0	26.6	25.9	**26.8**

Uniformity index under HVI Mode in Advanced Evaluation Trial of Hirsutum Varieties (II)

S. No.	Name of the Entry	Bharuch	Akola	Nagpur	Nanded	Mean
1	Suraj Bt (Zonal Check)	82.0	81.0	84.0	81.0	**82.0**
2	NC 369 Bt2	82.0	82.0	83.0	84.0	**82.8**
3	NH 615 (Zonal Check NBt)	82.0	85.0	81.0	83.0	**82.8**
4	CICR 22 Bt	84.0	83.0	83.0	85.0	**83.8**
5	CICR 20 Bt	83.0	80.0	82.0	83.0	**82.0**
6	Local Check NBt	83.0	83.0	80.0	82.0	**82.0**
7	CICR 21 Bt	84.0	86.0	81.0	83.0	**83.5**

Micronaire under HVI Mode in Advanced Evaluation Trial of Hirsutum Varieties (II)

S. No.	Name of the Entry	Bharuch	Akola	Nagpur	Nanded	Mean
1	Suraj Bt (Zonal Check)	3.7	4.0	4.3	3.6	**3.9**
2	NC 369 Bt2	4.7	4.4	5.5	5.0	**4.9**
3	NH 615 (Zonal Check NBt)	3.7	3.9	4.0	4.2	**4.0**
4	CICR 22 Bt	4.1	3.9	4.2	3.9	**4.0**
5	CICR 20 Bt	4.1	3.7	4.1	3.6	**3.9**
6	Local Check NBt	4.2	4.3	4.6	4.0	**4.3**
7	CICR 21 Bt	4.2	4.1	3.8	3.7	**4.0**

Tenacity under HVI Mode in Advanced Evaluation Trial of Hirsutum Varieties (II)

S. No.	Name of the Entry	Bharuch	Akola	Nagpur	Nanded	Mean
1	Suraj Bt (Zonal Check)	26.3	27.0	28.1	25.8	**26.8**
2	NC 369 Bt2	28.1	26.9	27.4	28.9	**27.8**
3	NH 615 (Zonal Check NBt)	27.8	25.1	30.8	28.1	**28.0**
4	CICR 22 Bt	25.4	27.0	28.4	27.3	**27.0**
5	CICR 20 Bt	27.6	25.6	27.2	25.2	**26.4**
6	Local Check NBt	29.3	28.6	28.5	26.6	**28.3**
7	CICR 21 Bt	28.7	27.6	30.6	26.6	**28.4**

Seed Cotton Yield (q/ha) in Advanced Evaluation Trial of Hirsutum Varieties (II) under normal spacing

S. No.	Name of the Entry	Bharuch	Akola	Nagpur	Nanded	Mean	Rank
1	Suraj Bt (Zonal Check)	5.61	5.29	9.74	7.54	**7.05**	3
2	NC 369 Bt2	3.55	6.75	10.89	6.74	**6.98**	4
3	NH 615 (Zonal Check NBt)	1.86	7.03	12.00	10.47	**7.84**	1
4	CICR 22 Bt	2.54	6.87	9.84	7.77	**6.76**	5
5	CICR 20 Bt	3.63	2.91	12.24	7.82	**6.65**	6
6	Local Check NBt	5.21	7.20	10.23	7.54	**7.55**	2
7	CICR 21 Bt	3.48	3.72	10.75	7.56	**6.38**	7
	CD @ 5%	1.25	0.79	NS	2.13		
	CV %	17.60	13.56	19.53	12.07		

Number of bolls / sq. m. in Advanced Evaluation Trial of Hirsutum Varieties (II) under closer spacing

S. No.	Name of the Entry	Bharuch	Nagpur	Nanded	Mean
1	Suraj Bt (Zonal Check)	75.2	89.6	59.1	**74.6**
2	NC 369 Bt2	60.8	-	67.3	**64.1**
3	NH 615 (Zonal Check NBt)	59.1	80.0	86.2	**75.1**
4	CICR 22 Bt	43.0	89.6	72.4	**68.3**
5	CICR 20 Bt	55.4	92.6	76.3	**74.8**
6	Local Check NBt	75.2	83.7	82.8	**80.6**
7	CICR 21 Bt	67.9	89.6	88.7	**82.1**
	CD @ 5%		NS	20.7	
	CV %		24.4	15.4	

Seed Cotton Yield (q/ha) in Advanced Evaluation Trial of Hirsutum Varieties (II) under closer spacing

S. No.	Name of the Entry	Bharuch	Nagpur	Nanded	Mean	Rank
1	Suraj Bt (Zonal Check)	6.20	8.81	6.48	**7.16**	6
2	NC 369 Bt2	6.79	-	5.56	**6.18**	7
3	NH 615 (Zonal Check NBt)	5.34	10.53	7.32	**7.73**	3
4	CICR 22 Bt	3.88	10.50	7.17	**7.18**	5
5	CICR 20 Bt	6.40	11.11	5.91	**7.81**	2
6	Local Check NBt	7.31	9.50	6.28	**7.70**	4
7	CICR 21 Bt	6.54	10.68	6.90	**8.04**	1
	CD @ 5%	1.14	NS	0.91		
	CV %	9.80	12.15	5.99		

Quantity of Cry 1Ac Protein (ppm) at ICAR, CICR, Nagpur in Advanced Evaluation Trial of Hirsutum Varieties (II)

Entry	Leaf				Square			Bolls	
	30 D	60 D	90 D	120 D	60 D	90 D	120 D	90 D	120 D
Suraj Bt (Zonal Check)	2.60	6.61	4.71	2.75	5.92	1.90	0.94	1.24	0.98
NC 369 Bt2	2.16	5.83	4.63	2.09	3.35	1.34	0.29	1.14	0.95
NH 615 (Zonal Check NBt)	0	0	0	0	0	0	0	0	0
CICR 22 Bt	4.28	6.61	5.57	2.77	2.82	1.40	0.21	1.02	0.87
CICR 20 Bt	3.87	5.83	5.68	2.17	4.34	2.07	0.26	1.19	1.20
Local Check NBt	0	0	0	0	0	0	0	0	0
CICR 21 Bt	4.22	6.67	5.37	2.70	2.67	1.88	0.42	0.86	0.34

Quantity of Cry 2Ab Protein (ppm) ICAR, CICR, Nagpur in Advanced Evaluation Trial of Hirsutum Varieties (II)

Entry	Leaf				Square			Bolls	
	30 D	60 D	90 D	120 D	60 D	90 D	120 D	90 D	120 D
Suraj Bt (Zonal Check)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC 369 Bt2	134.63	291.74	282.27	139.41	306.30	230.44	40.94	233.34	130.27
NH 615 (Zonal Check NBt)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CICR 22 Bt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CICR 20 Bt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Local Check NBt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CICR 21 Bt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect pests

Table. Advance Variety Trial under protected conditions in Central Zone -- Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)			
	Akola	Nagpur	Mean	Remarks*
Suraj Bt (Zonal Check)	3.36	2.33	2.84	BETL
NC 369 Bt2	1.42		1.42	BETL
NH 615 (Zonal Check NBt)	1.53	1.81	1.67	BETL
CICR 22 Bt	1.71	2.20	1.96	BETL
CICR 20 Bt	1.64	2.38	2.01	BETL
Local Check NBt	1.17	2.10	1.63	BETL
CICR 21 Bt	1.42	2.13	1.78	BETL

Table Advance Variety Trial under protected conditions in Central Zone -- Jassid Injury Grade

Name of Entry	JIG (Average of 3 leaves/plant)	
	Akola	Remarks*
Suraj Bt (Zonal Check)	II	BETL
NC 369 Bt2	I	BETL
NH 615 (Zonal Check NBt)	II	BETL
CICR 22 Bt	II	BETL
CICR 20 Bt	II	BETL
Local Check NBt	I	BETL
CICR 21 Bt	II	BETL

Table. Advance Variety Trial under protected conditions in Central Zone -- Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)			
	Akola	Nagpur	Mean	Remarks*
Suraj Bt (Zonal Check)	2.07	2.56	2.31	BETL
NC 369 Bt2	2.31		2.31	BETL
NH 615 (Zonal Check NBt)	2.84	2.65	2.75	BETL
CICR 22 Bt	3.18	2.65	2.91	BETL
CICR 20 Bt	2.56	2.56	2.56	BETL
Local Check NBt	2.09	2.71	2.40	BETL
CICR 21 Bt	2.44	2.9	2.67	BETL

Table. Advance Variety Trial under protected conditions in Central Zone -- Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)		
	Akola	Nagpur	Mean
Suraj Bt (Zonal Check)	4.09	2.83	3.46
NC 369 Bt2	3.29		3.29
NH 615 (Zonal Check NBt)	3.73	2.70	3.22
CICR 22 Bt	3.60	3.48	3.54
CICR 20 Bt	3.42	2.88	3.15
Local Check NBt	3.33	3.71	3.52
CICR 21 Bt	4.58	3.55	4.06

Table. Advance Variety Trial under protected conditions in Central Zone-- Bollworms – *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)		
	Nagpur	Mean	Remarks*
Suraj Bt (Zonal Check)	0.00	0.00	BETL
NC 369 Bt2	0.00	0.00	BETL
NH 615 (Zonal Check NBt)	0.00	0.00	BETL
CICR 22 Bt	0.00	0.00	BETL
CICR 20 Bt	0.00	0.00	BETL
Local Check NBt	0.00	0.00	BETL
CICR 21 Bt			

Table. Advance Variety Trial under protected conditions in Central Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)			
	Akola	Nagpur	Mean	Remarks*
Suraj Bt (Zonal Check)	1.56	0.05	0.80	BETL
NC 369 Bt2	1.60		1.60	AETL
NH 615 (Zonal Check NBt)	1.67	0.02	0.84	BETL
CICR 22 Bt	1.76	0.02	0.89	BETL
CICR 20 Bt	1.49	0.13	0.81	BETL
Local Check NBt	1.71	0.05	0.88	BETL
CICR 21 Bt	1.49	0.00	0.74	BETL

Table. Advance Variety Trial under protected conditions in Central Zone -- Green Boll damage

Name of Entry	Green Boll damage (%)		
	Nagpur	Mean	Remarks*
Suraj Bt (Zonal Check)	0.37	0.37	BETL
NC 369 Bt2			BETL
NH 615 (Zonal Check NBt)	1.53	1.53	BETL
CICR 22 Bt	0.88	0.88	BETL
CICR 20 Bt	0.00	0.00	BETL
Local Check NBt	1.64	1.64	BETL
CICR 21 Bt	0.28	0.28	BETL

Table. Advance Variety Trial under protected conditions in Central Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)		
	Akola	Mean	Remarks*
Suraj Bt (Zonal Check)	47.36	47.36	AETL
NC 369 Bt2	48.23	48.23	AETL
NH 615 (Zonal Check NBt)	47.57	47.57	AETL
CICR 22 Bt	50.52	50.52	AETL
CICR 20 Bt	87.46	87.46	AETL
Local Check NBt	50.08	50.08	AETL
CICR 21 Bt	56.95	56.95	AETL

Table. Advance Variety Trial under protected conditions in Central Zone -- Locule damage

Name of Entry	Locule damage (%)		
	Akola	Nagpur	Mean
Suraj Bt (Zonal Check)	20.08	2.20	11.1
NC 369 Bt2	23.19		23.19
NH 615 (Zonal Check NBt)	20.13	1.23	10.7
CICR 22 Bt	29.86	1.25	15.6
CICR 20 Bt	44.11	6.25	25.2
Local Check NBt	24.70	2.12	13.4
CICR 21 Bt	29.63	0.00	14.8

Table. Advance Variety Trial under protected conditions in Central Zone -- Number of sprays for sucking pests

Name of Entry	Sprays applied for sap sucking pests (Nos.)	
	Akola	Mean
Suraj Bt (Zonal Check)	2.00	2.00
NC 369 Bt2	2.00	2.00
NH 615 (Zonal Check NBt)	2.00	2.00
CICR 22 Bt	2.00	2.00
CICR 20 Bt	2.00	2.00
Local Check NBt	2.00	2.00
CICR 21 Bt	2.00	2.00

Table. Advance Variety Trial under protected conditions in Central Zone -- Leafhopper (HDPS)

Name of Entry	Leafhopper (Average of 3 leaves/plant)			
	Nagpur	Bharuch	Mean	Remarks*
Suraj Bt (Zonal Check)	2.93	3.40	3.17	BETL
NC 369 Bt2		3.80	3.80	BETL
NH 615 (Zonal Check NBt)	2.28	2.90	2.59	BETL
CICR 22 Bt	3.16	2.40	2.78	BETL
CICR 20 Bt	3.16	2.70	2.93	BETL
Local Check NBt	3.16	2.70	2.93	BETL
CICR 21 Bt	2.50	3.40	2.95	BETL

Table Advance Variety Trial under protected conditions in Central Zone -- Jassid Injury Grade

Name of Entry	JIG (Average of 3 leaves/plant)	
	Nagpur	Remarks*
Suraj Bt (Zonal Check)	I	BETL
NC 369 Bt2	I	BETL
NH 615 (Zonal Check NBt)	I	BETL
CICR 22 Bt	I	BETL
CICR 20 Bt	I	BETL
Local Check NBt	I	BETL
CICR 21 Bt	I	BETL

Table.Advance Variety Trial under protected conditions in Central Zone -- Thrips (HDPS)

Name of Entry	Thrips (Average of 3 leaves/plant)			
	Nagpur	Bharuch	Mean	Remarks*
Suraj Bt (Zonal Check)	2.51	4.83	3.67	BETL
NC 369 Bt2	-	4.10	4.10	BETL
NH 615 (Zonal Check NBt)	2.36	4.13	3.25	BETL
CICR 22 Bt	2.21	3.20	2.71	BETL
CICR 20 Bt	1.84	3.27	2.55	BETL
Local Check NBt	2.56	3.63	3.10	BETL
CICR 21 Bt	2.68	3.23	2.96	BETL

Table.Advance Variety Trial under protected conditions in Central Zone -- Whitefly (HDPS)

Name of Entry	Whitefly (Average of 3 leaves/plant)			
	Nagpur	Bharuch	Mean	Remarks*
Suraj Bt (Zonal Check)	4.43	2.50	3.47	BETL
NC 369 Bt2		2.57	2.57	BETL
NH 615 (Zonal Check NBt)	3.38	2.70	3.04	BETL
CICR 22 Bt	5.04	2.27	3.65	BETL
CICR 20 Bt	4.15	2.70	3.43	BETL
Local Check NBt	4.26	2.77	3.51	BETL
CICR 21 Bt	3.71	2.57	3.14	BETL

Table. Advance Variety Trial under protected conditions in Central Zone -- Natural Enemies (HDPS)

Name of Entry	Natural enemies (No./Plant)	
	Bharuch	Mean
Suraj Bt (Zonal Check)	0.17	0.17
NC 369 Bt2	0.10	0.10
NH 615 (Zonal Check NBt)	0.17	0.17
CICR 22 Bt	0.10	0.10
CICR 20 Bt	0.13	0.13
Local Check NBt	0.13	0.13
CICR 21 Bt	0.13	0.13

Table. Advance Variety Trial under protected conditions in Central Zone-- Bollworms – Helicoverpa armigera (HDPS)

Name of Entry	Helicoverpa armigera (No. / 5 plants)		
	Bharuch	Mean	Remarks*
Suraj Bt (Zonal Check)	0.00	0.00	BETL
NC 369 Bt2	0.00	0.00	BETL
NH 615 (Zonal Check NBt)	0.00	0.00	BETL
CICR 22 Bt	0.00	0.00	BETL
CICR 20 Bt	0.00	0.00	BETL
Local Check NBt	0.00	0.00	BETL
CICR 21 Bt	0.00	0.00	BETL

Table. Advance Variety Trial under protected conditions in Central Zone- -- Bollworms - Spotted Bollworms (HDPS)

Name of Entry	Spotted Bollworms (No. / 5 plants)		
	Bharuch	Mean	Remarks*
Suraj Bt (Zonal Check)	0.00	0.00	BETL
NC 369 Bt2	0.00	0.00	BETL
NH 615 (Zonal Check NBt)	0.00	0.00	BETL
CICR 22 Bt	0.00	0.00	BETL
CICR 20 Bt	0.00	0.00	BETL
Local Check NBt	0.00	0.00	BETL
CICR 21 Bt	0.00	0.00	BETL

Table. Advance Variety Trial under protected conditions in Central Zone -- Bollworms – Spodoptera litura (HDPS)

Name of Entry	Spodoptera litura (No. / 5 plants)		
	Bharuch	Mean	Remarks*
Suraj Bt (Zonal Check)	0.00	0.00	BETL
NC 369 Bt2	0.00	0.00	BETL
NH 615 (Zonal Check NBt)	0.00	0.00	BETL
CICR 22 Bt	0.00	0.00	BETL
CICR 20 Bt	0.00	0.00	BETL
Local Check NBt	0.00	0.00	BETL
CICR 21 Bt	0.00	0.00	BETL

Table. Advance Variety Trial under protected conditions in Central Zone -- Pink bollworm (HDPS)

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)		
	Bharuch	Mean	Remarks*
Suraj Bt (Zonal Check)	0.00	0.00	BETL
NC 369 Bt2	0.22	0.22	BETL
NH 615 (Zonal Check NBt)	0.00	0.00	BETL
CICR 22 Bt	0.22	0.22	BETL
CICR 20 Bt	0.00	0.00	BETL
Local Check NBt	0.00	0.00	BETL
CICR 21 Bt	0.22	0.22	BETL

Table. Advance Variety Trial under protected conditions in Central Zone -- Green Boll damage (HDPS)

Name of Entry	Green Boll damage (%)		
	Bharuch	Mean	Remarks*
Suraj Bt (Zonal Check)	0.78	0.78	BETL
NC 369 Bt2	1.00	1.00	BETL
NH 615 (Zonal Check NBt)	0.89	0.89	BETL
CICR 22 Bt	1.22	1.22	BETL
CICR 20 Bt	0.67	0.67	BETL
Local Check NBt	0.67	0.67	BETL
CICR 21 Bt	1.22	1.22	BETL

Table. Advance Variety Trial under protected conditions in Central Zone -- Open Boll damage (HDPS)

Name of Entry	Open Boll damage (%)		
	Bharuch	Mean	Remarks*
Suraj Bt (Zonal Check)	0.33	0.33	BETL
NC 369 Bt2	0.56	0.56	BETL
NH 615 (Zonal Check NBt)	0.33	0.33	BETL
CICR 22 Bt	0.67	0.67	BETL
CICR 20 Bt	0.33	0.33	BETL
Local Check NBt	0.33	0.33	BETL
CICR 21 Bt	0.78	0.78	BETL

Table. Advance Variety Trial under protected conditions in Central Zone -- Locule damage (HDPS)

Name of Entry	Locule damage (%)	
	Bharuch	Mean
Suraj Bt (Zonal Check)	0.00	0.00
NC 369 Bt2	0.11	0.11
NH 615 (Zonal Check NBt)	0.00	0.00
CICR 22 Bt	0.22	0.22
CICR 20 Bt	0.00	0.00
Local Check NBt	0.00	0.00
CICR 21 Bt	0.22	0.22

Table. Advance Variety Trial under protected conditions in Central Zone -- Number of sprays for sucking pests (HDPS)

Name of Entry	Sprays applied for sap sucking pests (Nos.)	
	Bharuch	Mean
Suraj Bt (Zonal Check)	5.00	5.00
NC 369 Bt2	5.00	5.00
NH 615 (Zonal Check NBt)	5.00	5.00
CICR 22 Bt	5.00	5.00
CICR 20 Bt	5.00	5.00
Local Check NBt	5.00	5.00
CICR 21 Bt	5.00	5.00

Reaction to Diseases

Table: Advanced Evaluation Trial of Hirsutum Varieties - II – Rainfed (Normal Spacing) under protected conditions

Entry	Average PDI & Disease Reaction (DR): Protected (Normal spacing)											
	Nanded						Akola					
	ALB		BLB		GM		BLB		MLS		GM	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
Suraj Bt (ZC)	9.4	R	14.8	R	16.1	R	6.7	R	10.0	R	13.3	R
NC 369 Bt2	6.5	R	8.9	R	26.3	MR	21.7	R	11.7	R	16.7	R
NH 615 (ZC NBt)	8.8	R	5.8	R	19.9	R	15.0	R	13.3	R	8.3	R
CICR 22 Bt	10.1	R	10.9	R	25.0	R	10.0	R	10.0	R	13.3	R
CICR 20 Bt	9.5	R	4.3	R	14.6	R	15.0	R	8.3	R	10.0	R
(LC) NBt	6.5	R	8.1	R	26.9	MR	6.7	R	15.0	R	26.7	MR
CICR 21 Bt	6.3	R	7.3	R	8.4	R	13.3	R	11.7	R	11.7	R

Table: Advanced Evaluation Trial of Hirsutum Varieties - II – Rainfed (Closer spacing) under protected conditions (Nanded)

Entry	Average PDI & Disease Reaction (DR): Protected (Closer spacing) (Nanded)					
	ALB		BLB		GM	
	PDI	DR	PDI	DR	PDI	DR
Suraj Bt (ZC)	5.6	R	7.4	R	27.1	MR
NC 369 Bt2	4.0	R	5.8	R	13.0	R
NH 615 (ZC-NBt)	3.3	R	7.5	R	26.4	MR
CICR 22 Bt	4.5	R	6.3	R	25.3	R
CICR 20 Bt	8.8	R	4.8	R	23.1	R
(LC) NBt	3.3	R	5.5	R	26.6	MR
CICR 21 Bt	4.5	R	5.0	R	23.9	R

Evaluation under unprotected condition for insect pests and diseases:

Reaction to Insect Pests

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)		
	Nanded	Mean	Remarks*
Suraj Bt (Zonal Check)	1.67	1.67	BETL
NC 369 Bt2	1.80	1.80	BETL
NH 615 (Zonal Check NBt)	2.02	2.02	BETL
CICR 22 Bt	1.62	1.62	BETL
CICR 20 Bt	1.93	1.93	BETL
Local Check NBt	1.69	1.69	BETL
CICR 21 Bt	1.72	1.72	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)			
	Nanded	Nagpur	Mean	Remarks*
Suraj Bt (Zonal Check)	3.43	2.18	2.81	BETL
NC 369 Bt2	2.94	2.97	2.96	BETL
NH 615 (Zonal Check NBt)	3.10	2.25	2.68	BETL
CICR 22 Bt	3.47	2.07	2.77	BETL
CICR 20 Bt	2.57	1.97	2.27	BETL
Local Check NBt	2.93	2.77	2.85	BETL
CICR 21 Bt	3.57	2.85	3.21	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)		
	Nanded	Mean	Remarks*
Suraj Bt (Zonal Check)	3.09	3.09	BETL
NC 369 Bt2	3.29	3.29	BETL
NH 615 (Zonal Check NBt)	2.49	2.49	BETL
CICR 22 Bt	2.49	2.49	BETL
CICR 20 Bt	2.31	2.31	BETL
Local Check NBt	3.33	3.33	BETL
CICR 21 Bt	2.27	2.27	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone-- Bollworms – *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)			
	Nanded	Nagpur	Mean	Remarks*
Suraj Bt (Zonal Check)	0.12	0.25	0.19	BETL
NC 369 Bt2	0.04	0.00	0.02	BETL
NH 615 (Zonal Check NBt)	0.08	0.00	0.04	BETL
CICR 22 Bt	0.08	0.17	0.12	BETL
CICR 20 Bt	0.12	0.33	0.23	BETL
Local Check NBt	0.07	0.00	0.04	BETL
CICR 21 Bt	0.1	0.00	0.05	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone-- Bollworms - Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)		
	Nanded	Mean	Remarks*
Suraj Bt (Zonal Check)	0.17	0.17	BETL
NC 369 Bt2	0.12	0.12	BETL
NH 615 (Zonal Check NBt)	0.16	0.16	BETL
CICR 22 Bt	0.13	0.13	BETL
CICR 20 Bt	0.11	0.11	BETL
Local Check NBt	0.13	0.13	BETL
CICR 21 Bt	0.16	0.16	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone-- Bollworms – *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)		
	Nanded	Mean	Remarks*
Suraj Bt (Zonal Check)	0.09	0.09	BETL
NC 369 Bt2	0.05	0.05	BETL
NH 615 (Zonal Check NBt)	0.05	0.05	BETL
CICR 22 Bt	0.05	0.05	BETL
CICR 20 Bt	0.03	0.03	BETL
Local Check NBt	0.05	0.05	BETL
CICR 21 Bt	0.09	0.09	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)			
	Nanded	Nagpur	Mean	Remarks*
Suraj Bt (Zonal Check)	1.50	0.10	0.80	BETL
NC 369 Bt2	1.84	0.08	0.96	BETL
NH 615 (Zonal Check NBt)	1.50	0.20	0.85	BETL
CICR 22 Bt	1.50	0.15	0.83	BETL
CICR 20 Bt	1.67	0.00	0.84	BETL
Local Check NBt	1.67	0.25	0.96	BETL
CICR 21 Bt	1.83	0.15	0.99	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Green Boll damage

Name of Entry	Green Boll damage (%)			
	Nanded	Nagpur	Mean	Remarks*
Suraj Bt (Zonal Check)	14.80	0.33	7.57	BETL
NC 369 Bt2	18.71	0.00	9.36	BETL
NH 615 (Zonal Check NBt)	15.99	0.15	8.07	BETL
CICR 22 Bt	13.83	0.13	6.98	BETL
CICR 20 Bt	14.26	0.15	7.21	BETL
Local Check NBt	11.70	0.26	5.98	BETL
CICR 21 Bt	13.33	0.00	6.67	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)		
	Nanded	Mean	Remarks*
Suraj Bt (Zonal Check)	9.53	9.53	BETL
NC 369 Bt2	8.24	8.24	BETL
NH 615 (Zonal Check NBt)	11.15	11.15	AETL
CICR 22 Bt	8.3	8.30	BETL
CICR 20 Bt	10.3	10.30	AETL
Local Check NBt	11.43	11.43	AETL
CICR 21 Bt	9.18	9.18	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Locule damage

Name of Entry	Locule damage (%)		
	Nanded	Nagpur	Mean
Suraj Bt (Zonal Check)	10.92	6.92	8.92
NC 369 Bt2	9.49	5.00	7.25
NH 615 (Zonal Check NBt)	9.91	10.16	10.04
CICR 22 Bt	10.76	5.63	8.19
CICR 20 Bt	12.28	2.52	7.40
Local Check NBt	9.39	10.66	10.02
CICR 21 Bt	11.52	10.89	11.20

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Leafhopper (HDPS)

Name of Entry	Leafhopper (Average of 3 leaves/plant)			
	Nagpur	Bharuch	Mean	Remarks*
Suraj Bt (Zonal Check)	2.97	3.83	3.40	BETL
NC 369 Bt2		3.83	3.83	BETL
NH 615 (Zonal Check NBt)	2.67	3.17	2.92	BETL
CICR 22 Bt	3.4	2.50	2.95	BETL
CICR 20 Bt	2.65	2.97	2.81	BETL
Local Check NBt	2.62	3.10	2.86	BETL
CICR 21 Bt	2.65	3.77	3.21	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Thrips (HDPS)

Name of Entry	Thrips (Average of 3 leaves/plant)		
	Bharuch	Mean	Remarks*
Suraj Bt (Zonal Check)	3.83	3.83	BETL
NC 369 Bt2	3.83	3.83	BETL
NH 615 (Zonal Check NBt)	3.17	3.17	BETL
CICR 22 Bt	2.50	2.50	BETL
CICR 20 Bt	2.97	2.97	BETL
Local Check NBt	3.10	3.10	BETL
CICR 21 Bt	3.77	3.77	BETL

Table.Advance Variety Trial under unprotected conditions in Central Zone -- Whitefly (HDPS)

Name of Entry	Whitefly (Average of 3 leaves/plant)			
	Nagpur	Bharuch	Mean	Remarks*
Suraj Bt (Zonal Check)	2.60	3.50	3.05	BETL
NC 369 Bt2		2.70	2.70	BETL
NH 615 (Zonal Check NBt)	2.75	3.43	3.09	BETL
CICR 22 Bt	2.92	2.53	2.73	BETL
CICR 20 Bt	2.82	2.67	2.74	BETL
Local Check NBt	2.97	3.67	3.32	BETL
CICR 21 Bt	3.00	2.70	2.85	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Natural Enemies (HDPS)

Name of Entry	Natural enemies (No./Plant)	
	Bharuch	Mean
Suraj Bt (Zonal Check)	0.13	0.13
NC 369 Bt2	0.17	0.17
NH 615 (Zonal Check NBt)	0.17	0.17
CICR 22 Bt	0.13	0.13
CICR 20 Bt	0.13	0.13
Local Check NBt	0.13	0.13
CICR 21 Bt	0.17	0.17

Table. Advance Variety Trial under unprotected conditions in Central Zone-- Bollworms – *Helicoverpa armigera* (HDPS)

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)		
	Bharuch	Mean	Remarks*
Suraj Bt (Zonal Check)	0.00	0.00	BETL
NC 369 Bt2	0.00	0.00	BETL
NH 615 (Zonal Check NBt)	0.00	0.00	BETL
CICR 22 Bt	0.00	0.00	BETL
CICR 20 Bt	0.00	0.00	BETL
Local Check NBt	0.00	0.00	BETL
CICR 21 Bt	0.00	0.00	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone- -- Bollworms - Spotted Bollworms (HDPS)

Name of Entry	Spotted Bollworms (No. / 5 plants)		
	Bharuch	Mean	Remarks*
Suraj Bt (Zonal Check)	0.00	0.00	BETL
NC 369 Bt2	0.00	0.00	BETL
NH 615 (Zonal Check NBt)	0.00	0.00	BETL
CICR 22 Bt	0.00	0.00	BETL
CICR 20 Bt	0.00	0.00	BETL
Local Check NBt	0.00	0.00	BETL
CICR 21 Bt	0.00	0.00	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Bollworms – *Spodoptera litura* (HDPS)

Name of Entry	*Spodoptera litura* (No. / 5 plants)		
	Bharuch	Mean	Remarks*
Suraj Bt (Zonal Check)	0.00	0.00	BETL
NC 369 Bt2	0.00	0.00	BETL
NH 615 (Zonal Check NBt)	0.00	0.00	BETL
CICR 22 Bt	0.00	0.00	BETL
CICR 20 Bt	0.00	0.00	BETL
Local Check NBt	0.00	0.00	BETL
CICR 21 Bt	0.00	0.00	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Pink bollworm (HDPS)

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)		
	Bharuch	Mean	Remarks*
Suraj Bt (Zonal Check)	0.22	0.22	BETL
NC 369 Bt2	0.22	0.22	BETL
NH 615 (Zonal Check NBt)	0.00	0.00	BETL
CICR 22 Bt	0.22	0.22	BETL
CICR 20 Bt	0.00	0.00	BETL
Local Check NBt	0.22	0.22	BETL
CICR 21 Bt	0.22	0.22	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Green Boll damage (HDPS)

Name of Entry	Green Boll damage (%)		
	Bharuch	Mean	Remarks*
Suraj Bt (Zonal Check)	0.67	0.67	BETL
NC 369 Bt2	0.89	0.89	BETL
NH 615 (Zonal Check NBt)	0.67	0.67	BETL
CICR 22 Bt	0.89	0.89	BETL
CICR 20 Bt	0.00	0.00	BETL
Local Check NBt	0.67	0.67	BETL
CICR 21 Bt	0.89	0.89	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Open Boll damage (HDPS)

Name of Entry	Open Boll damage (%)		
	Bharuch	Mean	Remarks*
Suraj Bt (Zonal Check)	0.33	0.33	BETL
NC 369 Bt2	0.33	0.33	BETL
NH 615 (Zonal Check NBt)	0.33	0.33	BETL
CICR 22 Bt	0.67	0.67	BETL
CICR 20 Bt	0.33	0.33	BETL
Local Check NBt	0.33	0.33	BETL
CICR 21 Bt	0.33	0.33	BETL

Table. Advance Variety Trial under unprotected conditions in Central Zone -- Locule damage (HDPS)

Name of Entry	Locule damage (%)	
	Bharuch	Mean
Suraj Bt (Zonal Check)	0.00	0.00
NC 369 Bt2	0.11	0.11
NH 615 (Zonal Check NBt)	0.11	0.11
CICR 22 Bt	0.22	0.22
CICR 20 Bt	0.11	0.11
Local Check NBt	0.00	0.00
CICR 21 Bt	0.11	0.11

Table. Helicoverpa armigera bioassay on Advance Variety trial hybrid trial in leaf in laboratory condition at CICR Nagpur

Name of Entry	Mortality (%)					
	Nagpur					
	30DAS	60 DAS	90 DAS	120 DAS	150 DAS	Mean
Suraj Bt (Zonal Check)	100.00	100.00	87.00	97.00	87.00	94.20
NC 369 Bt2	100.00	100.00	100.00	100.00	100.00	100.00
NH 615 (Zonal Check NBt)	40.00	23.00	20.00	23.00	17.00	24.60
CICR 22 Bt	100.00	90.00	83.00	100.00	100.00	94.60
CICR 20 Bt	100.00	93.00	90.00	90.00	80.00	90.60
Local Check NBt	13.00	10.00	17.00	13.00	17.00	14.00
CICR 21 Bt	100.00	100.00	100.00	100.00	97.00	99.40

Table 175. Helicoverpa armigera bioassay on Advance Variety trial in Square, Flower and Bolls in laboratory condition at CICR Nagpur

Name of Entry	Mortality (%)			
	Square (60DAS)	Square (90DAS)	Square (120DAS)	Mean
Suraj Bt (Zonal Check)	100.00	93.33	100.00	97.78
NC 369 Bt2	100.00	100.00	100.00	100.00
NH 615 (Zonal Check NBt)	26.67	20.00	23.33	23.33
CICR 22 Bt	96.6	83.33	100.00	93.33
CICR 20 Bt	96.67	93.33	100.00	96.67
Local Check NBt	13.3	10.00	16.67	13.33
CICR 21 Bt	100.00	93.33	100.00	97.78

Name of Entry	Mortality (%)					
	Flower (60DAS)	Flower (90DAS)	Mean	Boll (120DAS)	Boll (150DAS)	Mean
Suraj Bt (Zonal Check)	100.00	93.33	96.67	100.00	100.00	100.00
NC 369 Bt2	100.00	100.00	100.00	100.00	100.00	100.00
NH 615 (Zonal Check NBt)	20.00	13.33	16.67	50.00	43.33	46.67
CICR 22 Bt	96.67	83.33	90.00	100.00	100.00	100.00
CICR 20 Bt	96.67	93.33	95.00	100.00	100.00	100.00
Local Check NBt	10.00	6.67	8.3	46.67	30.00	38.33
CICR 21 Bt	100.00	93.33	96.67	100.00	100.00	100.00

Reaction to Diseases

Table: Advanced Evaluation Trial of Hirsutum Varieties - II – Rainfed under unprotected conditions

Entry code	Average PDI & Disease Reaction (DR): Unprotected													
	ALB		BLB				GM				*CoLS*		TSV	
	Nanded		Nanded		Nagpur		Nanded		Nagpur		Nagpur			
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
Suraj Bt (ZC)	9.8	R	19.1	R	0.8	R	18.8	R	0.0	DF	18.3	R	13.3	R
NC 369 Bt2	7.0	R	9.4	R	3.2	R	27.8	MR	3.3	R	22.5	R	25.0	R
NH 615 (ZC NBt)	9.0	R	6.8	R	2.5	R	22.3	R	3.3	R	12.5	R	0.0	DF
CICR 22 Bt	10.8	R	13.8	R	2.5	R	28.0	MR	0.0	DF	58.3	R	52.5	MS
CICR 20 Bt	10.3	R	4.6	R	8.3	R	16.8	R	0.0	DF	20	R	9.2	R
LC NBt	7.3	R	9.6	R	4.2	R	28.1	MR	0.0	DF	14.1	R	5.0	R
CICR 21 Bt	7.0	R	7.5	R	1.7	R	12.0	R	0.8	R	14.2	R	6.8	R

Bt Cotton Evaluation Report

North Zone

2020-21

Submitted by
Project Coordinator and Head
All India Coordinated Research Project on Cotton
ICAR-CICR, Regional Station, Coimbatore

April-2021

Initial Evaluation Trial of Intra-Hirsutum Bt Cotton Hybrids in North Zone (2020-21)

The trial was constituted with 17 Bt cotton hybrids containing MON 15985 event sponsored by various Private organization along with two different check hybrids as furnished below.

S. No.	Name of the Entry	Sponsored by
1	MCS 5415 BG II	Rallis India Limited
2	ACH 902-2 BG II	Ajeet Seeds Pvt Ltd
3	RCH 983 BG II	Rasi Seeds Pvt Ltd
4	KCH 9322 BG II	Kaveri Seeds Pvt Ltd
5	ARCH 1114 BG II	Ankur Seeds Pvt Ltd
6	MC 5411 BG II	Rallis India Limited
7	KCH 9344 BG II	Kaveri Seeds Pvt Ltd
8	RCH 986 BG II	Rasi Seeds Pvt Ltd
9	MC 5410 BG II	Rallis India Limited
10	ARCH 1117 BG II	Ankur Seeds Pvt Ltd
11	US 705 BG II	Seed Works International Pvt Ltd
12	SP 7683 BG II	Bayer Biosciences Pvt Ltd
13	US 706 BG II	Seed Works International Pvt Ltd
14	C 9314 BG II	Mahyco Pvt Ltd
15	**Zonal Check I (US 51 BG II)**	
16	C 9315 BG II	Mahyco Pvt Ltd
17	**Zonal Check II (RCH 773 BG II)**	
18	Bio 6743 BG II	Shriram Bioseed
19	Bio 6635 BG II	Shriram Bioseed

The trial was conducted in five different locations *viz.,* PAU, Faridkot, PAU, Bathinda, CCSHAU, Hisar, ICAR-CICR, Sirsa and SKRAU, Sriganganagar with the recommended spacing of 67.5 x 90 cm for the hybrid followed uniformly. The trial was conducted with four rows of 6 meters per entry with three replications.

Data recorded:

Biometric evaluation

Table : Plant height (cm) at harvest in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	MCS 5415 BG II	154.4	142.9	153.3	145.4	195.0	**158.2**
2	ACH 902-2 BG II	195.0	160.8	174.4	175.8	210.0	**183.2**
3	RCH 983 BG II	171.7	158.8	158.9	168.6	188.0	**169.2**
4	KCH 9322 BG II	170.0	174.3	162.8	167.8	175.0	**170.0**
5	ARCH 1114 BG II	161.7	147.9	150.0	147.2	180.0	**157.4**
6	MC 5411 BG II	146.7	158.0	174.4	162.6	212.0	**170.7**
7	KCH 9344 BG II	167.8	151.8	176.7	170.0	196.0	**172.5**
8	RCH 986 BG II	200.0	158.3	166.1	178.4	229.0	**186.4**
9	MC 5410 BG II	183.3	163.0	168.3	167.1	207.0	**177.7**
10	ARCH 1117 BG II	173.3	162.6	158.9	176.0	196.0	**173.4**
11	US 705 BG II	166.7	163.6	155.6	168.8	205.0	**171.9**
12	SP 7683 BG II	201.7	144.4	157.8	169.9	209.0	**176.6**
13	US 706 BG II	182.8	149.8	150.0	186.8	211.0	**176.1**
14	C 9314 BG II	199.4	154.9	156.1	161.9	207.0	**175.9**
15	**ZC (US 51 BG II)**	158.3	139.8	154.4	162.4	186.0	**160.2**
16	C 9315 BG II	188.3	154.6	152.8	167.6	215.0	**175.7**
17	**ZC (RCH 773 BG II)**	173.9	159.9	162.8	169.1	195.0	**172.1**
18	Bio 6743 BG II	186.7	150.7	158.9	162.1	213.0	**174.3**
19	Bio 6635 BG II	176.1	153.9	172.2	167.1	206.0	**175.1**
	CD @ 5%	2.3	11.5	17.8	13.6		
	CV %	6.1	4.5	6.6	4.9		

Table : Number of monopodia in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	MCS 5415 BG II	0.9	1.0	2.3	1.9	3.6	**1.9**
2	ACH 902-2 BG II	1.1	1.2	2.6	1.8	2.0	**1.7**
3	RCH 983 BG II	1.3	1.4	2.9	1.6	3.0	**2.0**
4	KCH 9322 BG II	0.8	1.0	2.4	1.0	2.6	**1.6**
5	ARCH 1114 BG II	1.0	1.6	2.9	1.1	3.6	**2.0**
6	MC 5411 BG II	1.0	1.3	2.6	0.9	3.8	**1.9**
7	KCH 9344 BG II	0.6	0.6	2.3	0.8	2.0	**1.3**
8	RCH 986 BG II	1.7	1.7	3.0	2.1	4.4	**2.6**
9	MC 5410 BG II	0.1	1.2	1.8	1.6	3.6	**1.7**
10	ARCH 1117 BG II	0.6	1.0	2.2	1.4	3.4	**1.7**
11	US 705 BG II	0.7	1.0	1.9	4.3	3.6	**2.3**
12	SP 7683 BG II	0.7	1.1	2.3	2.3	4.2	**2.1**
13	US 706 BG II	1.6	1.3	2.2	2.1	4.8	**2.4**
14	C 9314 BG II	1.0	1.1	2.6	1.0	3.2	**1.8**
15	**ZC (US 51 BG II)**	0.7	0.8	2.3	0.8	3.4	**1.6**
16	C 9315 BG II	1.4	0.9	2.6	1.0	3.2	**1.8**
17	**ZC (RCH 773 BG II)**	0.3	1.1	2.4	0.9	3.4	**1.6**
18	Bio 6743 BG II	0.7	2.8	2.9	2.1	4.8	**2.7**
19	Bio 6635 BG II	1.1	2.3	3.2	2.1	4.6	**2.7**
	CD @ 5%	0.6	0.3	0.6	0.4		
	CV %	41.9	11.4	14.5	14.1		

Table : Number of sympodia in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	MCS 5415 BG II	20.2	17.3	13.8	11.8	21.4	**16.9**
2	ACH 902-2 BG II	22.3	20.2	17.8	12.0	19.4	**18.3**
3	RCH 983 BG II	21.6	19.9	17.3	11.7	21.8	**18.5**
4	KCH 9322 BG II	23.2	16.7	16.6	11.3	20.4	**17.6**
5	ARCH 1114 BG II	18.6	19.3	14.4	12.7	22.8	**17.6**
6	MC 5411 BG II	20.8	24.7	17.0	13.0	26.6	**20.4**
7	KCH 9344 BG II	23.8	18.4	18.0	13.3	26.0	**19.9**
8	RCH 986 BG II	22.4	18.6	16.6	11.7	23.4	**18.5**
9	MC 5410 BG II	25.6	25.6	20.4	13.3	27.6	**22.5**
10	ARCH 1117 BG II	23.1	18.4	15.9	13.1	22.6	**18.6**
11	US 705 BG II	23.3	19.2	15.3	12.4	22.0	**18.4**
12	SP 7683 BG II	22.8	17.3	16.0	13.7	21.6	**18.3**
13	US 706 BG II	21.8	18.9	16.3	15.8	21.6	**18.9**
14	C 9314 BG II	23.7	18.1	18.0	12.7	20.0	**18.5**
15	**ZC (US 51 BG II)**	20.0	17.3	19.1	11.6	22.8	**18.2**
16	C 9315 BG II	23.1	16.1	16.6	8.8	24.0	**17.7**
17	**ZC (RCH 773 BG II)**	21.4	21.6	17.3	13.0	22.0	**19.1**
18	Bio 6743 BG II	21.8	19.8	16.9	12.8	19.8	**18.2**
19	Bio 6635 BG II	25.6	25.2	18.3	13.1	20.6	**20.6**
	CD @ 5%	2.3	3.7	2.4	1.9		
	CV %	6.1	11.3	8.5	9.3		

Table : Number of bolls / plant in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	MCS 5415 BG II	33.2	43.0	28.8	33.1	50.2	**37.7**
2	ACH 902-2 BG II	51.3	48.8	37.1	28.6	46.8	**42.5**
3	RCH 983 BG II	54.6	49.0	42.7	26.9	40.8	**42.8**
4	KCH 9322 BG II	43.6	49.6	35.0	32.3	58.6	**43.8**
5	ARCH 1114 BG II	37.1	40.0	31.6	29.4	47.4	**37.1**
6	MC 5411 BG II	37.9	42.4	34.6	30.6	57.1	**40.5**
7	KCH 9344 BG II	41.7	46.9	39.8	23.4	55.8	**41.5**
8	RCH 986 BG II	50.2	51.3	33.6	24.7	49.4	**41.8**
9	MC 5410 BG II	49.3	55.7	36.1	29.7	58.2	**45.8**
10	ARCH 1117 BG II	42.1	49.6	29.6	29.0	45.4	**39.1**
11	US 705 BG II	43.1	49.8	32.6	36.4	39.5	**40.3**
12	SP 7683 BG II	41.9	43.9	34.7	26.6	32.1	**35.8**
13	US 706 BG II	46.0	49.3	32.7	39.9	42.7	**42.1**
14	C 9314 BG II	53.6	47.2	41.7	30.4	47.4	**44.1**
15	**ZC (US 51 BG II)**	40.8	42.0	34.1	26.4	35.6	**35.8**
16	C 9315 BG II	43.0	41.2	32.8	28.2	55.6	**40.2**
17	**ZC (RCH 773 BG II)**	41.3	52.0	31.3	28.6	50.0	**40.6**
18	Bio 6743 BG II	41.3	45.6	35.2	30.9	31.8	**37.0**
19	Bio 6635 BG II	39.4	43.0	33.7	36.2	32.6	**37.0**
	CD @ 5%	4.9	5.9	6.9	5.9		
	CV %	6.6	7.7	12.1	11.8		

Table : Number of bolls / sq.m. in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	MCS 5415 BG II	125.0	138.4	114.6	69.5	69.1	**103.3**
2	ACH 902-2 BG II	200.3	152.0	121.9	87.6	71.7	**126.7**
3	RCH 983 BG II	217.7	168.7	128.4	80.9	59.3	**131.0**
4	KCH 9322 BG II	171.7	162.9	104.0	89.4	85.2	**122.6**
5	ARCH 1114 BG II	143.3	169.8	95.6	91.9	70.8	**114.3**
6	MC 5411 BG II	151.7	149.1	114.8	88.1	74.2	**115.6**
7	KCH 9344 BG II	167.3	185.6	122.1	66.3	81.2	**124.5**
8	RCH 986 BG II	206.3	165.6	115.2	71.4	74.3	**126.6**
9	MC 5410 BG II	205.3	173.6	106.4	90.9	84.7	**132.2**
10	ARCH 1117 BG II	167.3	165.8	92.3	86.1	70.1	**116.3**
11	US 705 BG II	171.0	144.9	112.0	98.7	61.0	**117.5**
12	SP 7683 BG II	159.0	116.2	92.3	82.0	49.2	**99.7**
13	US 706 BG II	172.7	143.1	112.2	104.0	63.8	**119.2**
14	C 9314 BG II	201.7	138.4	121.1	87.7	70.0	**123.8**
15	**ZC (US 51 BG II)**	151.7	113.8	113.0	84.0	53.2	**103.1**
16	C 9315 BG II	158.0	150.9	94.1	81.8	82.2	**113.4**
17	**ZC (RCH 773 BG II)**	157.0	142.0	98.8	84.6	73.9	**111.3**
18	Bio 6743 BG II	163.3	147.6	102.4	91.7	48.2	**110.6**
19	Bio 6635 BG II	172.7	164.7	99.8	100.5	49.4	**117.4**
	CD @ 5%	24.3	11.7	11.6	19.5		
	CV %	8.3	4.6	6.4	13.6		

Table : Lint Index (g) in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	MCS 5415 BG II	5.7	4.8	4.9	4.7	5.8	**5.2**
2	ACH 902-2 BG II	5.1	5.5	5.1	5.3	6.3	**5.5**
3	RCH 983 BG II	5.3	4.0	4.8	5.8	5.7	**5.1**
4	KCH 9322 BG II	4.9	5.3	4.8	4.1	5.4	**4.9**
5	ARCH 1114 BG II	5.3	3.7	4.8	5.5	5.4	**4.9**
6	MC 5411 BG II	5.0	4.6	4.7	4.8	5.1	**4.8**
7	KCH 9344 BG II	4.9	4.3	4.6	4.7	5.8	**4.9**
8	RCH 986 BG II	6.0	4.3	5.6	5.3	6.3	**5.5**
9	MC 5410 BG II	4.1	5.0	4.2	4.5	5.3	**4.6**
10	ARCH 1117 BG II	5.3	4.0	4.2	4.7	5.9	**4.8**
11	US 705 BG II	5.3	4.8	5.2	5.0	5.9	**5.2**
12	SP 7683 BG II	5.4	5.2	5.1	4.9	6.0	**5.3**
13	US 706 BG II	5.8	4.9	5.0	4.8	6.1	**5.3**
14	C 9314 BG II	5.4	4.6	4.9	4.9	5.8	**5.1**
15	**ZC (US 51 BG II)**	5.0	4.8	4.9	4.7	6.5	**5.2**
16	C 9315 BG II	4.6	4.2	4.5	4.4	5.3	**4.6**
17	**ZC (RCH 773 BG II)**	4.9	4.5	5.1	5.0	5.9	**5.1**
18	Bio 6743 BG II	4.8	4.7	5.3	4.4	5.5	**4.9**
19	Bio 6635 BG II	4.6	5.0	5.4	4.9	5.9	**5.2**
	CD @ 5%	0.7	0.7	0.2	0.5		
	CV %	7.8	9.1	2.7	5.7		

Table : Seed Index (g) in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	MCS 5415 BG II	10.6	10.1	9.3	11.0	11.4	**10.5**
2	ACH 902-2 BG II	9.0	10.6	8.9	10.6	11.2	**10.1**
3	RCH 983 BG II	10.0	9.7	9.2	11.5	10.9	**10.3**
4	KCH 9322 BG II	9.0	10.6	8.9	9.0	11.1	**9.7**
5	ARCH 1114 BG II	10.1	9.0	10.7	13.5	11.6	**11.0**
6	MC 5411 BG II	9.8	10.3	8.9	12.6	10.6	**10.4**
7	KCH 9344 BG II	9.4	9.4	8.9	9.7	11.5	**9.8**
8	RCH 986 BG II	10.9	8.6	10.1	11.5	12.1	**10.6**
9	MC 5410 BG II	7.4	10.0	7.6	9.0	10.2	**8.8**
10	ARCH 1117 BG II	10.1	8.5	8.8	10.8	11.8	**10.0**
11	US 705 BG II	10.5	10.7	10.2	11.9	11.8	**11.0**
12	SP 7683 BG II	10.2	10.6	9.2	11.1	11.1	**10.4**
13	US 706 BG II	10.8	10.8	10.2	11.3	11.8	**11.0**
14	C 9314 BG II	10.2	9.9	9.4	10.9	11.5	**10.4**
15	**ZC (US 51 BG II)**	9.4	10.3	9.5	10.2	11.9	**10.3**
16	C 9315 BG II	9.0	9.2	8.9	9.7	10.8	**9.5**
17	**ZC (RCH 773 BG II)**	9.1	9.6	9.5	9.8	11.1	**9.8**
18	Bio 6743 BG II	8.8	9.6	9.4	9.7	10.8	**9.7**
19	Bio 6635 BG II	9.3	10.3	9.9	10.6	10.6	**10.1**
	CD @ 5%	0.9	1.2	0.4	0.7		
	CV %	5.6	7.3	2.3	4.2		

Table : Ginning outturn (%) in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	MCS 5415 BG II	35.1	32.3	34.5	29.8	33.7	**33.1**
2	ACH 902-2 BG II	36.0	34.4	36.5	33.2	36.1	**35.2**
3	RCH 983 BG II	34.5	29.2	34.3	33.4	34.4	**33.2**
4	KCH 9322 BG II	35.3	33.4	34.7	31.4	32.8	**33.5**
5	ARCH 1114 BG II	34.6	29.3	30.9	29.1	31.9	**31.2**
6	MC 5411 BG II	33.7	30.7	34.9	27.8	32.5	**31.9**
7	KCH 9344 BG II	34.3	31.8	34.1	32.3	33.5	**33.2**
8	RCH 986 BG II	35.7	33.6	35.7	31.4	34.4	**34.2**
9	MC 5410 BG II	35.4	33.3	35.5	33.3	34.2	**34.3**
10	ARCH 1117 BG II	34.5	32.1	32.2	30.3	33.5	**32.5**
11	US 705 BG II	33.7	31.0	33.8	29.4	33.4	**32.3**
12	SP 7683 BG II	34.7	32.8	35.9	30.7	35.1	**33.8**
13	US 706 BG II	35.0	30.9	33.0	29.7	34.2	**32.6**
14	C 9314 BG II	34.8	31.8	34.0	31.1	33.6	**33.1**
15	**ZC (US 51 BG II)**	34.4	32.1	34.2	31.5	35.4	**33.5**
16	C 9315 BG II	33.5	31.5	33.6	31.1	33.0	**32.5**
17	**ZC (RCH 773 BG II)**	34.8	32.2	35.0	33.6	34.8	**34.1**
18	Bio 6743 BG II	35.3	32.7	35.9	31.1	33.9	**33.8**
19	Bio 6635 BG II	33.1	32.5	35.2	31.5	35.8	**33.6**
	CD @ 5%	3.1	2.6	0.8	1.7		
	CV %	5.3	4.9	1.4	3.2		

Table : Upper Half Mean Length (mm) in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	MCS 5415 BG II	29.3	27.2	28.5	29.3	27.7	**28.4**
2	ACH 902-2 BG II	27.4	27.0	27.6	25.8	26.0	**26.8**
3	RCH 983 BG II	28.8	27.9	27.2	26.6	26.8	**27.5**
4	KCH 9322 BG II	28.9	27.4	27.5	28.5	28.0	**28.1**
5	ARCH 1114 BG II	29.3	28.8	27.9	28.6	27.5	**28.4**
6	MC 5411 BG II	29.8	28.8	28.0	-	28.3	**28.7**
7	KCH 9344 BG II	28.8	27.9	27.9	28.0	27.9	**28.1**
8	RCH 986 BG II	28.0	27.7	27.7	27.3	26.2	**27.4**
9	MC 5410 BG II	27.8	26.6	25.8	26.4	27.1	**26.7**
10	ARCH 1117 BG II	28.9	28.9	27.9	28.5	27.6	**28.4**
11	US 705 BG II	28.2	27.5	27.3	26.8	27.4	**27.4**
12	SP 7683 BG II	27.6	25.7	25.0	23.5	24.9	**25.3**
13	US 706 BG II	29.7	30.1	29.0	28.3	28.4	**29.1**
14	C 9314 BG II	26.8	25.8	25.6	25.3	25.9	**25.9**
15	**ZC (US 51 BG II)**	29.2	27.8	27.9	27.6	28.0	**28.1**
16	C 9315 BG II	27.5	27.7	26.4	26.2	26.5	**26.9**
17	**ZC (RCH 773 BG II)**	26.7	25.6	25.1	24.9	26.3	**25.7**
18	Bio 6743 BG II	26.7	26.7	26.4	24.1	25.0	**25.8**
19	Bio 6635 BG II	28.0	27.5	26.3	24.5	24.9	**26.2**

Table : Uniformity index under HVI Mode in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	MCS 5415 BG II	84.0	82.0	83.0	87.0	86.0	**84.4**
2	ACH 902-2 BG II	86.0	85.0	86.0	87.0	86.0	**86.0**
3	RCH 983 BG II	85.0	85.0	84.0	86.0	87.0	**85.4**
4	KCH 9322 BG II	85.0	83.0	83.0	86.0	88.0	**85.0**
5	ARCH 1114 BG II	84.0	83.0	83.0	87.0	87.0	**84.8**
6	MC 5411 BG II	86.0	83.0	83.0	-	87.0	**84.8**
7	KCH 9344 BG II	84.0	84.0	84.0	87.0	86.0	**85.0**
8	RCH 986 BG II	85.0	84.0	85.0	87.0	85.0	**85.2**
9	MC 5410 BG II	84.0	82.0	83.0	86.0	87.0	**84.4**
10	ARCH 1117 BG II	85.0	84.0	82.0	87.0	86.0	**84.8**
11	US 705 BG II	85.0	83.0	82.0	85.0	86.0	**84.2**
12	SP 7683 BG II	85.0	83.0	83.0	83.0	81.0	**83.0**
13	US 706 BG II	84.0	85.0	83.0	85.0	86.0	**84.6**
14	C 9314 BG II	84.0	85.0	83.0	85.0	84.0	**84.2**
15	**ZC (US 51 BG II)**	85.0	84.0	85.0	86.0	87.0	**85.4**
16	C 9315 BG II	84.0	84.0	84.0	86.0	84.0	**84.4**
17	**ZC (RCH 773 BG II)**	84.0	85.0	83.0	83.0	85.0	**84.0**
18	Bio 6743 BG II	85.0	84.0	83.0	82.0	84.0	**83.6**
19	Bio 6635 BG II	84.0	85.0	84.0	82.0	83.0	**83.6**

Table : Micronaire under HVI Mode in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	MCS 5415 BG II	4.3	4.2	3.6	4.2	4.3	**4.1**
2	ACH 902-2 BG II	4.9	4.9	4.5	4.8	4.9	**4.8**
3	RCH 983 BG II	4.3	4.5	4.4	4.9	5.0	**4.6**
4	KCH 9322 BG II	4.3	4.3	4.1	4.5	4.4	**4.3**
5	ARCH 1114 BG II	4.5	4.4	4.1	4.4	4.5	**4.4**
6	MC 5411 BG II	4.4	4.4	3.7	-	4.3	**4.2**
7	KCH 9344 BG II	4.3	4.0	3.9	4.4	4.5	**4.2**
8	RCH 986 BG II	4.5	4.5	4.3	4.6	4.7	**4.5**
9	MC 5410 BG II	4.6	5.0	4.8	5.1	5.2	**4.9**
10	ARCH 1117 BG II	3.9	3.9	3.6	4.5	4.3	**4.0**
11	US 705 BG II	4.1	4.4	4.0	4.3	4.1	**4.2**
12	SP 7683 BG II	5.1	5.2	4.4	5.4	5.4	**5.1**
13	US 706 BG II	4.1	4.3	3.8	4.0	3.9	**4.0**
14	C 9314 BG II	4.6	4.6	4.1	4.9	4.6	**4.6**
15	**ZC (US 51 BG II)**	4.4	4.4	4.2	4.2	4.6	**4.4**
16	C 9315 BG II	4.2	4.6	4.2	4.5	4.6	**4.4**
17	**ZC (RCH 773 BG II)**	4.3	4.4	4.3	5.0	4.7	**4.5**
18	Bio 6743 BG II	5.0	5.0	4.3	5.0	4.8	**4.8**
19	Bio 6635 BG II	4.6	4.6	3.7	4.8	4.6	**4.5**

Table : Tenacity under HVI Mode in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	MCS 5415 BG II	27.7	26.5	28.6	29.8	29.2	**28.4**
2	ACH 902-2 BG II	28.6	28.6	27.4	27.3	27.9	**28.0**
3	RCH 983 BG II	28.2	26.3	27.0	25.5	28.3	**27.1**
4	KCH 9322 BG II	28.7	28.0	28.8	29.2	28.0	**28.5**
5	ARCH 1114 BG II	28.6	28.5	29.3	30.2	27.7	**28.9**
6	MC 5411 BG II	30.0	29.3	27.3	-	28.4	**28.8**
7	KCH 9344 BG II	28.8	28.5	30.2	29.9	27.4	**29.0**
8	RCH 986 BG II	29.0	28.4	28.4	29.1	27.4	**28.5**
9	MC 5410 BG II	26.1	27.8	26.6	27.8	26.5	**27.0**
10	ARCH 1117 BG II	29.7	28.3	27.7	28.5	29.6	**28.8**
11	US 705 BG II	29.3	28.3	27.9	28.7	28.5	**28.5**
12	SP 7683 BG II	29.0	27.5	28.9	24.8	26.2	**27.3**
13	US 706 BG II	28.2	28.5	29.6	28.3	29.7	**28.9**
14	C 9314 BG II	26.8	27.3	27.8	26.9	27.4	**27.2**
15	**ZC (US 51 BG II)**	28.0	27.9	28.6	29.7	26.8	**28.2**
16	C 9315 BG II	28.4	28.3	28.3	26.6	27.8	**27.9**
17	**ZC (RCH 773 BG II)**	27.9	28.6	27.3	26.6	27.5	**27.6**
18	Bio 6743 BG II	28.9	30.5	29.5	24.7	26.3	**28.0**
19	Bio 6635 BG II	27.2	28.9	30.6	26.2	25.8	**27.7**

Table : Seed Cotton Yield (q/ha) in Initial Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	MCS 5415 BG II	23.4	29.8	27.8	28.5	26.1	**27.11**
2	ACH 902-2 BG II	35.2	38.6	30.9	36.5	27.2	**33.68**
3	RCH 983 BG II	37.3	42.5	34.2	34.9	28.5	**35.47**
4	KCH 9322 BG II	34.2	38.3	30.2	37.2	31.3	**34.22**
5	ARCH 1114 BG II	27.7	33.4	24.5	33.6	24.4	**28.74**
6	MC 5411 BG II	26.3	33.2	32.9	34.7	23.0	**30.03**
7	KCH 9344 BG II	36.0	33.8	34.2	39.2	31.8	**34.98**
8	RCH 986 BG II	38.3	37.2	30.5	33.2	28.5	**33.54**
9	MC 5410 BG II	37.6	33.4	31.7	36.2	31.2	**34.01**
10	ARCH 1117 BG II	33.5	32.3	24.5	36.8	27.0	**30.82**
11	US 705 BG II	36.6	35.7	26.5	30.0	23.3	**30.43**
12	SP 7683 BG II	34.0	32.0	28.2	29.1	18.2	**28.30**
13	US 706 BG II	36.1	28.0	31.3	25.2	20.6	**28.23**
14	C 9314 BG II	38.1	33.1	34.0	32.0	24.4	**32.33**
15	**ZC (US 51 BG II)**	32.4	32.7	24.1	31.3	20.2	**28.11**
16	C 9315 BG II	32.6	35.3	27.2	31.5	31.7	**31.66**
17	**ZC (RCH 773 BG II)**	30.3	36.5	26.1	27.4	27.3	**29.51**
18	Bio 6743 BG II	31.9	27.9	26.3	26.1	12.4	**24.92**
19	Bio 6635 BG II	29.4	31.3	26.1	25.4	12.7	**24.98**
	CD @ 5%	5.1	6.1	6.6	3.2	4.0	
	CV %	9.0	10.9	13.8	6.0	9.8	

Qualitative Cry Protein Evaluation

All the above entries were positive for Cry 1Ac Protein in qualitative ELISA Test

All the above entries were positive for Cry 2Ab Protein in qualitative ELISA Test

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect Pests

Table: Initial H X H trial in North Zone under Protected Conditions – Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)					
	FA	HI	SI	SG	Mean	Remark
MCS 5415 BG II	8.97	3.00	1.07	0.96	3.50	BETL
ACH 902-2 BG II	6.74	3.18	1.26	0.78	2.99	BETL
RCH 983 BG II	5.98	3.27	1.11	1.04	2.85	BETL
KCH 9322 BG II	5.26	2.87	1.15	0.78	2.51	BETL
ARCH 1114 BG II	3.74	2.93	1.11	0.64	2.11	BETL
MC 5411 BG II	5.66	3.09	1.11	0.49	2.59	BETL
KCH 9344 BG II	6.02	2.84	1.00	0.62	2.62	BETL
RCH 986 BG II	4.52	2.71	1.26	0.56	2.26	BETL
MC 5410 BG II	5.28	3.07	1.22	0.87	2.61	BETL
ARCH 1117 BG II	1.95	3.18	1.22	0.73	1.77	BETL
US 705 BG II	3.00	2.84	1.04	0.53	1.85	BETL
SP 7683 BG II	4.19	3.04	1.15	0.60	2.25	BETL
US 706 BG II	3.74	2.76	1.30	0.76	2.14	BETL
C 9314 BG II	6.37	3.11	1.19	0.51	2.79	BETL
Zonal BGII Check – 2 US 51 BG II	5.24	2.58	1.07	1.27	2.54	BETL
C 9315 BG II	6.76	3.00	1.22	1.18	3.04	BETL
Zonal BGII Check – 1 RCH 773 BG II	5.23	2.93	1.30	0.84	2.57	BETL
Bio 6743	3.02	3.00	1.22	1.09	2.08	BETL
Bio 6635	3.73	3.40	1.07	0.69	2.22	BETL

Table : Initial H X H trial in North Zone under Protected Conditions – Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)					
	FA	HI	SI	SG	Mean	Remark
MCS 5415 BG II	21.99	16.71	18.81	13.47	17.75	BETL
ACH 902-2 BG II	29.23	22.87	19.52	14.20	21.45	BETL
RCH 983 BG II	30.33	23.56	20.89	15.87	22.66	BETL
KCH 9322 BG II	19.69	23.09	20.41	14.44	19.41	BETL
ARCH 1114 BG II	19.67	21.49	21.33	12.33	18.71	BETL
MC 5411 BG II	24.29	21.38	19.22	11.73	19.16	BETL
KCH 9344 BG II	21.21	21.36	21.56	17.60	20.43	BETL
RCH 986 BG II	23.15	20.31	19.11	12.22	18.70	BETL
MC 5410 BG II	22.25	21.91	19.41	14.64	19.55	BETL
ARCH 1117 BG II	24.34	22.44	19.85	14.62	20.32	BETL
US 705 BG II	23.92	22.78	21.63	12.69	20.25	BETL
SP 7683 BG II	26.69	22.31	18.89	17.20	21.27	BETL
US 706 BG II	22.75	22.24	19.52	13.82	19.58	BETL
C 9314 BG II	26.14	22.80	20.67	12.31	20.48	BETL
Zonal BGII Check – 2 US 51 BG II	25.63	22.20	20.15	15.27	20.81	BETL
C 9315 BG II	24.31	22.49	19.81	14.22	20.21	BETL
Zonal BGII Check – 1 RCH 773 BG II	20.96	20.60	21.93	13.51	19.25	BETL
Bio 6743	24.43	22.07	21.56	13.62	20.42	BETL
Bio 6635	22.23	22.56	20.70	12.11	19.40	BETL

Table: Initial H X H trial in North Zone under Protected Conditions – Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)					
	FA	HI	SI	SG	Mean	Remark
MCS 5415 BG II	11.08	32.89	12.96	15.08	18.00	ETL
ACH 902-2 BG II	10.42	36.47	13.07	19.96	19.98	AETL
RCH 983 BG II	11.75	42.44	11.63	16.87	20.67	AETL
KCH 9322 BG II	11.42	40.60	11.96	13.40	19.34	AETL
ARCH 1114 BG II	10.92	40.93	12.78	11.64	19.07	AETL
MC 5411 BG II	12.25	44.27	11.19	21.42	22.28	AETL
KCH 9344 BG II	11.17	40.67	11.96	13.76	19.39	AETL
RCH 986 BG II	11.17	38.60	12.04	18.91	20.18	AETL
MC 5410 BG II	12.58	45.22	11.96	20.22	22.50	AETL
ARCH 1117 BG II	11.25	41.93	11.96	20.91	21.51	AETL
US 705 BG II	11.08	46.02	11.11	15.49	20.93	AETL
SP 7683 BG II	11.67	42.22	11.30	23.24	22.11	AETL
US 706 BG II	10.75	42.04	13.22	16.69	20.68	AETL
C 9314 BG II	12.29	39.49	11.56	12.11	18.86	AETL
Zonal BGII Check – 2 US 51 BG II	12.00	46.49	11.63	20.13	22.56	AETL
C 9315 BG II	12.58	48.09	12.89	17.29	22.71	AETL
Zonal BGII Check – 1 RCH 773 BG II	12.42	42.29	13.00	20.22	21.98	AETL
Bio 6743	11.33	44.71	11.70	15.02	20.69	AETL
Bio 6635	13.58	41.53	10.96	23.84	22.48	AETL

Table: Initial H X H trial in North Zone under Protected Conditions – Natural Enemies

Name of Entry	Natural enemies (No./Plant)		
	SI	SG	Mean
MCS 5415 BG II	0.33	1.83	1.08
ACH 902-2 BG II	0.49	2.17	1.33
RCH 983 BG II	0.38	3.00	1.69
KCH 9322 BG II	0.36	1.50	0.93
ARCH 1114 BG II	0.42	2.17	1.29
MC 5411 BG II	0.48	1.67	1.07
KCH 9344 BG II	0.47	1.67	1.07
RCH 986 BG II	0.50	1.67	1.08
MC 5410 BG II	0.42	3.67	2.04
ARCH 1117 BG II	0.39	3.00	1.69
US 705 BG II	0.47	2.83	1.65
SP 7683 BG II	0.41	2.17	1.29
US 706 BG II	0.40	1.17	0.78
C 9314 BG II	0.34	2.00	1.17
Zonal BGII Check – 2 US 51 BG II	0.40	2.00	1.20
C 9315 BG II	0.40	2.33	1.37
Zonal BGII Check – 1 RCH 773 BG II	0.48	2.33	1.41
Bio 6743	0.32	1.83	1.08
Bio 6635	0.49	2.50	1.49

Table: Initial H X H trial in North Zone under Protected Conditions –Bollworms – *Helicoverpaarmigera*

Name of Entry	*Helicoverpaarmigera* (No. / 5 plants)					
	FA	HI	SI	SG	Mean	Remark
MCS 5415 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ACH 902-2 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 983 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9322 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ARCH 1114 BG II	0.00	0.00	0.00	0.00	0.00	BETL
MC 5411 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9344 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 986 BG II	0.00	0.00	0.00	0.00	0.00	BETL
MC 5410 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ARCH 1117 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 705 BG II	0.00	0.00	0.00	0.00	0.00	BETL
SP 7683 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 706 BG II	0.00	0.00	0.00	0.00	0.00	BETL
C 9314 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.00	0.00	0.00	BETL
C 9315 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Bio 6743	0.00	0.00	0.00	0.00	0.00	BETL
Bio 6635	0.00	0.00	0.00	0.00	0.00	BETL

Table: Initial H X H trial in North Zone under Protected Conditions – Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)					
	FA	HI	SI	SG	Mean	Remark
MCS 5415 BG II	0.00	0.00	0.22	0.00	0.06	BETL
ACH 902-2 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 983 BG II	0.00	0.00	0.67	0.00	0.17	BETL
KCH 9322 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ARCH 1114 BG II	0.00	0.00	0.00	0.00	0.00	BETL
MC 5411 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9344 BG II	0.00	0.00	0.33	0.00	0.08	BETL
RCH 986 BG II	0.00	0.00	0.00	0.00	0.00	BETL
MC 5410 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ARCH 1117 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 705 BG II	0.00	0.00	0.00	0.00	0.00	BETL
SP 7683 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 706 BG II	0.00	0.00	0.00	0.00	0.00	BETL
C 9314 BG II	0.00	0.00	0.78	0.00	0.20	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.11	0.00	0.03	BETL
C 9315 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.00	0.22	0.00	0.06	BETL
Bio 6743	0.00	0.00	0.56	0.00	0.14	BETL
Bio 6635	0.00	0.00	0.00	0.00	0.00	BETL

Table: Initial H X H trial in North Zone under Protected Conditions – *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)					
	FA	HI	SI	SG	Mean	Remark
MCS 5415 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ACH 902-2 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 983 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9322 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ARCH 1114 BG II	0.00	0.00	0.00	0.00	0.00	BETL
MC 5411 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9344 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 986 BG II	0.00	0.00	0.00	0.00	0.00	BETL
MC 5410 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ARCH 1117 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 705 BG II	0.00	0.00	0.00	0.00	0.00	BETL
SP 7683 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 706 BG II	0.00	0.00	0.00	0.00	0.00	BETL
C 9314 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.00	0.00	0.00	BETL
C 9315 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Bio 6743	0.00	0.00	0.00	0.00	0.00	BETL
Bio 6635	0.00	0.00	0.00	0.00	0.00	BETL

Table: Initial H X H trial in North Zone under Protected Conditions – Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)				
	FA	HI	SI	Mean	Remark
MCS 5415 BG II	0.00	0.56	0.11	0.22	BETL
ACH 902-2 BG II	0.00	0.78	0.00	0.26	BETL
RCH 983 BG II	0.00	0.44	0.44	0.29	BETL
KCH 9322 BG II	0.00	0.56	0.00	0.19	BETL
ARCH 1114 BG II	0.00	0.78	0.00	0.26	BETL
MC 5411 BG II	0.00	0.33	0.00	0.11	BETL
KCH 9344 BG II	0.00	0.44	0.00	0.15	BETL
RCH 986 BG II	0.00	0.89	0.00	0.30	BETL
MC 5410 BG II	0.00	0.22	0.00	0.07	BETL
ARCH 1117 BG II	0.00	0.44	0.00	0.15	BETL
US 705 BG II	0.00	0.56	0.00	0.19	BETL
SP 7683 BG II	0.00	0.22	0.00	0.07	BETL
US 706 BG II	0.00	0.56	0.44	0.33	BETL
C 9314 BG II	0.00	0.33	0.00	0.11	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	1.00	0.11	0.37	BETL
C 9315 BG II	0.00	1.00	0.00	0.33	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.44	0.11	0.18	BETL
Bio 6743	0.00	0.33	0.44	0.26	BETL
Bio 6635	0.30	0.67	0.33	0.43	BETL

Table: Initial H X H trial in North Zone under Protected Conditions – Green Boll damage

Name of Entry	Green Boll damage (%)			
	FA	HI	Mean	Remark
MCS 5415 BG II	0.00	2.78	1.39	BETL
ACH 902-2 BG II	0.00	3.33	1.67	BETL
RCH 983 BG II	0.00	3.33	1.67	BETL
KCH 9322 BG II	0.00	2.22	1.11	BETL
ARCH 1114 BG II	0.00	3.33	1.67	BETL
MC 5411 BG II	0.00	2.22	1.11	BETL
KCH 9344 BG II	0.00	1.67	0.83	BETL
RCH 986 BG II	0.00	2.22	1.11	BETL
MC 5410 BG II	0.00	3.89	1.94	BETL
ARCH 1117 BG II	0.00	3.33	1.67	BETL
US 705 BG II	0.00	2.22	1.11	BETL
SP 7683 BG II	0.00	3.33	1.67	BETL
US 706 BG II	0.00	3.33	1.67	BETL
C 9314 BG II	0.00	2.22	1.11	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	2.22	1.11	BETL
C 9315 BG II	0.00	1.67	0.83	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	2.22	1.11	BETL
Bio 6743	0.00	2.78	1.39	BETL
Bio 6635	0.00	1.67	0.83	BETL

Table: Initial H X H trial in North Zone under Protected Conditions – Green Boll damage (Pink bollworms)

Name of Entry	Green Boll damage (Percent/10 bolls destructive sampling)		
	HI	Mean	Remark
MCS 5415 BG II	5.56	5.56	BETL
ACH 902-2 BG II	6.67	6.67	BETL
RCH 983 BG II	6.67	6.67	BETL
KCH 9322 BG II	4.44	4.44	BETL
ARCH 1114 BG II	5.56	5.56	BETL
MC 5411 BG II	4.44	4.44	BETL
KCH 9344 BG II	3.33	3.33	BETL
RCH 986 BG II	4.44	4.44	BETL
MC 5410 BG II	7.78	7.78	BETL
ARCH 1117 BG II	6.67	6.67	BETL
US 705 BG II	4.44	4.44	BETL
SP 7683 BG II	6.67	6.67	BETL
US 706 BG II	6.67	6.67	BETL
C 9314 BG II	3.33	3.33	BETL
Zonal BGII Check – 2 US 51 BG II	4.44	4.44	BETL
C 9315 BG II	3.33	3.33	BETL
Zonal BGII Check – 1 RCH 773 BG II	4.44	4.44	BETL
Bio 6743	5.56	5.56	BETL
Bio 6635	3.33	3.33	BETL

Table: Initial H X H trial in North Zone under Protected Conditions – Open Boll damage

Name of Entry	Open Boll damage (%)				
	FA	HI	SI	SG	Mean
MCS 5415 BG II	0.00	3.57	1.05	0.00	1.15
ACH 902-2 BG II	0.00	4.30	0.00	0.00	1.07
RCH 983 BG II	0.00	7.24	0.00	0.00	1.81
KCH 9322 BG II	0.00	5.20	0.00	0.00	1.30
ARCH 1114 BG II	2.21	5.74	0.00	0.00	1.99
MC 5411 BG II	0.00	6.72	0.00	0.00	1.68
KCH 9344 BG II	0.00	7.26	2.41	0.00	2.42
RCH 986 BG II	0.00	7.32	0.00	0.00	1.83
MC 5410 BG II	0.00	9.67	0.00	0.00	2.42
ARCH 1117 BG II	0.00	4.21	0.00	0.00	1.05
US 705 BG II	0.00	4.69	0.00	0.00	1.17
SP 7683 BG II	0.30	0.81	0.00	0.00	0.28
US 706 BG II	0.00	4.03	0.00	0.00	1.01
C 9314 BG II	0.00	3.31	1.38	0.00	1.17
Zonal BGII Check – 2 US 51 BG II	0.00	3.42	2.35	0.00	1.44
C 9315 BG II	0.00	2.56	0.00	0.00	0.64
Zonal BGII Check – 1 RCH 773 BG II	0.00	6.22	1.60	0.00	1.96
Bio 6743	0.00	9.42	2.13	0.00	2.89
Bio 6635	0.00	5.91	1.99	0.00	1.97

Table: Initial H X H trial in North Zone under Protected Conditions – Locule damage

Name of Entry	Locule damage (%)					
	FA	HI	SI	SG	Mean	Remark
MCS 5415 BG II	0.00	0.00	0.79	0.00	0.20	BETL
ACH 902-2 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 983 BG II	0.00	1.51	0.00	0.00	0.38	BETL
KCH 9322 BG II	0.00	0.60	0.00	0.00	0.15	BETL
ARCH 1114 BG II	0.99	1.54	0.00	0.00	0.63	BETL
MC 5411 BG II	0.00	1.07	0.00	0.00	0.27	BETL
KCH 9344 BG II	0.00	0.66	0.67	0.00	0.33	BETL
RCH 986 BG II	0.00	0.00	0.00	0.00	0.00	BETL
MC 5410 BG II	0.00	1.36	0.00	0.00	0.34	BETL
ARCH 1117 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 705 BG II	0.00	0.84	0.00	0.00	0.21	BETL
SP 7683 BG II	0.14	0.00	0.00	0.00	0.03	BETL
US 706 BG II	0.00	0.54	0.00	0.00	0.14	BETL
C 9314 BG II	0.00	0.99	0.66	0.00	0.41	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.88	0.00	0.22	BETL
C 9315 BG II	0.00	0.92	0.00	0.00	0.23	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	1.99	0.70	0.00	0.67	BETL
Bio 6743	0.00	0.00	0.96	0.00	0.24	BETL
Bio 6635	0.00	0.82	1.25	0.00	0.52	BETL

Table: Initial H X H trial in North Zone under Protected Conditions – Number of sprays for sucking pests

Name of Entry	Number of sprays for sap sucking pests				
	FA	HI	SI	SG	Mean
MCS 5415 BG II	2.00	5.00	3.00	4.00	3.5
ACH 902-2 BG II	2.00	5.00	3.00	4.00	3.5
RCH 983 BG II	2.00	5.00	3.00	4.00	3.5
KCH 9322 BG II	2.00	5.00	3.00	4.00	3.5
ARCH 1114 BG II	2.00	5.00	3.00	4.00	3.5
MC 5411 BG II	2.00	5.00	3.00	4.00	3.5
KCH 9344 BG II	2.00	5.00	3.00	4.00	3.5
RCH 986 BG II	2.00	5.00	3.00	4.00	3.5
MC 5410 BG II	2.00	5.00	3.00	4.00	3.5
ARCH 1117 BG II	2.00	5.00	3.00	4.00	3.5
US 705 BG II	2.00	5.00	3.00	4.00	3.5
SP 7683 BG II	2.00	5.00	3.00	4.00	3.5
US 706 BG II	2.00	5.00	3.00	4.00	3.5
C 9314 BG II	2.00	5.00	3.00	4.00	3.5
Zonal BGII Check – 2 US 51 BG II	2.00	5.00	3.00	4.00	3.5
C 9315 BG II	2.00	5.00	3.00	4.00	3.5
Zonal BGII Check – 1 RCH 773 BG II	2.00	5.00	3.00	4.00	3.5
Bio 6743	2.00	5.00	3.00	4.00	3.5
Bio 6635	2.00	5.00	3.00	4.00	3.5

Reaction to Diseases

A. Criteria used for Evaluation against Cotton leaf curl virus disease:

Percent Disease index(PDI)	Disease reaction (DR)
0	Immune/disease free
0.1-10	Highly Resistant
10.1-20	Resistant
20.1-30	Moderately Resistant
30.1-40	Moderately Susceptible
40.1-50	Susceptible
>50	Highly Susceptible

Note: The hybrids/varieties upto moderately susceptible disease reaction is permissible.

B. Criteria used for Evaluation against Fungal foliar diseases, bacterial leaf blight and TSV

Percent Disease index (PDI)	Disease Reaction (DR)
0	Immune/disease free
0.1-25	Resistant
25.1-50	Moderately Resistant
50.1-75	Moderately Susceptible
>75	Susceptible

Note: The disease reaction (DR) less than the local/Zonal check will be permissible.

Abbreviations:
ALB=Alternaria leaf blight
BLB= Bacterial leaf blight
CLCuD= Cotton leaf curl virus disease
CLS= Cercospora leaf spot
CoLS= Corynespora leaf spot
DR= Disease reaction
FFS= fungal foliar spots (Alternaria/ Myrothecium/Cercospora);
GM= Grey mildew
MLS= Myrothecium leaf spot
PDI= percent disease index (%)
TSV= Tobacco streak virus

Table : Initial Evaluation Trial of Intra-hirsutum Hybrids (New Entries) under protected conditions

Entry	Average CLCuD PDI & Disease Reaction (DR) under protected conditions									
	Faridkot		Bathinda		Sriganganagar		Sirsa		Hisar	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
MCS 5415 BG II	0.7	HR	1.0	HR	10.5	R	12.9	R	17.9	R
ACH 902-2 BG II	2.7	HR	1.0	HR	10.8	R	4.6	HR	16.9	R
RCH 983 BG II	3.2	HR	1.0	HR	10.1	R	10.5	R	18.6	R
KCH 9322 BG II	3.3	HR	6.3	HR	18.4	R	12.3	R	17.9	R
ARCH 1114 BG II	19.2	R	7.3	HR	21.0	MS	9.5	HR	27.5	MR
MC 5411 BG II	7.7	HR	2.1	HR	9.4	MR	17.6	R	16.0	R
KCH 9344 BG II	4.8	HR	0.0	HR	7.4	R	17.1	R	16.1	R
RCH 986 BG II	6.1	HR	10.4	R	14.7	R	13.8	R	15.8	R
MC 5410 BG II	5.0	HR	2.1	HR	4.9	HR	13.2	R	22.4	MR
ARCH 1117 BG II	3.7	HR	5.2	HR	13.4	MR	16.3	R	25.4	MR
US 705 BG II	26.5	MR	11.5	R	17.2	MR	10.2	R	25.8	MR
SP 7683 BG II	32.7	MS	3.1	HR	32.2	MS	19.5	R	27.1	MR
US 706 BG II	39.3	MS	4.2	HR	24.4	MR	16.7	R	23.9	MR
C 9314 BG II	25.0	MR	10.4	R	19.1	MR	18.7	R	22.8	MR
ZC (US 51 BG II)	27.7	MR	3.1	HR	25.9	MS	3.4	HR	23.2	MR
C 9315 BG II	8.2	HR	5.2	HR	12.1	R	15.9	R	22.9	MR
ZC (RCH 773 BG II)	22.0	MR	5.2	HR	22.1	MR	4.9	HR	25.1	MR
Bio 6743	37.2	MS	11.5	R	36.0	S	3.4	HR	26.4	MR
Bio 6635	52.4	HS	17.7	R	37.2	S	2.5	HR	27.8	MR

Table : Initial Evaluation Trial of Intra-hirsutum Hybrids (New Entries) under protected conditions

Entry Name	Average PDI & Disease Reaction (DR)							
	FFS				Bacterial leaf blight			
	Faridkot		Bathinda		Faridkot		Bathinda	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR
MCS 5415 BG II	12.9	R	4.8	R	0.0	DF	0.0	DF
ACH 902-2 BG II	11.7	R	5.8	R	0.0	DF	0.0	DF
RCH 983 BG II	9.6	R	4.5	R	0.0	DF	0.0	DF
KCH 9322 BG II	7.9	R	5.8	R	0.0	DF	0.0	DF
ARCH 1114 BG II	8.8	R	9.5	R	0.0	DF	0.0	DF
MC 5411 BG II	10.4	R	7.3	R	25.0	R	0.0	DF
KCH 9344 BG II	6.3	R	5.0	R	0.0	DF	0.0	DF
RCH 986 BG II	7.5	R	8.0	R	0.0	DF	0.0	DF
MC 5410 BG II	7.1	R	4.0	R	0.0	DF	0.0	DF
ARCH 1117 BG II	6.7	R	9.5	R	0.0	DF	0.0	DF
US 705 BG II	8.3	R	6.3	R	0.0	DF	0.0	DF
SP 7683 BG II	12.9	R	3.0	R	0.0	DF	0.0	DF
US 706 BG II	12.1	R	6.0	R	0.0	DF	0.0	DF
C 9314 BG II	11.8	R	6.5	R	0.0	DF	0.0	DF
ZC –2 US 51 BG II	9.2	R	6.8	R	25.0	R	0.0	DF
C 9315 BG II	5.8	R	7.0	R	0.0	DF	0.0	DF
ZC – 1 RCH 773 BG II	6.3	R	4.0	R	0.0	DF	0.0	DF
Bio 6743	8.3	R	7.0	R	0.0	DF	0.0	DF
Bio 6635	9.6	R	5.8	R	0.0	DF	0.0	DF

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect Pests

Table: Initial H X H trial in North Zone under unprotected Conditions – Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)						
	FA	BT	HI	SI	SG	Mean	Remark
MCS 5415 BG II	7.78	1.97	7.11	1.83	1.16	3.97	BETL
ACH 902-2 BG II	8.95	2.30	7.53	1.56	1.07	4.28	BETL
RCH 983 BG II	6.03	2.23	8.22	1.67	1.42	3.92	BETL
KCH 9322 BG II	6.65	1.77	8.64	1.44	1.16	3.93	BETL
ARCH 1114 BG II	8.64	1.50	9.40	1.78	0.87	4.44	BETL
MC 5411 BG II	4.45	2.00	7.71	2.11	0.67	3.39	BETL
KCH 9344 BG II	7.57	1.97	8.69	1.39	1.11	4.14	BETL
RCH 986 BG II	5.88	1.97	8.07	1.78	0.87	3.71	BETL
MC 5410 BG II	6.03	1.43	8.16	1.67	1.16	3.69	BETL
ARCH 1117 BG II	7.16	2.07	7.98	2.11	1.00	4.06	BETL
US 705 BG II	4.86	1.87	7.13	1.50	0.84	3.24	BETL
SP 7683 BG II	10.02	1.47	8.42	1.61	0.91	4.49	BETL
US 706 BG II	7.62	1.53	7.93	1.72	1.11	3.98	BETL
C 9314 BG II	7.88	2.53	7.71	1.89	0.84	4.17	BETL
Zonal BGII Check – 2 US 51 BG II	4.45	2.53	8.98	1.78	1.78	3.90	BETL
C 9315 BG II	5.88	2.23	8.93	1.39	1.73	4.03	BETL
Zonal BGII Check – 1 RCH 773 BG II	8.90	1.93	8.40	1.33	1.16	4.34	BETL
Bio 6743	8.59	1.70	10.04	1.61	1.64	4.72	BETL
Bio 6635	6.29	2.40	8.13	1.61	1.02	3.89	BETL

Table: Initial H X H trial in North Zone under unprotected Conditions – Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)						
	FA	BT	HI	SI	SG	Mean	Remark
MCS 5415 BG II	22.10	27.77	51.36	36.61	21.04	31.78	AETL
ACH 902-2 BG II	24.13	32.00	57.13	34.44	23.22	34.19	AETL
RCH 983 BG II	23.62	31.90	71.09	36.28	28.49	38.27	AETL
KCH 9322 BG II	18.21	34.97	72.60	34.83	27.71	37.66	AETL
ARCH 1114 BG II	19.62	32.27	90.02	37.33	19.04	39.66	AETL
MC 5411 BG II	19.35	32.87	77.73	37.83	18.16	37.19	AETL
KCH 9344 BG II	19.30	35.47	76.69	38.00	33.62	40.62	AETL
RCH 986 BG II	25.76	34.30	77.58	35.72	21.11	38.89	AETL
MC 5410 BG II	24.89	34.20	80.44	33.39	26.93	39.97	AETL
ARCH 1117 BG II	22.72	34.20	82.91	37.00	26.24	40.61	AETL
US 705 BG II	20.44	36.13	68.38	34.56	21.93	36.29	AETL
SP 7683 BG II	21.82	34.67	83.59	38.39	26.22	40.94	AETL
US 706 BG II	22.48	34.33	68.11	34.78	19.16	35.77	AETL
C 9314 BG II	24.84	31.20	68.76	34.44	18.20	35.49	AETL
Zonal BGII Check – 2 US 51 BG II	25.87	34.67	73.49	35.78	25.82	39.12	AETL
C 9315 BG II	23.29	31.97	78.10	35.39	23.16	38.38	AETL
Zonal BGII Check – 1 RCH 773 BG II	23.63	27.80	70.33	35.39	24.71	36.37	AETL
Bio 6743	29.43	32.43	88.51	35.06	29.93	43.07	AETL
Bio 6635	24.71	37.63	71.40	33.39	20.42	37.51	AETL

Table: Initial H X H trial in North Zone under unprotected Conditions – Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)						
	FA	BT	HI	SI	SG	Mean	Remark
MCS 5415 BG II	12.43	5.17	52.11	10.72	24.76	21.04	AETL
ACH 902-2 BG II	14.00	5.17	65.02	12.06	32.87	25.82	AETL
RCH 983 BG II	13.00	4.87	84.56	12.83	29.38	28.93	AETL
KCH 9322 BG II	12.25	4.67	81.22	13.44	23.04	26.93	AETL
ARCH 1114 BG II	12.93	4.70	101.82	11.11	20.84	30.28	AETL
MC 5411 BG II	12.70	5.17	91.27	10.22	29.80	29.83	AETL
KCH 9344 BG II	11.83	4.60	83.24	10.00	21.93	26.32	AETL
RCH 986 BG II	12.95	5.80	81.02	11.06	24.22	27.01	AETL
MC 5410 BG II	11.93	4.70	86.33	12.33	27.33	28.53	AETL
ARCH 1117 BG II	12.63	5.17	90.33	11.89	31.73	30.35	AETL
US 705 BG II	10.28	4.13	85.84	12.94	22.80	27.20	AETL
SP 7683 BG II	13.15	5.07	92.04	11.61	34.40	31.25	AETL
US 706 BG II	13.25	4.00	81.47	11.56	26.42	27.34	AETL
C 9314 BG II	13.13	4.93	80.07	11.83	22.93	26.58	AETL
Zonal BGII Check – 2 US 51 BG II	14.30	5.07	92.82	11.67	31.64	31.10	AETL
C 9315 BG II	10.97	5.17	89.51	11.67	26.02	28.67	AETL
Zonal BGII Check – 1 RCH 773 BG II	11.93	5.10	88.60	11.78	23.67	28.22	AETL
Bio 6743	14.43	5.20	99.38	12.44	22.16	30.72	AETL
Bio 6635	12.95	5.50	78.42	11.67	34.27	28.56	AETL

Table: Initial H X H trial in North Zone under unprotected Conditions – Natural Enemies

Name of Entry	Natural enemies (No./Plant)		
	SI	SG	Mean
MCS 5415 BG II	1.21	2.42	1.81
ACH 902-2 BG II	1.38	3.75	2.56
RCH 983 BG II	2.39	3.92	3.15
KCH 9322 BG II	2.19	1.92	2.06
ARCH 1114 BG II	0.97	3.17	2.07
MC 5411 BG II	1.06	3.50	2.28
KCH 9344 BG II	1.42	2.67	2.04
RCH 986 BG II	2.00	2.58	2.29
MC 5410 BG II	1.92	4.33	3.13
ARCH 1117 BG II	1.70	3.33	2.52
US 705 BG II	1.55	3.17	2.36
SP 7683 BG II	2.00	2.75	2.38
US 706 BG II	2.36	2.42	2.39
C 9314 BG II	1.55	2.96	2.25
Zonal BGII Check – 2 US 51 BG II	1.41	3.08	2.25
C 9315 BG II	1.99	3.58	2.79
Zonal BGII Check – 1 RCH 773 BG II	1.86	3.08	2.47
Bio 6743	1.33	2.75	2.04
Bio 6635	1.57	2.92	2.25

Table: Initial H X H trial in North Zone under unprotected Conditions –Bollworms – *Helicoverpaarmigera*

Name of Entry	*Helicoverpaarmigera* (No. / 5 plants)					
	FA	HI	SI	SG	Mean	Remark
MCS 5415 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ACH 902-2 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 983 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9322 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ARCH 1114 BG II	0.00	0.00	0.00	0.00	0.00	BETL
MC 5411 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9344 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 986 BG II	0.00	0.00	0.00	0.00	0.00	BETL
MC 5410 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ARCH 1117 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 705 BG II	0.00	0.00	0.00	0.00	0.00	BETL
SP 7683 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 706 BG II	0.00	0.00	0.00	0.00	0.00	BETL
C 9314 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.00	0.00	0.00	BETL
C 9315 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Bio 6743	0.00	0.00	0.00	0.00	0.00	BETL
Bio 6635	0.00	0.00	0.00	0.00	0.00	BETL

Table: Initial H X H trial in North Zone under unprotected Conditions – Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)					
	FA	BT	HI	SI	Mean	Remark
MCS 5415 BG II	0.00	0.00	0.00	0.33	0.08	BETL
ACH 902-2 BG II	0.00	0.33	0.00	0.00	0.08	BETL
RCH 983 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9322 BG II	0.00	0.67	0.00	0.00	0.17	BETL
ARCH 1114 BG II	0.00	0.00	0.00	0.00	0.00	BETL
MC 5411 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9344 BG II	0.00	0.00	0.00	0.56	0.14	BETL
RCH 986 BG II	0.00	0.00	0.00	0.00	0.00	BETL
MC 5410 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ARCH 1117 BG II	0.00	0.33	0.00	0.00	0.08	BETL
US 705 BG II	0.00	0.00	0.00	0.00	0.00	BETL
SP 7683 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 706 BG II	0.00	0.00	0.00	0.00	0.00	BETL
C 9314 BG II	0.00	0.33	0.00	0.33	0.17	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	0.33	0.00	0.11	0.11	BETL
C 9315 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.00	0.00	0.22	0.06	BETL
Bio 6743	0.00	0.00	0.00	0.22	0.06	BETL
Bio 6635	0.00	0.00	0.00	0.00	0.00	BETL

Table: Initial H X H trial in North Zone under unprotected Conditions – Spodopteralitura

Name of Entry	*Spodoptera litura* (No. / 5 plants)					
	FA	BT	HI	SI	Mean	Remark
MCS 5415 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ACH 902-2 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 983 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9322 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ARCH 1114 BG II	0.00	0.00	0.00	0.00	0.00	BETL
MC 5411 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9344 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 986 BG II	0.00	0.00	0.00	0.00	0.00	BETL
MC 5410 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ARCH 1117 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 705 BG II	0.00	0.00	0.00	0.00	0.00	BETL
SP 7683 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 706 BG II	0.00	0.00	0.00	0.00	0.00	BETL
C 9314 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.00	0.00	0.00	BETL
C 9315 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Bio 6743	0.00	0.00	0.00	0.00	0.00	BETL
Bio 6635	0.00	0.00	0.00	0.00	0.00	BETL

Table: Initial H X H trial in North Zone under unprotected Conditions – Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)					
	FA	BT	HI	SI	Mean	Remark
MCS 5415 BG II	0.00	0.67	0.11	0.33	0.28	BETL
ACH 902-2 BG II	0.00	0.33	0.67	0.00	0.25	BETL
RCH 983 BG II	0.00	0.67	0.44	0.00	0.28	BETL
KCH 9322 BG II	0.00	0.00	0.22	0.00	0.06	BETL
ARCH 1114 BG II	0.00	0.33	0.56	0.00	0.22	BETL
MC 5411 BG II	0.00	0.00	0.22	0.00	0.06	BETL
KCH 9344 BG II	0.00	1.00	0.56	0.00	0.39	BETL
RCH 986 BG II	0.00	0.00	0.33	0.00	0.08	BETL
MC 5410 BG II	0.00	0.00	0.67	0.00	0.17	BETL
ARCH 1117 BG II	0.00	0.00	0.56	0.00	0.14	BETL
US 705 BG II	0.00	0.67	0.89	0.00	0.39	BETL
SP 7683 BG II	0.00	0.33	0.11	0.00	0.11	BETL
US 706 BG II	0.00	0.33	0.44	0.00	0.19	BETL
C 9314 BG II	0.00	0.33	0.00	0.00	0.08	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.22	0.00	0.06	BETL
C 9315 BG II	0.00	1.00	0.44	0.67	0.53	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.00	0.61	0.42	0.26	BETL
Bio 6743	0.00	0.00	0.11	0.33	0.11	BETL
Bio 6635	0.00	0.00	0.56	0.33	0.22	BETL

Table 22: Initial H X H trial in North Zone under unprotected Conditions – Green Boll damage

Name of Entry	Green Boll damage (%)					
	FA	BT	HI	SI	Mean	Remark
MCS 5415 BG II	0.00	0.00	0.00	1.57	0.39	BETL
ACH 902-2 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 983 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9322 BG II	0.00	1.67	0.00	0.00	0.42	BETL
ARCH 1114 BG II	0.00	1.67	0.00	0.00	0.42	BETL
MC 5411 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9344 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 986 BG II	0.00	3.33	0.00	0.00	0.83	BETL
MC 5410 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ARCH 1117 BG II	0.00	3.33	0.00	0.00	0.83	BETL
US 705 BG II	0.00	0.00	0.00	0.00	0.00	BETL
SP 7683 BG II	0.00	1.67	0.00	0.00	0.42	BETL
US 706 BG II	0.00	1.67	0.00	0.00	0.42	BETL
C 9314 BG II	0.00	0.00	0.00	1.54	0.39	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.00	1.61	0.40	BETL
C 9315 BG II	0.00	3.33	0.00	1.94	1.32	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	3.33	0.00	0.00	0.83	BETL
Bio 6743	0.00	0.00	0.00	0.90	0.23	BETL
Bio 6635	0.00	0.00	0.00	0.00	0.00	BETL

Table: Initial H X H trial in North Zone under unprotected Conditions – Open Boll damage

Name of Entry	Open Boll damage (%)						
	FA	BT	HI	SI	SG	Mean	Remark
MCS 5415 BG II	0.00	8.33	11.47	1.88	0.00	4.34	BETL
ACH 902-2 BG II	0.00	3.33	9.61	0.00	0.00	2.59	BETL
RCH 983 BG II	0.00	13.33	22.01	0.00	0.00	7.07	BETL
KCH 9322 BG II	0.00	1.67	20.06	0.00	0.00	4.35	BETL
ARCH 1114 BG II	0.00	6.67	17.94	0.00	0.00	4.92	BETL
MC 5411 BG II	0.00	3.33	4.83	0.00	0.00	1.63	BETL
KCH 9344 BG II	0.00	1.67	6.92	2.39	0.00	2.20	BETL
RCH 986 BG II	0.00	5.00	6.60	0.00	0.00	2.32	BETL
MC 5410 BG II	0.00	5.00	8.02	0.00	0.00	2.60	BETL
ARCH 1117 BG II	0.00	3.33	10.36	0.00	0.00	2.74	BETL
US 705 BG II	0.00	5.00	9.31	0.00	0.00	2.86	BETL
SP 7683 BG II	0.00	6.67	15.12	0.00	0.00	4.36	BETL
US 706 BG II	0.00	1.67	8.09	0.00	0.00	1.95	BETL
C 9314 BG II	0.00	5.00	10.69	1.11	0.00	3.36	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	3.33	9.59	0.00	0.00	2.59	BETL
C 9315 BG II	0.00	5.00	10.50	4.47	0.00	3.99	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	10.00	8.20	4.90	0.00	4.62	BETL
Bio 6743	0.34	6.67	12.13	5.51	0.00	4.93	BETL
Bio 6635	0.00	11.67	13.21	0.00	0.00	4.97	BETL

Table: Initial H X H trial in North Zone under unprotected Conditions – Locule damage

Name of Entry	Locule damage (%)						
	FA	BT	HI	SI	SG	Mean	Remark
MCS 5415 BG II	0.00	3.62	1.53	0.63	0.00	1.16	BETL
ACH 902-2 BG II	0.00	1.85	0.39	0.00	0.00	0.45	BETL
RCH 983 BG II	0.00	5.13	1.54	0.00	0.00	1.33	BETL
KCH 9322 BG II	0.00	0.77	1.90	0.00	0.00	0.53	BETL
ARCH 1114 BG II	0.00	4.29	0.53	0.00	0.00	0.96	BETL
MC 5411 BG II	0.00	1.40	0.51	0.00	0.00	0.38	BETL
KCH 9344 BG II	0.00	0.96	0.51	1.72	0.00	0.64	BETL
RCH 986 BG II	0.00	3.14	0.26	0.00	0.00	0.68	BETL
MC 5410 BG II	0.00	2.88	0.44	0.00	0.00	0.66	BETL
ARCH 1117 BG II	0.00	1.96	0.00	0.00	0.00	0.39	BETL
US 705 BG II	0.00	2.11	0.58	0.00	0.00	0.54	BETL
SP 7683 BG II	0.00	2.88	2.23	0.00	0.00	1.02	BETL
US 706 BG II	0.00	0.85	1.07	0.00	0.00	0.39	BETL
C 9314 BG II	0.00	2.13	0.89	0.79	0.00	0.76	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	1.47	0.41	0.00	0.00	0.38	BETL
C 9315 BG II	0.00	2.06	1.80	2.19	0.00	1.21	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	3.45	0.46	2.56	0.00	1.29	BETL
Bio 6743	0.17	1.98	1.58	3.05	0.00	1.36	BETL
Bio 6635	0.00	4.31	0.98	0.00	0.00	1.06	BETL

Reaction to Diseases

Table: Initial Evaluation Trial of Intra-hirsutum Hybrids (New Entries) under unprotected conditions

Entry	Average CLCuD PDI & Disease Reaction (DR) under protected conditions			
	Sriganganagar		Sirsa	
	PDI	DR	PDI	DR
MCS 5415 BG II	15.5	R	1.1	HR
ACH 902-2 BG II	19.7	R	3.7	HR
RCH 983 BG II	13.1	R	0.6	HR
KCH 9322 BG II	18.4	R	4.9	HR
ARCH 1114 BG II	28.0	MR	14.7	R
MC 5411 BG II	20.4	MR	1.5	HR
KCH 9344 BG II	10.2	R	0.9	HR
RCH 986 BG II	12.2	R	1.1	HR
MC 5410 BG II	9.8	HR	1.2	HR
ARCH 1117 BG II	25.5	MR	4.6	HR
US 705 BG II	21.6	MR	7.5	HR
SP 7683 BG II	34.2	MS	16.1	R
US 706 BG II	26.0	MR	18.6	R
C 9314 BG II	27.5	MR	13.9	R
ZC–2 US 51 BG II	32.2	MS	20.8	MR
C 9315 BG II	19.6	R	10.8	R
ZC – 1 RCH 773 BG II	27.3	MR	8.0	HR
Bio 6743	43.6	S	23.0	MR
Bio 6635	43.1	S	20.9	MR

Advanced Evaluation Trial - I of Intra-Hirsutum Bt Cotton Hybrids in North Zone (2019-20)

Constitution of Trial

The trial was constituted with 10 Bt cotton hybrids containing MON 15985 event sponsored by various Private organization along with two different check hybrids as furnished below.

S. No.	Name of the Entry	Sponsored by
1	SP 7678 BG II	Bayer Biosciences Pvt Ltd
2	RCH 960 BG II	Rasi Seeds Pvt Ltd
3	KCH 9333 BG II	Kaveri Seeds Pvt Ltd
4	ACH 999-2 BG II	Ajeet Seeds Pvt Ltd
5	KCH 9323 BG II	Kaveri Seeds Pvt Ltd
6	ARCH 1901 BG II	Ankur Seeds Pvt Ltd
7	RCH 959 BG II	Rasi Seeds Pvt Ltd
8	US 701 BG II	Seed Works International Pvt Ltd
9	**Zonal Check I (US 51 BG II)**	
10	Solar 109 BG II	Solar Agrotech Pvt Ltd
11	US 702 BG II	Seed Works International Pvt Ltd
12	**Zonal Check II (RCH 773 BG II)**	

The trial was conducted in five different locations *viz.,* PAU, Faridkot, PAU, Bathinda, CCSHAU, Hisar, ICAR-CICR, Sirsa and SKRAU, Sriganganagar with the recommended spacing of 67.5 x 90 cm for the hybrid followed uniformly. The trial was conducted with four rows of 6 meters per entry with three replications.

Data recorded:

Biometric evaluation

Table : Plant height (cm) at harvest in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	SP 7678 BG II	162.8	177.7	166.7	165.8	206.0	**175.8**
2	RCH 960 BG II	173.3	177.7	207.8	179.2	228.0	**193.2**
3	KCH 9333 BG II	164.4	189.4	180.0	174.4	198.0	**181.2**
4	ACH 999-2 BG II	190.0	200.5	204.4	193.7	218.0	**201.3**
5	KCH 9323 BG II	165.0	200.0	168.9	160.0	196.0	**178.0**
6	ARCH 1901 BG II	158.3	182.3	174.4	159.7	217.0	**178.3**
7	RCH 959 BG II	167.2	163.9	178.3	192.0	209.0	**182.1**
8	US 701 BG II	162.8	151.6	178.3	175.7	214.0	**176.5**
9	**ZC (US 51 BG II)**	160.6	148.8	167.2	178.6	199.0	**170.8**
10	Solar 109 BG II	155.0	154.9	170.0	171.9	203.0	**171.0**
11	US 702 BG II	160.6	169.2	172.8	157.7	211.0	**174.3**
12	**ZC (RCH 773 BG II)**	176.7	182.2	172.8	192.4	206.0	**186.0**
	CD @ 5%	16.7	20.8	17.6	11.76		
	CV %	5.6	7.0	5.8	3.94		

Table : Number of monopodia in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	SP 7678 BG II	0.4	1.3	1.8	1.1	3.2	**1.6**
2	RCH 960 BG II	0.8	0.8	2.0	1.9	3.2	**1.7**
3	KCH 9333 BG II	0.2	0.8	1.7	1.2	3.0	**1.4**
4	ACH 999-2 BG II	1.0	1.2	2.1	1.3	3.8	**1.9**
5	KCH 9323 BG II	0.6	1.4	2.3	2.4	2.6	**1.9**
6	ARCH 1901 BG II	0.8	0.8	1.7	3.0	4.8	**2.2**
7	RCH 959 BG II	1.2	1.2	2.4	2.0	2.8	**1.9**
8	US 701 BG II	0.4	2.1	2.4	0.9	2.4	**1.6**
9	**ZC (US 51 BG II)**	0.9	2.2	2.3	1.0	3.2	**1.9**
10	Solar 109 BG II	0.6	1.3	2.6	1.4	3.6	**1.9**
11	US 702 BG II	0.2	1.2	2.6	2.1	3.8	**2.0**
12	**ZC (RCH 773 BG II)**	0.8	1.3	2.4	1.3	2.6	**1.7**
	CD @ 5%	0.5	0.2	0.6	0.42		
	CV %	44.5	8.3	15.8	14.91		

Table : Number of sympodia in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	SP 7678 BG II	25.2	25.4	16.0	13.4	20.6	**20.1**
2	RCH 960 BG II	22.7	24.4	20.2	14.4	20.8	**20.5**
3	KCH 9333 BG II	22.7	21.2	17.6	15.3	19.4	**19.2**
4	ACH 999-2 BG II	24.6	28.3	18.3	10.6	26.0	**21.6**
5	KCH 9323 BG II	23.4	27.3	17.7	11.0	22.0	**20.3**
6	ARCH 1901 BG II	21.1	20.7	17.4	13.6	19.4	**18.4**
7	RCH 959 BG II	22.6	22.4	17.1	17.6	21.4	**20.2**
8	US 701 BG II	21.1	21.8	16.1	14.7	24.6	**19.7**
9	**ZC (US 51 BG II)**	21.1	25.3	16.7	15.0	22.2	**20.1**
10	Solar 109 BG II	22.6	26.9	19.4	13.3	23.8	**21.2**
11	US 702 BG II	22.0	24.3	16.2	11.3	22.4	**19.2**
12	**ZC (RCH 773 BG II)**	22.9	23.3	15.8	14.4	25.2	**20.3**
	CD @ 5%	3.0	4.5	15.8	2.55		
	CV %	7.5	11.0	7.3	10.91		

Table : Number of bolls / plant in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	SP 7678 BG II	45.6	45.7	39.0	22.1	31.8	**36.8**
2	RCH 960 BG II	51.3	45.2	44.0	28.6	49.6	**43.7**
3	KCH 9333 BG II	51.3	40.1	39.0	30.4	51.2	**42.4**
4	ACH 999-2 BG II	52.8	52.4	30.3	27.0	59.4	**44.4**
5	KCH 9323 BG II	46.3	50.4	45.0	20.7	52.7	**43.0**
6	ARCH 1901 BG II	37.4	44.9	34.3	26.2	52.6	**39.1**
7	RCH 959 BG II	38.6	44.5	42.7	45.7	40.4	**42.4**
8	US 701 BG II	36.9	42.2	40.7	46.7	42.3	**41.8**
9	**ZC (US 51 BG II)**	41.9	50.7	40.7	45.9	38.2	**43.5**
10	Solar 109 BG II	44.4	47.3	43.0	42.2	52.9	**46.0**
11	US 702 BG II	40.1	47.4	33.0	36.9	41.4	**39.8**
12	**ZC (RCH 773 BG II)**	41.8	46.1	38.3	34.8	45.6	**41.3**
	CD @ 5%	5.0	6.1	5.4	6.04		
	CV %	6.4	7.8	8.5	10.45		

Table : Number of bolls / sq.m. in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	SP 7678 BG II	180.0	126.0	68.4	60.9	48.7	**96.8**
2	RCH 960 BG II	207.3	201.1	105.1	84.2	74.6	**134.5**
3	KCH 9333 BG II	203.3	158.6	97.8	85.8	73.1	**123.7**
4	ACH 999-2 BG II	203.3	204.9	87.9	80.0	90.1	**133.2**
5	KCH 9323 BG II	193.3	179.2	102.6	49.8	75.8	**120.1**
6	ARCH 1901 BG II	153.3	161.8	62.5	71.8	75.7	**105.0**
7	RCH 959 BG II	150.3	162.1	75.6	126.8	59.7	**114.9**
8	US 701 BG II	150.3	179.8	87.2	142.5	64.1	**124.8**
9	**ZC (US 51 BG II)**	165.0	198.7	78.5	129.3	55.6	**125.4**
10	Solar 109 BG II	159.0	186.0	91.1	130.4	77.6	**128.8**
11	US 702 BG II	161.0	177.9	96.8	106.0	61.8	**120.7**
12	**ZC (RCH 773 BG II)**	162.7	194.6	88.8	101.3	67.4	**123.0**
	CD @ 5%	26.8	17.1	11.0	18.71		
	CV %	8.7	5.7	7.2	11.27		

Table : Lint Index (g) in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	SP 7678 BG II	4.6	4.6	4.4	4.6	5.0	**4.6**
2	RCH 960 BG II	5.0	4.7	4.8	4.4	6.5	**5.1**
3	KCH 9333 BG II	5.4	4.7	4.3	4.9	5.4	**4.9**
4	ACH 999-2 BG II	5.1	4.9	5.1	5.4	5.3	**5.2**
5	KCH 9323 BG II	4.0	4.2	4.1	3.9	5.6	**4.4**
6	ARCH 1901 BG II	5.0	5.4	5.0	5.0	5.6	**5.2**
7	RCH 959 BG II	5.4	4.8	5.0	5.7	6.1	**5.4**
8	US 701 BG II	5.1	4.5	5.0	3.4	5.6	**4.7**
9	**ZC (US 51 BG II)**	4.9	4.9	4.7	5.3	5.9	**5.1**
10	Solar 109 BG II	4.4	4.4	4.8	4.5	5.2	**4.7**
11	US 702 BG II	5.2	5.1	4.8	5.7	6.4	**5.4**
12	**ZC (RCH 773 BG II)**	4.8	4.7	4.7	4.9	5.9	**5.0**
	CD @ 5%	0.9	0.2	0.2	0.57		
	CV %	9.9	2.8	2.8	7.00		

Table : Seed Index (g) in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	SP 7678 BG II	9.1	10.0	9.4	10.6	10.2	**9.9**
2	RCH 960 BG II	9.9	10.2	9.5	9.2	12.9	**10.3**
3	KCH 9333 BG II	10.0	10.0	9.0	10.7	11.2	**10.2**
4	ACH 999-2 BG II	9.3	9.5	9.6	10.2	10.6	**9.8**
5	KCH 9323 BG II	8.3	8.6	8.4	9.2	11.2	**9.1**
6	ARCH 1901 BG II	9.7	11.0	9.5	11.3	11.6	**10.6**
7	RCH 959 BG II	9.8	10.5	9.8	12.0	12.3	**10.9**
8	US 701 BG II	9.6	9.8	9.7	7.1	11.2	**9.5**
9	**ZC (US 51 BG II)**	9.2	10.8	9.5	11.3	12.1	**10.6**
10	Solar 109 BG II	8.7	9.1	8.8	9.8	9.9	**9.3**
11	US 702 BG II	10.2	10.8	9.6	12.4	12.7	**11.1**
12	**ZC (RCH 773 BG II)**	9.0	9.9	9.3	10.0	11.8	**10.0**
	CD @ 5%	0.8	0.3	0.2	0.20		
	CV %	5.1	1.7	1.1	3.36		

Table : Ginning outturn (%) in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	SP 7678 BG II	33.6	31.8	31.9	30.4	32.8	**32.1**
2	RCH 960 BG II	33.6	31.5	33.5	32.5	33.4	**32.9**
3	KCH 9333 BG II	34.9	31.8	32.3	31.5	32.7	**32.6**
4	ACH 999-2 BG II	35.4	33.9	34.8	34.5	33.3	**34.4**
5	KCH 9323 BG II	32.3	32.7	33.1	29.9	33.2	**32.2**
6	ARCH 1901 BG II	34.1	32.8	34.3	30.8	32.4	**32.9**
7	RCH 959 BG II	35.4	31.2	33.7	32.4	33.3	**33.2**
8	US 701 BG II	34.7	31.7	34.0	32.1	33.4	**33.2**
9	**ZC (US 51 BG II)**	34.7	31.1	33.0	31.9	32.8	**32.7**
10	Solar 109 BG II	33.8	32.7	35.3	31.6	34.4	**33.6**
11	US 702 BG II	33.7	31.8	33.6	31.3	33.4	**32.8**
12	**ZC (RCH 773 BG II)**	34.6	32.1	33.6	32.9	33.3	**33.3**
	CD @ 5%	3.1	1.0	1.2	2.25		
	CV %	5.1	1.8	2.1	4.14		

Table : Upper Half Mean Length (mm) under HVI Mode in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	SP 7678 BG II	27.6	26.3	25.5	24.5	25.5	**25.9**
2	RCH 960 BG II	27.9	28.0	27.8	27.5	26.8	**27.6**
3	KCH 9333 BG II	29.5	29.5	29.1	28.2	28.5	**29.0**
4	ACH 999-2 BG II	28.2	28.2	28.5	27.7	27.2	**28.0**
5	KCH 9323 BG II	28.3	27.4	26.8	27.8	28.1	**27.7**
6	ARCH 1901 BG II	27.8	28.4	27.8	27.1	28.4	**27.9**
7	RCH 959 BG II	28.4	28.3	27.2	26.8	26.7	**27.5**
8	US 701 BG II	29.4	30.2	28.9	27.8	28.3	**28.9**
9	**ZC (US 51 BG II)**	29.1	28.3	28.3	27.7	27.3	**28.1**
10	Solar 109 BG II	28.4	28.3	27.5	27.6	28.0	**28.0**
11	US 702 BG II	29.4	28.5	29.1	28.2	27.7	**28.6**
12	**ZC (RCH 773 BG II)**	27.5	26.2	26.0	25.2	26.2	**26.2**

Table : Uniformity index under HVI Mode in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	SP 7678 BG II	83.0	82.0	83.0	83.0	82.0	**82.6**
2	RCH 960 BG II	85.0	85.0	84.0	87.0	86.0	**85.4**
3	KCH 9333 BG II	84.0	84.0	85.0	87.0	86.0	**85.2**
4	ACH 999-2 BG II	86.0	84.0	85.0	86.0	86.0	**85.4**
5	KCH 9323 BG II	85.0	82.0	83.0	86.0	87.0	**84.6**
6	ARCH 1901 BG II	84.0	84.0	85.0	87.0	87.0	**85.4**
7	RCH 959 BG II	86.0	85.0	85.0	86.0	87.0	**85.8**
8	US 701 BG II	85.0	85.0	83.0	87.0	85.0	**85.0**
9	**ZC (US 51 BG II)**	84.0	84.0	84.0	87.0	87.0	**85.2**
10	Solar 109 BG II	84.0	82.0	83.0	86.0	85.0	**84.0**
11	US 702 BG II	83.0	83.0	84.0	86.0	84.0	**84.0**
12	**ZC (RCH 773 BG II)**	84.0	83.0	85.0	84.0	83.0	**83.8**

Table : Micronaire under HVI Mode in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	SP 7678 BG II	4.9	4.7	4.6	5.3	5.2	**4.9**
2	RCH 960 BG II	4.2	4.1	4.1	4.4	4.1	**4.2**
3	KCH 9333 BG II	4.3	4.4	4.0	4.3	4.3	**4.3**
4	ACH 999-2 BG II	4.8	4.6	4.1	4.3	4.7	**4.5**
5	KCH 9323 BG II	4.0	4.0	4.1	4.3	4.2	**4.1**
6	ARCH 1901 BG II	4.8	5.4	4.5	4.6	4.4	**4.7**
7	RCH 959 BG II	4.4	4.6	3.9	4.8	4.5	**4.4**
8	US 701 BG II	4.3	4.1	3.8	4.3	3.8	**4.1**
9	**ZC (US 51 BG II)**	4.3	4.4	4.1	4.6	4.5	**4.4**
10	Solar 109 BG II	4.5	4.5	4.3	4.7	4.6	**4.5**
11	US 702 BG II	4.0	4.3	3.6	4.0	3.8	**3.9**
12	**ZC (RCH 773 BG II)**	4.6	4.8	4.3	4.8	4.8	**4.7**

Table : Tenacity under HVI Mode in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	SP 7678 BG II	27.0	28.3	31.9	26.0	27.0	**28.0**
2	RCH 960 BG II	27.9	29.3	28.1	29.3	28.6	**28.6**
3	KCH 9333 BG II	28.3	28.3	27.7	26.3	28.9	**27.9**
4	ACH 999-2 BG II	27.7	28.4	30.6	29.3	27.1	**28.6**
5	KCH 9323 BG II	28.5	28.8	29.1	28.1	28.6	**28.6**
6	ARCH 1901 BG II	28.2	27.2	28.2	27.0	29.0	**27.9**
7	RCH 959 BG II	30.4	28.3	29.3	28.9	28.7	**29.1**
8	US 701 BG II	28.0	29.8	30.6	30.4	29.8	**29.7**
9	**ZC (US 51 BG II)**	28.6	27.9	28.4	28.7	29.5	**28.6**
10	Solar 109 BG II	28.5	29.7	28.7	29.7	29.0	**29.1**
11	US 702 BG II	29.9	28.7	30.5	29.4	29.8	**29.7**
12	**ZC (RCH 773 BG II)**	26.2	26.9	27.4	25.9	28.1	**26.9**

Table : Seed Cotton Yield (q/ha) in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	SP 7678 BG II	30.19	30.53	26.54	26.36	19.76	**26.68**
2	RCH 960 BG II	36.62	37.39	38.89	35.89	33.49	**36.46**
3	KCH 9333 BG II	35.60	40.64	23.04	38.92	29.27	**33.49**
4	ACH 999-2 BG II	34.87	44.32	27.57	39.13	30.04	**35.19**
5	KCH 9323 BG II	33.82	43.68	26.95	41.19	28.31	**34.79**
6	ARCH 1901 BG II	27.23	39.71	17.49	31.74	23.89	**28.01**
7	RCH 959 BG II	31.20	34.71	22.43	33.49	24.39	**29.24**
8	US 701 BG II	28.14	38.72	23.66	33.10	19.40	**28.60**
9	**ZC (US 51 BG II)**	**32.78**	32.06	25.10	28.87	21.99	**28.16**
10	Solar 109 BG II	26.80	31.32	22.84	32.36	21.75	**27.01**
11	US 702 BG II	32.53	35.45	32.30	28.14	18.57	**29.40**
12	**ZC (RCH 773 BG II)**	30.77	43.09	34.36	34.22	27.70	**34.03**
	CD @ 5%	4.69	6.85	5.26	3.67	3.94	
	CV %	8.30	10.76	11.53	6.41	9.36	

Qualitative Cry Protein Evaluation

All the above entries were positive for Cry 1Ac Protein in qualitative ELISA Test

All the above entries were positive for Cry 2Ab Protein in qualitative ELISA Test

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect Pests

Table: Advance H X H trial in North Zone under Protected Conditions – Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)					
	FA	HI	SI	SG	Mean	Remark
SP 7678 BG II	6.21	5.71	1.19	1.04	3.54	BETL
RCH 960 BG II	11.26	5.64	1.30	0.91	4.78	BETL
KCH 9333 BG II	7.79	6.29	1.26	0.64	4.00	BETL
ACH 999-2 BG II	4.53	6.20	1.26	0.73	3.18	BETL
KCH 9323 BG II	4.11	7.04	1.00	0.58	3.18	BETL
ARCH 1901 BG II	4.67	6.93	1.26	0.80	3.42	BETL
RCH 959 BG II	5.76	6.49	1.07	0.96	3.57	BETL
US 701 BG II	5.27	5.89	1.30	0.82	3.32	BETL
Zonal BGII Check – 2 US 51 BG II	4.51	6.53	1.26	0.91	3.30	BETL
Solar 109 BG II	4.25	6.64	1.37	1.26	3.38	BETL
US 702 BG II	5.95	7.64	1.94	0.73	4.07	BETL
Zonal BGII Check – 1 RCH 773 BG II	4.18	6.60	1.22	1.09	3.27	BETL

Table: Advance H X H trial in North Zone under Protected Conditions – Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)					
	FA	HI	SI	SG	Mean	Remark
SP 7678 BG II	21.53	25.87	18.19	12.71	19.57	BETL
RCH 960 BG II	22.07	26.78	20.85	11.49	20.30	BETL
KCH 9333 BG II	24.55	27.49	20.41	15.20	21.91	BETL
ACH 999-2 BG II	22.82	28.18	18.78	11.51	20.32	BETL
KCH 9323 BG II	26.44	29.71	19.48	14.47	22.52	BETL
ARCH 1901 BG II	22.51	29.09	20.37	11.67	20.91	BETL
RCH 959 BG II	22.48	29.67	19.19	10.62	20.49	BETL
US 701 BG II	24.19	28.07	18.37	12.20	20.71	BETL
Zonal BGII Check – 2 US 51 BG II	29.12	29.51	18.56	12.36	22.38	BETL
Solar 109 BG II	30.82	29.82	18.67	14.80	23.53	BETL
US 702 BG II	26.25	29.53	18.15	12.24	21.54	BETL
Zonal BGII Check – 1 RCH 773 BG II	23.20	28.96	19.48	11.80	20.86	BETL

Table: Advance H X H trial in North Zone under Protected Conditions – Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)					
	FA	HI	SI	SG	Mean	Remark
SP 7678 BG II	16.08	51.87	10.96	19.64	24.64	AETL
RCH 960 BG II	14.54	56.36	10.56	16.44	24.47	AETL
KCH 9333 BG II	16.04	71.91	10.67	13.78	28.10	AETL
ACH 999-2 BG II	15.65	55.78	11.11	11.58	23.53	AETL
KCH 9323 BG II	14.82	67.20	9.81	14.96	26.70	AETL
ARCH 1901 BG II	20.13	61.31	11.07	11.73	26.06	AETL
RCH 959 BG II	16.84	60.18	10.15	16.36	25.88	AETL
US 701 BG II	18.23	65.09	10.56	14.27	27.03	AETL
Zonal BGII Check – 2 US 51 BG II	17.15	64.33	11.30	18.53	27.83	AETL
Solar 109 BG II	18.26	76.29	10.19	13.49	29.56	AETL
US 702 BG II	17.61	77.76	10.85	19.07	31.32	AETL
Zonal BGII Check – 1 RCH 773 BG II	15.11	64.13	11.85	15.33	26.61	AETL

Table: Advance H X H trial in North Zone under Protected Conditions – Natural Enemies

Name of Entry	Natural enemies (No./Plant)		
	SI	SG	Mean
SP 7678 BG II	0.43	1.75	1.09
RCH 960 BG II	0.58	3.17	1.87
KCH 9333 BG II	0.34	2.50	1.42
ACH 999-2 BG II	0.56	4.50	2.53
KCH 9323 BG II	0.40	1.58	0.99
ARCH 1901 BG II	0.38	2.75	1.56
RCH 959 BG II	0.40	3.08	1.74
US 701 BG II	0.46	3.42	1.94
Zonal BGII Check – 2 US 51 BG II	0.44	2.33	1.39
Solar 109 BG II	0.41	3.50	1.96
US 702 BG II	0.36	3.50	1.93
Zonal BGII Check – 1 RCH 773 BG II	0.42	4.58	2.50

Table: Advance H X H trial in North Zone under Protected Conditions –Bollworms – *Helicoverpa*armigera

Name of Entry	*Helicoverpaarmigera* (No. / 5 plants)					
	FA	HI	SI	SG	Mean	Remark
SP 7678 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 960 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9333 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ACH 999-2 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9323 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ARCH 1901 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 959 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 701 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Solar 109 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 702 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.00	0.00	0.00	0.00	BETL

Table: Advance H X H trial in North Zone under Protected Conditions – Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)					
	FA	HI	SI	SG	Mean	Remark
SP 7678 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 960 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9333 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ACH 999-2 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9323 BG II	0.00	0.00	1.22	0.00	0.31	BETL
ARCH 1901 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 959 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 701 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.78	0.00	0.20	BETL
Solar 109 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 702 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.00	0.00	0.00	0.00	BETL

Table: Advance H X H trial in North Zone under Protected Conditions – Spodopteralitura

Name of Entry	*Spodoptera litura*(No. / 5 plants)					
	FA	HI	SI	SG	Mean	Remark
SP 7678 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 960 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9333 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ACH 999-2 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9323 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ARCH 1901 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 959 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 701 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Solar 109 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 702 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.00	0.00	0.00	0.00	BETL

Table: Advance H X H trial in North Zone under Protected Conditions – Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)					
	FA	HI	SI	SG	Mean	Remark
SP 7678 BG II	0.00	0.22	0.00	0.07	0.07	BETL
RCH 960 BG II	0.00	0.11	0.00	0.04	0.04	BETL
KCH 9333 BG II	0.00	0.00	0.33	0.11	0.11	BETL
ACH 999-2 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9323 BG II	0.00	0.00	0.11	0.04	0.04	BETL
ARCH 1901 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 959 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 701 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.44	0.15	0.15	BETL
Solar 109 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 702 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.00	0.00	0.00	0.00	BETL

Table: Advance H X H trial in North Zone under Protected Conditions – Green Boll damage

Name of Entry	Green Boll damage (%)			
	FA	HI	Mean	Remark
SP 7678 BG II	0.00	0.00	0.00	BETL
RCH 960 BG II	0.00	0.00	0.00	BETL
KCH 9333 BG II	0.00	0.00	0.00	BETL
ACH 999-2 BG II	0.00	0.00	0.00	BETL
KCH 9323 BG II	0.00	0.00	0.00	BETL
ARCH 1901 BG II	0.00	0.00	0.00	BETL
RCH 959 BG II	0.00	1.11	0.56	BETL
US 701 BG II	0.00	0.00	0.00	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.00	BETL
Solar 109 BG II	0.00	0.00	0.00	BETL
US 702 BG II	0.00	0.00	0.00	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.00	0.00	BETL

Table: Advance H X H trial in North Zone under Protected Conditions – Open Boll damage

Name of Entry	Open Boll damage (%)					
	FA	HI	SI	SG	Mean	Remark
SP 7678 BG II	0.30	9.96	0.00	0.00	2.57	BETL
RCH 960 BG II	0.00	5.03	0.00	0.00	1.26	BETL
KCH 9333 BG II	0.00	4.71	0.00	0.00	1.18	BETL
ACH 999-2 BG II	0.00	5.91	0.00	0.00	1.48	BETL
KCH 9323 BG II	0.26	4.11	2.76	0.00	1.78	BETL
ARCH 1901 BG II	0.00	3.35	0.00	0.00	0.84	BETL
RCH 959 BG II	0.00	6.13	0.00	0.00	1.53	BETL
US 701 BG II	0.00	4.84	0.00	0.00	1.21	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	1.69	4.28	0.00	1.49	BETL
Solar 109 BG II	0.00	5.91	0.00	0.00	1.48	BETL
US 702 BG II	0.00	3.70	0.00	0.00	0.93	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	4.28	0.00	0.00	1.07	BETL

Table: Advance H X H trial in North Zone under Protected Conditions – Locule damage

Name of Entry	Locule damage (%)					
	FA	HI	SI	SG	Mean	Remark
SP 7678 BG II	0.14	2.37	0.00	0.00	0.63	BETL
RCH 960 BG II	0.00	2.53	0.00	0.00	0.63	BETL
KCH 9333 BG II	0.00	0.52	0.00	0.00	0.13	BETL
ACH 999-2 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9323 BG II	0.12	0.66	1.24	0.00	0.50	BETL
ARCH 1901 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 959 BG II	0.00	0.27	0.00	0.00	0.07	BETL
US 701 BG II	0.00	1.05	0.00	0.00	0.26	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	1.72	0.00	0.43	BETL
Solar 109 BG II	0.00	1.06	0.00	0.00	0.26	BETL
US 702 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.00	0.00	0.00	0.00	BETL

Table: Advance H X H trial in North Zone under Protected Conditions – Number of sprays for sucking pests

Name of Entry	Number of sprays for sap sucking pests(Nos.)				
	FA	HI	SI	SG	Mean
SP 7678 BG II	2.00	5.00	3.00	4.00	3.5
RCH 960 BG II	2.00	5.00	3.00	4.00	3.5
KCH 9333 BG II	2.00	5.00	3.00	4.00	3.5
ACH 999-2 BG II	2.00	5.00	3.00	4.00	3.5
KCH 9323 BG II	2.00	5.00	3.00	4.00	3.5
ARCH 1901 BG II	2.00	5.00	3.00	4.00	3.5
RCH 959 BG II	2.00	5.00	3.00	4.00	3.5
US 701 BG II	2.00	5.00	3.00	4.00	3.5
Zonal BGII Check – 2 US 51 BG II	2.00	5.00	3.00	4.00	3.5
Solar 109 BG II	2.00	5.00	3.00	4.00	3.5
US 702 BG II	2.00	5.00	3.00	4.00	3.5
Zonal BGII Check – 1 RCH 773 BG II	2.00	5.00	3.00	4.00	3.5

Reaction to Diseases

Table . Advanced Evaluation Trial of Intra-hirsutum Hybrids – I (Promoted Entries) under protected conditions

Entry	Average CLCuD PDI & Disease Reaction (DR) under protected conditions									
	Faridkot		Bathinda		Sriganganagar		Sirsa		Hisar	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
SP 7678 BG II	10.3	R	4.2	HR	29.5	MR	14.6	R	16.3	R
RCH 960 BG II	1.0	HR	5.2	HR	10.2	R	5.5	HR	13.3	R
KCH 9333 BG II	1.0	HR	3.1	HR	8.7	HR	4.5	HR	11.6	R
ACH 999-2 BG II	1.0	HR	4.2	HR	8.9	HR	6.1	HR	10.1	R
KCH 9323 BG II	3.1	HR	1.0	HR	10.4	R	9.4	HR	9.6	HR
ARCH 1901 BG II	5.2	HR	3.1	HR	20.4	MR	14.2	R	22.1	MR
RCH 959 BG II	1.1	HR	3.1	HR	4.0	HR	9.7	HR	10.0	HR
US 701 BG II	1.2	HR	4.2	HR	1.4	HR	0.7	HR	10.4	R
ZC – 2 US 51 BG II	3.8	HR	4.2	HR	25.1	MR	18	R	27.4	MR
Solar 109 BG II	6.3	HR	13.5	R	24.2	MR	23.2	MR	25.0	MR
US 702 BG II	3.7	HR	9.4	HR	20.7	MR	22.2	MR	16.7	R
ZC– 1 RCH 773 BG II	2.8	HR	1.0	HR	19.3	R	21.2	MR	19.1	R

Table . Advanced Evaluation Trial of Intra-hirsutum Hybrids – I (Promoted Entries) under protected conditions

Entry Name	Average PDI & Disease Reaction (DR)							
	FFS				Bacterial leaf blight			
	Faridkot		Bathinda		Faridkot		Bathinda	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR
SP 7678 BG II	13.8	R	13.3	R	25.0	R	0.0	DF
RCH 960 BG II	9.6	R	10.3	R	0.0	DF	0.0	DF
KCH 9333 BG II	10.8	R	13.5	R	0.0	DF	0.0	DF
ACH 999-2 BG II	7.1	R	11.3	R	0.0	DF	0.0	DF
KCH 9323 BG II	6.3	R	18.0	R	0.0	DF	0.0	DF
ARCH 1901 BG II	11.8	R	11.3	R	0.0	DF	0.0	DF
RCH 959 BG II	10.4	R	14.0	R	0.0	DF	0.0	DF
US 701 BG II	8.8	R	20.0	R	0.0	DF	0.0	DF
ZC – 2 US 51I BG II	9.6	R	12.5	R	0.0	DF	0.0	DF
Solar 109 BG II	5.8	R	9.8	R	0.0	DF	0.0	DF
US 702 BG II	6.3	R	10.0	R	0.0	DF	0.0	DF
ZC– 1 RCH 773 BG II	9.2	R	12.0	R	0.0	DF	0.0	DF

Evaluation under unprotected condition for insect pests and diseases:
Reaction to Insect Pests

Table: Advance H X H trial in North Zone under unprotected Conditions – Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)						
	FA	BT	HI	SI	SG	Mean	Remark
SP 7678 BG II	9.35	1.83	8.02	1.78	1.49	4.49	BETL
RCH 960 BG II	7.34	3.10	8.56	1.78	1.51	4.46	BETL
KCH 9333 BG II	9.06	1.97	7.27	2.00	0.87	4.23	BETL
ACH 999-2 BG II	5.80	1.57	8.29	2.06	0.82	3.71	BETL
KCH 9323 BG II	9.58	1.50	8.38	2.00	0.60	4.41	BETL
ARCH 1901 BG II	11.10	1.83	8.22	2.00	0.76	4.78	BETL
RCH 959 BG II	11.21	1.80	7.89	2.11	1.07	4.82	BETL
US 701 BG II	7.74	1.80	7.51	1.78	0.84	3.93	BETL
Zonal BGII Check – 2 US 51 BG II	11.05	1.67	8.07	2.11	1.42	4.86	BETL
Solar 109 BG II	8.54	1.83	8.82	2.17	1.71	4.62	BETL
US 702 BG II	7.04	1.57	8.44	2.17	0.89	4.02	BETL
Zonal BGII Check – 1 RCH 773 BG II	12.38	2.20	8.91	1.78	1.42	5.34	BETL

Table: Advance H X H trial in North Zone under unprotected Conditions – Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)						
	FA	BT	HI	SI	SG	Mean	Remark
SP 7678 BG II	13.21	19.13	67.58	35.28	26.98	32.44	AETL
RCH 960 BG II	16.16	23.00	67.27	33.83	22.80	32.61	AETL
KCH 9333 BG II	23.89	22.50	60.64	37.39	32.78	35.44	AETL
ACH 999-2 BG II	14.71	23.37	72.13	37.28	19.56	33.41	AETL
KCH 9323 BG II	22.11	23.87	78.89	35.11	26.18	37.23	AETL
ARCH 1901 BG II	16.47	24.43	68.71	35.17	21.07	33.17	AETL
RCH 959 BG II	16.38	25.63	68.40	35.39	20.62	33.29	AETL
US 701 BG II	16.13	27.10	63.22	34.28	20.80	32.31	AETL
Zonal BGII Check – 2 US 51 BG II	25.11	25.67	70.76	35.44	20.33	35.46	AETL
Solar 109 BG II	11.88	23.73	78.02	37.56	26.29	35.50	AETL
US 702 BG II	10.03	26.17	78.69	37.28	22.67	34.97	AETL
Zonal BGII Check – 1 RCH 773 BG II	24.01	25.63	72.36	35.00	22.00	35.80	AETL

Table: Advance H X H trial in North Zone under unprotected Conditions – Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)						
	FA	BT	HI	SI	SG	Mean	Remark
SP 7678 BG II	11.06	5.67	78.49	10.56	32.41	27.64	AETL
RCH 960 BG II	12.56	5.57	88.16	11.17	28.18	29.13	AETL
KCH 9333 BG II	14.44	7.00	80.60	11.17	23.31	27.30	AETL
ACH 999-2 BG II	14.31	5.03	93.91	10.94	26.75	30.19	AETL
KCH 9323 BG II	14.75	6.27	95.00	10.94	28.96	31.18	AETL
ARCH 1901 BG II	14.13	6.37	76.44	10.67	22.27	25.97	AETL
RCH 959 BG II	13.25	6.50	84.49	11.78	26.69	28.54	AETL
US 701 BG II	13.56	6.43	78.49	12.22	20.44	26.23	AETL
Zonal BGII Check – 2 US 51 BG II	13.19	5.90	77.69	12.22	31.04	28.01	AETL
Solar 109 BG II	12.44	6.33	87.33	11.00	20.24	27.47	AETL
US 702 BG II	14.56	6.43	91.07	10.72	35.49	31.65	AETL
Zonal BGII Check – 1 RCH 773 BG II	15.69	5.63	88.02	11.17	30.29	30.16	AETL

Table: Advance H X H trial in North Zone under unprotected Conditions – Natural Enemies

Name of Entry	Natural enemies (No./Plant)		
	SI	SG	Mean
SP 7678 BG II	1.54	3.00	2.27
RCH 960 BG II	1.61	3.83	2.72
KCH 9333 BG II	1.35	3.08	2.22
ACH 999-2 BG II	1.36	2.75	2.06
KCH 9323 BG II	1.19	3.67	2.43
ARCH 1901 BG II	1.78	2.33	2.06
RCH 959 BG II	1.37	2.67	2.02
US 701 BG II	1.09	2.58	1.84
Zonal BGII Check – 2 US 51 BG II	1.51	3.67	2.59
Solar 109 BG II	1.02	3.00	2.01
US 702 BG II	1.75	3.75	2.75
Zonal BGII Check – 1 RCH 773 BG II	1.46	3.17	2.31

Table: Advance H X H trial in North Zone under unprotected Conditions –Bollworms – *Helicoverpaarmigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)						
	FA	BT	HI	SI	SG	Mean	Remark
SP 7678 BG II	0.00	0.00	0.00	0.00	0.00	0.00	BETL
RCH 960 BG II	0.00	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9333 BG II	0.00	0.00	0.00	0.00	0.00	0.00	BETL
ACH 999-2 BG II	0.00	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9323 BG II	0.00	0.00	0.00	0.00	0.00	0.00	BETL
ARCH 1901 BG II	0.00	0.00	0.00	0.00	0.00	0.00	BETL
RCH 959 BG II	0.00	0.00	0.00	0.00	0.00	0.00	BETL
US 701 BG II	0.00	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.00	0.00	0.00	0.00	BETL
Solar 109 BG II	0.00	0.00	0.00	0.00	0.00	0.00	BETL
US 702 BG II	0.00	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.00	0.00	0.00	0.00	0.00	BETL

Table: Advance H X H trial in North Zone under unprotected Conditions – Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)					
	FA	BT	HI	SI	Mean	Remark
SP 7678 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 960 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9333 BG II	0.00	0.67	0.00	0.00	0.17	BETL
ACH 999-2 BG II	0.00	0.33	0.00	0.00	0.08	BETL
KCH 9323 BG II	0.00	0.33	0.00	0.83	0.29	BETL
ARCH 1901 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 959 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 701 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.00	0.56	0.14	BETL
Solar 109 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 702 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.67	0.00	0.00	0.17	BETL

Table: Advance H X H trial in North Zone under unprotected Conditions – *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)					
	FA	BT	HI	SI	Mean	Remark
SP 7678 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 960 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9333 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ACH 999-2 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9323 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ARCH 1901 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 959 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 701 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Solar 109 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 702 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.00	0.00	0.00	0.00	BETL

Table: Advance H X H trial in North Zone under unprotected Conditions – Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)					
	FA	BT	HI	SI	Mean	Remark
SP 7678 BG II	0.00	0.67	0.67	0.00	0.33	BETL
RCH 960 BG II	0.00	0.00	0.44	0.00	0.11	BETL
KCH 9333 BG II	0.00	0.33	0.44	0.00	0.19	BETL
ACH 999-2 BG II	0.00	0.67	0.44	0.00	0.28	BETL
KCH 9323 BG II	0.00	0.33	0.44	0.11	0.22	BETL
ARCH 1901 BG II	0.00	0.00	0.56	0.00	0.14	BETL
RCH 959 BG II	0.00	0.00	0.33	0.00	0.08	BETL
US 701 BG II	0.00	1.00	0.44	0.00	0.36	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.44	0.00	0.11	BETL
Solar 109 BG II	0.00	0.00	0.78	0.00	0.19	BETL
US 702 BG II	0.00	0.33	0.44	0.00	0.19	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.33	0.33	0.00	0.17	BETL

Table: Advance H X H trial in North Zone under unprotected Conditions – Green Boll damage

Name of Entry	Green Boll damage (%)					
	FA	BT	HI	SI	Mean	Remark
SP 7678 BG II	0.00	5.00	0.00	0.00	1.25	BETL
RCH 960 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9333 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ACH 999-2 BG II	0.00	1.67	0.00	0.00	0.42	BETL
KCH 9323 BG II	0.00	0.00	0.00	2.15	0.54	BETL
ARCH 1901 BG II	0.00	1.67	0.00	0.00	0.42	BETL
RCH 959 BG II	0.00	1.67	0.00	0.00	0.42	BETL
US 701 BG II	0.00	1.67	0.00	0.00	0.42	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.00	2.90	0.72	BETL
Solar 109 BG II	0.00	1.67	0.00	0.00	0.42	BETL
US 702 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	1.67	0.00	0.00	0.42	BETL

Table: Advance H X H trial in North Zone under unprotected Conditions – Open Boll damage

Name of Entry	Open Boll damage (%)						
	FA	BT	HI	SI	SG	Mean	Remark
SP 7678 BG II	0.34	6.67	15.04	0.00	0.00	4.41	BETL
RCH 960 BG II	0.00	8.33	12.59	0.00	0.00	4.18	BETL
KCH 9333 BG II	0.00	6.67	9.99	0.00	0.00	3.33	BETL
ACH 999-2 BG II	0.00	5.00	14.69	0.00	0.00	3.94	BETL
KCH 9323 BG II	0.00	5.00	18.97	4.80	0.00	5.75	BETL
ARCH 1901 BG II	0.00	3.33	18.54	0.00	0.00	4.37	BETL
RCH 959 BG II	0.52	1.67	13.85	0.00	0.00	3.21	BETL
US 701 BG II	0.00	3.33	14.31	0.00	0.00	3.53	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	5.00	12.37	5.55	0.00	4.58	BETL
Solar 109 BG II	0.00	3.33	18.25	0.00	0.00	4.32	BETL
US 702 BG II	0.00	3.33	12.52	0.00	0.00	3.17	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	6.67	17.18	0.00	0.00	4.77	BETL

Table: Advance H X H trial in North Zone under unprotected Conditions – Locule damage

Name of Entry	Locule damage (%)						
	FA	BT	HI	SI	SG	Mean	Remark
SP 7678 BG II	0.16	3.79	1.59	0.00	0.00	1.11	BETL
RCH 960 BG II	0.00	3.49	0.94	0.00	0.00	0.88	BETL
KCH 9333 BG II	0.00	2.30	1.93	0.00	0.00	0.84	BETL
ACH 999-2 BG II	0.00	2.19	0.00	0.00	0.00	0.44	BETL
KCH 9323 BG II	0.00	3.83	1.16	2.05	0.00	1.41	BETL
ARCH 1901 BG II	0.00	1.67	0.66	0.00	0.00	0.47	BETL
RCH 959 BG II	0.26	1.35	0.00	0.00	0.00	0.32	BETL
US 701 BG II	0.00	1.67	1.52	0.00	0.00	0.64	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	2.47	0.00	3.17	0.00	1.13	BETL
Solar 109 BG II	0.00	1.55	1.23	0.00	0.00	0.56	BETL
US 702 BG II	0.00	1.48	1.62	0.00	0.00	0.62	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	2.81	0.39	0.00	0.00	0.64	BETL

Reaction to Diseases

Table . Advanced Evaluation Trial of Intra-hirsutum Hybrids – I (Promoted Entries) under unprotected conditions

Entry	Average CLCuD PDI & Disease Reaction (DR): Unprotected conditions			
	Sriganganagar		Sirsa	
	PDI	DR	PDI	DR
SP 7678 BG II	39.0	MS	10.5	R
RCH 960 BG II	16.3	R	3.9	HR
KCH 9333 BG II	16.6	R	2.3	HR
ACH 999-2 BG II	13.8	R	2.5	HR
KCH 9323 BG II	12.7	R	7.3	HR
ARCH 1901 BG II	28.2	MR	14.3	R
RCH 959 BG II	18.3	R	1.0	HR
US 701 BG II	5.0	HR	0.8	HR
ZC – 2 US 51 BG II	38.1	MS	19.7	R
Solar 109 BG II	37.3	MS	18.4	R
US 702 BG II	33.0	MS	19.2	R
ZCl– 1 RCH 773 BG II	29.6	MR	12.9	R

Advanced Evaluation Trial - II of Intra-Hirsutum Bt Cotton Hybrids in North Zone (2019-20)

Constitution of Trial

The trial was constituted with 11 Bt cotton hybrids containing MON 15985 event sponsored by various Private organization along with two different check hybrids as furnished below.

S. No.	Name of the Entry	Sponsored by
1	ACH 955-2 BGII	Ajeet Seeds Pvt Ltd
2	RCH 866 BGII	Rasi Seeds Pvt Ltd
3	CCH 666 BGII	Crystal Crop Protection Ltd
4	SP7674 BGII	Bayer Biosciences Pvt Ltd
5	**Zonal Check I (RCH 773 BG II)**	
6	**Zonal Check I I(US 51 BG II)**	
7	Bio 6515 BGII	Shriram Bioseed
8	SWCH 7716 BGII	Seed Works International Pvt Ltd
9	RCH 951 BGII	Rasi Seeds Pvt Ltd
10	C 9312 BGII	Mahyco Pvt Ltd
11	MC 5408 BGII	Rallis India Limited
12	C 9313 BGII	Mahyco Pvt Ltd
13	MC 5403 BGII	Rallis India Limited

The trial was conducted in five different locations *viz.,* PAU, Faridkot, PAU, Bathinda, CCSHAU, Hisar, ICAR-CICR, Sirsa and SKRAU, Sriganganagar with the recommended spacing of 67.5 x 90 cm for the hybrid followed uniformly. The trial was conducted with four rows of 6 meters per entry with three replications.

Data recorded:

Biometric evaluation

Table : Plant height (cm) at harvest in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	ACH 955-2 BGII	198.3	172.3	202.8	202.0	225.0	**200.1**
2	RCH 866 BGII	173.9	164.6	168.3	188.6	193.0	**177.7**
3	CCH 666 BGII	161.1	144.7	170.0	161.0	190.0	**165.4**
4	SP7674 BGII	167.8	157.4	170.6	172.8	198.0	**173.3**
5	**ZC (RCH 773 BG II)**	170.0	144.0	173.9	165.3	187.0	**168.0**
6	**ZC (US 51 BG II)**	148.9	137.3	179.4	146.3	182.0	**158.8**
7	Bio 6515 BGII	158.9	137.0	173.9	176.2	192.0	**167.6**
8	SWCH 7716 BGII	170.0	159.2	175.6	166.7	220.0	**178.3**
9	RCH 951 BGII	171.7	150.4	188.3	173.6	194.0	**175.6**
10	C 9312 BGII	166.7	153.4	187.2	169.0	203.0	**175.9**
11	MC 5408 BGII	174.4	153.9	182.2	172.6	204.0	**177.4**
12	C 9313 BGII	178.9	155.9	178.9	174.7	186.0	**174.9**
13	MC 5403 BGII	156.1	148.3	179.4	154.7	202.0	**168.1**
	CD @ 5%	20.2	17.8	14.1	11.1		
	CV %	6.8	7.0	4.6	3.8		

Table : Number of monopodia in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	ACH 955-2 BGII	1.7	1.7	2.0	1.0	3.2	**1.9**
2	RCH 866 BGII	1.3	1.4	2.8	0.8	4.4	**2.1**
3	CCH 666 BGII	0.2	0.7	1.9	1.2	3.4	**1.5**
4	SP7674 BGII	0.6	2.0	2.2	1.3	4.2	**2.1**
5	**ZC (RCH 773 BG II)**	0.4	1.2	2.3	3.0	3.0	**2.0**
6	**ZC (US 51 BG II)**	0.2	1.3	1.7	1.0	3.2	**1.5**
7	Bio 6515 BGII	0.9	1.3	1.6	2.0	3.8	**1.9**
8	SWCH 7716 BGII	1.0	2.1	2.7	3.0	4.0	**2.6**
9	RCH 951 BGII	0.3	0.9	2.0	1.0	2.0	**1.2**
10	C 9312 BGII	0.9	1.4	2.1	1.5	3.4	**1.9**
11	MC 5408 BGII	0.8	0.7	2.4	0.1	3.0	**1.4**
12	C 9313 BGII	0.9	1.0	2.2	2.0	2.6	**1.7**
13	MC 5403 BGII	0.7	1.3	2.6	0.9	3.2	**1.7**
	CD @ 5%	0.5	0.2	0.6	0.3		
	CV %	37.5	8.9	15.0	12.7		

Table : Number of sympodia in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	ACH 955-2 BGII	22.9	25.3	17.3	12.4	22.8	**20.1**
2	RCH 866 BGII	23.3	20.6	18.7	15.9	16.2	**18.9**
3	CCH 666 BGII	21.2	20.7	15.6	12.3	22.0	**18.4**
4	SP7674 BGII	24.2	20.7	16.5	14.0	21.8	**19.4**
5	**ZC (RCH 773 BG II)**	17.1	19.0	17.7	15.1	19.8	**17.7**
6	**ZC (US 51 BG II)**	21.6	18.4	16.0	11.9	20.8	**17.7**
7	Bio 6515 BGII	18.3	19.8	17.7	11.9	19.6	**17.5**
8	SWCH 7716 BGII	21.7	20.8	16.4	11.8	19.8	**18.1**
9	RCH 951 BGII	21.8	21.4	17.7	12.2	19.4	**18.5**
10	C 9312 BGII	20.6	25.0	18.6	11.3	16.4	**18.4**
11	MC 5408 BGII	23.4	21.6	18.4	11.1	18.6	**18.6**
12	C 9313 BGII	24.6	27.2	17.4	14.7	17.8	**20.3**
13	MC 5403 BGII	19.9	17.3	16.8	10.7	19.4	**16.8**
	CD @ 5%	3.2	4.8	NS	2.6		
	CV %	8.4	13.4	6.8	12.1		

Table : Number of bolls / plant in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	ACH 955-2 BGII	47.3	51.8	39.0	44.9	48.8	**46.4**
2	RCH 866 BGII	50.9	51.3	41.4	28.6	45.4	**43.5**
3	CCH 666 BGII	33.8	42.6	30.7	31.3	42.6	**36.2**
4	SP7674 BGII	48.4	44.1	34.9	29.6	45.9	**40.6**
5	**ZC (RCH 773 BG II)**	41.2	36.3	35.6	37.2	43.6	**38.8**
6	**ZC (US 51 BG II)**	38.6	44.3	30.1	29.1	44.4	**37.3**
7	Bio 6515 BGII	35.8	48.1	36.9	36.3	54.2	**42.3**
8	SWCH 7716 BGII	43.1	42.9	22.8	25.4	37.8	**34.4**
9	RCH 951 BGII	42.8	49.8	37.8	33.2	48.4	**42.4**
10	C 9312 BGII	38.7	42.9	35.6	26.2	38.8	**36.4**
11	MC 5408 BGII	37.7	44.1	37.8	30.8	56.4	**41.4**
12	C 9313 BGII	52.0	43.0	40.8	42.0	47.6	**45.1**
13	MC 5403 BGII	33.0	37.0	39.1	36.4	40.4	**37.2**
	CD @ 5%	5.0	8.3	7.3	7.9		
	CV %	6.8	11.1	12.6	14.1		

Table : Number of bolls / sq.m. in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	ACH 955-2 BGII	178.7	152.7	100.7	132.8	74.0	**127.8**
2	RCH 866 BGII	193.3	158.4	85.2	81.2	64.8	**116.6**
3	CCH 666 BGII	142.7	159.8	59.6	90.4	58.0	**102.1**
4	SP7674 BGII	194.3	158.0	78.0	87.9	68.5	**117.3**
5	**ZC (RCH 773 BG II)**	187.3	122.7	77.4	118.6	66.1	**114.4**
6	**ZC (US 51 BG II)**	158.0	159.1	85.8	85.5	61.7	**110.0**
7	Bio 6515 BGII	151.0	176.7	79.1	108.5	80.9	**119.2**
8	SWCH 7716 BGII	172.0	151.3	61.5	70.1	55.0	**102.0**
9	RCH 951 BGII	185.7	158.7	102.8	100.5	69.6	**123.5**
10	C 9312 BGII	158.3	154.9	64.5	81.4	58.8	**103.6**
11	MC 5408 BGII	151.3	169.1	90.5	86.4	85.5	**116.6**
12	C 9313 BGII	206.3	117.1	95.5	112.3	69.2	**120.1**
13	MC 5403 BGII	137.0	148.4	81.7	105.1	61.9	**106.8**
	CD @ 5%	35.4	19.1	9.7	23.9		
	CV %	11.8	7.4	7.0	14.6		

Table : Lint Index (g) in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	ACH 955-2 BGII	5.0	5.1	5.5	5.3	5.1	**5.2**
2	RCH 866 BGII	5.8	4.4	5.0	5.0	6.0	**5.2**
3	CCH 666 BGII	4.6	4.5	4.8	4.5	4.8	**4.6**
4	SP7674 BGII	4.8	4.6	4.7	4.7	5.1	**4.8**
5	**ZC (RCH 773 BG II)**	4.7	4.5	4.8	5.2	5.6	**5.0**
6	**ZC (US 51 BG II)**	5.3	4.8	5.1	5.4	5.8	**5.3**
7	Bio 6515 BGII	5.1	4.7	5.3	5.4	5.9	**5.3**
8	SWCH 7716 BGII	5.6	5.0	6.0	6.2	6.3	**5.8**
9	RCH 951 BGII	4.7	4.5	5.6	5.0	5.3	**5.0**
10	C 9312 BGII	5.1	4.5	5.1	5.1	5.2	**5.0**
11	MC 5408 BGII	5.2	4.5	4.8	4.7	5.5	**4.9**
12	C 9313 BGII	5.1	4.5	4.7	4.4	4.8	**4.7**
13	MC 5403 BGII	5.1	4.5	4.9	4.9	5.5	**5.0**
	CD @ 5%	0.6	0.3	0.2	0.5		
	CV %	7.0	4.1	2.6	5.9		

Table : Seed Index (g) in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	ACH 955-2 BGII	8.5	9.4	9.8	10.6	10.4	**9.7**
2	RCH 866 BGII	10.5	10.4	10.2	11.4	12.3	**11.0**
3	CCH 666 BGII	8.5	8.3	8.3	9.4	8.8	**8.7**
4	SP7674 BGII	9.0	8.5	9.2	10.0	9.8	**9.3**
5	**ZC (RCH 773 BG II)**	8.9	9.6	9.0	9.8	11.4	**9.7**
6	**ZC (US 51 BG II)**	9.9	10.3	9.8	10.8	11.2	**10.4**
7	Bio 6515 BGII	9.4	9.5	10.1	10.3	11.0	**10.1**
8	SWCH 7716 BGII	11.1	10.6	12.1	13.1	12.3	**11.8**
9	RCH 951 BGII	8.3	8.4	10.5	9.6	10.1	**9.4**
10	C 9312 BGII	9.5	9.5	10.6	10.0	10.6	**10.0**
11	MC 5408 BGII	9.9	9.5	9.7	10.2	11.3	**10.1**
12	C 9313 BGII	9.3	9.6	9.5	10.0	10.0	**9.7**
13	MC 5403 BGII	9.6	10.2	9.3	11.2	11.5	**10.4**
	CD @ 5%	0.9	0.5	0.2	1.0		
	CV %	5.3	3.1	1.3	5.4		

Table : Ginning outturn (%) in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	ACH 955-2 BGII	37.0	35.3	35.9	33.3	32.8	**34.9**
2	RCH 866 BGII	35.8	29.6	33.0	30.5	32.7	**32.3**
3	CCH 666 BGII	34.9	35.1	36.9	32.5	35.5	**35.0**
4	SP7674 BGII	35.0	35.1	33.6	31.8	34.3	**34.0**
5	**ZC (RCH 773 BG II)**	34.8	31.7	34.6	34.7	32.8	**33.7**
6	**ZC (US 51 BG II)**	34.9	31.8	34.3	33.5	34.0	**33.7**
7	Bio 6515 BGII	35.1	32.8	34.7	34.2	34.9	**34.3**
8	SWCH 7716 BGII	33.7	32.0	33.8	32.2	33.9	**33.1**
9	RCH 951 BGII	36.4	34.9	34.7	34.0	34.5	**34.9**
10	C 9312 BGII	35.2	32.0	32.7	33.6	33.0	**33.3**
11	MC 5408 BGII	34.6	32.3	33.3	31.4	32.7	**32.9**
12	C 9313 BGII	35.2	31.8	33.5	30.5	32.3	**32.7**
13	MC 5403 BGII	34.5	30.7	34.3	30.6	32.2	**32.5**
	CD @ 5%	3.0	1.4	0.9	2.1		
	CV %	4.8	2.6	1.5	3.7		

Table : Upper Half Mean Length (mm) under HVI Mode in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	ACH 955-2 BGII	28.4	27.0	28.2	27.7	27.5	**27.8**
2	RCH 866 BGII	27.6	27.9	26.8	27.0	26.9	**27.2**
3	CCH 666 BGII	29.0	28.2	26.9	26.0	28.3	**27.7**
4	SP7674 BGII	27.9	26.0	26.3	25.4	25.3	**26.2**
5	**ZC (RCH 773 BG II)**	27.1	26.8	26.7	24.6	24.9	**26.0**
6	**ZC (US 51 BG II)**	28.9	28.2	27.2	25.5	26.4	**27.2**
7	Bio 6515 BGII	26.6	26.7	25.7	25.3	25.1	**25.9**
8	SWCH 7716 BGII	29.1	27.9	27.0	27.8	25.3	**27.4**
9	RCH 951 BGII	26.6	25.8	26.7	24.4	25.0	**25.7**
10	C 9312 BGII	26.7	25.8	25.9	24.9	26.9	**26.0**
11	MC 5408 BGII	29.4	28.4	27.6	27.4	28.7	**28.3**
12	C 9313 BGII	26.4	26.3	25.9	25.8	26.2	**26.1**
13	MC 5403 BGII	27.4	26.9	27.2	27.6	25.4	**26.9**

Table : Uniformity index under HVI Mode in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	ACH 955-2 BGII	85.0	85.0	86.0	87.0	87.0	**86.0**
2	RCH 866 BGII	84.0	85.0	85.0	87.0	86.0	**85.4**
3	CCH 666 BGII	83.0	82.0	84.0	84.0	85.0	**83.6**
4	SP7674 BGII	84.0	83.0	84.0	84.0	83.0	**83.6**
5	**ZC (RCH 773 BG II)**	85.0	85.0	85.0	83.0	83.0	**84.2**
6	**ZC (US 51 BG II)**	84.0	84.0	84.0	82.0	83.0	**83.4**
7	Bio 6515 BGII	85.0	85.0	84.0	85.0	82.0	**84.2**
8	SWCH 7716 BGII	85.0	86.0	85.0	88.0	83.0	**85.4**
9	RCH 951 BGII	85.0	84.0	85.0	85.0	84.0	**84.6**
10	C 9312 BGII	85.0	85.0	84.0	84.0	85.0	**84.6**
11	MC 5408 BGII	83.0	85.0	83.0	86.0	86.0	**84.6**
12	C 9313 BGII	83.0	84.0	83.0	84.0	84.0	**83.6**
13	MC 5403 BGII	82.0	85.0	82.0	85.0	83.0	**83.4**

Table : Micronaire under HVI Mode in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	ACH 955-2 BGII	4.7	4.3	3.8	4.9	4.6	**4.5**
2	RCH 866 BGII	4.7	4.4	4.1	4.7	4.4	**4.5**
3	CCH 666 BGII	4.5	4.6	4.5	5.2	4.9	**4.7**
4	SP7674 BGII	5.3	5.1	5.1	5.3	5.6	**5.3**
5	**ZC (RCH 773 BG II)**	4.7	4.9	4.4	4.7	4.8	**4.7**
6	**ZC (US 51 BG II)**	4.3	4.5	4.1	4.4	4.4	**4.3**
7	Bio 6515 BGII	4.6	4.7	4.5	4.5	5.0	**4.7**
8	SWCH 7716 BGII	4.3	4.9	4.2	4.5	4.3	**4.4**
9	RCH 951 BGII	4.8	4.9	4.3	5.5	4.7	**4.8**
10	C 9312 BGII	4.6	4.5	4.1	4.8	4.4	**4.5**
11	MC 5408 BGII	4.3	4.5	3.7	4.2	4.0	**4.1**
12	C 9313 BGII	4.5	4.6	4.3	4.7	4.4	**4.5**
13	MC 5403 BGII	4.3	4.5	4.2	4.4	4.5	**4.4**

Table : Tenacity under HVI Mode in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	ACH 955-2 BGII	27.5	28.0	30.6	29.4	29.4	**29.0**
2	RCH 866 BGII	28.1	29.5	27.2	27.3	28.1	**28.0**
3	CCH 666 BGII	26.9	28.7	29.1	27.9	28.4	**28.2**
4	SP7674 BGII	28.3	28.6	29.2	26.6	26.9	**27.9**
5	**ZC (RCH 773 BG II)**	27.2	28.9	31.5	26.0	26.4	**28.0**
6	**ZC (US 51 BG II)**	28.8	27.4	29.0	27.3	28.3	**28.2**
7	Bio 6515 BGII	26.5	29.1	29.2	27.1	27.0	**27.8**
8	SWCH 7716 BGII	29.1	31.1	33.5	30.1	26.5	**30.1**
9	RCH 951 BGII	26.8	27.9	28.9	24.2	27.0	**27.0**
10	C 9312 BGII	28.1	29.1	28.2	25.6	27.8	**27.8**
11	MC 5408 BGII	28.9	26.2	27.7	28.7	29.7	**28.2**
12	C 9313 BGII	26.8	26.4	29.7	27.8	28.0	**27.7**
13	MC 5403 BGII	27.7	28.6	25.9	28.1	27.3	**27.5**

Table : Seed Cotton Yield (q/ha) in Advanced Evaluation Trial of H X H hybrids

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	ACH 955-2 BGII	34.07	44.51	37.24	39.07	24.49	**35.88**
2	RCH 866 BGII	36.78	42.92	25.92	35.13	26	**33.35**
3	CCH 666 BGII	25.28	33.21	17.28	27.95	17.65	**24.27**
4	SP7674 BGII	36.23	35.53	15.02	37.76	19.99	**28.91**
5	**ZC (RCH 773 BG II)**	32.55	40.47	29.22	38.42	25.35	**33.20**
6	**ZC (US 51 BG II)**	29.99	32.28	19.75	28.54	17.73	**25.66**
7	Bio 6515 BGII	28.8	37.65	20.99	36.36	25.92	**29.94**
8	SWCH 7716 BGII	32.67	33.72	18.31	32.32	16.86	**26.78**
9	RCH 951 BGII	31.65	33.79	29.22	31.38	25.07	**30.22**
10	C 9312 BGII	29.62	35.78	25.31	30.72	20.44	**28.37**
11	MC 5408 BGII	29.01	35.68	27.78	33.2	26.25	**30.38**
12	C 9313 BGII	35.53	38.6	16.67	31.36	24.33	**29.30**
13	MC 5403 BGII	25.97	34.61	29.83	31.22	20.06	**28.34**
	CD @ 5%	5.644	6.12	4.38	2.91	3.91	
	CV %	10.2	9.86	10.73	5.15	10.35	

Table :Quantity of Cry 1Ac Protein (ppm) in Sirsa in Advanced Evaluation Trial of H X H hybrids

Entry	Leaf				Square			Bolls	
	30D	60D	90D	120D	60D	90D	120D	90D	120D
ACH 955-2 BGII	2.29	3.80	4.48	2.14	2.06	2.41	2.00	2.07	1.83
RCH 866 BGII	2.50	3.40	5.13	1.25	2.39	3.09	1.76	2.18	2.39
CCH 666 BGII	1.83	2.34	4.68	1.13	1.80	3.18	2.47	2.26	1.66
SP7674 BGII	2.22	3.13	4.29	1.45	2.05	2.61	1.70	2.30	2.79
ZC (RCH 773 BG II)	2.12	3.37	4.56	1.66	2.14	3.12	1.82	2.17	3.34
ZC (US 51 BG II)	2.14	4.37	4.88	2.29	2.22	3.05	1.45	2.37	3.03
Bio 6515 BGII	2.05	4.10	4.09	2.07	2.09	2.88	1.62	2.28	2.47
SWCH 7716 BGII	1.66	2.24	4.18	2.23	2.01	3.21	2.02	2.32	3.04
RCH 951 BGII	2.11	3.74	4.95	1.54	2.29	2.88	2.42	2.70	3.29
C 9312 BGII	2.03	3.48	4.06	2.87	2.40	2.70	2.06	2.07	2.33
MC 5408 BGII	1.48	3.10	4.22	2.26	2.07	2.25	1.62	2.88	2.39
C 9313 BGII	3.22	3.26	4.41	2.65	2.06	2.15	1.71	2.78	2.78
MC 5403 BGII	2.22	2.97	4.53	2.19	2.01	2.71	2.38	2.31	2.56
Local Check	2.31	3.35	4.20	2.39	2.36	3.38	1.72	3.04	2.22

Table: Quantity of Cry 2Ab Protein (ppm) in Sirsa in Advanced Evaluation Trial of H X H hybrids

Entry	Leaf				Square			Bolls	
	30D	60D	90D	120D	60D	90D	120D	90D	120D
ACH 955-2 BGII	218.93	285.55	297.11	205.17	198.78	224.62	211.94	187.95	305.46
RCH 866 BGII	212.95	291.53	312.13	190.46	190.31	206.27	207.61	214.67	192.76
CCH 666 BGII	156.40	235.63	292.26	186.12	156.23	228.60	178.68	173.08	238.99
SP7674 BGII	189.54	242.28	281.24	190.67	198.93	202.68	182.30	166.21	170.35
ZC (RCH 773 BG II)	230.01	285.57	322.21	200.91	220.84	211.15	207.90	210.95	163.45
ZC (US 51 BG II)	274.73	283.62	305.61	184.59	161.71	226.26	206.19	195.93	211.39
Bio 6515 BGII	173.05	292.90	287.81	167.16	160.70	203.84	171.52	182.38	169.03
SWCH 7716 BGII	147.20	294.77	281.00	189.94	175.56	201.85	117.10	164.55	155.35
RCH 951 BGII	186.83	234.31	308.77	131.24	176.27	187.15	174.10	198.61	158.69
C 9312 BGII	205.65	272.86	327.76	203.62	212.90	220.71	180.39	223.71	159.68
MC 5408 BGII	110.13	153.62	296.65	225.78	187.55	187.65	165.19	179.84	182.13
C 9313 BGII	174.80	179.22	286.40	173.95	160.78	182.43	203.60	192.23	186.68
MC 5403 BGII	181.83	218.90	308.56	135.56	143.43	207.24	158.65	194.22	132.01
Local Check	160.227	230.48	295.46	161.81	218.83	218.23	224.36	192.89	170.17

Table :Quantity of Cry 1Ac Protein (ppm) in PAU Faridkot in Advanced Evaluation Trial of H X H hybrids

Entry	Leaf				Square*		Bolls	
	30D	60D	90D	120D	60D	90D	90D	120D
ACH 955-2 BGII	2.44	5.83	5.80	1.58	3.53	2.83	4.30	1.17
RCH 866 BGII	2.07	4.55	5.65	1.82	4.05	3.75	4.32	3.10
CCH 666 BGII	1.79	4.54	5.12	1.37	4.74	3.54	3.98	3.27
SP7674 BGII	2.02	6.55	5.55	1.49	3.12	3.77	3.12	3.07
ZC (RCH 773 BG II)	3.30	6.58	7.00	2.00	3.82	3.88	3.90	3.16
ZC (US 51 BG II)	1.53	3.52	7.69	1.89	2.84	2.73	3.32	2.52
Bio 6515 BGII	2.80	4.28	5.91	0.68	2.95	2.20	2.58	2.10
SWCH 7716 BGII	2.10	4.07	7.33	1.09	2.12	2.86	2.24	2.01
RCH 951 BGII	2.49	4.16	8.08	1.68	2.23	2.68	2.18	3.31
C 9312 BGII	2.56	5.09	6.16	2.24	2.44	2.93	2.61	2.10
MC 5408 BGII	3.07	4.05	4.46	1.94	2.85	2.40	2.50	2.43
C 9313 BGII	4.07	4.20	5.97	1.94	2.07	2.51	2.23	3.04
MC 5403 BGII	4.11	4.37	5.34	1.22	3.59	3.10	2.35	1.48

*Square samples @120D interval was damaged

Table: Quantity of Cry 2Ab Protein (ppm) in PAU Faridkot in Advanced Evaluation Trial of H X H hybrids

Entry	Leaf				Square*		Bolls	
	30D	60D	90D	120D	60D	90D	90D	120D
ACH 955-2 BGII	207.63	284.43	280.18	212.84	228.06	237.54	192.41	69.83
RCH 866 BGII	183.13	285.93	298.75	165.27	254.58	265.48	76.753	159.06
CCH 666 BGII	177.15	302.20	261.66	200.38	260.47	265.72	107.85	169.74
SP7674 BGII	165.03	235.42	291.53	135.62	223.15	244.25	95.63	113.49
ZC (RCH 773 BG II)	231.93	310.99	294.43	126.60	239.77	258.89	35.33	103.23
ZC (US 51 BG II)	170.92	291.58	300.59	140.60	253.64	260.51	107.94	100.92
Bio 6515 BGII	200.90	296.71	257.26	167.72	239.74	222.72	89.26	58.44
SWCH 7716 BGII	129.59	220.98	282.68	212.75	186.20	223.32	147.83	116.54
RCH 951 BGII	171.33	181.32	286.49	151.02	200.56	216.43	145.78	136.61
C 9312 BGII	143.51	284.28	211.49	186.07	188.62	213.66	137.90	90.04
MC 5408 BGII	147.39	286.42	296.17	129.36	280.66	252.56	158.11	70.81
C 9313 BGII	115.70	293.11	267.44	176.87	178.43	228.22	137.04	79.63
MC 5403 BGII	188.84	277.33	287.22	156.77	206.44	223.24	135.89	31.28

*Square samples @120D interval was damaged

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect Pests

Table: Advance H X H trial in North Zone under protected Conditions – Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)					
	FA	HI	SI	SG	Mean	Remark
ACH 955-2 BGII	5.53	7.49	1.11	1.02	3.79	BETL
RCH 866 BGII	6.22	6.78	0.89	0.93	3.70	BETL
CCH 666 BGII	7.83	8.31	1.26	0.53	4.48	BETL
SP7674 BGII	7.47	8.31	1.11	0.91	4.45	BETL
Zonal BGII Check – 1 RCH 773 BG II	6.83	10.04	1.15	0.69	4.68	BETL
Zonal BGII Check – 2 US 51 BG II	6.91	10.44	1.11	0.96	4.85	BETL
Bio 6515 BGII	7.13	8.91	1.15	0.89	4.52	BETL
SWCH 7716 BGII	6.36	9.69	0.89	0.93	4.47	BETL
RCH 951 BGII	6.20	8.18	0.85	0.53	3.94	BETL
C 9312 BGII	8.19	9.60	1.04	1.02	4.96	BETL
MC5408 BGII	6.44	9.89	0.96	0.69	4.50	BETL
C 9313 BGII	8.26	9.13	1.07	0.89	4.84	BETL
MC5403 BGII	6.93	7.13	1.11	0.73	3.98	BETL

Table: Advance H X H trial in North Zone under protected Conditions – Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)					
	FA	HI	SI	SG	Mean	Remark
ACH 955-2 BGII	17.77	23.67	21.56	19.51	20.63	BETL
RCH 866 BGII	17.03	22.07	23.37	13.00	18.87	BETL
CCH 666 BGII	16.71	26.91	21.85	13.29	19.69	BETL
SP7674 BGII	17.45	24.49	21.37	10.40	18.43	BETL
Zonal BGII Check – 1 RCH 773 BG II	9.43	24.67	19.30	18.87	18.06	BETL
Zonal BGII Check – 2 US 51 BG II	17.54	21.93	20.26	15.07	18.70	BETL
Bio 6515 BGII	16.91	22.24	19.93	10.40	17.37	BETL
SWCH 7716 BGII	18.02	23.53	21.22	15.00	19.44	BETL
RCH 951 BGII	18.10	20.44	21.15	9.07	17.19	BETL
C 9312 BGII	18.18	24.18	20.81	10.73	18.48	BETL
MC5408 BGII	16.24	23.73	19.04	12.33	17.84	BETL
C 9313 BGII	16.47	24.22	18.30	15.91	18.72	BETL
MC5403 BGII	21.28	20.44	21.19	16.16	19.77	BETL

Table: Advance H X H trial in North Zone under protected Conditions – Whitefly

Name of Entry	Whitefly(Average of 3 leaves/plant)					
	FA	HI	SI	SG	Mean	Remark
ACH 955-2 BGII	13.14	39.67	11.44	22.53	21.70	AETL
RCH 866 BGII	13.83	76.98	11.19	16.53	29.63	AETL
CCH 666 BGII	11.67	73.11	10.33	24.53	29.91	AETL
SP7674 BGII	12.73	61.51	11.00	20.89	26.53	AETL
Zonal BGII Check – 1 RCH 773 BG II	12.54	65.76	10.70	16.07	26.27	AETL
Zonal BGII Check – 2 US 51 BG II	12.21	67.80	11.48	26.89	29.59	AETL
Bio 6515 BGII	13.04	79.00	11.11	18.56	30.43	AETL
SWCH 7716 BGII	14.42	70.20	10.44	18.31	28.34	AETL
RCH 951 BGII	13.40	61.84	10.67	19.89	26.45	AETL
C 9312 BGII	11.90	71.09	10.48	21.53	28.75	AETL
MC5408 BGII	10.18	70.76	10.59	24.76	29.07	AETL
C 9313 BGII	11.61	79.89	10.78	22.49	31.19	AETL
MC5403 BGII	13.78	81.62	10.11	26.42	32.98	AETL

Table: Advance H X H trial in North Zone under protected Conditions – Natural Enemies

Name of Entry	Natural Enemies (No./Plant)		
	SI	SG	Mean
ACH 955-2 BGII	0.43	2.25	1.34
RCH 866 BGII	0.44	2.17	1.31
CCH 666 BGII	0.40	2.67	1.53
SP7674 BGII	0.42	2.33	1.38
Zonal BGII Check – 1 RCH 773 BG II	0.38	1.83	1.11
Zonal BGII Check – 2 US 51 BG II	0.39	2.17	1.28
Bio 6515 BGII	0.31	3.58	1.95
SWCH 7716 BGII	0.37	1.92	1.14
RCH 951 BGII	0.48	2.17	1.32
C 9312 BGII	0.36	2.58	1.47
MC5408 BGII	0.32	3.17	1.74
C 9313 BGII	0.39	2.50	1.44
MC5403 BGII	0.39	2.00	1.19

Table: Advance H X H trial in North Zone under protected Conditions –*Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera*(No./5 Plant)					
	FA	HI	SI	SG	Mean	Remark
ACH 955-2 BGII	0.00	0.00	0.00	0.00	0.00	BETL
RCH 866 BGII	0.00	0.00	0.00	0.00	0.00	BETL
CCH 666 BGII	0.00	0.00	0.00	0.00	0.00	BETL
SP7674 BGII	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Bio 6515 BGII	0.00	0.00	0.00	0.00	0.00	BETL
SWCH 7716 BGII	0.00	0.00	0.00	0.00	0.00	BETL
RCH 951 BGII	0.00	0.00	0.00	0.00	0.00	BETL
C 9312 BGII	0.00	0.00	0.00	0.00	0.00	BETL
MC5408 BGII	0.00	0.00	0.00	0.00	0.00	BETL
C 9313 BGII	0.00	0.00	0.00	0.00	0.00	BETL
MC5403 BGII	0.00	0.00	0.00	0.00	0.00	BETL

Table: Advance H X H trial in North Zone under protected Conditions –Spotted Bollworms

Name of Entry	Spotted Bollworms (No./5 Plant)				
	FA	HI	SI	Mean	Remark
ACH 955-2 BGII	0.00	0.00	0.44	0.15	BETL
RCH 866 BGII	0.00	0.00	0.00	0.00	BETL
CCH 666 BGII	0.00	0.00	0.56	0.19	BETL
SP7674 BGII	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.56	0.19	BETL
Bio 6515 BGII	0.00	0.00	0.00	0.00	BETL
SWCH 7716 BGII	0.00	0.00	0.00	0.00	BETL
RCH 951 BGII	0.00	0.00	0.00	0.00	BETL
C 9312 BGII	0.00	0.00	0.00	0.00	BETL
MC5408 BGII	0.00	0.00	0.00	0.00	BETL
C 9313 BGII	0.00	0.00	0.00	0.00	BETL
MC5403 BGII	0.00	0.00	0.00	0.00	BETL

Table: Advance H X H trial in North Zone under protected Conditions –*Spodoptera litura*

Name of Entry	*Spodoptera litura*(No./5 Plant)				
	FA	HI	SI	Mean	Remark
ACH 955-2 BGII	0.00	0.00	0.00	0.00	BETL
RCH 866 BGII	0.00	0.00	0.00	0.00	BETL
CCH 666 BGII	0.00	0.00	0.00	0.00	BETL
SP7674 BGII	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.00	0.00	0.00	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.00	0.00	BETL
Bio 6515 BGII	0.00	0.00	0.00	0.00	BETL
SWCH 7716 BGII	0.00	0.00	0.00	0.00	BETL
RCH 951 BGII	0.00	0.00	0.00	0.00	BETL
C 9312 BGII	0.00	0.00	0.00	0.00	BETL
MC5408 BGII	0.00	0.00	0.00	0.00	BETL
C 9313 BGII	0.00	0.00	0.00	0.00	BETL
MC5403 BGII	0.00	0.00	0.00	0.00	BETL

Table: Advance H X H trial in North Zone under protected Conditions –Green Boll damage

Name of Entry	Green Boll damage (%)			
	FA	HI	Mean	Remark
ACH 955-2 BGII	0.00	0.00	0.00	BETL
RCH 866 BGII	0.00	1.11	0.56	BETL
CCH 666 BGII	0.00	0.00	0.00	BETL
SP7674 BGII	0.00	0.00	0.00	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.00	0.00	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.00	BETL
Bio 6515 BGII	0.00	0.00	0.00	BETL
SWCH 7716 BGII	0.00	0.00	0.00	BETL
RCH 951 BGII	0.00	0.00	0.00	BETL
C 9312 BGII	0.00	0.00	0.00	BETL
MC5408 BGII	0.00	0.00	0.00	BETL
C 9313 BGII	0.90	0.00	0.45	BETL
MC5403 BGII	0.00	0.00	0.00	BETL

Table: Advance H X H trial in North Zone under protected Conditions –Green Boll damage (Pink bollworms)

Name of Entry	Green Boll damage(Percent/10 bolls destructive sampling)		
	HI	Mean	Remark
ACH 955-2 BGII	0.00	0.00	BETL
RCH 866 BGII	0.00	0.00	BETL
CCH 666 BGII	1.11	1.11	BETL
SP7674 BGII	3.33	3.33	BETL
Zonal BGII Check – 1 RCH 773 BG II	3.33	3.33	BETL
Zonal BGII Check – 2 US 51 BG II	1.11	1.11	BETL
Bio 6515 BGII	1.11	1.11	BETL
SWCH 7716 BGII	1.11	1.11	BETL
RCH 951 BGII	2.22	2.22	BETL
C 9312 BGII	2.22	2.22	BETL
MC5408 BGII	1.11	1.11	BETL
C 9313 BGII	0.00	0.00	BETL
MC5403 BGII	0.00	0.00	BETL

Table: Advance H X H trial in North Zone under protected Conditions –Open Boll damage

Name of Entry	Open Boll damage (%)					
	FA	HI	SI	SG	Mean	Remark
ACH 955-2 BGII	0.00	4.47	1.91	0.00	1.59	BETL
RCH 866 BGII	0.00	7.02	0.00	0.00	1.76	BETL
CCH 666 BGII	0.00	3.49	2.47	0.00	1.49	BETL
SP7674 BGII	0.00	5.58	0.00	0.00	1.39	BETL
Zonal BGII Check – 1 RCH 773 BG II	0.00	3.94	0.00	0.00	0.99	BETL
Zonal BGII Check – 2 US 51 BG II	0.00	3.28	4.30	0.00	1.90	BETL
Bio 6515 BGII	0.42	9.10	0.00	0.00	2.38	BETL
SWCH 7716 BGII	0.00	5.22	0.00	0.00	1.31	BETL
RCH 951 BGII	0.00	6.30	0.00	0.00	1.57	BETL
C 9312 BGII	0.00	3.31	0.00	0.00	0.83	BETL
MC5408 BGII	0.00	2.34	0.00	0.00	0.59	BETL
C 9313 BGII	0.00	4.03	0.00	0.00	1.01	BETL
MC5403 BGII	0.00	5.49	0.00	0.00	1.37	BETL

Table: Advance H X H trial in North Zone under protected Conditions –Locule damage

Name of Entry	Locule damage (%)				
	FA	HI	SI	SG	Mean
ACH 955-2 BGII	0.00	0.41	0.64	0.00	0.26
RCH 866 BGII	0.00	0.33	0.00	0.00	0.08
CCH 666 BGII	0.00	1.36	1.31	0.00	0.67
SP7674 BGII	0.00	0.72	0.00	0.00	0.18
Zonal BGII Check – 1 RCH 773 BG II	0.00	1.14	0.00	0.00	0.28
Zonal BGII Check – 2 US 51 BG II	0.00	0.45	1.64	0.00	0.52
Bio 6515 BGII	0.20	0.85	0.00	0.00	0.26
SWCH 7716 BGII	0.00	0.52	0.00	0.00	0.13
RCH 951 BGII	0.00	1.16	0.00	0.00	0.29
C 9312 BGII	0.00	1.69	0.00	0.00	0.42
MC5408 BGII	0.00	0.34	0.00	0.00	0.08
C 9313 BGII	0.00	0.00	0.00	0.00	0.00
MC5403 BGII	0.00	0.52	0.00	0.00	0.13

Table: Advance H X H trial in North Zone under protected Conditions –Number of sprays for sucking pest

Name of Entry	Number of sprays for sucking pests			
	HI	SI	SG	Mean
ACH 955-2 BGII	5.00	3.00	4.00	4.00
RCH 866 BGII	5.00	3.00	4.00	4.00
CCH 666 BGII	5.00	3.00	4.00	4.00
SP7674 BGII	5.00	3.00	4.00	4.00
Zonal BGII Check – 1 RCH 773 BG II	5.00	3.00	4.00	4.00
Zonal BGII Check – 2 US 51 BG II	5.00	3.00	4.00	4.00
Bio 6515 BGII	5.00	3.00	4.00	4.00
SWCH 7716 BGII	5.00	3.00	4.00	4.00
RCH 951 BGII	5.00	3.00	4.00	4.00
C 9312 BGII	5.00	3.00	4.00	4.00
MC5408 BGII	5.00	3.00	4.00	4.00
C 9313 BGII	5.00	3.00	4.00	4.00
MC5403 BGII	5.00	3.00	4.00	4.00

Table. *Helicoverpa armigera* bioassay on Advance HxH hybrid trial in leaf in laboratory condition at ICAR-CICR Sirsa

Name of Entry	Mortality (%)						
	30DAS	60 DAS	80 DAS	100 DAS	120 DAS	140 DAS	Mean
ACH 955-2 BGII	100.0	100.0	100.0	100.0	100.0	100.0	100.0
RCH 866 BGII	100.0	100.0	100.0	100.0	100.0	100.0	100.0
CCH 666 BGII	100.0	100.0	100.0	100.0	100.0	100.0	100.0
SP7674 BGII	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Zonal BGII Check – 1 RCH 773 BG II	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Zonal BGII Check – 2 US 51 BG II	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Bio 6515 BGII	100.0	100.0	100.0	100.0	100.0	100.0	100.0
SWCH 7716 BGII	100.0	100.0	100.0	100.0	100.0	100.0	100.0
RCH 951 BGII	100.0	100.0	100.0	100.0	100.0	100.0	100.0
C 9312 BGII	100.0	100.0	100.0	100.0	100.0	100.0	100.0
MC5408 BGII	100.0	100.0	100.0	100.0	100.0	100.0	100.0
C 9313 BGII	100.0	100.0	100.0	100.0	100.0	100.0	100.0
MC5403 BGII	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table.Helicoverpaarmigera bioassay on AdvanceHxH hybrid trial in Square, flower and bolls in laboratory condition at ICAR-CICR Sirsa

Name of Entry	Mortality (%)			
	Square (70DAS)	Flower(80DAS)	Bolls(100)	Mean
ACH 955-2 BGII	100.00	100.00	100.00	100.00
RCH 866 BGII	100.00	100.00	100.00	100.00
CCH 666 BGII	100.00	100.00	100.00	100.00
SP7674 BGII	100.00	100.00	100.00	100.00
Zonal BGII Check – 1 RCH 773 BG II	100.00	100.00	100.00	100.00
Zonal BGII Check – 2 US 51 BG II	100.00	100.00	100.00	100.00
Bio 6515 BGII	100.00	100.00	100.00	100.00
SWCH 7716 BGII	100.00	100.00	100.00	100.00
RCH 951 BGII	100.00	100.00	100.00	100.00
C 9312 BGII	100.00	100.00	100.00	100.00
MC5408 BGII	100.00	100.00	100.00	100.00
C 9313 BGII	100.00	100.00	100.00	100.00
MC5403 BGII	100.00	100.00	100.00	100.00

Reaction to Diseases

Table . Advanced Evaluation Trial of Intra-Hirsutum Hybrids – II (Retained Entries) under protected conditions under protected conditions

Entry	Average CLCuD PDI & Disease Reaction (DR): Protected conditions									
	Faridkot		Bathinda		Sriganganagar		Sirsa		Hisar	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
ACH 955-2 BGII	1.8	HR	2.1	R	10.3	R	9.0	HR	16.7	R
RCH 866 BGII	1.2	HR	2.1	R	4.8	HR	3.3	HR	10.6	R
CCH 666 BGII	31.6	MS	21.9	MR	27.0	MR	19.7	R	22.6	MR
SP7674 BGII	50.5	HS	8.3	R	29.8	MR	20.8	MR	22.5	MR
ZC– 1 RCH 773 BG II	26.1	MR	4.2	R	16.6	R	21.7	MR	26.0	MR
ZC– 2 US 51 BG II	31.5	MS	9.4	R	25.0	MR	25.0	MR	15.7	R
Bio 6515 BGII	22.4	MR	4.2	R	21.0	MR	19.7	R	23.7	MR
SWCH 7716 BGII	25.5	MR	0.0	HR	24.8	MR	19.2	R	26.1	MR
RCH 951 BGII	16.1	R	6.3	HR	18.8	R	17.7	R	22.3	MR
C 9312 BGII	24.4	MR	17.7	R	20.6	MR	14.1	R	23.1	MR
MC5408 BGII	2.6	HR	3.1	HR	4.5	HR	8.5	HR	16.7	R
C 9313 BGII	17.3	R	7.3	HR	15.9	R	13.1	R	16.7	R
MC5403 BGII	1.2	HR	1.0	HR	9.9	HR	11.6	R	22.9	MR

Table . Advanced Evaluation Trial of Intra-Hirsutum Hybrids – II (Retained Entries) under protected conditions under protected conditions

Entry Name	Average PDI & Disease Reaction (DR): Protected conditions							
	FFS				Bacterial leaf blight			
	Faridkot		Bathinda		Faridkot		Bathinda	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR
ACH 955-2 BGII	4.2	R	8.0	R	0.0	DF	0.0	DF
RCH 866 BGII	6.3	R	5.5	R	0.0	DF	0.0	DF
CCH 666 BGII	4.6	R	6.3	R	0.0	DF	0.0	DF
SP7674 BGII	5.0	R	7.3	R	0.0	DF	0.0	DF
ZC– 1 RCH 773 BG II	13.8	R	6.5	R	0.0	DF	0.0	DF
ZC– 2 US 51 BG II	11.7	R	6.8	R	0.0	DF	0.0	DF
Bio 6515 BGII	6.7	R	8.5	R	0.0	DF	0.0	DF
SWCH 7716 BGII	4.2	R	4.8	R	0.0	DF	0.0	DF
RCH 951 BGII	5.8	R	4.0	R	0.0	DF	0.0	DF
C 9312 BGII	6.3	R	5.0	R	0.0	DF	0.0	DF
MC5408 BGII	4.6	R	6.5	R	0.0	DF	0.0	DF
C 9313 BGII	4.2	R	7.5	R	0.0	DF	0.0	DF
MC5403 BGII	5.4	R	10.0	R	0.0	DF	0.0	DF

Evaluation under unprotected condition for insect pests and diseases:
Reaction to Insect Pests

Table: Advance H X H trial in North Zone under unprotected Conditions – Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)					
	FA	BT	HI	SI	SG	Mean
ACH 955-2 BGII	7.38	1.80	8.96	1.89	1.18	4.24
RCH 866 BGII	8.31	1.87	9.22	1.94	1.40	4.55
CCH 666 BGII	8.81	2.50	8.36	2.11	0.89	4.53
SP7674 BGII	6.63	2.43	9.82	2.11	1.51	4.50
Zonal BGII Check – 1 RCH 773 BG II	7.72	3.07	8.13	1.94	1.29	4.43
Zonal BGII Check – 2 US 51 BG II	8.17	2.43	9.71	2.17	1.44	4.78
Bio 6515 BGII	10.52	1.90	10.91	2.11	1.22	5.33
SWCH 7716 BGII	8.50	2.03	9.00	2.28	1.20	4.60
RCH 951 BGII	9.59	1.57	9.93	2.06	1.00	4.83
C 9312 BGII	10.04	1.63	11.86	1.78	1.64	5.39
MC5408 BGII	11.61	2.10	9.42	2.17	1.00	5.26
C 9313 BGII	10.18	2.20	9.49	2.17	1.53	5.11
MC5403 BGII	7.22	2.13	12.87	2.33	1.04	5.12

Table: Advance H X H trial in North Zone under unprotected Conditions – Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)					
	FA	BT	HI	SI	SG	Mean
ACH 955-2 BGII	15.83	38.8	77.62	31.83	32.04	39.23
RCH 866 BGII	17.39	36.8	72.47	35.22	23.64	37.10
CCH 666 BGII	20.19	35.5	70.67	30.72	23.67	36.15
SP7674 BGII	18.52	40.3	80.62	28.44	22.09	37.99
Zonal BGII Check – 1 RCH 773 BG II	18.91	36	70.98	30.50	33.07	37.89
Zonal BGII Check – 2 US 51 BG II	17.03	34.5	79.33	29.72	26.98	37.51
Bio 6515 BGII	20.09	38.4	84.58	31.39	23.09	39.51
SWCH 7716 BGII	20.63	37.8	83.49	33.22	28.96	40.82
RCH 951 BGII	19.01	40.6	81.22	33.22	21.80	39.17
C 9312 BGII	17.23	43.6	82.69	31.61	25.07	40.04
MC5408 BGII	20.02	33.6	78.56	32.22	25.29	37.94
C 9313 BGII	16.87	38.5	82.89	34.11	28.73	40.22
MC5403 BGII	18.41	40.7	89.98	30.56	28.91	41.71

Table: Advance H X H trial in North Zone under unprotected Conditions – Whitefly

Name of Entry	Whitefly(Average of 3 leaves/plant)					
	FA	BT	HI	SI	SG	Mean
ACH 955-2 BGII	13.65	6.60	82.47	10.61	31.93	29.05
RCH 866 BGII	18.98	5.40	90.38	11.83	25.80	30.48
CCH 666 BGII	14.37	6.43	83.29	11.06	34.31	29.89
SP7674 BGII	17.32	6.33	89.71	10.89	33.58	31.57
Zonal BGII Check – 1 RCH 773 BG II	14.97	6.63	83.93	11.50	25.96	28.60
Zonal BGII Check – 2 US 51 BG II	14.20	6.03	85.33	11.89	41.09	31.71
Bio 6515 BGII	14.85	5.37	86.64	10.78	29.62	29.45
SWCH 7716 BGII	16.20	6.20	89.53	12.11	28.64	30.54
RCH 951 BGII	17.08	7.13	85.42	12.11	30.71	30.49
C 9312 BGII	19.57	6.10	87.79	11.00	32.87	31.47
MC5408 BGII	17.38	7.07	95.87	11.94	36.33	33.72
C 9313 BGII	18.18	7.60	90.18	10.83	30.84	31.53
MC5403 BGII	15.68	7.07	96.76	12.56	38.64	34.14

Table: Advance H X H trial in North Zone under unprotected Conditions – Natural Enemies

Name of Entry	Natural Enemies(No./Plant)		
	SI	SG	Mean
ACH 955-2 BGII	1.67	3.50	2.58
RCH 866 BGII	1.98	2.33	2.16
CCH 666 BGII	1.57	3.25	2.41
SP7674 BGII	1.62	3.33	2.48
Zonal BGII Check – 1 RCH 773 BG II	1.62	3.50	2.56
Zonal BGII Check – 2 US 51 BG II	1.99	4.25	3.12
Bio 6515 BGII	1.61	4.08	2.85
SWCH 7716 BGII	1.71	2.75	2.23
RCH 951 BGII	1.81	2.50	2.15
C 9312 BGII	1.45	3.83	2.64
MC5408 BGII	1.40	3.83	2.62
C 9313 BGII	1.51	3.58	2.55
MC5403 BGII	1.97	3.67	2.82

Table: Advance H X H trial in North Zone under unprotected Conditions –*Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera*(No./5 Plant)					
	FA	BT	HI	SI	SG	Mean
ACH 955-2 BGII	0.00	0.00	0.00	0.00	0.00	0.00
RCH 866 BGII	0.00	0.00	0.00	0.00	0.00	0.00
CCH 666 BGII	0.00	0.00	0.00	0.00	0.00	0.00
SP7674 BGII	0.00	0.00	0.00	0.00	0.00	0.00
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.00	0.00	0.00	0.00	0.00
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.00	0.00	0.00	0.00
Bio 6515 BGII	0.00	0.00	0.00	0.00	0.00	0.00
SWCH 7716 BGII	0.00	0.00	0.00	0.00	0.00	0.00
RCH 951 BGII	0.00	0.00	0.00	0.00	0.00	0.00
C 9312 BGII	0.00	0.00	0.00	0.00	0.00	0.00
MC5408 BGII	0.00	0.00	0.00	0.00	0.00	0.00
C 9313 BGII	0.00	0.00	0.00	0.00	0.00	0.00
MC5403 BGII	0.00	0.00	0.00	0.00	0.00	0.00

Table: Advance H X H trial in North Zone under unprotected Conditions –Spotted Bollworms

Name of Entry	Spotted Bollworms (No./5 Plant)					
	FA	BT	HI	SI	SG	Mean
ACH 955-2 BGII	0.00	0.33	0.00	0.00	0.08	0.00
RCH 866 BGII	0.00	0.00	0.00	0.00	0.00	0.00
CCH 666 BGII	0.00	0.00	0.00	0.78	0.20	0.00
SP7674 BGII	0.00	0.33	0.00	0.00	0.08	0.00
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.00	0.00	0.00	0.00	0.00
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.00	0.44	0.11	0.00
Bio 6515 BGII	0.00	0.00	0.00	0.00	0.00	0.00
SWCH 7716 BGII	0.00	0.33	0.00	0.00	0.08	0.00
RCH 951 BGII	0.00	0.00	0.00	0.00	0.00	0.00
C 9312 BGII	0.00	0.00	0.00	0.00	0.00	0.00
MC5408 BGII	0.00	0.33	0.00	0.00	0.08	0.00
C 9313 BGII	0.00	0.00	0.00	0.00	0.00	0.00
MC5403 BGII	0.00	0.00	0.00	0.00	0.00	0.00

Table: Advance H X H trial in North Zone under unprotected Conditions –*Spodoptera litura*

Name of Entry	*Spodoptera litura*(No./5 Plant)					
	FA	BT	HI	SI	SG	Mean
ACH 955-2 BGII	0.00	0.00	0.00	0.00	0.00	0.00
RCH 866 BGII	0.00	0.00	0.00	0.00	0.00	0.00
CCH 666 BGII	0.00	0.00	0.00	0.00	0.00	0.00
SP7674 BGII	0.00	0.00	0.00	0.00	0.00	0.00
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.00	0.00	0.00	0.00	0.00
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.00	0.00	0.00	0.00
Bio 6515 BGII	0.00	0.00	0.00	0.00	0.00	0.00
SWCH 7716 BGII	0.00	0.00	0.00	0.00	0.00	0.00
RCH 951 BGII	0.00	0.00	0.00	0.00	0.00	0.00
C 9312 BGII	0.00	0.00	0.00	0.00	0.00	0.00
MC5408 BGII	0.00	0.00	0.00	0.00	0.00	0.00
C 9313 BGII	0.00	0.00	0.00	0.00	0.00	0.00
MC5403 BGII	0.00	0.00	0.00	0.00	0.00	0.00

Table: Advance H X H trial in North Zone under unprotected Conditions – Pink Bollworm

Name of Entry	Pink Bollworm(No./10 bolls destructive sampling)					
	FA	BT	HI	SI	SG	Mean
ACH 955-2 BGII	0.00	0.33	0.67	0.00	0.25	0.00
RCH 866 BGII	0.00	0.00	0.56	0.00	0.14	0.00
CCH 666 BGII	0.00	0.33	0.56	0.00	0.22	0.00
SP7674 BGII	0.00	0.00	0.22	0.00	0.06	0.00
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.33	0.44	0.00	0.19	0.00
Zonal BGII Check – 2 US 51 BG II	0.00	0.00	0.72	0.00	0.18	0.00
Bio 6515 BGII	0.00	0.00	0.33	0.00	0.08	0.00
SWCH 7716 BGII	0.00	0.67	0.33	0.00	0.25	0.00
RCH 951 BGII	0.00	0.33	0.28	0.00	0.15	0.00
C 9312 BGII	0.00	0.00	0.11	0.00	0.03	0.00
MC5408 BGII	0.00	0.33	0.78	0.00	0.28	0.00
C 9313 BGII	0.00	0.00	0.33	0.00	0.08	0.00
MC5403 BGII	0.70	0.00	0.61	0.00	0.33	0.70

Table: Advance H X H trial in North Zone under unprotected Conditions –Green Boll damage

Name of Entry	Green Boll damage (%)					
	FA	BT	HI	SI	SG	Mean
ACH 955-2 BGII	0.00	0.00	0.00	0.00	0.00	0.00
RCH 866 BGII	0.00	1.67	0.00	0.56	0.00	1.67
CCH 666 BGII	0.00	1.67	0.00	0.56	0.00	1.67
SP7674 BGII	0.00	0.00	0.00	0.00	0.00	0.00
Zonal BGII Check – 1 RCH 773 BG II	0.00	0.00	0.00	0.00	0.00	0.00
Zonal BGII Check – 2 US 51 BG II	0.00	1.67	0.00	0.56	0.00	1.67
Bio 6515 BGII	0.00	1.67	0.00	0.56	0.00	1.67
SWCH 7716 BGII	0.00	0.00	0.00	0.00	0.00	0.00
RCH 951 BGII	0.00	1.67	0.00	0.56	0.00	1.67
C 9312 BGII	0.00	0.00	0.00	0.00	0.00	0.00
MC5408 BGII	0.00	0.00	0.00	0.00	0.00	0.00
C 9313 BGII	0.00	0.00	0.00	0.00	0.00	0.00
MC5403 BGII	0.00	0.00	0.00	0.00	0.00	0.00

Table: Advance H X H trial in North Zone under unprotected Conditions –Green Boll damage (Pink bollworms)

Name of Entry	Green Boll damage(Percent /10 bolls destructive sampling)			
	BT	HI	SI	Mean
ACH 955-2 BGII	3.33	4.44	0.00	2.59
RCH 866 BGII	0.00	7.22	0.00	2.41
CCH 666 BGII	3.33	1.67	0.00	1.67
SP7674 BGII	0.00	1.67	1.25	0.97
Zonal BGII Check – 1 RCH 773 BG II	3.33	3.89	1.25	2.82
Zonal BGII Check – 2 US 51 BG II	0.00	2.78	5.00	2.59
Bio 6515 BGII	0.00	2.22	2.50	1.57
SWCH 7716 BGII	6.67	2.78	0.00	3.15
RCH 951 BGII	3.33	3.89	0.00	2.41
C 9312 BGII	0.00	6.67	0.00	2.22
MC5408 BGII	3.33	3.89	10.00	5.74
C 9313 BGII	0.00	5.00	7.50	4.17
MC5403 BGII	0.00	6.11	2.50	2.87

Table: Advance H X H trial in North Zone under unprotected Conditions –Open Boll damage

Name of Entry	Open Boll damage (%)					
	FA	BT	HI	SI	SG	Mean
ACH 955-2 BGII	0.00	5.00	10.96	0.00	0.00	3.19
RCH 866 BGII	0.00	3.33	8.10	0.00	0.00	2.29
CCH 666 BGII	0.00	8.33	6.23	3.19	0.00	3.55
SP7674 BGII	0.00	6.67	7.90	0.00	0.00	2.91
Zonal BGII Check – 1 RCH 773 BG II	0.00	3.33	9.06	0.00	0.00	2.48
Zonal BGII Check – 2 US 51 BG II	0.33	6.67	8.75	4.08	0.00	3.97
Bio 6515 BGII	0.00	1.67	15.49	0.00	0.00	3.43
SWCH 7716 BGII	0.00	1.67	8.58	0.00	0.00	2.05
RCH 951 BGII	0.00	5.00	10.71	0.00	0.00	3.14
C 9312 BGII	0.00	1.67	12.45	0.00	0.00	2.82
MC5408 BGII	0.00	1.67	22.43	0.00	0.00	4.82
C 9313 BGII	0.00	8.33	9.27	0.00	0.00	3.52
MC5403 BGII	0.00	1.67	9.82	0.00	0.00	2.30

Table: Advance H X H trial in North Zone under unprotected Conditions –Locule damage

Name of Entry	Locule damage (%)					
	FA	BT	HI	SI	SG	Mean
ACH 955-2 BGII	0.00	3.17	0.58	0.00	0.00	0.75
RCH 866 BGII	0.00	2.01	0.40	0.00	0.00	0.48
CCH 666 BGII	0.00	3.49	0.62	1.62	0.00	1.15
SP7674 BGII	0.00	3.00	0.00	0.00	0.00	0.60
Zonal BGII Check – 1 RCH 773 BG II	0.00	1.33	1.47	0.00	0.00	0.56
Zonal BGII Check – 2 US 51 BG II	0.16	3.42	0.00	2.16	0.00	1.15
Bio 6515 BGII	0.00	0.85	1.52	0.00	0.00	0.47
SWCH 7716 BGII	0.00	0.93	0.00	0.00	0.00	0.19
RCH 951 BGII	0.00	1.94	0.94	0.00	0.00	0.58
C 9312 BGII	0.00	0.81	0.81	0.00	0.00	0.33
MC5408 BGII	0.00	0.72	3.11	0.00	0.00	0.77
C 9313 BGII	0.00	3.92	0.13	0.00	0.00	0.81
MC5403 BGII	0.00	1.12	1.49	0.00	0.00	0.52

Reaction to Diseases

Table. Advanced Evaluation Trial of Intra-Hirsutum Hybrids – II (Retained Entries) under unprotected conditions

Entry Name	Average CLCuD PDI & Disease Reaction (DR): Unprotected conditions					
	Sriganganagar		Sirsa		Pooled	
	PDI	DR	PDI	DR	PDI	DR
ACH 955-2 BGII	14.6	R	11.3	R	13.0	R
RCH 866 BGII	4.7	HR	1.9	HR	3.3	HR
CCH 666 BGII	43.0	S	21.6	MR	32.3	MS
SP7674 BGII	34.7	MS	16.4	R	25.6	MR
ZC– 1 RCH 773 BG II	21.2	MR	9.1	HR	15.1	R
ZC– 2 US 51 BG II	25.8	MR	17.6	R	21.7	MR
Bio 6515 BGII	25.4	MR	10.0	HR	17.7	R
SWCH 7716 BGII	30.8	MS	17.3	R	24.1	MR
RCH 951 BGII	20.8	MR	11.8	R	16.3	R
C 9312 BGII	24.7	MR	15.7	R	20.2	MR
MC5408 BGII	9.3	HR	7.4	HR	8.4	HR
C 9313 BGII	19.3	R	8.5	HR	13.9	R
MC5403 BGII	17.1	R	9.5	HR	13.3	R

Initial Evaluation Trial of Hirsutum Varieties in North Zone (2020-21)

Constitution of Trial

The trial was constituted with ten Bt cotton varieties containing MON 531 event as furnished below along with three different check varieties viz., **PAU Bt 1 (Bt Zonal Check), F 2228 (Non-Bt Zonal Check) and Non-Bt Local Check**.

S. No.	Name of the Entry
1.	PBHBt 22
2.	HAU Bt1
3.	FBt 1901
4.	FBt 1908
5.	CICR 20 Bt
6.	FBt 1903
7.	CICR 44 Bt
8.	ARCV 22 Bt
9.	CICRS-23-1Bt
10.	CICRS-25-1Bt

The trial was conducted in five different locations and detail is furnished below.

Name of the trial location	**PAU, Faridkot**	**PAU, Bathinda**	**CCSHAU, Hisar**	**ICAR-CICR, Sirsa**	**SKRAU, Sriganganagar**
Local check Non Bt Variety	LH 2108	LH 2108	H 1098-i	CSH 3129	RS 2013

Spacing: Recommended spacing of 67.5 x 30 cm for the variety has been followed uniformly.
Number of rows: 4 rows of 6 meters per entry with three replications

Data recorded:

Biometric evaluation

Table : Plant height (cm) at harvest in Initial Variety trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBHBt 22	151.1	180.3	172.2	130.4	160.0	**158.8**
2	HAU Bt1	160.0	159.9	155.6	149.8	165.0	**158.1**
3	FBt 1901	141.1	144.6	170.0	132.9	166.0	**150.9**
4	FBt 1908	165.6	172.0	171.1	174.2	209.0	**178.4**
5	**PAU Bt 1 (Bt ZC)**	113.3	145.7	147.2	126.1	124.0	**131.3**
6	CICR 20 Bt	98.3	101.7	105.6	104.0	102.0	**102.3**
7	FBt 1903	141.7	140.3	160.0	144.7	120.0	**141.3**
8	**F 2228 (Non-Bt ZC)**	156.7	162.9	172.2	166.3	204.0	**172.4**
9	CICR 44 Bt	98.9	127.0	133.9	103.7	108.0	**114.3**
10	**Non-Bt LC**	147.8	171.3	159.4	138.3	137.0	**150.8**
11	ARCV 22 Bt	170.6	196.2	163.3	181.7	175.0	**177.4**
12	CICRS-23-1Bt	153.3	177.1	165.0	144.3	160.0	**159.9**
13	CICRS-25-1Bt	136.1	153.9	163.9	133.7	146.0	**146.7**
	CD @ 5%	16.2	6.9	28.1	15.1		
	CV %	6.5	2.6	10.6	6.3		

Table : Number of monopodia in Initial Variety trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBHBt 22	0.8	2.2	3.0	6.4	4.2	**3.3**
2	HAU Bt1	1.8	2.4	3.4	4.9	4.0	**3.3**
3	FBt 1901	0.2	1.0	2.1	3.1	4.2	**2.1**
4	FBt 1908	0.9	1.3	2.0	4.3	3.4	**2.4**
5	**PAU Bt 1 (Bt ZC)**	0.3	1.0	2.1	3.7	1.0	**1.6**
6	CICR 20 Bt	1.6	1.9	3.2	4.6	3.6	**3.0**
7	FBt 1903	0.3	1.6	2.6	3.8	5.2	**2.7**
8	**F 2228 (Non-Bt ZC)**	1.6	1.9	2.2	3.9	6.4	**3.2**
9	CICR 44 Bt	2.3	2.0	2.9	5.0	8.8	**4.2**
10	**Non-Bt LC**	0.3	1.3	2.3	1.7	7.2	**2.6**
11	ARCV 22 Bt	0.7	0.9	1.9	3.4	2.4	**1.9**
12	CICRS-23-1Bt	0.6	1.7	2.9	3.0	3.6	**2.4**
13	CICRS-25-1Bt	1.0	1.2	3.2	4.6	4.0	**2.8**
	CD @ 5%	0.5	0.3	0.4	0.7		
	CV %	32.0	11.1	9.1	10.8		

Table : Number of sympodia in Initial Variety trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBHBt 22	22.6	27.6	14.4	7.9	26.4	**19.8**
2	HAU Bt1	23.6	26.4	13.7	6.6	15.8	**17.2**
3	FBt 1901	22.8	26.3	16.8	9.4	19.2	**18.9**
4	FBt 1908	24.6	27.9	16.3	6.0	20.0	**19.0**
5	**PAU Bt 1 (Bt ZC)**	19.4	20.8	12.1	4.2	9.6	**13.2**
6	CICR 20 Bt	17.4	20.4	10.4	5.1	6.4	**11.9**
7	FBt 1903	23.9	29.4	13.7	11.6	18.2	**19.4**
8	**F 2228 (Non-Bt ZC)**	22.1	28.4	12.8	12.8	24.8	**20.2**
9	CICR 44 Bt	18.6	20.1	12.8	7.2	16.4	**15.0**
10	**Non-Bt LC**	21.6	26.2	10.7	9.8	20.8	**17.8**
11	ARCV 22 Bt	20.9	20.8	11.9	7.7	26.0	**17.5**
12	CICRS-23-1Bt	22.4	23.8	13.5	8.8	17.2	**17.1**
13	CICRS-25-1Bt	22.1	24.8	12.3	8.0	17.0	**16.8**
	CD @ 5%	3.3	4.6	3.0	1.4		
	CV %	8.7	10.9	13.6	10.4		

Table : Number of bolls / plant in Initial Variety trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBHBt 22	37.3	54.0	43.4	59.4	16.3	**42.1**
2	HAU Bt1	37.4	57.3	40.9	36.0	17.9	**37.9**
3	FBt 1901	39.7	54.9	36.4	55.6	20.0	**41.3**
4	FBt 1908	41.6	45.9	40.8	47.8	16.3	**38.5**
5	**PAU Bt 1 (Bt ZC)**	21.1	40.3	30.6	42.9	10.4	**29.1**
6	CICR 20 Bt	26.2	41.2	22.3	41.2	11.2	**28.4**
7	FBt 1903	45.4	64.2	33.4	68.7	21.5	**46.6**
8	**F 2228 (Non-Bt ZC)**	40.0	55.3	35.7	45.8	24.9	**40.3**
9	CICR 44 Bt	30.2	45.2	27.4	27.0	11.5	**28.3**
10	**Non-Bt LC**	38.2	52.6	37.9	48.7	12.5	**38.0**
11	ARCV 22 Bt	50.4	61.1	36.8	37.3	14.4	**40.0**
12	CICRS-23-1Bt	30.8	47.1	35.6	38.6	16.3	**33.7**
13	CICRS-25-1Bt	32.0	55.0	27.7	23.8	16.9	**31.1**
	CD @ 5%	5.5	7.0	5.7	9.6		
	CV %	8.6	8.0	9.8	12.9		

Table : Number of bolls / sq.m. in Initial Variety trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBHBt 22	138.7	151.6	95.8	104.7	71.0	**112.4**
2	HAU Bt1	156.0	177.3	101.3	77.3	83.8	**119.1**
3	FBt 1901	163.3	163.6	108.5	96.7	81.5	**122.7**
4	FBt 1908	161.3	185.1	97.3	114.8	75.6	**126.8**
5	**PAU Bt 1 (Bt ZC)**	83.0	141.9	121.0	60.6	44.9	**90.3**
6	CICR 20 Bt	88.3	150.4	102.0	129.8	54.4	**105.0**
7	FBt 1903	166.7	159.3	93.8	118.7	90.5	**125.8**
8	**F 2228 (Non-Bt ZC)**	153.3	168.0	103.2	88.9	110.4	**124.8**
9	CICR 44 Bt	117.3	144.1	92.8	54.2	44.8	**90.6**
10	**Non-Bt LC**	165.3	149.6	102.4	99.2	57.5	**114.8**
11	ARCV 22 Bt	190.7	151.1	97.2	124.1	68.7	**126.4**
12	CICRS-23-1Bt	93.7	143.9	96.4	84.5	79.0	**99.5**
13	CICRS-25-1Bt	131.0	176.4	98.2	62.6	77.3	**109.1**
	CD @ 5%	19.1	11.4	14.2	19.3		
	CV %	7.8	4.3	8.3	12.1		

Table : Lint Index (g) in Initial Variety trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBHBt 22	4.5	4.2	5.2	4.6	5.1	**4.7**
2	HAU Bt1	5.3	4.6	5.0	5.0	5.4	**5.1**
3	FBt 1901	4.5	4.3	4.5	3.4	4.9	**4.3**
4	FBt 1908	4.4	4.2	4.6	4.2	4.8	**4.4**
5	**PAU Bt 1 (Bt ZC)**	6.4	5.8	6.0	6.1	6.2	**6.1**
6	CICR 20 Bt	4.4	3.8	4.2	3.3	4.9	**4.1**
7	FBt 1903	4.7	4.0	5.2	3.9	6.2	**4.8**
8	**F 2228 (Non-Bt ZC)**	4.3	4.3	5.0	4.0	5.1	**4.5**
9	CICR 44 Bt	4.3	3.4	4.1	3.5	4.9	**4.0**
10	**Non-Bt LC**	4.1	4.2	4.7	3.5	5.6	**4.4**
11	ARCV 22 Bt	5.6	5.1	5.8	5.1	5.5	**5.4**
12	CICRS-23-1Bt	4.7	3.6	4.8	4.4	4.7	**4.4**
13	CICRS-25-1Bt	4.7	4.0	4.5	4.4	5.1	**4.5**
	CD @ 5%	0.9	0.2	0.3	0.5		
	CV %	10.5	3.0	3.3	7.2		

Table : Seed Index (g) in Initial Variety trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBHBt 22	9.0	8.5	10.3	9.6	9.9	**9.5**
2	HAU Bt1	9.6	10.0	10.5	11.9	9.8	**10.4**
3	FBt 1901	8.5	8.4	9.8	9.0	9.5	**9.0**
4	FBt 1908	8.1	8.6	10.6	10.1	9.8	**9.4**
5	**PAU Bt 1 (Bt ZC)**	9.7	9.5	10.4	10.7	9.9	**10.0**
6	CICR 20 Bt	8.3	7.7	9.0	7.7	8.0	**8.1**
7	FBt 1903	8.8	8.2	10.4	8.5	9.5	**9.1**
8	**F 2228 (Non-Bt ZC)**	9.3	9.2	10.5	9.6	9.1	**9.5**
9	CICR 44 Bt	8.0	7.5	8.9	7.8	8.2	**8.1**
10	**Non-Bt LC**	8.4	8.7	9.5	9.3	9.8	**9.1**
11	ARCV 22 Bt	9.2	9.1	12.2	10.0	8.7	**9.8**
12	CICRS-23-1Bt	9.6	8.8	10.7	10.7	9.3	**9.8**
13	CICRS-25-1Bt	8.2	8.2	9.7	10.2	8.7	**9.0**
	CD @ 5%	0.8	0.3	0.3	1.1		
	CV %	5.4	1.9	1.7	6.6		

Table : Ginning outturn (%) in Initial Variety trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBHBt 22	33.2	33.0	33.3	32.4	34.0	**33.2**
2	HAU Bt1	35.5	31.3	32.2	29.4	35.4	**32.8**
3	FBt 1901	34.3	33.6	31.5	27.3	34.1	**32.2**
4	FBt 1908	35.0	33.0	30.0	29.2	33.1	**32.1**
5	**PAU Bt 1 (Bt ZC)**	39.7	37.8	36.7	36.3	38.6	**37.8**
6	CICR 20 Bt	34.7	33.1	32.0	30.2	38.0	**33.6**
7	FBt 1903	34.4	33.0	33.1	31.4	39.3	**34.2**
8	**F 2228 (Non-Bt ZC)**	31.7	32.1	32.0	29.2	35.7	**32.1**
9	CICR 44 Bt	34.8	31.4	31.7	30.8	37.2	**33.2**
10	**Non-Bt LC**	32.9	32.5	33.3	27.4	36.5	**32.5**
11	ARCV 22 Bt	38.0	35.8	32.5	33.5	38.8	**35.7**
12	CICRS-23-1Bt	33.0	29.4	31.1	29.4	33.8	**31.3**
13	CICRS-25-1Bt	36.2	32.7	31.9	30.2	36.8	**33.6**
	CD @ 5%	3.2	0.9	0.9	2.0		
	CV %	5.2	1.7	1.7	3.9		

Table : Upper Half Mean Length (mm) under HVI Mode in Initial Variety trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBHBt 22	27.7	26.4	26.0	26.4	25.7	**26.4**
2	HAU Bt1	30.0	29.1	27.5	28.6	28.6	**28.8**
3	FBt 1901	27.3	26.2	26.1	24.3	24.3	**25.6**
4	FBt 1908	26.6	25.3	26.3	23.9	24.8	**25.4**
5	**PAU Bt 1 (Bt ZC)**	29.4	29.1	28.3	27.2	26.6	**28.1**
6	CICR 20 Bt	26.9	25.3	24.9	24.5	23.9	**25.1**
7	FBt 1903	27.5	26.6	25.4	24.6	25.3	**25.9**
8	**F 2228 (Non-Bt ZC)**	28.3	27.5	26.8	26.0	24.8	**26.7**
9	CICR 44 Bt	26.6	25.0	24.9	23.3	23.0	**24.6**
10	**Non-Bt LC**	28.1	28.4	25.2	28.4	25.6	**27.1**
11	ARCV 22 Bt	27.3	27.1	27.2	26.7	24.7	**26.6**
12	CICRS-23-1Bt	24.5	25.5	24.8	24.2	22.2	**24.2**
13	CICRS-25-1Bt	26.8	24.4	24.4	24.0	24.9	**24.9**

Table : Uniformity index under HVI Mode in Initial Variety trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBHBt 22	83.0	85.0	83.0	84.0	83.0	**83.6**
2	HAU Bt1	85.0	85.0	83.0	86.0	84.0	**84.6**
3	FBt 1901	84.0	83.0	82.0	83.0	82.0	**82.8**
4	FBt 1908	84.0	84.0	82.0	83.0	82.0	**83.0**
5	**PAU Bt 1 (Bt ZC)**	86.0	85.0	84.0	85.0	84.0	**84.8**
6	CICR 20 Bt	83.0	82.0	81.0	83.0	80.0	**81.8**
7	FBt 1903	84.0	85.0	81.0	84.0	80.0	**82.8**
8	**F 2228 (Non-Bt ZC)**	86.0	86.0	83.0	86.0	83.0	**84.8**
9	CICR 44 Bt	85.0	82.0	80.0	82.0	81.0	**82.0**
10	**Non-Bt LC**	83.0	84.0	81.0	85.0	83.0	**83.2**
11	ARCV 22 Bt	84.0	86.0	83.0	87.0	83.0	**84.6**
12	CICRS-23-1Bt	83.0	84.0	83.0	83.0	82.0	**83.0**
13	CICRS-25-1Bt	84.0	80.0	81.0	82.0	81.0	**81.6**

Table : Micronaire under HVI Mode in Initial Variety trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBHBt 22	4.9	4.8	4.5	4.8	5.0	**4.8**
2	HAU Bt1	4.7	4.7	3.5	4.6	4.7	**4.4**
3	FBt 1901	5.2	5.0	4.6	5.3	5.0	**5.0**
4	FBt 1908	4.8	4.8	4.0	4.9	4.7	**4.6**
5	**PAU Bt 1 (Bt ZC)**	4.5	4.8	3.6	4.5	4.6	**4.4**
6	CICR 20 Bt	4.7	4.6	4.1	4.7	4.8	**4.6**
7	FBt 1903	4.8	5.1	4.4	4.9	4.6	**4.8**
8	**F 2228 (Non-Bt ZC)**	5.1	5.0	4.1	4.7	4.7	**4.7**
9	CICR 44 Bt	4.8	4.7	3.8	5.0	4.5	**4.6**
10	**Non-Bt LC**	4.6	4.5	4.5	4.0	4.7	**4.5**
11	ARCV 22 Bt	5.7	5.5	3.9	5.1	4.6	**5.0**
12	CICRS-23-1Bt	5.3	5.1	4.6	5.0	5.0	**5.0**
13	CICRS-25-1Bt	4.7	4.5	4.4	5.0	4.3	**4.6**

Table : Tenacity under HVI Mode in Initial Variety trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBHBt 22	27.3	28.3	29.2	26.9	27.6	**27.9**
2	HAU Bt1	29.3	29.7	28.7	28.5	28.3	**28.9**
3	FBt 1901	27.9	29.2	28.3	25.8	25.7	**27.4**
4	FBt 1908	29.0	28.6	29.6	25.4	26.2	**27.8**
5	**PAU Bt 1 (Bt ZC)**	28.7	28.5	28.4	28.1	27.6	**28.3**
6	CICR 20 Bt	27.3	27.6	26.3	26.1	25.0	**26.5**
7	FBt 1903	27.1	28.1	27.3	26.1	27.2	**27.2**
8	**F 2228 (Non-Bt ZC)**	27.6	30.1	30.3	26.7	26.5	**28.2**
9	CICR 44 Bt	27.1	28.4	28.3	23.4	24.2	**26.3**
10	**Non-Bt LC**	28.9	26.8	26.8	28.0	26.4	**27.4**
11	ARCV 22 Bt	27.3	26.6	28.5	28.2	25.9	**27.3**
12	CICRS-23-1Bt	26.8	27.1	28.3	25.6	22.9	**26.1**
13	CICRS-25-1Bt	27.8	26.0	24.4	25.3	26.5	**26.0**

Table : Seed Cotton Yield (q/ha) in Initial Variety trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBHBt 22	20.88	24.55	16.87	17.28	17.48	**19.41**
2	HAU Bt1	24.90	27.88	22.63	16.18	22.25	**22.77**
3	FBt 1901	29.84	28.99	17.69	17.40	16.59	**22.10**
4	FBt 1908	30.04	28.11	16.25	27.45	19.70	**24.31**
5	**PAU Bt 1 (Bt ZC)**	20.47	22.94	9.67	12.37	13.16	**15.72**
6	CICR 20 Bt	19.03	19.44	6.38	16.69	11.26	**14.56**
7	FBt 1903	30.72	30.27	15.23	14.51	18.94	**21.93**
8	**F 2228 (Non-Bt ZC)**	25.33	25.49	19.96	25.22	21.03	**23.41**
9	CICR 44 Bt	17.45	21.11	4.11	11.91	11.03	**13.12**
10	**Non-Bt LC**	28.13	30.70	21.40	15.56	10.56	**21.27**
11	ARCV 22 Bt	32.61	30.10	21.19	36.84	16.10	**27.37**
12	CICRS-23-1Bt	18.66	20.86	11.52	15.87	12.19	**15.82**
13	CICRS-25-1Bt	22.08	25.43	15.02	24.14	13.84	**20.10**
	CD @ 5%	3.56	5.13	3.31	3.40	2.74	
	CV %	8.20	11.79	12.83	10.44	10.41	

Qualitative Cry Protein Evaluation

All the above entries were positive for Cry 1Ac Protein in qualitative ELISA Test except Non-Bt check varieties viz., F 2228 and local check

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect pests

Table: Initial Variety trial in North Zone under protected Conditions – Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)				
	FA	HI	SI	SG	Mean
PBHBt 22	6.06	2.76	1.04	0.69	2.64
HAU Bt1	6.44	2.71	1.00	0.42	2.64
FBt 1901	7.13	3.04	1.00	0.62	2.95
FBt 1908	5.94	3.09	1.04	0.96	2.75
PAU Bt 1 (Bt ZC)	11.38	3.38	1.19	0.60	4.13
CICR 20 Bt	5.25	2.98	1.04	0.56	2.46
FBt 1903	5.63	2.78	1.19	0.42	2.50
F 2228 (Non-Bt ZC)	8.81	2.93	1.15	0.36	3.31
CICR 44 Bt	7.38	2.80	1.30	0.87	3.08
Local Check Non-Bt	7.63	3.31	1.11	0.87	3.23
ARCV 22 Bt	9.81	3.16	1.15	0.44	3.64
CICRS-23-1Bt	9.25	3.47	1.07	0.82	3.65
CICRS-25-1Bt	8.06	2.89	1.07	0.78	3.20

Table: Initial Variety trial in North Zone under protected Conditions – Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)				
	FA	HI	SI	SG	Mean
PBHBt 22	15.53	20.89	19.81	14.78	17.75
HAU Bt1	14.42	21.62	19.56	17.62	18.30
FBt 1901	13.79	21.40	19.22	15.80	17.55
FBt 1908	13.15	20.09	16.26	21.89	17.85
PAU Bt 1 (Bt ZC)	11.99	21.40	22.15	20.82	19.09
CICR 20 Bt	11.01	20.31	19.04	21.60	17.99
FBt 1903	12.65	20.16	18.56	19.76	17.78
F 2228 (Non-Bt ZC)	15.09	20.69	19.33	18.76	18.47
CICR 44 Bt	11.28	19.73	21.55	12.87	16.36
Local Check Non-Bt	11.52	20.16	22.19	21.17	18.76
ARCV 22 Bt	12.57	23.31	20.22	15.16	17.82
CICRS-23-1Bt	13.19	20.38	19.93	23.51	19.25
CICRS-25-1Bt	13.70	20.73	17.52	18.78	17.68

Table: Initial Variety trial in North Zone under protected Conditions – Whitefly

Name of Entry	Whitefly(Average of 3 leaves/plant)				
	FA	HI	SI	SG	Mean
PBHBt 22	9.25	52.24	10.33	15.73	21.89
HAU Bt1	11.19	56.38	10.19	18.69	24.11
FBt 1901	10.69	52.67	9.93	15.29	22.14
FBt 1908	9.81	45.04	10.63	20.76	21.56
PAU Bt 1 (Bt ZC)	8.44	56.09	11.85	16.80	23.29
CICR 20 Bt	10.88	57.56	11.00	18.44	24.47
FBt 1903	10.38	43.04	11.32	14.78	19.88
F 2228 (Non-Bt ZC)	9.75	47.42	10.30	18.93	21.60
CICR 44 Bt	14.81	57.62	10.89	23.18	26.63
Local Check Non-Bt	9.31	48.91	11.32	15.44	21.25
ARCV 22 Bt	10.88	61.20	11.15	18.98	25.55
CICRS-23-1Bt	12.25	51.47	10.89	21.42	24.01
CICRS-25-1Bt	11.50	61.27	11.19	14.98	24.73

Table: Initial Variety trial in North Zone under protected Conditions – Natural Enemies

Name of Entry	Natural Enemies(No./Plant)		
	SI	SG	Mean
PBHBt 22	0.33	2.33	1.33
HAU Bt1	0.40	1.42	0.91
FBt 1901	0.38	2.08	1.23
FBt 1908	0.46	2.58	1.52
PAU Bt 1 (Bt ZC)	0.39	2.92	1.65
CICR 20 Bt	0.36	2.67	1.51
FBt 1903	0.34	1.92	1.13
F 2228 (Non-Bt ZC)	0.34	2.92	1.63
CICR 44 Bt	0.40	1.75	1.08
Local Check Non-Bt	0.37	0.75	0.56
ARCV 22 Bt	0.30	1.17	0.73
CICRS-23-1Bt	0.47	2.92	1.69
CICRS-25-1Bt	0.47	2.33	1.40

Table: Initial Variety trial in North Zone under protected Conditions –*Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera*(No./5 Plant)				
	FA	HI	SI	SG	Mean
PBHBt 22	0.00	0.00	0.00	0.00	0.00
HAU Bt1	0.00	0.00	0.00	0.00	0.00
FBt 1901	0.00	0.00	0.00	0.00	0.00
FBt 1908	0.00	0.00	0.00	0.00	0.00
PAU Bt 1 (Bt ZC)	0.00	0.00	0.00	0.00	0.00
CICR 20 Bt	0.00	0.00	0.00	0.00	0.00
FBt 1903	0.00	0.00	0.00	0.00	0.00
F 2228 (Non-Bt ZC)	0.00	0.00	0.00	0.00	0.00
CICR 44 Bt	0.00	0.00	0.00	0.00	0.00
Local Check Non-Bt	0.00	0.00	0.00	0.00	0.00
ARCV 22 Bt	0.00	0.00	0.00	0.00	0.00
CICRS-23-1Bt	0.00	0.00	0.00	0.00	0.00
CICRS-25-1Bt	0.00	0.00	0.00	0.00	0.00

Table: Initial Variety trial in North Zone under protected Conditions –Spotted Bollworms

Name of Entry	Spotted Bollworms(No./5 Plant)				
	FA	HI	SI	SG	Mean
PBHBt 22	0.00	0.00	0.78	0.00	0.20
HAU Bt1	0.00	0.00	0.89	0.00	0.22
FBt 1901	0.00	0.00	0.56	0.00	0.14
FBt 1908	0.00	0.00	0.67	0.00	0.17
PAU Bt 1 (Bt ZC)	0.00	0.00	0.78	0.00	0.20
CICR 20 Bt	0.00	0.00	0.33	0.00	0.08
FBt 1903	0.00	0.00	0.56	0.00	0.14
F 2228 (Non-Bt ZC)	1.27	0.00	0.56	0.00	0.46
CICR 44 Bt	0.00	0.00	0.00	0.00	0.00
Local Check Non-Bt	1.70	0.00	0.33	0.00	0.51
ARCV 22 Bt	0.00	0.00	0.00	0.00	0.00
CICRS-23-1Bt	0.00	0.00	0.89	0.00	0.22
CICRS-25-1Bt	0.00	0.00	0.11	0.00	0.03

Table: Initial Variety trial in North Zone under protected Conditions –*Spodoptera litura*

Name of Entry	*Spodopteralitura (*No./5 Plant)				
	FA	HI	SI	SG	Mean
PBHBt 22	0.00	0.00	0.00	0.00	0.00
HAU Bt1	0.00	0.00	0.00	0.00	0.00
FBt 1901	0.00	0.00	0.00	0.00	0.00
FBt 1908	0.00	0.00	0.00	0.00	0.00
PAU Bt 1 (Bt ZC)	0.00	0.00	0.00	0.00	0.00
CICR 20 Bt	0.00	0.00	0.00	0.00	0.00
FBt 1903	0.00	0.00	0.00	0.00	0.00
F 2228 (Non-Bt ZC)	0.00	0.00	0.00	0.00	0.00
CICR 44 Bt	0.00	0.00	0.00	0.00	0.00
Local Check Non-Bt	0.00	0.00	0.00	0.00	0.00
ARCV 22 Bt	0.00	0.00	0.00	0.00	0.00
CICRS-23-1Bt	0.00	0.00	0.00	0.00	0.00
CICRS-25-1Bt	0.00	0.00	0.00	0.00	0.00

Table: Initial Variety trial in North Zone under protected Conditions –Green Boll damage

Name of Entry	Green Boll damage (%)		
	FA	HI	Mean
PBHBt 22	0.30	1.11	0.71
HAU Bt1	0.00	0.00	0.00
FBt 1901	0.00	0.00	0.00
FBt 1908	0.27	0.00	0.14
PAU Bt 1 (Bt ZC)	0.00	0.00	0.00
CICR 20 Bt	0.00	0.00	0.00
FBt 1903	0.00	0.00	0.00
F 2228 (Non-Bt ZC)	0.40	0.00	0.20
CICR 44 Bt	0.00	1.11	0.56
Local Check Non-Bt	1.40	0.00	0.70
ARCV 22 Bt	0.00	0.00	0.00
CICRS-23-1Bt	0.00	0.00	0.00
CICRS-25-1Bt	0.00	0.00	0.00

Table: Initial Variety trial in North Zone under protected Conditions –Green Boll damage (Pink bollworms)

Name of Entry	Green Boll damage(Percent/10 bolls destructive sampling)	
	HI	Mean
PBHBt 22	3.33	3.33
HAU Bt1	4.44	4.44
FBt 1901	3.33	3.33
FBt 1908	3.33	3.33
PAU Bt 1 (Bt ZC)	3.33	3.33
CICR 20 Bt	4.44	4.44
FBt 1903	2.22	2.22
F 2228 (Non-Bt ZC)	5.56	5.56
CICR 44 Bt	4.44	4.44
Local Check Non-Bt	3.33	3.33
ARCV 22 Bt	3.33	3.33
CICRS-23-1Bt	4.44	4.44
CICRS-25-1Bt	3.33	3.33

Table: Initial Variety trial in North Zone under protected Conditions –Open Boll damage

Name of Entry	Open Boll damage (%)				
	FA	HI	SI	SG	Mean
PBHBt 22	0.00	2.53	4.20	0.00	1.68
HAU Bt1	0.95	4.00	3.96	0.00	2.23
FBt 1901	1.77	9.67	2.26	0.00	3.43
FBt 1908	0.23	6.92	3.26	0.00	2.60
PAU Bt 1 (Bt ZC)	3.30	7.97	0.00	0.00	2.82
CICR 20 Bt	0.45	4.84	3.63	0.00	2.23
FBt 1903	0.97	6.72	4.48	0.00	3.04
F 2228 (Non-Bt ZC)	1.85	6.25	4.16	0.00	3.06
CICR 44 Bt	0.80	7.79	0.00	0.00	2.15
Local Check Non-Bt	1.25	5.25	4.43	0.00	2.73
ARCV 22 Bt	2.95	7.44	0.00	0.00	2.60
CICRS-23-1Bt	0.00	4.62	4.46	0.00	2.27
CICRS-25-1Bt	1.35	6.20	0.00	0.00	1.89

Table: Initial Variety trial in North Zone under protected Conditions –Locule damage

Name of Entry	Locule damage (%)				
	FA	HI	SI	SG	Mean
PBHBt 22	0.00	0.53	1.97	0.00	0.62
HAU Bt1	0.67	0.43	1.54	0.00	0.66
FBt 1901	0.82	0.57	0.90	0.00	0.57
FBt 1908	0.11	1.46	1.13	0.00	0.68
PAU Bt 1 (Bt ZC)	1.09	0.00	0.00	0.00	0.27
CICR 20 Bt	0.11	0.00	1.34	0.00	0.36
FBt 1903	0.47	0.57	1.61	0.00	0.66
F 2228 (Non-Bt ZC)	0.87	0.00	1.82	0.00	0.67
CICR 44 Bt	0.22	1.06	0.00	0.00	0.32
Local Check Non-Bt	0.60	0.00	2.16	0.00	0.69
ARCV 22 Bt	1.31	1.41	0.00	0.00	0.68
CICRS-23-1Bt	0.00	0.00	1.64	0.00	0.41
CICRS-25-1Bt	0.56	0.62	0.00	0.00	0.29

Table: Initial Variety trial in North Zone under protected Conditions –Number of sprays for sucking pests

Name of Entry	Number of sprays for sucking pests (Nos.)				
	HI	FA	SI	SG	Mean
PBHBt 22	5.00	2.00	3.00	4.00	3.5
HAU Bt1	5.00	2.00	3.00	4.00	3.5
FBt 1901	5.00	2.00	3.00	4.00	3.5
FBt 1908	5.00	2.00	3.00	4.00	3.5
PAU Bt 1 (Bt ZC)	5.00	2.00	3.00	4.00	3.5
CICR 20 Bt	5.00	2.00	3.00	4.00	3.5
FBt 1903	5.00	2.00	3.00	4.00	3.5
F 2228 (Non-Bt ZC)	5.00	2.00	3.00	4.00	3.5
CICR 44 Bt	5.00	2.00	3.00	4.00	3.5
Local Check Non-Bt	5.00	2.00	3.00	4.00	3.5
ARCV 22 Bt	5.00	2.00	3.00	4.00	3.5
CICRS-23-1Bt	5.00	2.00	3.00	4.00	3.5
CICRS-25-1Bt	5.00	2.00	3.00	4.00	3.5

Reaction to Diseases

Table . Initial Evaluation Trial of Bt Cotton Varieties (New Entries) under protected conditions

Entry	Average CLCuD PDI & Disease Reaction (DR): Protected conditions									
	Faridkot		Bathinda		Sriganganagar		Sirsa		Hisar	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
PBHBt 22	3.8	HR	3.1	HR	26.3	MR	20.5	MR	33.3	MS
HAU Bt1	1.1	HR	3.1	HR	6.1	HR	8.4	HR	4.5	HR
FBt 1901	4.4	HR	3.1	HR	25.3	MR	21.3	MR	22.8	MR
FBt 1908	7.4	HR	4.2	HR	25.0	MR	20.7	MR	23.2	MR
PAU Bt 1 (Bt ZC)	7.1	HR	2.1	HR	29.3	MR	22.4	MR	30.2	MS
CICR 20 Bt	5.0	HR	6.3	HR	35.8	MS	17.5	R	24.2	MR
FBt 1903	7.3	HR	3.1	HR	24.0	MR	18.6	R	28.0	MR
F 2228 (Non-Bt ZC)	9.4	HR	2.1	HR	31.4	MS	20.5	MR	24.4	MR
CICR 44 Bt	35.6	MS	8.3	HR	46.7	S	22.9	MR	27.5	MR
(LC) Non-Bt	11.1	R	4.2	HR	33.3	MS	20.4	MR	18.8	R
ARCV 22 Bt	0.8	HR	2.1	HR	0.9	HR	0.3	HR	5.2	HR
CICRS-23-1Bt	9.0	HR	2.1	HR	22.4	MR	22.9	MR	18.8	R
CICRS-25-1Bt	12.1	R	3.1	HR	34.5	MS	25.8	MR	25.7	MR

Table . Initial Evaluation Trial of Bt Cotton Varieties (New Entries) under protected conditions

Entry Name	Average PDI & Disease Reaction (DR): Protected conditions							
	FFS				Bacterial leaf blight			
	Faridkot		Bathinda		Faridkot		Bathinda	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR
PBHBt 22	7.9	R	16	R	0.0	DF	0.0	DF
HAU Bt1	9.2	R	12.50	R	0.0	DF	0.0	DF
FBt 1901	10.0	R	16.3	R	0.0	DF	0.0	DF
FBt 1908	6.7	R	21.0	R	0.0	DF	0.0	DF
PAU Bt 1 (Bt ZC)	5.4	R	16.0	R	0.0	DF	0.0	DF
CICR 20 Bt	4.6	R	20.8	R	0.0	DF	0.0	DF
FBt 1903	5.8	R	20.0	R	0.0	DF	0.0	DF
F 2228 (Non-Bt ZC)	11.8	R	22.5	R	0.0	DF	0.0	DF
CICR 44 Bt	14.2	R	21.3	R	25.0	R	0.0	DF
(LC) Non-Bt	12.9	R	24.0	R	25.0	R	0.0	DF
ARCV 22 Bt	11.8	R	20.0	R	0.0	DF	0.0	DF
CICRS-23-1Bt	10.4	R	14.0	R	0.0	DF	0.0	DF
CICRS-25-1Bt	13.3	R	22.5	R	25.0	R	0.0	DF

Evaluation under unprotected condition for insect pests and diseases:
Reaction to Insect Pests

Table: Initial Variety trial in North Zone under unprotected Conditions – Leafhopper

Name of Entry	Leafhopper (Average of 3 leaves/plant)					
	FA	BT	HI	SI	SG	Mean
PBHBt 22	11.25	1.63	7.93	2.00	0.84	4.73
HAU Bt1	9.73	1.50	8.67	1.89	0.64	4.49
FBt 1901	4.61	1.57	8.07	2.22	1.03	3.50
FBt 1908	10.14	1.83	8.36	2.28	1.31	4.78
PAU Bt 1 (Bt ZC)	8.26	2.13	8.69	2.06	0.62	4.35
CICR 20 Bt	1.76	2.23	8.62	1.89	0.84	3.07
FBt 1903	10.95	1.70	9.04	2.00	0.69	4.88
F 2228 (Non-Bt ZC)	2.36	1.87	10.33	1.83	0.51	3.38
CICR 44 Bt	8.36	2.27	8.78	2.00	1.11	4.50
Local Check Non-Bt	6.28	1.83	7.58	2.11	1.11	3.78
ARCV 22 Bt	7.26	1.80	8.24	2.00	0.69	4.00
CICRS-23-1Bt	5.83	1.63	9.18	1.89	1.09	3.92
CICRS-25-1Bt	7.97	1.73	8.87	2.00	0.96	4.30

Table: Initial Variety trial in North Zone under unprotected Conditions – Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)					
	FA	BT	HI	SI	SG	Mean
PBHBt 22	19.15	21.17	67.20	30.94	25.27	32.75
HAU Bt1	20.57	21.00	73.60	30.33	30.93	35.29
FBt 1901	21.48	20.80	74.71	30.72	27.87	35.12
FBt 1908	22.29	20.47	75.64	32.44	38.51	37.87
PAU Bt 1 (Bt ZC)	14.54	24.47	86.31	29.89	33.82	37.81
CICR 20 Bt	11.19	23.43	82.67	30.28	35.96	36.70
FBt 1903	13.94	21.67	83.44	33.78	32.80	37.13
F 2228 (Non-Bt ZC)	30.91	20.57	95.84	31.67	32.02	42.20
CICR 44 Bt	15.24	20.00	72.56	30.83	26.13	32.95
Local Check Non-Bt	24.79	21.77	72.51	31.11	40.80	38.20
ARCV 22 Bt	20.39	19.90	77.89	30.61	26.67	35.09
CICRS-23-1Bt	18.91	23.50	76.20	29.78	40.04	37.69
CICRS-25-1Bt	20.76	19.57	85.24	31.39	31.80	37.75

Table: Initial Variety trial in North Zone under unprotected Conditions – Whitefly

Name of Entry	Whitefly(Average of 3 leaves/plant)					
	FA	BT	HI	SI	SG	Mean
PBHBt 22	12.06	6.57	85.24	12.39	26.62	28.58
HAU Bt1	16.00	8.47	89.36	11.83	32.02	31.54
FBt 1901	12.63	7.73	90.24	11.39	27.16	29.83
FBt 1908	16.13	8.77	90.89	10.22	34.82	32.17
PAU Bt 1 (Bt ZC)	18.69	7.23	97.69	12.44	29.27	33.06
CICR 20 Bt	12.38	8.80	95.09	13.56	32.22	32.41
FBt 1903	11.31	8.57	96.31	12.94	28.49	31.52
F 2228 (Non-Bt ZC)	13.69	8.07	99.27	12.78	34.07	33.57
CICR 44 Bt	20.38	8.67	89.47	13.00	37.82	33.87
Local Check Non-Bt	13.25	8.07	84.38	12.67	27.64	29.20
ARCV 22 Bt	16.69	8.07	87.49	11.83	32.31	31.28
CICRS-23-1Bt	13.31	8.17	87.27	13.28	35.42	31.49
CICRS-25-1Bt	17.75	8.10	96.16	12.50	26.47	32.19

Table: Initial Variety trial in North Zone under unprotected Conditions – Natural Enemies

Name of Entry	Natural Enemies(No./Plant)		
	SI	SG	Mean
PBHBt 22	1.66	1.50	1.58
HAU Bt1	2.35	2.08	2.22
FBt 1901	1.63	1.58	1.61
FBt 1908	1.55	1.42	1.48
PAU Bt 1 (Bt ZC)	2.24	2.00	2.12
CICR 20 Bt	1.69	2.08	1.89
FBt 1903	1.03	2.25	1.64
F 2228 (Non-Bt ZC)	1.40	1.75	1.57
CICR 44 Bt	2.08	2.00	2.04
Local Check Non-Bt	1.40	2.08	1.74
ARCV 22 Bt	1.43	1.83	1.63
CICRS-23-1Bt	1.51	1.58	1.55
CICRS-25-1Bt	1.74	2.00	1.87

Table: Initial Variety trial in North Zone under unprotected Conditions –*Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera*(No./5 Plant)					
	FA	BT	HI	SI	SG	Mean
PBHBt 22	0.00	0.00	0.00	0.00	0.00	0.00
HAU Bt1	0.00	0.00	0.00	0.00	0.00	0.00
FBt 1901	0.00	0.00	0.00	0.00	0.00	0.00
FBt 1908	0.00	0.00	0.00	0.00	0.00	0.00
PAU Bt 1 (Bt ZC)	0.00	0.00	0.00	0.00	0.00	0.00
CICR 20 Bt	0.00	0.00	0.00	0.00	0.00	0.00
FBt 1903	0.00	0.00	0.00	0.00	0.00	0.00
F 2228 (Non-Bt ZC)	0.00	0.00	0.00	0.00	0.00	0.00
CICR 44 Bt	0.00	0.00	0.00	0.00	0.00	0.00
Local Check Non-Bt	0.00	0.00	0.00	0.00	0.00	0.00
ARCV 22 Bt	0.00	0.00	0.00	0.00	0.00	0.00
CICRS-23-1Bt	0.00	0.00	0.00	0.00	0.00	0.00
CICRS-25-1Bt	0.00	0.00	0.00	0.00	0.00	0.00

Table: Initial Variety trial in North Zone under unprotected Conditions –Spotted Bollworms

Name of Entry	Spotted Bollworms (No./5 Plant)				
	FA	BT	HI	SI	Mean
PBHBt 22	0.42	0.00	0.00	0.55	0.24
HAU Bt1	0.00	0.00	0.00	0.00	0.00
FBt 1901	0.00	0.33	0.00	1.33	0.42
FBt 1908	1.25	0.00	0.00	1.11	0.59
PAU Bt 1 (Bt ZC)	0.00	0.67	0.00	0.44	0.28
CICR 20 Bt	0.00	0.00	0.00	0.78	0.20
FBt 1903	0.00	0.00	0.00	0.56	0.14
F 2228 (Non-Bt ZC)	0.83	0.00	0.00	0.56	0.35
CICR 44 Bt	0.00	0.00	0.00	0.78	0.20
Local Check Non-Bt	1.25	0.33	0.00	0.67	0.56
ARCV 22 Bt	0.00	0.00	0.00	0.56	0.14
CICRS-23-1Bt	0.00	0.00	0.00	0.89	0.22
CICRS-25-1Bt	0.42	0.00	0.00	0.11	0.13

Table: Initial Variety trial in North Zone under unprotected Conditions –*Spodoptera litura*

Name of Entry	*Spodoptera litura* (No./5 Plant)					
	FA	HI	SI	SG	Mean	Remark
PBHBt 22	0.00	0.00	0.00	0.00	0.00	BETL
HAU Bt1	0.00	0.00	0.00	0.00	0.00	BETL
FBt 1901	0.00	0.00	0.00	0.00	0.00	BETL
FBt 1908	0.00	0.00	0.00	0.00	0.00	BETL
PAU Bt 1 (Bt ZC)	0.00	0.00	0.00	0.00	0.00	BETL
CICR 20 Bt	0.00	0.00	0.00	0.00	0.00	BETL
FBt 1903	0.00	0.00	0.00	0.00	0.00	BETL
F 2228 (Non-Bt ZC)	0.00	0.00	0.00	0.00	0.00	BETL
CICR 44 Bt	0.00	0.00	0.00	0.00	0.00	BETL
Local Check Non-Bt	0.00	0.00	0.00	0.00	0.00	BETL
ARCV 22 Bt	0.00	0.00	0.00	0.00	0.00	BETL
CICRS-23-1Bt	0.00	0.00	0.00	0.00	0.00	BETL
CICRS-25-1Bt	0.00	0.00	0.00	0.00	0.00	BETL

Table: Initial Variety trial in North Zone under unprotected Conditions – Pink Bollworm

Name of Entry	**Pink Bollworm (No./10 bolls destructive sampling)**				
	FA	BT	HI	SI	Mean
PBHBt 22	1.00	0.00	0.33	0.33	0.42
HAU Bt1	0.33	0.00	0.44	0.00	0.19
FBt 1901	0.00	0.33	0.78	0.22	0.33
FBt 1908	0.00	0.00	0.33	0.22	0.14
PAU Bt 1 (Bt ZC)	0.00	0.33	0.44	0.00	0.19
CICR 20 Bt	0.00	0.33	0.22	0.33	0.22
FBt 1903	1.00	0.33	0.33	0.11	0.44
F 2228 (Non-Bt ZC)	1.33	0.00	0.61	0.22	0.54
CICR 44 Bt	0.67	0.00	0.78	0.11	0.39
Local Check Non-Bt	0.67	0.00	0.67	0.00	0.33
ARCV 22 Bt	0.67	0.33	0.56	0.00	0.39
CICRS-23-1Bt	1.00	0.33	0.33	0.56	0.56
CICRS-25-1Bt	0.33	0.33	0.33	0.00	0.25

Table: Initial Variety trial in North Zone under unprotected Conditions –Green Boll damage

Name of Entry	Green Boll damage (%)				
	FA	BT	HI	SI	Mean
PBHBt 22	0.00	1.67	0.00	4.29	1.49
HAU Bt1	0.00	0.00	0.00	0.00	0.00
FBt 1901	0.00	1.67	0.00	1.88	0.89
FBt 1908	0.99	0.00	0.00	0.00	0.25
PAU Bt 1 (Bt ZC)	0.00	1.67	0.00	1.42	0.77
CICR 20 Bt	0.00	0.00	0.00	0.00	0.00
FBt 1903	0.00	3.33	0.00	4.72	2.01
F 2228 (Non-Bt ZC)	0.48	0.00	0.00	0.00	0.12
CICR 44 Bt	0.00	3.33	0.00	1.74	1.27
Local Check Non-Bt	1.06	0.00	0.00	5.78	1.71
ARCV 22 Bt	0.14	0.00	0.00	0.00	0.03
CICRS-23-1Bt	0.00	0.00	0.00	6.08	1.52
CICRS-25-1Bt	0.70	1.67	0.00	1.35	0.93

Table: Initial Variety trial in North Zone under unprotected Conditions –Open Boll damage

Name of Entry	Open Boll damage (%)						
	FA	BT	HI	SI	SG	Mean	Remark
PBHBt 22	1.45	5.00	12.12	4.05	0.00	4.52	BETL
HAU Bt1	0.34	10.00	12.66	0.00	0.00	4.60	BETL
FBt 1901	0.52	3.33	15.37	3.64	0.00	4.57	BETL
FBt 1908	0.62	6.67	11.28	3.03	0.00	4.32	BETL
PAU Bt 1 (Bt ZC)	1.47	3.33	18.89	0.00	0.00	4.74	BETL
CICR 20 Bt	0.00	5.00	23.37	3.85	0.00	6.44	BETL
FBt 1903	2.25	3.33	9.67	3.96	0.00	3.84	BETL
F 2228 (Non-Bt ZC)	3.37	5.00	9.42	5.04	0.00	4.57	BETL
CICR 44 Bt	0.25	3.33	14.23	3.64	0.00	4.29	BETL
Local Check Non-Bt	1.69	6.67	11.90	4.35	0.00	4.92	BETL
ARCV 22 Bt	0.00	1.67	9.87	0.00	0.00	2.31	BETL
CICRS-23-1Bt	0.00	5.00	5.90	5.18	0.00	3.22	BETL
CICRS-25-1Bt	0.00	8.33	9.18	0.00	0.00	3.50	BETL

Table: Initial Variety trial in North Zone under unprotected Conditions –Locule damage

Name of Entry	Locule damage (%)						
	FA	BT	HI	SI	SG	Mean	Remark
PBHBt 22	0.91	3.15	1.02	1.81	0.00	1.38	BETL
HAU Bt1	0.32	3.62	0.70	0.00	0.00	0.93	BETL
FBt 1901	0.17	1.75	1.33	1.62	0.00	0.97	BETL
FBt 1908	0.30	3.95	0.87	1.84	0.00	1.39	BETL
PAU Bt 1 (Bt ZC)	0.34	0.79	2.41	0.00	0.00	0.71	BETL
CICR 20 Bt	0.00	2.78	4.74	1.70	0.00	1.84	BETL
FBt 1903	1.05	1.20	1.57	1.80	0.00	1.13	BETL
F 2228 (Non-Bt ZC)	1.77	2.71	0.68	2.19	0.00	1.47	BETL
CICR 44 Bt	0.12	1.32	0.53	1.91	0.00	0.78	BETL
Local Check Non-Bt	0.76	2.92	1.74	1.45	0.00	1.37	BETL
ARCV 22 Bt	0.00	1.12	1.67	0.00	0.00	0.56	BETL
CICRS-23-1Bt	0.00	2.22	0.00	2.44	0.00	0.93	BETL
CICRS-25-1Bt	0.00	3.65	0.57	0.00	0.00	0.84	BETL

Reaction to Diseases

Table . Initial Evaluation Trial of Bt Cotton Varieties (New Entries) under unprotected conditions

Entry Name	Average CLCuD PDI & Disease Reaction (DR): Unprotected conditions					
	Sriganganagar		Sirsa		Pooled	
	PDI	DR	PDI	DR	PDI	DR
PBHBt 22	28.1	MR	19.2	R	23.7	MR
HAU Bt1	5.7	HR	1.6	HR	3.6	HR
FBt 1901	27.5	MR	18.6	R	23.1	MR
FBt 1908	30.3	MS	7.6	HR	18.9	R
PAU Bt 1 (Bt ZC)	34.9	MS	12.5	R	23.7	MR
CICR 20 Bt	40.9	S	18.4	R	29.6	MR
FBt 1903	24.1	MR	14.4	R	19.2	R
F 2228 (Non-Bt ZC)	27.9	MR	16.0	R	21.9	MR
CICR 44 Bt	47.2	S	21.3	MR	34.3	MS
(LC) Non-Bt	27.8	MR	19.0	R	23.4	MR
ARCV 22 Bt	1.3	HR	1.0	HR	1.2	HR
CICRS-23-1Bt	24.9	MR	19.6	R	22.3	MR
CICRS-25-1Bt	37.4	MS	25.7	MR	31.6	MS

Advanced Evaluation Trial – I of Hirsutum Varieties in North Zone (2020-21)

Constitution of Trial

The trial was constituted with three Bt cotton varieties containing MON 531 event sponsored by ICAR-CICR and PAU along with three different check varieties as furnished below.

S. No.	Name of the Entry
1	PBH Bt 11
2	**PAU Bt 1 (ZC)**
3	**LC Non-Bt**
4	**F 2228 (Non-Bt ZC)**
5	PBH Bt 21
6	**PAU Bt 2 (ZC)**

The trial was conducted in five different locations and detail is furnished below.

Name of the trial location	**PAU, Faridkot**	**PAU, Bathinda**	**CCSHAU, Hisar**	**ICAR-CICR, Sirsa**	**SKRAU, Sriganganagar**
Local check Non Bt Variety	LH 2108	LH 2108	H 1098-i	CSH 3129	RS 2013

Spacing: One trial with recommended spacing of 67.5 x 30 cm for the variety and another trial with 67.5 x 20 cm has been followed uniformly.

Number of rows: 4 rows of 6 meters per entry with three replications

Data recorded:

Biometric evaluation in Normal Spacing

Table : Plant height (cm) at harvest in Advanced varietal trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBH Bt 11	131.7	134.6	173.3	120.6	131.0	**138.2**
2	**PAU Bt 1 (ZC)**	126.7	144.7	155.0	144.1	144.0	**142.9**
3	**LC Non-Bt**	131.7	168.2	162.1	141.9	120.0	**144.8**
4	**F 2228 (Non-Bt ZC)**	171.7	170.7	168.8	157.7	152.0	**164.2**
5	PBH Bt 21	166.7	154.8	178.9	177.8	166.0	**168.8**
6	**PAU Bt 2 (ZC)**	152.5	153.0	163.6	144.2	178.0	**158.3**
	CD @ 5%	18.7	19.2	12.4	8.2		
	CV %	7.4	8.3	4.9	9.6		

Table : Number of monopodia in Advanced varietal trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBH Bt 11	0.3	1.9	2.3	1.1	2.8	**1.7**
2	**PAU Bt 1 (ZC)**	0.8	1.1	2.2	2.6	5.2	**2.4**
3	**LC Non-Bt**	0.7	2.1	2.5	5.0	5.4	**3.1**
4	**F 2228 (Non-Bt ZC)**	1.8	1.1	2.8	1.4	3.6	**2.1**
5	PBH Bt 21	1.0	1.6	2.3	2.9	4.0	**2.4**
6	**PAU Bt 2 (ZC)**	1.3	0.9	3.2	2.4	5.6	**2.7**
	CD @ 5%	0.6	0.2	0.6	0.6		
	CV %	31.8	8.2	14.8	11.7		

Table : Number of sympodia in Advanced varietal trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBH Bt 11	20.8	23.8	14.0	8.0	18.6	**17.0**
2	**PAU Bt 1 (ZC)**	18.0	18.6	13.0	9.1	17.0	**15.1**
3	**LC Non-Bt**	19.3	25.3	12.8	12.2	14.2	**16.8**
4	**F 2228 (Non-Bt ZC)**	22.2	26.3	12.9	5.4	20.4	**17.4**
5	PBH Bt 21	21.8	21.8	13.8	10.0	21.8	**17.8**
6	**PAU Bt 2 (ZC)**	20.5	24.6	15.1	10.2	20.6	**18.2**
	CD @ 5%	3.0	4.3	1.4	2.3		
	CV %	8.5	12.1	6.6	13.8		

Table : Number of bolls / plant in Advanced varietal trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBH Bt 11	36.5	45.4	30.5	18.1	16.8	**29.5**
2	**PAU Bt 1 (ZC)**	26.3	38.9	29.3	19.1	13.8	**25.5**
3	**LC Non-Bt**	36.8	52.7	37.3	28.9	10.4	**33.2**
4	**F 2228 (Non-Bt ZC)**	36.2	67.1	37.3	21.0	14.8	**35.3**
5	PBH Bt 21	41.3	45.8	42.8	25.0	15.4	**34.1**
6	**PAU Bt 2 (ZC)**	33.5	52.9	30.2	28.8	14.9	**32.1**
	CD @ 5%	5.9	7.8	7.0	6.0		
	CV %	9.5	9.9	12.7	13.9		

Table : Number of bolls / sq.m. in Advanced varietal trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBH Bt 11	141.3	138.0	88.0	55.9	71.9	**99.0**
2	**PAU Bt 1 (ZC)**	104.5	137.6	70.0	42.5	57.9	**82.5**
3	**LC Non-Bt**	140.0	158.8	81.0	81.2	39.5	**100.1**
4	**F 2228 (Non-Bt ZC)**	142.3	165.3	73.7	62.2	69.4	**102.6**
5	PBH Bt 21	167.8	126.0	85.7	70.6	65.4	**103.1**
6	**PAU Bt 2 (ZC)**	143.0	121.6	66.3	93.8	65.3	**98.0**
	CD @ 5%	18.9	15.6	11.3	18.9		
	CV %	7.8	7.3	9.5	15.1		

Table : Lint Index (g) in Advanced varietal trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBH Bt 11	4.0	4.0	4.7	4.1	4.8	**4.3**
2	**PAU Bt 1 (ZC)**	6.0	5.5	6.0	4.5	5.2	**5.4**
3	**LC Non-Bt**	4.1	4.3	4.5	4.6	4.8	**4.5**
4	**F 2228 (Non-Bt ZC)**	4.4	4.5	4.9	4.5	5.0	**4.7**
5	PBH Bt 21	4.5	4.6	4.9	5.1	5.4	**4.9**
6	**PAU Bt 2 (ZC)**	4.1	4.2	4.9	6.0	5.1	**4.9**
	CD @ 5%	0.7	0.3	0.2	0.4		
	CV %	8.5	4.7	3.7	4.0		

Table : Seed Index (g) in Advanced varietal trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBH Bt 11	8.1	8.2	9.2	8.4	9.0	**8.6**
2	**PAU Bt 1 (ZC)**	9.4	9.5	9.8	8.7	8.8	**9.2**
3	**LC Non-Bt**	7.9	8.4	8.7	9.2	8.3	**8.5**
4	**F 2228 (Non-Bt ZC)**	8.9	9.1	10.1	9.3	9.2	**9.3**
5	PBH Bt 21	8.8	8.3	9.5	10.0	9.6	**9.2**
6	**PAU Bt 2 (ZC)**	8.0	8.4	9.4	9.6	9.0	**8.9**
	CD @ 5%	0.9	0.2	0.2	0.5		
	CV %	6.2	1.7	1.3	3.1		

Table : Ginning outturn (%)in Advanced varietal trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBH Bt 11	33.2	32.7	33.6	32.9	34.9	**33.5**
2	**PAU Bt 1 (ZC)**	38.9	36.7	37.9	34.2	37.3	**37.0**
3	**LC Non-Bt**	33.8	33.8	34.0	33.5	36.4	**34.3**
4	**F 2228 (Non-Bt ZC)**	32.9	33.0	32.8	32.6	35.2	**33.3**
5	PBH Bt 21	34.0	35.9	34.3	33.9	36.2	**34.9**
6	**PAU Bt 2 (ZC)**	33.7	33.2	34.1	38.5	36.1	**35.1**
	CD @ 5%	3.1	1.4	0.9	2.0		
	CV %	5.3	2.8	1.8	3.1		

Table : Upper Half Mean Length (mm) under HVI Mode in Advanced varietal trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBH Bt 11	28.1	26.8	26.1	25.9	25.6	**26.5**
2	**PAU Bt 1 (ZC)**	28.9	28.7	28.3	24.6	26.7	**27.4**
3	**LC Non-Bt**	28.1	26.9	26.0	27.5	25.9	**26.9**
4	**F 2228 (Non-Bt ZC)**	28.9	26.9	26.2	25.7	25.6	**26.7**
5	PBH Bt 21	27.1	26.7	26.6	25.3	27.3	**26.6**
6	**PAU Bt 2 (ZC)**	27.6	25.3	27.1	27.2	26.6	**26.8**

Table : Uniformity index under HVI Mode in Advanced varietal trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBH Bt 11	83.0	83.0	82.0	84.0	81.0	**82.6**
2	**PAU Bt 1 (ZC)**	84.0	86.0	84.0	83.0	82.0	**83.8**
3	**LC Non-Bt**	84.0	83.0	81.0	86.0	82.0	**83.2**
4	**F 2228 (Non-Bt ZC)**	86.0	85.0	84.0	86.0	82.0	**84.6**
5	PBH Bt 21	85.0	82.0	83.0	84.0	85.0	**83.8**
6	**PAU Bt 2 (ZC)**	82.0	82.0	84.0	85.0	84.0	**83.4**

Table : Micronaire under HVI Mode in Advanced varietal trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBH Bt 11	4.7	4.8	4.3	4.0	4.8	**4.5**
2	**PAU Bt 1 (ZC)**	4.2	4.7	4.3	4.1	4.9	**4.4**
3	**LC Non-Bt**	4.6	4.8	4.4	4.3	4.7	**4.6**
4	**F 2228 (Non-Bt ZC)**	5.2	5.3	4.3	4.5	5.1	**4.9**
5	PBH Bt 21	5.0	4.9	5.0	4.6	4.8	**4.9**
6	**PAU Bt 2 (ZC)**	4.2	4.8	4.5	4.2	4.6	**4.5**

Table : Tenacity under HVI Mode in Advanced varietal trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBH Bt 11	26.2	27.0	29.1	27.5	25.5	**27.1**
2	**PAU Bt 1 (ZC)**	28.2	28.5	28.3	26.1	26.9	**27.6**
3	**LC Non-Bt**	28.9	28.0	28.3	27.3	28.2	**28.1**
4	**F 2228 (Non-Bt ZC)**	28.6	28.5	28.6	27.4	25.9	**27.8**
5	PBH Bt 21	26.8	26.7	27.0	25.6	26.9	**26.6**
6	**PAU Bt 2 (ZC)**	28.2	27.7	28.7	27.4	28.6	**28.1**

Table : Seed Cotton Yield (q/ha) in Advanced varietal trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBH Bt 11	28.89	26.90	18.98	11.52	17.67	**20.79**
2	**PAU Bt 1 (ZC)**	20.45	25.88	16.51	13.17	17.04	**18.61**
3	**LC Non-Bt**	29.60	32.90	17.59	13.79	10.10	**20.80**
4	**F 2228 (Non-Bt ZC)**	25.85	26.51	17.59	12.96	19.76	**20.53**
5	PBH Bt 21	29.40	32.22	22.37	13.17	20.65	**23.56**
6	**PAU Bt 2 (ZC)**	21.37	27.50	12.65	16.26	18.90	**19.34**
	CD @ 5%	4.72	3.41	3.38	1.62	2.34	
	CV %	10.50	7.92	12.59	6.51	8.95	

Biometric evaluation in Closer Spacing

Table : Number of bolls / sq.m. in Advanced varietal trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBH Bt 11	115.5	294.3	91.1	85.7	77.8	**132.9**
2	**PAU Bt 1 (ZC)**	95.0	276.3	81.6	76.4	70.9	**120.0**
3	**LC Non-Bt**	134.0	313.7	85.9	102.2	34.8	**134.1**
4	**F 2228 (Non-Bt ZC)**	131.3	282.3	82.1	88.5	95.5	**136.0**
5	PBH Bt 21	140.0	322.3	90.4	118.2	90.5	**152.3**
6	**PAU Bt 2 (ZC)**	128.5	290.7	84.0	141.8	91.8	**147.4**
	CD @ 5%	22.4	28.4	6.2	21.8		
	CV %	10.4	6.4	4.7	11.6		

Table : Seed Cotton Yield (q/ha) in Advanced varietal trial

S. No.	Name of the Entry	Faridkot	Bathinda	Hisar	Sirsa	SGNR	Mean
1	PBH Bt 11	28.33	27.59	23.30	11.28	20.85	**22.27**
2	**PAU Bt 1 (ZC)**	23.30	23.29	20.52	21.74	20.42	**21.85**
3	**LC Non-Bt**	34.49	30.11	18.05	14.53	9.97	**21.43**
4	**F 2228 (Non-Bt ZC)**	28.42	25.52	22.53	17.54	27.71	**24.34**
5	PBH Bt 21	30.48	27.89	23.61	22.84	27.09	**26.38**
6	**PAU Bt 2 (ZC)**	24.94	30.74	18.52	21.30	25.21	**24.14**
	CD @ 5%	5.51	4.40	3.09	1.22	3.33	
	CV %	11.20	10.62	9.65	3.65	10.10	

Table : Quantity of Cry 1Ac Protein (ppm) at Sirsa in Advanced varietal trial

Entry	Leaf				Square			Bolls	
	30D	60D	90D	120D	60D	90D	120D	90D	120D
PBH Bt 11	1.76	3.09	4.24	1.59	2.10	3.31	2.20	2.33	2.88
PAU Bt 1 (ZC)	2.61	3.49	4.40	2.03	2.21	2.69	2.44	2.92	2.65
LC Non-Bt	0	0	0	0	0	0	0	0	0
F 2228 (Non-Bt ZC)	0	0	0	0	0	0	0	0	0
PBH Bt 21	1.83	2.99	4.12	2.14	1.46	2.16	2.10	2.76	2.97
PAU Bt 2 (ZC)	1.61	1.98	4.07	2.15	2.08	2.05	1.69	2.43	2.55

Table : Quantity of Cry 1Ac Protein (ppm) at PAU, Faridkot in Advanced varietal trial

Entry	Leaf				Square*		Bolls	
	30D	60D	90D	120D	60D	90D	90D	120D
PBH Bt 11	1.69	2.33	4.29	2.77	4.14	3.93	3.63	1.86
PAU Bt 1 (ZC)	0.87	2.33	4.20	2.42	2.36	2.11	5.24	5.78
LC Non-Bt	0	0	0	0	0	0	0	0
F 2228 (Non-Bt ZC)	0	0	0	0	0	0	0	0
PBH Bt 21	1.20	2.04	4.13	2.74	2.46	2.76	2.25	1.00
PAU Bt 2 (ZC)	1.93	2.34	4.90	1.68	3.76	3.00	3.64	1.86

*Square samples @120D interval was damaged

Cry 2Ab protein was not detected in any of the above entry in any tissues

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect pests

Table. Advance Variety Trial in North Zone under protected conditions -- Leafhopper (Normal spacing)

Name of Entry	Leafhopper (Average of 3 leaves/plant)					
	FA	HI	SI	SG	Mean	Remark
PBH Bt 11	7.81	6.77	0.93	0.67	4.04	BETL
PAU Bt 1 (ZC)	10.54	7.67	1.33	0.82	5.09	BETL
Local Check Non-Bt	7.44	8.13	1.15	0.57	4.32	BETL
F 2228 (Non-Bt ZC)	6.47	7.28	1.07	0.63	3.87	BETL
PBH Bt 21	6.75	8.93	0.89	0.57	4.28	BETL
PAU Bt 2 (ZC)	8.06	7.28	1.04	0.78	4.29	BETL

Table. Advance Variety Trial in North Zone under protected conditions – Thrips (Normal spacing)

Name of Entry	Thrips(Average of 3 leaves/plant)					
	FA	HI	SI	SG	Mean	Remark
PBH Bt 11	14.96	26.72	22.52	18.43	20.66	BETL
PAU Bt 1 (ZC)	15.98	25.83	22.93	15.48	20.06	BETL
Local Check Non-Bt	19.08	24.03	19.44	14.65	19.30	BETL
F 2228 (Non-Bt ZC)	19.34	27.45	23.96	17.88	22.16	BETL
PBH Bt 21	16.20	27.40	22.74	20.00	21.59	BETL
PAU Bt 2 (ZC)	16.89	25.65	22.74	22.02	21.83	BETL

Table. Advance Variety Trial in North Zone under protected conditions -- Whitefly (Normal spacing)

Name of Entry	Whitefly(Average of 3 leaves/plant)					
	FA	HI	SI	SG	Mean	Remark
PBH Bt 11	9.22	51.58	11.33	15.03	21.79	AETL
PAU Bt 1 (ZC)	11.22	59.82	12.44	19.95	25.86	AETL
Local Check Non-Bt	10.00	61.40	11.85	15.87	24.78	AETL
F 2228 (Non-Bt ZC)	9.33	46.13	11.15	15.27	20.47	AETL
PBH Bt 21	10.17	62.10	12.15	15.05	24.87	AETL
PAU Bt 2 (ZC)	9.89	56.75	11.22	18.20	24.02	AETL

Table. Advance Variety Trial in North Zone under protected conditions -- Natural Enemies (Normal spacing)

Name of Entry	Natural Enemies (No./Plant)			
	SI	SG	Mean	Remark
PBH Bt 11	0.41	1.44	0.92	BETL
PAU Bt 1 (ZC)	0.32	1.63	0.97	BETL
Local Check Non-Bt	0.38	1.69	1.03	BETL
F 2228 (Non-Bt ZC)	0.41	1.56	0.99	BETL
PBH Bt 21	0.32	1.75	1.04	BETL
PAU Bt 2 (ZC)	0.28	1.38	0.83	BETL

Table. Advance Variety Trial in North Zone under protected conditions -- Bollworms –*Helicoverpa armigera* (Normal spacing)

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)					
	FA	HI	SI	SG	Mean	Remark
PBH Bt 11	0.00	0.00	0.00	0.00	0.00	BETL
PAU Bt 1 (ZC)	0.00	0.00	0.00	0.00	0.00	BETL
Local Check Non-Bt	0.00	0.00	0.00	0.00	0.00	BETL
F 2228 (Non-Bt ZC)	0.00	0.00	0.00	0.00	0.00	BETL
PBH Bt 21	0.00	0.00	0.00	0.00	0.00	BETL
PAU Bt 2 (ZC)	0.00	0.00	0.00	0.00	0.00	BETL

Table. Advance Variety Trial in North Zone under protected conditions ---Spotted Bollworms (Normal spacing)

Name of Entry	Spotted Bollworms (No. / 5 plants)					
	FA	HI	SI	SG	Mean	Remark
PBH Bt 11	0.00	0.00	0.92	0.00	0.23	BETL
PAU Bt 1 (ZC)	0.00	0.00	0.44	0.00	0.11	BETL
Local Check Non-Bt	1.27	0.00	1.11	0.00	0.60	BETL
F 2228 (Non-Bt ZC)	0.00	0.00	1.02	0.00	0.26	BETL
PBH Bt 21	0.00	0.00	0.00	0.00	0.00	BETL
PAU Bt 2 (ZC)	1.27	0.00	0.00	0.00	0.32	BETL

Table. Advance Variety Trial in North Zone under protected conditions -- Bollworms –*Spodoptera litura* (Normal spacing)

Name of Entry	*Spodoptera litura* (No. / 5 plants)					
	FA	HI	SI	SG	Mean	Remark
PBH Bt 11	0.00	0.00	0.00	0.00	0.00	BETL
PAU Bt 1 (ZC)	0.00	0.00	0.00	0.00	0.00	BETL
Local Check Non-Bt	0.00	0.00	0.00	0.00	0.00	BETL
F 2228 (Non-Bt ZC)	0.00	0.00	0.00	0.00	0.00	BETL
PBH Bt 21	0.00	0.00	0.00	0.00	0.00	BETL
PAU Bt 2 (ZC)	0.00	0.00	0.00	0.00	0.00	BETL

Table. Advance Variety Trial in North Zone under protected conditions --Pink bollworm (Normal spacing)

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)					
	FA	HI	SI	SG	Mean	Remark
PBH Bt 11	0.00	0.33	0.67	0.00	0.25	BETL
PAU Bt 1 (ZC)	0.30	0.17	0.78	0.00	0.31	BETL
Local Check Non-Bt	0.00	0.08	0.89	0.00	0.24	BETL
F 2228 (Non-Bt ZC)	0.00	0.00	1.22	0.00	0.31	BETL
PBH Bt 21	0.00	0.25	0.00	0.00	0.06	BETL
PAU Bt 2 (ZC)	0.30	0.00	0.00	0.00	0.08	BETL

Table. Advance Variety Trial in North Zone under protected conditions --Green Boll damage (Normal spacing)

Name of Entry	Green boll damage (%)			
	FA	HI	Mean	Remark
PBH Bt 11	0.00	0.00	0.00	BETL
PAU Bt 1 (ZC)	0.00	0.00	0.00	BETL
Local Check Non-Bt	1.20	0.00	0.60	BETL
F 2228 (Non-Bt ZC)	0.27	0.83	0.55	BETL
PBH Bt 21	0.30	0.00	0.15	BETL
PAU Bt 2 (ZC)	0.40	0.83	0.62	BETL

Table. Advance Variety Trial in North Zone under protected conditions -- Open Boll damage (Normal spacing)

Name of Entry	Open Boll damage (%)					
	FA	HI	SI	SG	Mean	Remark
PBH Bt 11	2.47	8.50	3.69	0.00	3.66	BETL
PAU Bt 1 (ZC)	0.56	9.27	3.83	0.00	3.41	BETL
Local Check Non-Bt	1.58	8.45	6.23	0.00	4.07	BETL
F 2228 (Non-Bt ZC)	4.76	2.44	6.01	0.00	3.30	BETL
PBH Bt 21	2.75	5.30	0.00	0.00	2.01	BETL
PAU Bt 2 (ZC)	5.11	10.53	0.00	0.00	3.91	BETL

Table. Advance Variety Trial in North Zone under protected conditions -- Locule damage (Normal spacing)

Name of Entry	Locule damage (%)					
	FA	HI	SI	SG	Mean	Remark
PBH Bt 11	1.20	1.23	1.66	0.00	1.02	BETL
PAU Bt 1 (ZC)	0.24	1.04	2.09	0.00	0.84	BETL
Local Check Non-Bt	0.72	1.05	3.10	0.00	1.22	BETL
F 2228 (Non-Bt ZC)	2.17	0.73	2.73	0.00	1.41	BETL
PBH Bt 21	0.99	0.61	0.00	0.00	0.40	BETL
PAU Bt 2 (ZC)	2.67	0.00	0.00	0.00	0.67	BETL

Table. Advance Variety Trial in North Zone under protected conditions -- Number of sprays for sucking pests (Normal spacing)

Name of Entry	Number of sprays for sucking pests					
	FA	HI	SI	SG	Mean	Remark
PBH Bt 11	2.00	5.00	3.00	4.00	3.5	BETL
PAU Bt 1 (ZC)	2.00	5.00	3.00	4.00	3.5	BETL
Local Check Non-Bt	2.00	5.00	3.00	4.00	3.5	BETL
F 2228 (Non-Bt ZC)	2.00	5.00	3.00	4.00	3.5	BETL
PBH Bt 21	2.00	5.00	3.00	4.00	3.5	BETL
PAU Bt 2 (ZC)	2.00	5.00	3.00	4.00	3.5	BETL

Table. Advance Variety Trial in North Zone under protected conditions -- Leafhopper (Closer spacing)

Name of Entry	Leafhopper (Average of 3 leaves/plant)			
	FA	HI	Mean	Remark
PBH Bt 11	8.82	2.65	5.73	BETL
PAU Bt 1 (ZC)	12.90	3.72	8.31	AETL
Local Check Non-Bt	7.79	3.10	5.45	BETL
F 2228 (Non-Bt ZC)	7.33	2.68	5.01	BETL
PBH Bt 21	5.72	2.93	4.33	BETL
PAU Bt 2 (ZC)	7.96	3.02	5.49	BETL

Table. Advance Variety Trial in North Zone under protected conditions -- Thrips (Closer spacing)

Name of Entry	Thrips(Average of 3 leaves/plant)			
	FA	HI	Mean	Remark
PBH Bt 11	14.44	22.47	18.46	BETL
PAU Bt 1 (ZC)	12.61	23.02	17.81	BETL
Local Check Non-Bt	12.67	24.11	18.39	BETL
F 2228 (Non-Bt ZC)	16.61	22.43	19.52	BETL
PBH Bt 21	17.89	23.58	20.73	BETL
PAU Bt 2 (ZC)	14.22	23.87	19.04	BETL

Table. Advance Variety Trial in North Zone under protected conditions – Whitefly (Closer spacing)

Name of Entry	Whitefly(Average of 3 leaves/plant)			
	FA	HI	Mean	Remark
PBH Bt 11	10.94	48.62	29.78	AETL
PAU Bt 1 (ZC)	14.56	54.50	34.53	AETL
Local Check Non-Bt	9.50	47.52	28.51	AETL
F 2228 (Non-Bt ZC)	11.00	48.57	29.78	AETL
PBH Bt 21	10.78	48.33	29.56	AETL
PAU Bt 2 (ZC)	11.11	53.98	32.55	AETL

Table. Advance Variety Trial in North Zone under protected conditions -- Bollworms –*Helicoverpa armigera* (Closer spacing)

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)			
	FA	HI	Mean	Remark
PBH Bt 11	0.00	0.00	0.00	BETL
PAU Bt 1 (ZC)	0.00	0.00	0.00	BETL
Local Check Non-Bt	0.00	0.00	0.00	BETL
F 2228 (Non-Bt ZC)	0.00	0.00	0.00	BETL
PBH Bt 21	0.00	0.00	0.00	BETL
PAU Bt 2 (ZC)	0.00	0.00	0.00	BETL

Table. Advance Variety Trial in North Zone under protected conditions ---Spotted Bollworms (Closer spacing)

Name of Entry	Spotted Bollworms (No. / 5 plants)			
	FA	HI	Mean	Remark
PBH Bt 11	0.00	0.00	0.00	BETL
PAU Bt 1 (ZC)	0.00	0.00	0.00	BETL
Local Check Non-Bt	0.00	0.00	0.00	BETL
F 2228 (Non-Bt ZC)	0.00	0.00	0.00	BETL
PBH Bt 21	0.00	0.00	0.00	BETL
PAU Bt 2 (ZC)	0.00	0.00	0.00	BETL

Table. Advance Variety Trial in North Zone under protected conditions -- Bollworms –*Spodoptera litura* (Closer spacing)

Name of Entry	*Spodoptera litura* (No. / 5 plants)			
	FA	HI	Mean	Remark
PBH Bt 11	0.00	0.00	0.00	BETL
PAU Bt 1 (ZC)	0.00	0.00	0.00	BETL
Local Check Non-Bt	0.00	0.00	0.00	BETL
F 2228 (Non-Bt ZC)	0.00	0.00	0.00	BETL
PBH Bt 21	0.00	0.00	0.00	BETL
PAU Bt 2 (ZC)	0.00	0.00	0.00	BETL

Table. Advance Variety Trial in North Zone under protected conditions --Pink bollworm (Closer spacing)

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)			
	FA	HI	Mean	Remark
PBH Bt 11	0.67	0.33	0.50	BETL
PAU Bt 1 (ZC)	0.00	0.58	0.29	BETL
Local Check Non-Bt	1.00	0.17	0.58	BETL
F 2228 (Non-Bt ZC)	1.00	0.08	0.54	BETL
PBH Bt 21	0.70	0.75	0.73	BETL
PAU Bt 2 (ZC)	0.00	0.25	0.13	BETL

Table. Advance Variety Trial in North Zone under protected conditions --Green Boll damage (Closer spacing)

Name of Entry	Green boll damage (%)			
	FA	HI	Mean	Remark
PBH Bt 11	1.30	0.00	0.65	BETL
PAU Bt 1 (ZC)	0.00	0.00	0.00	BETL
Local Check Non-Bt	0.53	0.00	0.27	BETL
F 2228 (Non-Bt ZC)	0.00	0.00	0.00	BETL
PBH Bt 21	0.40	0.00	0.20	BETL
PAU Bt 2 (ZC)	0.30	0.00	0.15	BETL

Table. Advance Variety Trial in North Zone under protected conditions -- Green Boll damage (Pink bollworms)(Closer spacing)

Name of Entry	Green boll damage (Percent /10 bolls destructive sampling)		
	HI	Mean	Remark
PBH Bt 11	3.33	3.33	BETL
PAU Bt 1 (ZC)	5.00	5.00	BETL
Local Check Non-Bt	5.83	5.83	BETL
F 2228 (Non-Bt ZC)	4.17	4.17	BETL
PBH Bt 21	4.17	4.17	BETL
PAU Bt 2 (ZC)	5.00	5.00	BETL

Table. Advance Variety Trial in North Zone under protected conditions -- Open Boll damage(Closer spacing)

Name of Entry	Open Boll damage (%)			
	FA	HI	Mean	Remark
PBH Bt 11	7.89	6.14	7.02	BETL
PAU Bt 1 (ZC)	4.92	4.87	4.89	BETL
Local Check Non-Bt	7.07	4.56	5.81	BETL
F 2228 (Non-Bt ZC)	8.11	6.62	7.37	BETL
PBH Bt 21	12.84	4.23	8.53	BETL
PAU Bt 2 (ZC)	2.16	3.26	2.71	BETL

Table. Advance Variety Trial in North Zone under protected conditions -- Locule damage (Closer spacing

Name of Entry	Locule damage (%)			
	FA	HI	Mean	Remark
PBH Bt 11	3.58	0.00	1.79	BETL
PAU Bt 1 (ZC)	3.11	1.02	2.07	BETL
Local Check Non-Bt	3.40	1.15	2.27	BETL
F 2228 (Non-Bt ZC)	4.13	1.00	2.57	BETL
PBH Bt 21	7.38	0.00	3.69	BETL
PAU Bt 2 (ZC)	1.16	1.30	1.23	BETL

Table. Advance Variety Trial in North Zone under protected conditions -- Number of sprays for sucking pests (Closer spacing)

Name of Entry	Number of sprays for sucking pests					
	FA	HI	SI	SG	Mean	Remark
PBH Bt 11	2.00	5.00	3.00	4.00	3.5	BETL
PAU Bt 1 (ZC)	2.00	5.00	3.00	4.00	3.5	BETL
Local Check Non-Bt	2.00	5.00	3.00	4.00	3.5	BETL
F 2228 (Non-Bt ZC)	2.00	5.00	3.00	4.00	3.5	BETL
PBH Bt 21	2.00	5.00	3.00	4.00	3.5	BETL
PAU Bt 2 (ZC)	2.00	5.00	3.00	4.00	3.5	BETL

Reaction to Diseases

Table . Advanced Evaluation Trial of Bt Cotton Varieties (Promoted & Retained Entries) under protected conditions in normal spacing

Entry	Average CLCuD PDI & Disease Reaction (DR) under protected conditions									
	Faridkot		Bathinda		Sriganganagar		Sirsa		Hisar	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
PBH Bt 11	11.4	R	2.1	HR	28.1	MR	9.1	HR	27.4	MR
PAU Bt 1 (ZC)	7.0	HR	2.1	HR	25.1	MR	5.6	HR	27.8	MR
(LC) Non-Bt	4.9	HR	4.2	HR	27.1	MR	7.3	HR	31.2	MS
F 2228 (Non-Bt ZC)	11.3	R	2.1	HR	29.2	MR	3.6	HR	27.0	MR
PBH Bt 21	7.3	HR	4.2	HR	27.2	MR	3.5	HR	23.3	MR
PAU Bt 2 (ZC)	7.0	HR	7.3	HR	26.7	MR	5.4	HR	25.6	MR

Table 5 b. Advanced Evaluation Trial of Bt Cotton Varieties (Promoted & Retained Entries) under protected conditions in normal spacing

Entry Name	Average PDI & Disease Reaction (DR): Protected conditions							
	FFS				Bacterial leaf blight			
	Faridkot		Bathinda		Faridkot		Bathinda	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR
PBH Bt 11	4.2	R	22.3	R	0.0	DF	0.0	DF
PAU Bt 1 (ZC)	14.2	R	19.0	R	2.0	R	0.0	DF
LC- Non-Bt	5.4	R	18.3	R	0.0	DF	0.0	DF
F 2228 (Non-Bt ZC)	13.8	R	22.3	R	1.0	R	0.0	DF
PBH Bt 21	10.4	R	16.3	R	1.0	R	0.0	DF
PAU Bt 2 (ZC)	4.6	R	20.8	R	0.0	DF	0.0	DF

Table. Advanced Evaluation Trial of Bt Cotton Varieties (Promoted/Retained Entries) under protected conditions: Close Spacing

Entry	Average CLCuD PDI & Disease Reaction (DR): Protected conditions (Close Spacing)					
	Bathinda		Sriganganagar		Hisar	
	PDI	DR	PDI	DR	PDI	DR
PBH Bt 11	6.3	HR	27.3	MR	27.7	MR
PAU Bt 1 (ZC)	6.3	HR	28.7	MR	33.3	MS
(LC) Non-Bt	8.3	HR	27.3	MR	33.3	MS
F 2228 (Non-Bt ZC)	4.2	HR	29.1	MR	33.3	MS
PBH Bt 21	6.3	HR	26.0	MR	24.7	MR
PAU Bt 2 (ZC)	18.8	R	29.9	MR	28.6	MR

Evaluation under unprotected condition for insect pests and diseases:
Reaction to Insect Pests

Table. Advance Variety Trial in North Zone under unprotected conditions – Leafhopper (Normal spacing)

Name of Entry	Leafhopper (Average of 3 leaves/plant)						
	FA	BT	HI	SI	SG	Mean	Remark
PBH Bt 11	5.88	2.00	7.62	1.44	0.80	3.55	BETL
PAU Bt 1 (ZC)	12.88	1.80	8.15	1.11	1.20	5.03	BETL
Local Check Non-Bt	4.31	2.07	8.37	1.67	0.58	3.40	BETL
F 2228 (Non-Bt ZC)	5.73	2.13	8.42	1.61	0.73	3.72	BETL
PBH Bt 21	7.00	2.87	9.17	1.61	0.68	4.27	BETL
PAU Bt 2 (ZC)	5.45	2.20	10.43	1.67	0.88	4.13	BETL

Table. Advance Variety Trial in North Zone under unprotected conditions –Thrips (Normal spacing)

Name of Entry	Thrips(Average of 3 leaves/plant)						
	FA	BT	HI	SI	SG	Mean	Remark
PBH Bt 11	8.11	17.47	75.70	32.00	24.63	31.58	AETL
PAU Bt 1 (ZC)	18.01	18.80	83.89	32.61	19.90	34.64	AETL
Local Check Non-Bt	8.06	19.80	91.15	30.33	19.93	33.86	AETL
F 2228 (Non-Bt ZC)	15.00	18.73	88.01	31.61	25.68	35.81	AETL
PBH Bt 21	17.53	26.20	82.57	32.06	27.03	37.08	AETL
PAU Bt 2 (ZC)	31.18	19.80	85.03	32.83	28.59	39.49	AETL

Table. Advance Variety Trial in North Zone under unprotected conditions -- Whitefly (Normal spacing)

Name of Entry	Whitefly(Average of 3 leaves/plant)						
	FA	BT	HI	SI	SG	Mean	Remark
PBH Bt 11	11.44	6.93	94.87	13.06	18.95	29.05	AETL
PAU Bt 1 (ZC)	11.94	6.67	96.85	12.89	26.58	30.98	AETL
Local Check Non-Bt	11.38	7.07	98.25	12.33	22.00	30.21	AETL
F 2228 (Non-Bt ZC)	11.44	8.07	95.95	12.00	22.52	29.99	AETL
PBH Bt 21	11.75	9.33	92.95	11.78	19.73	29.11	AETL
PAU Bt 2 (ZC)	11.19	7.60	101.27	11.89	24.45	31.28	AETL

Table. Advance Variety Trial in North Zone under unprotected conditions -- Natural Enemies (Normal spacing)

Name of Entry	Natural Enemies (No./Plant)		
	SI	SG	Mean
PBH Bt 11	1.75	1.75	1.75
PAU Bt 1 (ZC)	0.95	1.88	1.41
Local Check Non-Bt	1.35	2.06	1.71
F 2228 (Non-Bt ZC)	1.74	2.19	1.96
PBH Bt 21	1.85	1.88	1.86
PAU Bt 2 (ZC)	1.69	2.56	2.12

Table. Advance Variety Trial in North Zone under unprotected conditions -- Bollworms –*Helicoverpa armigera* (Normal spacing)

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)						
	FA	BT	HI	SI	SG	Mean	Remark
PBH Bt 11	0.00	0.00	0.00	0.00	0.00	0.00	BETL
PAU Bt 1 (ZC)	0.00	0.00	0.00	0.00	0.00	0.00	BETL
Local Check Non-Bt	0.00	0.00	0.00	0.00	0.00	0.00	BETL
F 2228 (Non-Bt ZC)	0.00	0.00	0.00	0.00	0.00	0.00	BETL
PBH Bt 21	0.00	0.00	0.00	0.00	0.00	0.00	BETL
PAU Bt 2 (ZC)	0.00	0.00	0.00	0.00	0.00	0.00	BETL

Table. Advance Variety Trial in North Zone under unprotected conditions ---Spotted Bollworms (Normal spacing)

Name of Entry	Spotted Bollworms (No. / 5 plants)					
	FA	BT	HI	SI	Mean	Remark
PBH Bt 11	0.00	0.67	0.00	0.44	0.28	BETL
PAU Bt 1 (ZC)	0.00	0.00	0.00	0.11	0.03	BETL
Local Check Non-Bt	0.00	0.00	0.00	1.33	0.33	BETL
F 2228 (Non-Bt ZC)	0.00	0.00	0.00	0.67	0.17	BETL
PBH Bt 21	0.00	0.33	0.00	0.33	0.17	BETL
PAU Bt 2 (ZC)	0.00	0.33	0.00	0.00	0.08	BETL

Table. Advance Variety Trial in North Zone under unprotected conditions -- Bollworms –*Spodoptera litura* (Normal spacing)

Name of Entry	*Spodoptera litura* (No. / 5 plants)					
	FA	BT	HI	SI	Mean	Remark
PBH Bt 11	0.00	0.00	0.00	0.00	0.00	BETL
PAU Bt 1 (ZC)	0.00	0.00	0.00	0.00	0.00	BETL
Local Check Non-Bt	0.00	0.00	0.00	0.00	0.00	BETL
F 2228 (Non-Bt ZC)	0.00	0.00	0.00	0.00	0.00	BETL
PBH Bt 21	0.00	0.00	0.00	0.00	0.00	BETL
PAU Bt 2 (ZC)	0.00	0.00	0.00	0.00	0.00	BETL

Table. Advance Variety Trial in North Zone under unprotected conditions --Pink bollworm (Normal spacing)

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)					
	FA	BT	HI	SI	Mean	Remark
PBH Bt 11	0.33	0.00	0.25	0.22	0.20	BETL
PAU Bt 1 (ZC)	0.33	0.33	0.50	0.44	0.40	BETL
Local Check Non-Bt	0.00	1.33	0.25	0.11	0.42	BETL
F 2228 (Non-Bt ZC)	0.33	0.33	0.25	0.56	0.37	BETL
PBH Bt 21	0.00	0.00	0.58	0.00	0.15	BETL
PAU Bt 2 (ZC)	0.33	0.00	0.17	0.00	0.13	BETL

Table. Advance Variety Trial in North Zone under unprotected conditions --Green Boll damage (Normal spacing)

Name of Entry	Green boll damage (%)					
	FA	BT	HI	SI	Mean	Remark
PBH Bt 11	0.00	1.67	0.00	4.70	1.59	BETL
PAU Bt 1 (ZC)	0.00	0.00	0.00	4.58	1.14	BETL
Local Check Non-Bt	2.09	0.00	0.00	0.00	0.52	BETL
F 2228 (Non-Bt ZC)	0.17	1.67	0.00	8.35	2.55	BETL
PBH Bt 21	0.41	1.67	2.92	0.00	1.25	BETL
PAU Bt 2 (ZC)	0.37	0.00	0.00	0.00	0.09	BETL

Table. Advance Variety Trial in North Zone under unprotected conditions -- Open Boll damage (Normal spacing)

Name of Entry	Open Boll damage (%)						
	FA	BT	HI	SI	SG	Mean	Remark
PBH Bt 11	0.89	8.33	4.00	2.08	0.00	3.06	BETL
PAU Bt 1 (ZC)	2.21	8.33	15.32	3.25	0.00	5.82	BETL
Local Check Non-Bt	2.47	5.00	13.81	5.57	0.00	5.37	BETL
F 2228 (Non-Bt ZC)	3.52	5.00	8.77	4.23	0.00	4.30	BETL
PBH Bt 21	0.00	6.67	11.30	1.10	0.00	3.81	BETL
PAU Bt 2 (ZC)	2.44	5.00	14.46	0.00	0.00	4.38	BETL

Table. Advance Variety Trial in North Zone under unprotected conditions -- Locule damage (Normal spacing)

Name of Entry	Locule damage (%)						
	FA	BT	HI	SI	SG	Mean	Remark
PBH Bt 11	0.62	3.53	0.72	1.01	0.00	1.18	BETL
PAU Bt 1 (ZC)	2.00	3.41	1.26	1.65	0.00	1.66	BETL
Local Check Non-Bt	1.22	2.85	3.65	2.10	0.00	1.96	BETL
F 2228 (Non-Bt ZC)	1.89	1.22	1.14	1.80	0.00	1.21	BETL
PBH Bt 21	0.00	2.11	0.84	0.56	0.00	0.70	BETL
PAU Bt 2 (ZC)	1.04	2.92	0.00	0.00	0.00	0.79	BETL

Table. Advance Variety Trial in North Zone under unprotected conditions -- Leafhopper (Closer spacing)

Name of Entry	Leafhopper (Average of 3 leaves/plant)			
	BT	HI	Mean	Remark
PBH Bt 11	2.87	7.53	5.20	BETL
PAU Bt 1 (ZC)	2.33	7.60	4.97	BETL
Local Check Non-Bt	2.27	6.75	4.51	BETL
F 2228 (Non-Bt ZC)	2.53	7.23	4.88	BETL
PBH Bt 21	2.27	6.75	4.51	BETL
PAU Bt 2 (ZC)	2.00	8.07	5.03	BETL

Table. Advance Variety Trial in North Zone under unprotected conditions -- Thrips (Closer spacing)

Name of Entry	Thrips(Average of 3 leaves/plant)			
	BT	HI	Mean	Remark
PBH Bt 11	19.60	69.65	44.63	AETL
PAU Bt 1 (ZC)	23.87	67.50	45.68	AETL
Local Check Non-Bt	29.13	68.73	48.93	AETL
F 2228 (Non-Bt ZC)	34.13	69.80	51.97	AETL
PBH Bt 21	32.67	74.30	53.48	AETL
PAU Bt 2 (ZC)	33.27	79.07	56.17	AETL

Table. Advance Variety Trial in North Zone under unprotected conditions -- Whitefly (Closer spacing)

Name of Entry	Whitefly(Average of 3 leaves/plant)			
	BT	HI	Mean	Remark
PBH Bt 11	7.33	86.53	46.93	AETL
PAU Bt 1 (ZC)	7.67	92.53	50.10	AETL
Local Check Non-Bt	9.33	96.13	52.73	AETL
F 2228 (Non-Bt ZC)	9.47	95.58	52.53	AETL
PBH Bt 21	8.40	99.63	54.02	AETL
PAU Bt 2 (ZC)	7.27	103.35	55.31	AETL

Table. Advance Variety Trial in North Zone under unprotected conditions -- Bollworms –*Helicoverpa armigera* (Closer spacing)

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)			
	BT	HI	Mean	Remark
PBH Bt 11	0.00	0.00	0.00	BETL
PAU Bt 1 (ZC)	0.00	0.00	0.00	BETL
Local Check Non-Bt	0.00	0.00	0.00	BETL
F 2228 (Non-Bt ZC)	0.00	0.00	0.00	BETL
PBH Bt 21	0.00	0.00	0.00	BETL
PAU Bt 2 (ZC)	0.00	0.00	0.00	BETL

Table. Advance Variety Trial in North Zone under unprotected conditions ---Spotted Bollworms (Closer spacing)

Name of Entry	Spotted Bollworms (No. / 5 plants)			
	BT	HI	Mean	Remark
PBH Bt 11	1.00	0.00	0.50	BETL
PAU Bt 1 (ZC)	0.00	0.00	0.00	BETL
Local Check Non-Bt	0.00	0.00	0.00	BETL
F 2228 (Non-Bt ZC)	0.33	0.00	0.17	BETL
PBH Bt 21	0.33	0.00	0.17	BETL
PAU Bt 2 (ZC)	0.33	0.00	0.17	BETL

Table. Advance Variety Trial in North Zone under unprotected conditions -- Bollworms –*Spodoptera litura* (Closer spacing)

Name of Entry	*Spodoptera litura* (No. / 5 plants)			
	BT	HI	Mean	Remark
PBH Bt 11	0.00	0.00	0.00	BETL
PAU Bt 1 (ZC)	0.00	0.00	0.00	BETL
Local Check Non-Bt	0.00	0.00	0.00	BETL
F 2228 (Non-Bt ZC)	0.00	0.00	0.00	BETL
PBH Bt 21	0.00	0.00	0.00	BETL
PAU Bt 2 (ZC)	0.00	0.00	0.00	BETL

Table. Advance Variety Trial in North Zone under unprotected conditions --Pink bollworm (Closer spacing)

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)			
	BT	HI	Mean	Remark
PBH Bt 11	3.00	0.33	1.67	BETL
PAU Bt 1 (ZC)	2.00	0.50	1.25	BETL
Local Check Non-Bt	4.00	0.50	2.25	BETL
F 2228 (Non-Bt ZC)	3.00	0.17	1.58	BETL
PBH Bt 21	2.00	0.58	1.29	BETL
PAU Bt 2 (ZC)	0.00	0.58	0.29	BETL

Table. Advance Variety Trial in North Zone under unprotected conditions --Green Boll damage (Closer spacing)

Name of Entry	Green boll damage (%)			
	BT	HI	Mean	Remark
PBH Bt 11	3.33	0.00	1.67	BETL
PAU Bt 1 (ZC)	0.00	0.00	0.00	BETL
Local Check Non-Bt	1.67	0.00	0.83	BETL
F 2228 (Non-Bt ZC)	1.67	0.00	0.83	BETL
PBH Bt 21	1.67	0.00	0.83	BETL
PAU Bt 2 (ZC)	1.67	1.25	1.46	BETL

Table. Advance Variety Trial in North Zone under unprotected conditions -- Open Boll damage (Closer spacing)

Name of Entry	Open Boll damage (%)			
	BT	HI	Mean	Remark
PBH Bt 11	11.67	28.22	19.94	AETL
PAU Bt 1 (ZC)	8.33	14.22	11.28	AETL
Local Check Non-Bt	13.33	12.07	12.70	AETL
F 2228 (Non-Bt ZC)	13.33	24.59	18.96	AETL
PBH Bt 21	10.00	23.74	16.87	AETL
PAU Bt 2 (ZC)	8.33	16.75	12.54	AETL

Table. Advance Variety Trial in North Zone under unprotected conditions -- Locule damage (Closer spacing)

Name of Entry	Locule damage (%)			
	BT	HI	Mean	Remark
PBH Bt 11	5.88	2.96	4.42	BETL
PAU Bt 1 (ZC)	4.17	1.78	2.98	BETL
Local Check Non-Bt	6.10	0.00	3.05	BETL
F 2228 (Non-Bt ZC)	8.54	3.00	5.77	BETL
PBH Bt 21	4.21	0.00	2.11	BETL
PAU Bt 2 (ZC)	5.00	1.31	3.15	BETL

Reaction to Diseases

Table . Advanced Evaluation Trial of Bt Cotton Varieties (Promoted & Retained Entries) under unprotected conditions

Entry Name	Average CLCuD PDI & Disease Reaction (DR): Unprotected conditions (Normal Spacing)					
	Sriganganagar		Sirsa		Pooled	
	PDI	DR	PDI	DR	PDI	DR
PBH Bt 11	26.7	MR	20.1	MR	23.4	MR
PAU Bt 1 (ZC)	26.5	MR	19.2	R	22.9	MR
(LC) Non-Bt	25.9	MR	17.2	R	21.6	MR
F 2228 (Non-Bt ZC)	29.7	MR	5.0	HR	17.4	R
PBH Bt 21	26.8	MR	19.0	R	22.9	MR
PAU Bt 2 (ZC)	24.8	MR	18.0	R	21.4	MR

Bt Cotton Evaluation Report

South Zone

2020-21

Submitted by
Project Coordinator and Head
All India Coordinated Research Project on Cotton
ICAR-CICR, Regional Station, Coimbatore

April-2021

Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids in South Zone (2020-21) - under Irrigated Condition

Constitution of Trial

The trial was constituted with 18 Bt cotton hybrids containing MON 15985 event sponsored by various organization along with two different check hybrids as furnished below.

S. No.	Name of the Entry	Sponsored by
1	BIO GHH 074 BG II	Shriram Bioseed Genetics
2	ARCH 3181 BG II	Ankur Seeds Pvt Ltd
3	ASRCH 306 BG I	ASR Seeds Pvt Ltd
4	SRIKAR GOLD BG II	Eldora Agri Tech Pvt Ltd
5	D 1199 BG II	Daftari Agro Pvt Ltd
6	MC 5460 BG II	Rallis India Ltd.
7	RCH 989 BG II	Rasi Seeds Pvt Ltd
8	US 707 BG II	Seed Works International Pvt Ltd
9	ARCH 3079 BG II	Ankur Seeds Pvt Ltd
10	US 708 BG II	Seed Works International Pvt Ltd
11	C 9335 BG II	Mahyco Pvt Ltd
12	**BG II Local Check**	
13	ACH 909-2 BG II	Ajeet Seeds Pvt Ltd
14	Daftari 2244 BG II	Daftari Agro Pvt Ltd
15	C 9336 BG II	Mahyco Pvt Ltd
16	**RCH 659 B II (ZC)**	
17	ASRCH 108 BG I	ASR Seeds Pvt Ltd
18	GANDEEVAM BG II	Eldora Agri Tech Pvt Ltd
19	RCH 981 BG II	Rasi Seeds Pvt Ltd
20	Super 2141 BG II	Super Seeds

The trial was conducted in four different locations and detail is furnished below.

Name of the trial location	Coimbatore	Lam	Warangal	Raichur	B'Gudi
Local check Bt hybrid	MRC 7351 BG II	NCS 245 BG II	MRC 7351 BG II	NCS 864 BG II	NCS 864 BG II

Spacing: Recommended spacing for the hybrid has been followed.

Number of rows:4 rows of 6 meters per entry with three replications

Data recorded:

Biometric evaluation

Plant height (cm) at harvest in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	BIO GHH 074 BG II	113.5	158.3	127.9	129.7	145.7	**135.0**
2	ARCH 3181 BG II	122.4	136.3	126.4	144.3	156.6	**137.2**
3	ASRCH 306 BG I	103.5	136.1	109.0	130.7	144.3	**124.7**
4	SRIKAR GOLD BG II	102.7	132.0	120.8	153.3	158.0	**133.4**
5	D 1199 BG II	112.8	150.1	116.5	147.7	145.8	**134.6**
6	MC 5460 BG II	125.5	154.4	128.0	139.3	156.0	**140.6**
7	RCH 989 BG II	99.3	134.0	124.6	139.3	127.2	**124.9**
8	US 707 BG II	114.0	146.5	120.5	137.0	135.0	**130.6**
9	ARCH 3079 BG II	110.7	144.9	119.4	141.0	139.6	**131.1**
10	US 708 BG II	109.3	142.2	125.1	147.7	132.8	**131.4**
11	C 9335 BG II	105.5	131.9	117.7	128.0	157.9	**128.2**
12	**BG II Local Check**	94.9	154.9	116.7	125.0	134.6	**125.2**
13	ACH 909-2 BG II	109.3	133.7	119.9	138.7	157.9	**131.9**
14	Daftari 2244 BG II	96.3	126.9	98.1	131.0	136.2	**117.7**
15	C 9336 BG II	107.9	125.6	121.5	125.3	130.3	**122.1**
16	**RCH 659 B II (ZC)**	106.8	125.3	116.9	144.3	140.3	**126.7**
17	ASRCH 108 BG I	102.4	140.4	129.7	123.7	134.7	**126.2**
18	GANDEEVAM BG II	108.9	176.3	130.5	135.7	134.0	**137.1**
19	RCH 981 BG II	101.8	141.2	110.3	132.7	132.7	**123.7**
20	Super 2141 BG II	104.7	122.0	121.9	128.7	138.8	**123.2**
	CD @ 5%	12.1	18.6	9.3	10.5	NS	
	CV %	6.8	8.0	8.1	8.1	9.4	

Number of monopodia in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	BIO GHH 074 BG II	0.0	1.5	1.1	1.1	1.3	**1.0**
2	ARCH 3181 BG II	0.9	1.4	1.2	1.7	1.2	**1.3**
3	ASRCH 306 BG I	0.4	1.7	1.2	1.5	1.3	**1.2**
4	SRIKAR GOLD BG II	0.5	1.7	1.3	0.9	0.7	**1**
5	D 1199 BG II	0.3	1.8	1.3	0.7	1.4	**1.1**
6	MC 5460 BG II	0.4	2.2	1.4	1.1	1.1	**1.2**
7	RCH 989 BG II	0.5	1.9	1.5	1.3	1.2	**1.3**
8	US 707 BG II	0.5	2.0	1.1	0.8	0.8	**1**
9	ARCH 3079 BG II	1.0	1.5	1.4	1.1	1.3	**1.3**
10	US 708 BG II	0.2	2.1	1.3	0.5	1.2	**1.1**
11	C 9335 BG II	0.6	1.8	1.3	0.7	1.7	**1.2**
12	**BG II Local Check**	0.1	2.0	1.2	0.7	0.9	**1**
13	ACH 909-2 BG II	0.1	2.1	0.8	0.4	0.9	**0.9**
14	Daftari 2244 BG II	0.1	1.8	1.7	1.7	1.2	**1.3**
15	C 9336 BG II	0.1	1.5	1.2	1.1	1.2	**1**
16	**RCH 659 B II (ZC)**	0.4	1.6	1.5	0.9	1.7	**1.2**
17	ASRCH 108 BG I	0.1	1.7	1.3	0.9	0.8	**1**
18	GANDEEVAM BG II	0.5	2.1	1.7	1.1	1.4	**1.4**
19	RCH 981 BG II	0.1	2.1	1.4	1.3	2.1	**1.4**
20	Super 2141 BG II	0.1	1.5	1.4	1.4	1.3	**1.1**
	CD @ 5%	0.5	NS	0.3	0.4	NS	
	CV %	84.7	20.9	20.0	17.1	10.9	

Number of sympodia in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	BIO GHH 074 BG II	21.9	18.4	15.9	21.0	32.8	**22.0**
2	ARCH 3181 BG II	18.9	15.0	15.5	20.0	31.7	**20.2**
3	ASRCH 306 BG I	17.3	18.0	14.3	20.0	32.6	**20.4**
4	SRIKAR GOLD BG II	19.6	17.8	16.1	16.7	33.0	**20.6**
5	D 1199 BG II	20.5	18.9	16.7	18.7	27.4	**20.4**
6	MC 5460 BG II	24.5	16.1	17.7	23.7	29.9	**22.4**
7	RCH 989 BG II	20.3	18.8	15.5	21.0	26.2	**20.4**
8	US 707 BG II	22.3	19.0	18.7	24.0	27.9	**22.4**
9	ARCH 3079 BG II	19.1	16.2	16.8	22.7	30.2	**21.0**
10	US 708 BG II	20.1	15.5	19.3	24.0	27.8	**21.3**
11	C 9335 BG II	20.0	18.3	14.9	19.7	32.0	**21.0**
12	**BG II Local Check**	18.8	19.0	17.3	25.0	26.8	**21.4**
13	ACH 909-2 BG II	21.5	15.1	20.3	21.3	29.9	**21.6**
14	Daftari 2244 BG II	17.5	16.5	17.3	18.3	26.8	**19.3**
15	C 9336 BG II	19.5	13.8	16.1	23.0	25.7	**19.6**
16	**RCH 659 B II (ZC)**	19.4	14.7	13.6	22.3	26.4	**19.3**
17	ASRCH 108 BG I	17.5	16.3	15.4	20.7	29.0	**19.8**
18	GANDEEVAM BG II	17.5	16.3	14.3	17.0	26.2	**18.3**
19	RCH 981 BG II	18.7	14.3	14.9	21.3	28.9	**19.6**
20	Super 2141 BG II	18.4	15.7	17.2	19.3	28.2	**19.8**
	CD @ 5%	3.6	3.4	1.6	2.4	NS	
	CV %	11.3	12.3	10.5	11.9	11.4	

Number of bolls / plant in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	BIO GHH 074 BG II	27.0	60.2	25.5	35.3	25.1	**34.6**
2	ARCH 3181 BG II	25.0	44.9	24.6	37.3	25.8	**31.5**
3	ASRCH 306 BG I	24.0	45.3	22.9	34.0	16.7	**28.6**
4	SRIKAR GOLD BG II	33.0	61.6	25.7	28.0	26.9	**35.0**
5	D 1199 BG II	22.0	66.0	26.4	38.0	23.1	**35.1**
6	MC 5460 BG II	32.0	62.3	28.7	40.7	21.7	**37.1**
7	RCH 989 BG II	29.0	64.2	24.1	38.7	18.6	**34.9**
8	US 707 BG II	26.9	53.1	29.3	43.3	18.1	**34.1**
9	ARCH 3079 BG II	23.8	45.1	26.9	41.3	18.7	**31.2**
10	US 708 BG II	31.1	66.2	30.7	40.7	15.6	**36.9**
11	C 9335 BG II	19.8	56.9	23.6	34.7	21.8	**31.4**
12	**BG II Local Check**	27.7	62.2	28.0	44.0	22.3	**36.8**
13	ACH 909-2 BG II	30.7	61.8	32.0	34.7	28.4	**37.5**
14	Daftari 2244 BG II	21.1	58.9	27.3	31.3	21.1	**31.9**
15	C 9336 BG II	20.4	54.4	25.8	40.3	19.9	**32.2**
16	**RCH 659 B II (ZC)**	25.3	56.8	22.0	40.0	23.4	**33.5**
17	ASRCH 108 BG I	19.8	54.8	24.1	36.7	15.7	**30.2**
18	GANDEEVAM BG II	23.1	51.5	22.7	29.0	21.1	**29.5**
19	RCH 981 BG II	21.2	57.0	23.8	39.7	24.8	**33.3**
20	Super 2141 BG II	20.5	60.7	27.3	37.0	22.8	**33.7**
	CD @ 5%	7.6	9.0	2.3	4.1	7.2	
	CV %	18.3	9.5	9.3	11.4	10.2	

Number of bolls / sq.m.in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Lam	Coimbatore	Mean
1	BIO GHH 074 BG II	98.9	46.5	**72.7**
2	ARCH 3181 BG II	65.4	47.7	**56.6**
3	ASRCH 306 BG I	57.0	30.9	**43.9**
4	SRIKAR GOLD BG II	101.6	49.8	**75.7**
5	D 1199 BG II	109.6	42.8	**76.2**
6	MC 5460 BG II	104.1	40.1	**72.1**
7	RCH 989 BG II	105.4	34.4	**69.9**
8	US 707 BG II	86.6	33.5	**60.1**
9	ARCH 3079 BG II	75.5	34.6	**55.0**
10	US 708 BG II	116.5	28.8	**72.7**
11	C 9335 BG II	94.9	40.3	**67.6**
12	**BG II Local Check**	111.2	41.4	**76.3**
13	ACH 909-2 BG II	114.1	52.7	**83.4**
14	Daftari 2244 BG II	111.3	39.1	**75.2**
15	C 9336 BG II	102.7	36.8	**69.8**
16	**RCH 659 B II (ZC)**	103.8	43.4	**73.6**
17	ASRCH 108 BG I	95.1	29.0	**62.1**
18	GANDEEVAM BG II	98.8	39.1	**68.9**
19	RCH 981 BG II	95.3	45.9	**70.6**
20	Super 2141 BG II	113.7	42.2	**77.9**
	CD @ 5%	21.9	13.3	
	CV %	13.4	10.2	

Lint Index (g) in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	BIO GHH 074 BG II	5.6	5.4	6.6	6.3	7.4	**6.3**
2	ARCH 3181 BG II	4.6	6.1	5.5	6.9	6.9	**6.0**
3	ASRCH 306 BG I	4.1	6.2	5.1	6.0	6.6	**5.6**
4	SRIKAR GOLD BG II	4.1	5.8	5.2	7.0	6.7	**5.8**
5	D 1199 BG II	4.1	6.4	6.0	6.2	7.2	**6.0**
6	MC 5460 BG II	4.4	6.4	6.7	6.0	6.8	**6.1**
7	RCH 989 BG II	3.9	6.2	5.9	5.9	7.2	**5.8**
8	US 707 BG II	4.8	5.7	7.2	7.7	8.1	**6.7**
9	ARCH 3079 BG II	3.7	7.0	5.9	6.5	7.3	**6.1**
10	US 708 BG II	4.7	6.2	6.7	6.5	8.1	**6.4**
11	C 9335 BG II	4.6	6.2	6.2	5.9	7.3	**6.0**
12	**BG II Local Check**	3.9	5.7	5.9	6.6	6.7	**5.8**
13	ACH 909-2 BG II	4.2	6.0	6.1	7.5	6.7	**6.1**
14	Daftari 2244 BG II	4.1	5.7	5.5	6.6	7.9	**6.0**
15	C 9336 BG II	4.6	6.6	5.6	5.5	7.2	**5.9**
16	**RCH 659 B II (ZC)**	4.7	5.5	6.1	6.6	7.3	**6.0**
17	ASRCH 108 BG I	5.5	5.6	7.6	6.0	8.3	**6.6**
18	GANDEEVAM BG II	3.5	6.3	5.8	6.4	6.6	**5.7**
19	RCH 981 BG II	4.7	5.8	6.4	7.0	7.0	**6.2**
20	Super 2141 BG II	4.5	6.2	5.5	5.6	6.9	**5.7**
	CD @ 5%		NS	0.4	0.7	0.6	
	CV %		11.8	6.3	11.6	4.8	

Seed Index (g) in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	BIO GHH 074 BG II	8.3	11.8	12.7	11.6	13.6	**11.6**
2	ARCH 3181 BG II	10.1	12.3	11.3	11.8	12.1	**11.5**
3	ASRCH 306 BG I	8.3	10.8	10.6	10.9	12.9	**10.7**
4	SRIKAR GOLD BG II	6.3	11.7	10.1	12.0	11.1	**10.2**
5	D 1199 BG II	7.8	12.3	12.0	11.6	12.6	**11.3**
6	MC 5460 BG II	8.0	10.0	12.1	11.9	12.9	**11.0**
7	RCH 989 BG II	8.0	11.8	12.4	11.9	12.9	**11.4**
8	US 707 BG II	7.7	12.3	11.9	12.0	11.7	**11.1**
9	ARCH 3079 BG II	6.7	11.9	11.2	11.6	12.3	**10.7**
10	US 708 BG II	7.1	11.9	11.8	11.2	12.6	**10.9**
11	C 9335 BG II	9.0	10.0	13.6	12.2	13.5	**11.7**
12	**BG II Local Check**	6.6	12.7	12.4	12.4	11.8	**11.2**
13	ACH 909-2 BG II	6.4	12.6	9.9	11.0	10.1	**10.0**
14	Daftari 2244 BG II	7.2	10.7	10.4	11.8	13.6	**10.7**
15	C 9336 BG II	8.7	11.2	12.2	10.8	12.8	**11.1**
16	**RCH 659 B II (ZC)**	8.6	12.2	12.2	11.6	12.3	**11.4**
17	ASRCH 108 BG I	9.8	12.6	14.3	11.1	14.4	**12.4**
18	GANDEEVAM BG II	7.5	9.5	12.0	11.8	11.7	**10.5**
19	RCH 981 BG II	8.4	11.9	12.2	13.1	12.1	**11.5**
20	Super 2141 BG II	7.6	9.9	11.7	10.9	12.8	**10.6**
	CD @ 5%		NS	0.4	1.1	0.9	
	CV %		11.6	3.7	10.0	4.4	

Ginning outturn (%) in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	BIO GHH 074 BG II	32.4	36.8	34.1	35.2	35.2	**34.7**
2	ARCH 3181 BG II	33.5	35.2	33.0	36.9	36.4	**35.0**
3	ASRCH 306 BG I	27.4	39.1	32.2	35.4	33.8	**33.6**
4	SRIKAR GOLD BG II	33.1	37.1	34.2	36.7	37.7	**35.8**
5	D 1199 BG II	34.5	38.3	33.4	34.8	36.3	**35.5**
6	MC 5460 BG II	29.4	39.7	35.4	33.4	34.4	**34.5**
7	RCH 989 BG II	28.5	39.5	32.3	33.1	35.8	**33.8**
8	US 707 BG II	25.0	37.7	37.6	38.9	40.7	**36.0**
9	ARCH 3079 BG II	33.5	36.3	34.4	36.0	37.2	**35.5**
10	US 708 BG II	36.0	36.7	36.3	36.8	39.2	**37.0**
11	C 9335 BG II	27.3	32.7	31.2	32.6	35.1	**31.8**
12	**BG II Local Check**	32.8	36.3	32.1	34.7	36.2	**34.4**
13	ACH 909-2 BG II	35.5	30.9	38.4	40.4	40.0	**37.0**
14	Daftari 2244 BG II	28.0	37.1	34.7	35.6	36.7	**34.4**
15	C 9336 BG II	32.0	35.7	31.4	33.9	35.9	**33.8**
16	**RCH 659 B II (ZC)**	30.0	38.0	33.2	36.2	37.1	**34.9**
17	ASRCH 108 BG I	32.2	33.6	34.6	35.2	36.5	**34.4**
18	GANDEEVAM BG II	32.0	36.1	32.7	35.3	36.1	**34.4**
19	RCH 981 BG II	33.4	36.6	34.4	34.8	36.8	**35.2**
20	Super 2141 BG II	30.9	36.5	32.1	34.0	34.9	**33.7**
	CD @ 5%		NS	1.1	1.1	1.4	
	CV %		8.5	3.3	3.2	2.2	

Upper Half Mean Length (mm) under HVI Mode in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	BIO GHH 074 BG II	28.8	26.5	27.4	29.1	29.0	**28.2**
2	ARCH 3181 BG II	29.0	25.3	27.5	29.1	28.9	**28.0**
3	ASRCH 306 BG I	29.0	24.9	28.2	28.6	29.0	**27.9**
4	SRIKAR GOLD BG II	27.2	26.5	27.8	27.8	28.0	**27.5**
5	D 1199 BG II	31.3	28.9	31.2	31.0	30.1	**30.5**
6	MC 5460 BG II	27.2	25.1	27.4	27.8	28.3	**27.2**
7	RCH 989 BG II	28.2	25.4	27.5	28.3	27.7	**27.4**
8	US 707 BG II	28.7	26.2	27.5	29.8	28.0	**28.0**
9	ARCH 3079 BG II	27.9	26.4	27.5	28.5	28.0	**27.7**
10	US 708 BG II	27.6	29.4	27.5	28.1	27.8	**28.1**
11	C 9335 BG II	30.4	26.1	29.8	31.1	29.7	**29.4**
12	**BG II Local Check**	29.7	27.6	29.1	29.7	30.4	**29.3**
13	ACH 909-2 BG II	27.4	24.3	27.2	27.4	28.4	**26.9**
14	Daftari 2244 BG II	31.5	29.7	31.7	31.2	32.2	**31.3**
15	C 9336 BG II	30.8	28.2	29.8	30.0	30.5	**29.9**
16	**RCH 659 B II (ZC)**	28.5	26.6	29.0	29.5	29.9	**28.7**
17	ASRCH 108 BG I	31.8	28.2	32.3	32.7	32.8	**31.6**
18	GANDEEVAM BG II	29.2	27.5	30.7	30.4	30.0	**29.6**
19	RCH 981 BG II	29.5	26.6	29.2	29.5	29.9	**28.9**
20	Super 2141 BG II	29.9	28.7	28.8	29.8	30.2	**29.5**

Uniformity index under HVI Mode in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	BIO GHH 074 BG II	83.0	85.0	85.0	86.0	86.2	**85.0**
2	ARCH 3181 BG II	83.0	82.0	83.0	83.0	85.5	**83.3**
3	ASRCH 306 BG I	83.0	83.0	85.0	85.0	83.2	**83.8**
4	SRIKAR GOLD BG II	82.0	84.0	85.0	82.0	85.5	**83.7**
5	D 1199 BG II	84.0	85.0	84.0	84.0	82.5	**83.9**
6	MC 5460 BG II	82.0	84.0	86.0	85.0	84.4	**84.3**
7	RCH 989 BG II	83.0	84.0	85.0	85.0	84.4	**84.3**
8	US 707 BG II	83.0	83.0	84.0	84.0	82.9	**83.4**
9	ARCH 3079 BG II	82.0	84.0	84.0	85.0	83.5	**83.7**
10	US 708 BG II	84.0	84.0	85.0	85.0	85.0	**84.6**
11	C 9335 BG II	83.0	84.0	84.0	84.0	85.6	**84.1**
12	**BG II Local Check**	83.0	84.0	84.0	83.0	87.2	**84.2**
13	ACH 909-2 BG II	82.0	83.0	84.0	83.0	85.4	**83.5**
14	Daftari 2244 BG II	84.0	84.0	87.0	85.0	88.2	**85.6**
15	C 9336 BG II	84.0	84.0	85.0	85.0	83.5	**84.3**
16	**RCH 659 B II (ZC)**	83.0	84.0	84.0	84.0	84.7	**83.9**
17	ASRCH 108 BG I	84.0	84.0	84.0	86.0	86.4	**84.9**
18	GANDEEVAM BG II	83.0	84.0	88.0	85.0	85.7	**85.1**
19	RCH 981 BG II	83.0	84.0	86.0	84.0	86.6	**84.7**
20	Super 2141 BG II	84.0	85.0	85.0	85.0	86.0	**85.0**

Micronaire under HVI Mode in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	BIO GHH 074 BG II	5.2	4.9	4.8	4.2	4.8	**4.8**
2	ARCH 3181 BG II	4.5	4.2	4.3	4.2	2.9	**4.0**
3	ASRCH 306 BG I	4.3	4.2	4.3	4.3	3.7	**4.2**
4	SRIKAR GOLD BG II	4.3	4.4	4.2	4.2	4.2	**4.3**
5	D 1199 BG II	4.8	4.3	4.4	4.5	4.4	**4.5**
6	MC 5460 BG II	4.4	4.4	4.4	4.3	4.3	**4.4**
7	RCH 989 BG II	4.6	4.5	4.2	4.4	4.4	**4.4**
8	US 707 BG II	4.2	4.0	3.8	3.8	3.8	**3.9**
9	ARCH 3079 BG II	4.3	5.0	4.6	4.7	4.1	**4.5**
10	US 708 BG II	4.8	4.2	4.5	4.5	4.5	**4.5**
11	C 9335 BG II	4.4	4.6	4.3	4.1	3.8	**4.2**
12	**BG II Local Check**	4.1	4.9	4.5	4.5	4.2	**4.4**
13	ACH 909-2 BG II	4.1	4.8	4.7	4.3	4.3	**4.4**
14	Daftari 2244 BG II	4.0	4.1	4.0	3.8	4.0	**4.0**
15	C 9336 BG II	4.2	4.3	4.0	4.0	3.7	**4.0**
16	**RCH 659 B II (ZC)**	4.5	4.4	4.3	4.1	4.1	**4.3**
17	ASRCH 108 BG I	4.7	4.2	4.3	4.1	3.9	**4.2**
18	GANDEEVAM BG II	4.3	4.2	4.1	4.0	4.2	**4.2**
19	RCH 981 BG II	4.3	4.2	4.2	4.2	4.3	**4.2**
20	Super 2141 BG II	4.4	4.1	4.1	4.3	3.9	**4.2**

Tenacity under HVI Mode in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	BIO GHH 074 BG II	28.2	28.2	28.6	28.6	26.3	**28.0**
2	ARCH 3181 BG II	29.9	26.4	27.4	27.7	30.1	**28.3**
3	ASRCH 306 BG I	30.0	26.5	26.1	27.9	26.3	**27.4**
4	SRIKAR GOLD BG II	29.8	28.0	27.5	28.3	26.6	**28.0**
5	D 1199 BG II	28.5	27.9	29.9	28.3	26.5	**28.2**
6	MC 5460 BG II	30.9	26.4	28.2	28.1	26.0	**27.9**
7	RCH 989 BG II	30.2	27.0	27.0	28.3	25.9	**27.7**
8	US 707 BG II	29.6	26.0	25.8	26.4	25.0	**26.6**
9	ARCH 3079 BG II	30.2	27.8	28.1	28.3	26.4	**28.2**
10	US 708 BG II	28.2	30.8	27.4	27.0	25.0	**27.7**
11	C 9335 BG II	30.6	27.4	27.4	28.5	26.2	**28.0**
12	**BG II Local Check**	30.8	29.6	27.6	27.3	28.0	**28.7**
13	ACH 909-2 BG II	29.6	25.5	27.6	29.6	27.0	**27.9**
14	Daftari 2244 BG II	30.4	32.4	28.0	28.2	28.3	**29.5**
15	C 9336 BG II	30.8	29.4	28.3	27.5	27.9	**28.8**
16	**RCH 659 B II (ZC)**	29.9	28.2	27.7	29.5	27.7	**28.6**
17	ASRCH 108 BG I	29.6	29.4	27.9	29.3	28.3	**28.9**
18	GANDEEVAM BG II	30.5	29.4	29.1	29.3	28.8	**29.4**
19	RCH 981 BG II	30.8	28.4	28.3	28.4	26.2	**28.4**
20	Super 2141 BG II	30.0	30.1	27.8	28.7	26.9	**28.7**

Seed Cotton Yield (q/ha) in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean	Rank
1	BIO GHH 074 BG II	14.70	23.81	25.30	29.11	21.70	**22.92**	9
2	ARCH 3181 BG II	12.16	19.62	24.28	29.96	20.19	**21.24**	16
3	ASRCH 306 BG I	12.04	19.24	22.73	27.43	17.71	**19.83**	19
4	SRIKAR GOLD BG II	9.66	24.17	25.41	24.24	22.65	**21.23**	17
5	D 1199 BG II	14.58	26.25	26.39	29.70	19.83	**23.35**	4
6	MC 5460 BG II	12.05	23.67	28.35	32.95	17.89	**22.98**	8
7	RCH 989 BG II	12.99	26.43	24.03	30.40	19.04	**22.58**	11
8	US 707 BG II	13.77	21.40	29.09	34.52	22.76	**24.31**	2
9	ARCH 3079 BG II	12.27	18.73	26.94	33.25	21.59	**22.56**	12
10	US 708 BG II	12.99	26.92	30.48	33.38	19.47	**24.65**	1
11	C 9335 BG II	11.88	19.95	23.53	28.34	19.98	**20.74**	18
12	**BG II Local Check**	9.41	24.84	27.69	35.89	20.22	**23.61**	3
13	ACH 909-2 BG II	9.12	23.51	31.93	28.95	23.24	**23.35**	4
14	Daftari 2244 BG II	11.77	21.36	27.43	26.07	21.17	**21.56**	15
15	C 9336 BG II	12.38	22.79	25.71	33.38	22.17	**23.29**	6
16	**RCH 659 B II (ZC)**	12.59	23.34	21.52	32.20	21.99	**22.33**	13
17	ASRCH 108 BG I	14.12	22.83	23.96	29.07	20.54	**22.10**	14
18	GANDEEVAM BG II	10.17	18.71	22.57	25.30	19.92	**19.33**	20
19	RCH 981 BG II	12.44	19.86	23.67	31.08	26.55	**22.72**	10
20	Super 2141 BG II	12.04	24.05	27.38	29.65	22.12	**23.05**	7
	CD @ 5%	2.04	3.37	2.21	3.87	NS		
	CV %	10.10	13.36	8.94	13.42	14.72		

Qualitative Cry Protein Evaluation

All the above entries were positive for Cry 1Ac Protein in qualitative ELISA Test

All the above entries were positive for Cry 2Ab Protein in qualitative ELISA Test

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect Pests

Table. Initial HxH Trial under protected conditions in South Zone – Aphid

Name of Entry	Aphid (Average of 3 leaves/plant)	
	Raichur	Mean
BIO GHH 074 BG II	4.40	4.40
ARCH 3181 BG II	2.40	2.40
ASRCH 306 BG I	4.45	4.45
SRIKAR GOLD BG II	2.15	2.15
D 1199 BG II	3.50	3.50
MC 5460 BG II	3.45	3.45
RCH 989 BG II	3.40	3.40
US 707 BG II	4.30	4.30
ARCH 3079 BG II	3.85	3.85
US 708 BG II	2.15	2.15
C 9335 BG II	1.75	1.75
BG II Local Check	2.80	2.80
ACH 909-2 BG II	0.60	0.60
Daftari 2244 BG II	1.20	1.20
C 9336 BG II	1.30	1.30
RCH 659 B II (ZC)	0.70	0.70
ASRCH 108 BG I	1.20	1.20
GANDEEVAM BG II	1.15	1.15
RCH 981 BG II	3.25	3.25
Super 2141 BG II	1.20	1.20

Table. Initial HxH Trial under protected conditions in South Zone -- Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)				
	Raichur	Coimbatore	Warangal	Mean	Remarks*
BIO GHH 074 BG II	1.95	2.33	2.60	2.29	BETL
ARCH 3181 BG II	1.75	2.09	2.40	2.08	BETL
ASRCH 306 BG I	1.95	2.42	2.60	2.32	BETL
SRIKAR GOLD BG II	0.60	2.29	2.40	1.76	BETL
D 1199 BG II	1.65	2.93	2.60	2.39	BETL
MC 5460 BG II	1.90	2.51	2.60	2.34	BETL
RCH 989 BG II	1.00	2.64	2.60	2.08	BETL
US 707 BG II	0.55	1.96	2.60	1.70	BETL
ARCH 3079 BG II	2.20	1.80	2.50	2.17	BETL
US 708 BG II	1.00	2.47	2.60	2.02	BETL
C 9335 BG II	1.15	2.29	2.50	1.98	BETL
BG II Local Check	2.10	2.20	2.30	2.20	BETL
ACH 909-2 BG II	1.50	2.60	2.50	2.20	BETL
Daftari 2244 BG II	1.50	1.84	2.70	2.01	BETL
C 9336 BG II	1.50	2.24	2.60	2.11	BETL
RCH 659 B II (ZC)	2.20	3.29	2.50	2.66	BETL
ASRCH 108 BG I	2.25	2.98	2.60	2.61	BETL
GANDEEVAM BG II	2.90	2.53	2.50	2.64	BETL
RCH 981 BG II	1.25	1.58	2.70	1.84	BETL
Super 2141 BG II	0.80	2.13	2.70	1.88	BETL

Table. Initial HxH Trial under protected conditions in South Zone -- Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)				
	Raichur	Coimbatore	Warangal	Mean	Remarks*
BIO GHH 074 BG II	7.65	4.22	3.40	5.09	BETL
ARCH 3181 BG II	10.05	3.73	3.80	5.86	BETL
ASRCH 306 BG I	7.00	3.20	3.50	4.57	BETL
SRIKAR GOLD BG II	11.90	4.56	3.70	6.72	BETL
D 1199 BG II	13.85	5.09	3.60	7.51	BETL
MC 5460 BG II	14.20	3.80	3.60	7.20	BETL
RCH 989 BG II	10.45	5.80	3.90	6.72	BETL
US 707 BG II	11.60	4.84	3.90	6.78	BETL
ARCH 3079 BG II	9.55	3.09	3.80	5.48	BETL
US 708 BG II	11.05	5.09	4.10	6.75	BETL
C 9335 BG II	12.55	4.62	3.90	7.02	BETL
BG II Local Check	9.60	5.00	3.70	6.10	BETL
ACH 909-2 BG II	9.25	5.78	3.90	6.31	BETL
Daftari 2244 BG II	9.90	5.67	3.90	6.49	BETL
C 9336 BG II	10.65	5.31	4.20	6.72	BETL
RCH 659 B II (ZC)	9.85	5.62	4.00	6.49	BETL
ASRCH 108 BG I	6.75	5.09	3.80	5.21	BETL
GANDEEVAM BG II	9.05	5.20	3.70	5.98	BETL
RCH 981 BG II	11.95	5.11	4.30	7.12	BETL
Super 2141 BG II	7.25	4.29	4.30	5.28	BETL

Table. Initial HxH Trial under protected conditions in South Zone -- Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)				
	Raichur	Coimbatore	Warangal	Mean	Remarks*
BIO GHH 074 BG II	2.65	0.73	1.40	1.59	BETL
ARCH 3181 BG II	0.75	0.76	1.50	1.00	BETL
ASRCH 306 BG I	1.40	0.56	1.50	1.15	BETL
SRIKAR GOLD BG II	1.65	0.51	1.40	1.19	BETL
D 1199 BG II	1.95	0.71	1.40	1.35	BETL
MC 5460 BG II	1.15	1.11	1.50	1.25	BETL
RCH 989 BG II	1.85	1.00	1.40	1.42	BETL
US 707 BG II	1.20	0.73	1.50	1.14	BETL
ARCH 3079 BG II	0.35	0.98	2.00	1.11	BETL
US 708 BG II	2.80	0.67	2.20	1.89	BETL
C 9335 BG II	1.75	1.11	1.90	1.59	BETL
BG II Local Check	0.90	1.38	1.80	1.36	BETL
ACH 909-2 BG II	3.10	1.11	1.80	2.00	BETL
Daftari 2244 BG II	1.00	1.04	2.00	1.35	BETL
C 9336 BG II	1.30	1.09	2.00	1.46	BETL
RCH 659 B II (ZC)	1.05	1.33	1.80	1.39	BETL
ASRCH 108 BG I	2.60	1.09	1.70	1.80	BETL
GANDEEVAM BG II	1.25	1.20	1.90	1.45	BETL
RCH 981 BG II	0.90	1.04	2.00	1.31	BETL
Super 2141 BG II	0.95	1.07	1.90	1.31	BETL

Table. Initial HxH Trial under protected conditions in South Zone -- Natural Enemies

Name of Entry	Natural enemies (No./Plant)	
	Warangal	Mean
BIO GHH 074 BG II	1.2	1.2
ARCH 3181 BG II	1.2	1.2
ASRCH 306 BG I	1.1	1.1
SRIKAR GOLD BG II	1.1	1.1
D 1199 BG II	1.1	1.1
MC 5460 BG II	1.2	1.2
RCH 989 BG II	1.2	1.2
US 707 BG II	1.2	1.2
ARCH 3079 BG II	1.3	1.3
US 708 BG II	1.3	1.3
C 9335 BG II	1.3	1.3
BG II Local Check	1.3	1.3
ACH 909-2 BG II	1.3	1.3
Daftari 2244 BG II	1.3	1.3
C 9336 BG II	1.4	1.4
RCH 659 B II (ZC)	1.3	1.3
ASRCH 108 BG I	1.3	1.3
GANDEEVAM BG II	1.4	1.4
RCH 981 BG II	1.3	1.3
Super 2141 BG II	1.2	1.2

Table. Initial HxH Trial under protected conditions in South Zone -- Bollworms - *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)			
	Raichur	Coimbatore	Mean	Remarks*
BIO GHH 074 BG II	0.00	0.00	0.00	BETL
ARCH 3181 BG II	0.00	0.00	0.00	BETL
ASRCH 306 BG I	0.00	0.00	0.00	BETL
SRIKAR GOLD BG II	0.00	0.00	0.00	BETL
D 1199 BG II	0.00	0.00	0.00	BETL
MC 5460 BG II	0.00	0.00	0.00	BETL
RCH 989 BG II	0.00	0.00	0.00	BETL
US 707 BG II	0.00	0.00	0.00	BETL
ARCH 3079 BG II	0.00	0.00	0.00	BETL
US 708 BG II	0.00	0.00	0.00	BETL
C 9335 BG II	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	BETL
ACH 909-2 BG II	0.00	0.00	0.00	BETL
Daftari 2244 BG II	0.00	0.00	0.00	BETL
C 9336 BG II	0.00	0.00	0.00	BETL
RCH 659 B II (ZC)	0.00	0.00	0.00	BETL
ASRCH 108 BG I	0.00	0.00	0.00	BETL
GANDEEVAM BG II	0.00	0.00	0.00	BETL
RCH 981 BG II	0.00	0.00	0.00	BETL
Super 2141 BG II	0.00	0.00	0.00	BETL

Table. Initial HxH Trial under protected conditions in South Zone -- Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)				
	Raichur	Coimbatore	Warangal	Mean	Remarks*
BIO GHH 074 BG II	0.00	0.00	0.00	0.00	BETL
ARCH 3181 BG II	0.00	0.00	0.00	0.00	BETL
ASRCH 306 BG I	0.00	0.00	0.00	0.00	BETL
SRIKAR GOLD BG II	0.00	0.00	0.00	0.00	BETL
D 1199 BG II	0.00	0.00	0.00	0.00	BETL
MC 5460 BG II	0.00	0.00	0.00	0.00	BETL
RCH 989 BG II	0.00	0.00	0.00	0.00	BETL
US 707 BG II	0.00	0.00	0.00	0.00	BETL
ARCH 3079 BG II	0.00	0.00	0.00	0.00	BETL
US 708 BG II	0.00	0.00	0.00	0.00	BETL
C 9335 BG II	0.00	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	0.00	BETL
ACH 909-2 BG II	0.00	0.00	0.00	0.00	BETL
Daftari 2244 BG II	0.00	0.00	0.00	0.00	BETL
C 9336 BG II	0.00	0.00	0.00	0.00	BETL
RCH 659 B II (ZC)	0.00	0.00	0.00	0.00	BETL
ASRCH 108 BG I	0.00	0.00	0.00	0.00	BETL
GANDEEVAM BG II	0.00	0.00	0.00	0.00	BETL
RCH 981 BG II	0.00	0.00	0.00	0.00	BETL
Super 2141 BG II	0.00	0.00	0.00	0.00	BETL

Table. Initial HxH Trial under protected conditions in South Zone -- *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)			
	Raichur	Coimbatore	Mean	Remarks*
BIO GHH 074 BG II	0.00	0.00	0.00	BETL
ARCH 3181 BG II	0.00	0.00	0.00	BETL
ASRCH 306 BG I	0.00	0.00	0.00	BETL
SRIKAR GOLD BG II	0.00	0.00	0.00	BETL
D 1199 BG II	0.00	0.00	0.00	BETL
MC 5460 BG II	0.00	0.00	0.00	BETL
RCH 989 BG II	0.00	0.00	0.00	BETL
US 707 BG II	0.00	0.00	0.00	BETL
ARCH 3079 BG II	0.00	0.00	0.00	BETL
US 708 BG II	0.00	0.00	0.00	BETL
C 9335 BG II	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	BETL
ACH 909-2 BG II	0.00	0.00	0.00	BETL
Daftari 2244 BG II	0.00	0.00	0.00	BETL
C 9336 BG II	0.00	0.00	0.00	BETL
RCH 659 B II (ZC)	0.00	0.00	0.00	BETL
ASRCH 108 BG I	0.00	0.00	0.00	BETL
GANDEEVAM BG II	0.00	0.00	0.00	BETL
RCH 981 BG II	0.00	0.00	0.00	BETL
Super 2141 BG II	0.00	0.00	0.00	BETL

Table. Initial HxH Trial under protected conditions in South Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)			
	Raichur	Coimbatore	Warangal/ 5 plant	Mean
BIO GHH 074 BG II	1.00	2.33	29.30	10.9
ARCH 3181 BG II	0.83	1.89	37.30	13.3
ASRCH 306 BG I	1.50	2.00	45.70	16.4
SRIKAR GOLD BG II	0.83	2.00	31.30	11.4
D 1199 BG II	1.00	1.11	32.70	11.6
MC 5460 BG II	0.67	0.78	30.30	10.6
RCH 989 BG II	1.33	2.11	40.00	14.5
US 707 BG II	0.50	2.33	41.00	14.6
ARCH 3079 BG II	1.17	0.89	30.70	10.9
US 708 BG II	0.67	2.89	39.30	14.3
C 9335 BG II	1.17	1.22	38.30	13.6
BG II Local Check	1.17	2.00	35.30	12.8
ACH 909-2 BG II	0.67	1.78	28.70	10.4
Daftari 2244 BG II	1.00	2.22	26.70	10.0
C 9336 BG II	1.00	1.67	40.00	14.2
RCH 659 B II (ZC)	1.17	1.44	43.30	15.3
ASRCH 108 BG I	1.33	1.11	37.00	13.1
GANDEEVAM BG II	1.67	1.89	42.30	15.3
RCH 981 BG II	1.17	2.11	40.30	14.5
Super 2141 BG II	0.50	1.67	40.70	14.3

Table. Initial HxH Trial under protected conditions in South Zone --Green Boll damage

Name of Entry	Green Boll damage (%)			
	Raichur	Coimbatore	Mean	Remarks*
BIO GHH 074 BG II	0.00	0.00	0.00	BETL
ARCH 3181 BG II	0.00	0.00	0.00	BETL
ASRCH 306 BG I	0.00	0.00	0.00	BETL
SRIKAR GOLD BG II	0.00	0.00	0.00	BETL
D 1199 BG II	0.00	0.00	0.00	BETL
MC 5460 BG II	0.00	0.00	0.00	BETL
RCH 989 BG II	0.00	0.00	0.00	BETL
US 707 BG II	0.00	0.00	0.00	BETL
ARCH 3079 BG II	0.00	0.00	0.00	BETL
US 708 BG II	0.00	0.00	0.00	BETL
C 9335 BG II	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	BETL
ACH 909-2 BG II	0.00	0.00	0.00	BETL
Daftari 2244 BG II	0.00	0.00	0.00	BETL
C 9336 BG II	0.00	0.00	0.00	BETL
RCH 659 B II (ZC)	0.00	0.00	0.00	BETL
ASRCH 108 BG I	0.00	0.00	0.00	BETL
GANDEEVAM BG II	0.00	0.00	0.00	BETL
RCH 981 BG II	0.00	0.00	0.00	BETL
Super 2141 BG II	0.00	0.00	0.00	BETL

Table. Initial HxH Trial under protected conditions in South Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)				
	Raichur	Coimbatore	Warangal	Mean	Remarks*
BIO GHH 074 BG II	15.00	24.43	13.30	17.58	AETL
ARCH 3181 BG II	17.50	16.89	9.30	14.56	AETL
ASRCH 306 BG I	18.15	18.44	7.30	14.63	AETL
SRIKAR GOLD BG II	15.00	14.84	10.00	13.28	AETL
D 1199 BG II	15.00	19.91	12.30	15.74	AETL
MC 5460 BG II	7.50	15.85	10.00	11.12	AETL
RCH 989 BG II	17.50	15.63	10.00	14.38	AETL
US 707 BG II	7.50	16.02	13.70	12.41	AETL
ARCH 3079 BG II	15.00	18.30	11.00	14.77	AETL
US 708 BG II	5.00	17.84	13.30	12.05	AETL
C 9335 BG II	16.62	16.00	9.30	13.97	AETL
BG II Local Check	10.00	17.70	6.70	11.47	AETL
ACH 909-2 BG II	5.00	16.95	9.00	10.32	AETL
Daftari 2244 BG II	7.50	18.20	10.70	12.13	AETL
C 9336 BG II	15.00	16.54	7.70	13.08	AETL
RCH 659 B II (ZC)	18.84	15.83	8.00	14.22	AETL
ASRCH 108 BG I	17.50	29.16	11.70	19.45	AETL
GANDEEVAM BG II	17.14	14.80	10.30	14.08	AETL
RCH 981 BG II	17.50	14.84	13.00	15.11	AETL
Super 2141 BG II	7.50	15.45	10.70	11.22	AETL

Table. Initial HxH Trial under protected conditions in South Zone -- Locule damage

Name of Entry	Locule damage (%)		
	Raichur	Coimbatore	Mean
BIO GHH 074 BG II	14.00	17.40	15.70
ARCH 3181 BG II	15.00	12.62	13.81
ASRCH 306 BG I	17.66	10.90	14.28
SRIKAR GOLD BG II	13.50	13.23	13.37
D 1199 BG II	12.50	14.70	13.60
MC 5460 BG II	7.50	10.80	9.15
RCH 989 BG II	17.50	13.87	15.68
US 707 BG II	7.50	13.27	10.38
ARCH 3079 BG II	12.50	13.71	13.11
US 708 BG II	5.00	11.57	8.28
C 9335 BG II	17.21	13.10	15.16
BG II Local Check	10.00	17.46	13.73
ACH 909-2 BG II	5.00	12.34	8.67
Daftari 2244 BG II	7.50	26.96	17.23
C 9336 BG II	15.00	15.34	15.17
RCH 659 B II (ZC)	19.42	14.00	16.71
ASRCH 108 BG I	17.50	12.57	15.03
GANDEEVAM BG II	14.00	15.29	14.64
RCH 981 BG II	18.44	17.37	17.90
Super 2141 BG II	9.00	12.33	10.67

Table. Initial HxH Trial under protected conditions in South Zone -- No. of spray for sap sucking pest

Name of Entry	Spray applied for sap sucking pest (Nos.)	
	Warangal	Mean
BIO GHH 074 BG II	11.00	11.00
ARCH 3181 BG II	11.00	11.00
ASRCH 306 BG I	11.00	11.00
SRIKAR GOLD BG II	11.00	11.00
D 1199 BG II	11.00	11.00
MC 5460 BG II	11.00	11.00
RCH 989 BG II	11.00	11.00
US 707 BG II	11.00	11.00
ARCH 3079 BG II	11.00	11.00
US 708 BG II	11.00	11.00
C 9335 BG II	11.00	11.00
BG II Local Check	11.00	11.00
ACH 909-2 BG II	11.00	11.00
Daftari 2244 BG II	11.00	11.00
C 9336 BG II	11.00	11.00
RCH 659 B II (ZC)	11.00	11.00
ASRCH 108 BG I	11.00	11.00
GANDEEVAM BG II	11.00	11.00
RCH 981 BG II	11.00	11.00
Super 2141 BG II	11.00	11.00

Reaction to Diseases

Criteria used for Evaluation against Fungal foliar diseases, bacterial leaf blight and TSV

Percent Disease index (PDI)	Disease Reaction (DR)
0	Immune/disease free
0.1-25	Resistant
25.1-50	Moderately Resistant
50.1-75	Moderately Susceptible
>75	Susceptible

Note: The disease reaction (DR) less than the local/Zonal check will be permissible.

Abbreviations:

ALB=Alternaria leaf blight; BLB= Bacterial leaf blight; CLCuD= Cotton leaf curl virus disease; CLS= Cercospora leaf spot ; CoLS= Corynespora leaf spot ; DR= Disease reaction; FFS= fungal foliar spots (Alternaria/ Myrothecium/Cercospora); GM= Grey mildew; MLS= Myrothecium leaf spot; PDI= percent disease index (%); TSV= Tobacco streak virus

Table: Initial Evaluation Trial of Intra-Hirsutum Hybrids – Irrigated (Protected: South Zone)

Entries	Average PDI & Disease Reaction (DR): Protected													
	TSV				ALB		GM		Rust				CoLS	
	Coimbatore		Guntur		Coimbatore		Coimbatore		Coimbatore		Guntur		Guntur	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
BIO GHH 074 BG II	1.0	R	0.0	DF	2.7	R	0.0	DF	6.7	R	16.5	R	14.0	R
ARCH 3181 BG II	0.8	R	2.0	R	0.8	R	1.1	R	6.1	R	15.0	R	16.8	R
ASRCH 306 BG I	0.4	R	0.0	DF	7.6	R	3.5	R	4.5	R	17.5	R	14.0	R
SRIKAR GOLD BG II	0.8	R	0.0	DF	1.2	R	1.9	R	5.6	R	16.0	R	15.3	R
D 1199 BG II	0.4	R	0.0	DF	4.6	R	0.0	DF	7.5	R	19.5	R	15.0	R
MC 5460 BG II	0.4	R	0.0	DF	5.8	R	0.0	DF	7.3	R	22.5	R	12.0	R
RCH 989 BG II	0.4	R	0.0	DF	3.1	R	5.5	R	7.6	R	19.5	R	13.3	R
US 707 BG II	0.2	R	2.6	R	1.2	R	1.8	R	4.7	R	18.8	R	15.0	R
ARCH 3079 BG II	0.0	DF	0.0	DF	1.6	R	0.0	DF	4.0	R	15.0	R	18.0	R
US 708 BG II	0.2	R	1.3	R	1.8	R	0.0	DF	4.9	R	21.5	R	18.0	R
C 9335 BG II	1.5	MR	0.0	DF	5.5	R	2.0	R	3.8	R	18.5	R	12.0	R
BG II (LC)	1.7	R	0.0	DF	4.5	R	0.0	DF	4.6	R	18.5	R	15.0	R
ACH 909-2 BG II	0.4	R	0.0	DF	5.7	R	0.0	DF	6.7	R	18.0	R	9.3	R
Daftari 2244 BG II	0.8	R	1.3	R	2.7	R	0.0	DF	4.7	R	20.0	R	11.0	R
C 9336 BG II	0.3	R	1.3	R	1.3	R	0.9	R	6.3	R	24.0	R	15.3	R
RCH 659 B II (ZC)	0.6	R	0.0	DF	3.2	R	4.9	R	6.5	R	23.0	R	14.5	R
ASRCH 108 BG I	0.8	R	1.3	R	4.3	R	0.0	DF	3.5	R	16.0	R	16.0	R
GANDEEVAM BG II	1.5	R	1.3	R	4.3	R	3.5	R	3.1	R	20.0	R	18.3	R
RCH 981 BG II	0.6	R	1.3	R	3.0	R	1.6	R	8.3	R	24.3	R	15.0	R
Super 2141 BG II	0.6	R	0.0	DF	2.7	R	3.8	R	4.7	R	22.0	R	15.3	R

Table: Initial Evaluation Trial of Intra-Hirsutum Hybrids – Irrigated (Protected: Warangal)

Entry	Average PDI & Disease Reaction (DR): Protected: RARS, Warangal, PJTSAU									
	ALB		GM		Rust		CoLS		BLB	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
BIO GHH 074 BG II	15.7	R	16.5	R	33.7	MR	14.3	R	17.8	R
ARCH 3181 BG II	13.7	R	16.3	R	24.7	R	15.0	R	19.3	R
ASRCH 306 BG I	14.3	R	17.5	R	22.0	R	16.7	R	22.2	R
SRIKAR GOLD BG II	14.7	R	10.2	R	23.2	R	16.7	R	22.8	R
D-1199 BG II	15.8	R	14.7	R	30.0	MR	15.5	R	24.3	R
MC 5460 BG II	14.0	R	16.2	R	28.0	MR	15.7	R	22.7	R
RCH 989 BG II	14.0	R	14.3	R	30.5	MR	13.3	R	21.0	R
US 707 BG II	13.0	R	19.8	R	31.3	MR	14.0	R	24.7	R
ARCH 3079 BG II	14.3	R	16.3	R	24.8	R	17.2	R	20.5	R
US 708 BG II	14.5	R	11.7	R	22.2	R	13.2	R	19.2	R
C 9335 BG II	13.8	R	15.3	R	18.3	R	19.5	R	23.3	R
BG II (LC)	14.3	R	18.7	R	24.8	R	18.0	R	24.5	R
ACH 909-2 BG II	13.8	R	14.5	R	15.3	R	20.0	R	21.0	R
Daftari 2244 BG II	13.8	R	13.8	R	20.7	R	14.8	R	23.3	R
C 9336 BG II	15.0	R	14.3	R	22.3	R	12.3	R	20.3	R
RCH 659 B II (ZC)	14.3	R	17.7	R	22.3	R	17.7	R	23.2	R
ASRCH 108 BG I	13.8	R	17.5	R	18.2	R	19.2	R	24.8	R
GANDEEVAM BG II	13.8	R	16.2	R	22.8	R	14.2	R	24.7	R
RCH 981 BG II	13.5	R	15.7	R	25.2	MR	13.8	R	21.0	R
Super 2141 BG II	13.7	R	12.7	R	19.2	R	13.3	R	20.7	R

Evaluation under unprotected condition for insect pests and diseases:

Reaction to Insect Pests

Table. Initial HxH Trial under unprotected conditions in South Zone -- Aphid

Name of Entry	Aphid (Average of 3 leaves/plant)		
	Raichur	Guntur	Mean
BIO GHH 074 BG II	3.70	7.17	5.43
ARCH 3181 BG II	3.20	7.27	5.23
ASRCH 306 BG I	5.50	5.63	5.57
SRIKAR GOLD BG II	5.50	7.00	6.25
D 1199 BG II	6.20	5.23	5.72
MC 5460 BG II	6.50	6.00	6.25
RCH 989 BG II	6.00	9.67	7.83
US 707 BG II	5.30	8.90	7.10
ARCH 3079 BG II	4.60	14.97	9.78
US 708 BG II	4.80	6.63	5.72
C 9335 BG II	2.50	11.03	6.77
BG II Local Check	5.10	5.37	5.23
ACH 909-2 BG II	3.10	15.87	9.48
Daftari 2244 BG II	1.65	8.60	5.13
C 9336 BG II	5.00	9.97	7.48
RCH 659 B II (ZC)	3.30	7.90	5.60
ASRCH 108 BG I	5.20	11.00	8.10
GANDEEVAM BG II	2.50	13.23	7.87
RCH 981 BG II	6.13	7.70	6.91
Super 2141 BG II	2.50	13.03	7.77

Table. Initial HxH Trial under unprotected conditions in South Zone -- Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
BIO GHH 074 BG II	3.75	2.70	5.64	2.82	3.73	BETL
ARCH 3181 BG II	3.15	3.83	6.16	2.80	3.98	BETL
ASRCH 306 BG I	2.55	3.77	7.38	2.63	4.08	BETL
SRIKAR GOLD BG II	1.55	2.63	5.96	2.70	3.21	BETL
D 1199 BG II	1.58	2.97	7.09	2.84	3.62	BETL
MC 5460 BG II	3.15	2.00	8.60	2.92	4.17	BETL
RCH 989 BG II	1.30	2.70	7.00	2.68	3.42	BETL
US 707 BG II	1.30	3.60	6.96	2.76	3.65	BETL
ARCH 3079 BG II	3.30	3.70	6.64	2.76	4.10	BETL
US 708 BG II	2.40	2.83	5.44	2.79	3.37	BETL
C 9335 BG II	1.95	3.03	6.02	2.97	3.49	BETL
BG II Local Check	2.85	2.30	6.07	2.71	3.48	BETL
ACH 909-2 BG II	2.60	3.07	8.36	2.90	4.23	BETL
Daftari 2244 BG II	2.30	3.30	6.98	2.87	3.86	BETL
C 9336 BG II	2.45	2.07	6.78	2.73	3.51	BETL
RCH 659 B II (ZC)	2.20	2.53	8.49	2.73	3.99	BETL
ASRCH 108 BG I	3.18	2.03	7.87	2.68	3.94	BETL
GANDEEVAM BG II	3.50	2.17	8.11	2.57	4.09	BETL
RCH 981 BG II	2.65	2.13	6.80	2.58	3.54	BETL
Super 2141 BG II	0.75	3.03	5.93	2.86	3.14	BETL

Table. Initial HxH Trial under unprotected conditions in South Zone -- Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
BIO GHH 074 BG II	8.00	7.70	1.64	2.69	5.01	BETL
ARCH 3181 BG II	7.50	5.60	2.89	2.70	4.67	BETL
ASRCH 306 BG I	4.50	5.50	2.49	2.79	3.82	BETL
SRIKAR GOLD BG II	10.75	5.27	4.89	2.62	5.88	BETL
D 1199 BG II	4.50	7.90	2.64	2.90	4.49	BETL
MC 5460 BG II	7.50	6.83	4.80	2.89	5.50	BETL
RCH 989 BG II	7.00	6.37	4.02	2.80	5.05	BETL
US 707 BG II	3.50	4.13	2.64	2.99	3.32	BETL
ARCH 3079 BG II	5.50	2.93	3.56	2.74	3.68	BETL
US 708 BG II	5.75	3.07	4.22	3.18	4.06	BETL
C 9335 BG II	6.73	2.50	2.33	2.97	3.63	BETL
BG II Local Check	6.00	4.57	4.42	2.82	4.45	BETL
ACH 909-2 BG II	8.50	1.57	2.89	3.19	4.04	BETL
Daftari 2244 BG II	6.00	4.70	3.16	3.10	4.24	BETL
C 9336 BG II	3.00	4.37	3.27	3.05	3.42	BETL
RCH 659 B II (ZC)	7.15	5.07	3.16	2.84	4.55	BETL
ASRCH 108 BG I	4.00	4.50	3.07	2.89	3.61	BETL
GANDEEVAM BG II	9.15	2.97	3.09	2.88	4.52	BETL
RCH 981 BG II	9.00	6.47	4.09	2.80	5.59	BETL
Super 2141 BG II	4.50	2.97	2.07	2.78	3.08	BETL

Table. Initial HxH Trial under unprotected conditions in South Zone -- Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
BIO GHH 074 BG II	4.20	1.03	0.44	1.65	1.83	AETL
ARCH 3181 BG II	2.30	1.47	0.82	1.66	1.56	AETL
ASRCH 306 BG I	3.05	0.50	0.87	1.61	1.51	AETL
SRIKAR GOLD BG II	3.00	0.87	0.82	1.68	1.59	AETL
D 1199 BG II	3.00	1.30	0.38	1.75	1.61	AETL
MC 5460 BG II	2.00	1.07	0.49	1.65	1.30	AETL
RCH 989 BG II	2.68	0.70	0.73	1.70	1.45	AETL
US 707 BG II	2.50	1.10	0.76	1.89	1.56	AETL
ARCH 3079 BG II	1.75	0.80	0.73	1.78	1.27	AETL
US 708 BG II	2.35	1.63	0.80	1.90	1.67	AETL
C 9335 BG II	2.25	0.93	0.96	1.77	1.48	AETL
BG II Local Check	5.25	0.67	0.84	1.61	2.09	AETL
ACH 909-2 BG II	4.00	1.83	1.02	1.88	2.18	AETL
Daftari 2244 BG II	3.65	0.73	0.96	1.67	1.75	AETL
C 9336 BG II	2.75	0.83	0.89	1.88	1.59	AETL
RCH 659 B II (ZC)	2.65	0.90	1.24	1.60	1.60	AETL
ASRCH 108 BG I	3.15	0.80	0.69	1.87	1.63	AETL
GANDEEVAM BG II	1.90	1.30	1.07	1.67	1.48	AETL
RCH 981 BG II	1.55	0.87	1.29	1.83	1.38	AETL
Super 2141 BG II	2.25	1.20	0.44	1.90	1.45	AETL

Table. Initial HxH Trial under unprotected conditions in South Zone -- Natural Enemies

Name of Entry	Natural enemies (No./Plant)	
	Warangal	Mean
BIO GHH 074 BG II	1.29	1.29
ARCH 3181 BG II	1.30	1.30
ASRCH 306 BG I	1.31	1.31
SRIKAR GOLD BG II	1.35	1.35
D 1199 BG II	1.42	1.42
MC 5460 BG II	1.45	1.45
RCH 989 BG II	1.26	1.26
US 707 BG II	1.28	1.28
ARCH 3079 BG II	1.37	1.37
US 708 BG II	1.44	1.44
C 9335 BG II	1.33	1.33
BG II Local Check	1.34	1.34
ACH 909-2 BG II	1.39	1.39
Daftari 2244 BG II	1.33	1.33
C 9336 BG II	1.37	1.37
RCH 659 B II (ZC)	1.38	1.38
ASRCH 108 BG I	1.39	1.39
GANDEEVAM BG II	1.33	1.33
RCH 981 BG II	1.36	1.36
Super 2141 BG II	1.37	1.37

Table. Initial HxH Trial under unprotected conditions in South Zone -- Bollworms - *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)				
	Raichur	Guntur	Coimbatore	Mean	Remarks*
BIO GHH 074 BG II	0.00	0.00	0.00	0.00	BETL
ARCH 3181 BG II	0.00	0.00	0.00	0.00	BETL
ASRCH 306 BG I	0.00	0.00	0.00	0.00	BETL
SRIKAR GOLD BG II	0.00	0.00	0.00	0.00	BETL
D 1199 BG II	0.00	0.00	0.00	0.00	BETL
MC 5460 BG II	0.00	0.00	0.00	0.00	BETL
RCH 989 BG II	0.00	0.00	0.00	0.00	BETL
US 707 BG II	0.00	0.00	0.00	0.00	BETL
ARCH 3079 BG II	0.00	0.00	0.00	0.00	BETL
US 708 BG II	0.00	0.00	0.00	0.00	BETL
C 9335 BG II	0.00	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	0.00	BETL
ACH 909-2 BG II	0.00	0.00	0.00	0.00	BETL
Daftari 2244 BG II	0.00	0.00	0.00	0.00	BETL
C 9336 BG II	0.00	0.00	0.00	0.00	BETL
RCH 659 B II (ZC)	0.00	0.00	0.00	0.00	BETL
ASRCH 108 BG I	0.00	0.00	0.00	0.00	BETL
GANDEEVAM BG II	0.00	0.00	0.00	0.00	BETL
RCH 981 BG II	0.00	0.00	0.00	0.00	BETL
Super 2141 BG II	0.00	0.00	0.00	0.00	BETL

Table. Initial HxH Trial under unprotected conditions in South Zone -- Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
BIO GHH 074 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ARCH 3181 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ASRCH 306 BG I	0.00	0.00	0.00	0.00	0.00	BETL
SRIKAR GOLD BG II	0.00	0.00	0.00	0.00	0.00	BETL
D 1199 BG II	0.00	0.00	0.00	0.00	0.00	BETL
MC 5460 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 989 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 707 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ARCH 3079 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 708 BG II	0.00	0.00	0.00	0.00	0.00	BETL
C 9335 BG II	0.00	0.00	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	0.00	0.00	BETL
ACH 909-2 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Daftari 2244 BG II	0.00	0.00	0.00	0.00	0.00	BETL
C 9336 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 659 B II (ZC)	0.00	0.00	0.00	0.00	0.00	BETL
ASRCH 108 BG I	0.00	0.00	0.00	0.00	0.00	BETL
GANDEEVAM BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 981 BG II	0.00	0.00	0.00	0.00	0.00	BETL
Super 2141 BG II	0.00	0.00	0.00	0.00	0.00	BETL

Table. Initial HxH Trial under unprotected conditions in South Zone -- *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)				
	Raichur	Guntur	Coimbatore	Mean	Remarks*
BIO GHH 074 BG II	0.00	0.00	0.00	0.00	BETL
ARCH 3181 BG II	0.00	0.00	0.00	0.00	BETL
ASRCH 306 BG I	0.00	0.00	0.00	0.00	BETL
SRIKAR GOLD BG II	0.00	0.00	0.00	0.00	BETL
D 1199 BG II	0.00	0.00	0.00	0.00	BETL
MC 5460 BG II	0.00	0.00	0.00	0.00	BETL
RCH 989 BG II	0.00	0.00	0.00	0.00	BETL
US 707 BG II	0.00	0.00	0.00	0.00	BETL
ARCH 3079 BG II	0.00	0.00	0.00	0.00	BETL
US 708 BG II	0.00	0.00	0.00	0.00	BETL
C 9335 BG II	0.00	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	0.00	BETL
ACH 909-2 BG II	0.00	0.00	0.00	0.00	BETL
Daftari 2244 BG II	0.00	0.00	0.00	0.00	BETL
C 9336 BG II	0.00	0.00	0.00	0.00	BETL
RCH 659 B II (ZC)	0.00	0.00	0.00	0.00	BETL
ASRCH 108 BG I	0.00	0.00	0.00	0.00	BETL
GANDEEVAM BG II	0.00	0.00	0.00	0.00	BETL
RCH 981 BG II	0.00	0.00	0.00	0.00	BETL
Super 2141 BG II	0.00	0.00	0.00	0.00	BETL

Table. Initial HxH Trial under unprotected conditions in South Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)				
	Raichur	Guntur	Coimbatore	Warangal/ 5 plant	Mean
BIO GHH 074 BG II	5.33	12.00	0.44	69.00	21.69
ARCH 3181 BG II	5.33	9.50	0.78	55.00	17.65
ASRCH 306 BG I	5.33	6.00	0.33	58.00	17.42
SRIKAR GOLD BG II	7.33	8.00	1.33	63.00	19.92
D 1199 BG II	5.33	11.50	1.22	55.00	18.26
MC 5460 BG II	4.00	7.50	0.67	56.00	17.04
RCH 989 BG II	4.00	11.00	1.22	49.00	16.31
US 707 BG II	6.00	9.50	1.11	66.00	20.65
ARCH 3079 BG II	4.00	5.00	0.67	53.30	15.74
US 708 BG II	6.00	6.00	0.67	56.00	17.17
C 9335 BG II	2.00	6.00	0.22	61.00	17.31
BG II Local Check	4.00	8.50	0.00	57.60	17.53
ACH 909-2 BG II	2.00	7.50	0.11	56.00	16.40
Daftari 2244 BG II	4.67	9.50	1.11	56.00	17.82
C 9336 BG II	3.33	6.50	1.11	62.70	18.41
RCH 659 B II (ZC)	4.67	8.00	0.44	56.70	17.45
ASRCH 108 BG I	4.00	11.00	0.22	45.30	15.13
GANDEEVAM BG II	5.33	9.00	1.00	58.30	18.41
RCH 981 BG II	4.00	9.50	1.33	62.00	19.21
Super 2141 BG II	5.33	9.50	0.78	61.00	19.15

Table. Initial HxH Trial under unprotected conditions in South Zone --Green Boll damage

Name of Entry	Green Boll damage (%)				
	Raichur	Guntur	Coimbatore	Mean	Remarks*
BIO GHH 074 BG II	0.00	75.00	0.00	25.00	AETL
ARCH 3181 BG II	0.00	55.00	0.00	18.33	AETL
ASRCH 306 BG I	0.00	65.00	0.00	21.67	AETL
SRIKAR GOLD BG II	0.00	75.00	0.00	25.00	AETL
D 1199 BG II	0.00	75.00	0.00	25.00	AETL
MC 5460 BG II	0.00	70.00	0.00	23.33	AETL
RCH 989 BG II	0.00	60.00	0.00	20.00	AETL
US 707 BG II	0.00	50.00	0.00	16.67	AETL
ARCH 3079 BG II	0.00	70.00	0.00	23.33	AETL
US 708 BG II	0.00	70.00	0.00	23.33	AETL
C 9335 BG II	0.00	65.00	0.00	21.67	AETL
BG II Local Check	0.00	60.00	0.00	20.00	AETL
ACH 909-2 BG II	0.00	65.00	0.00	21.67	AETL
Daftari 2244 BG II	0.00	80.00	0.00	26.67	AETL
C 9336 BG II	0.00	70.00	0.00	23.33	AETL
RCH 659 B II (ZC)	0.00	65.00	0.00	21.67	AETL
ASRCH 108 BG I	0.00	75.00	0.00	25.00	AETL
GANDEEVAM BG II	0.00	61.67	0.00	20.56	AETL
RCH 981 BG II	0.00	75.00	0.00	25.00	AETL
Super 2141 BG II	0.00	60.00	0.00	20.00	AETL

Table. Initial HxH Trial under unprotected conditions in South Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
BIO GHH 074 BG II	45.00	16.05	21.25	13.70	24.00	AETL
ARCH 3181 BG II	50.00	15.10	21.65	11.00	24.44	AETL
ASRCH 306 BG I	55.00	14.64	26.24	14.30	27.55	AETL
SRIKAR GOLD BG II	55.00	12.51	19.44	8.30	23.81	AETL
D 1199 BG II	55.00	13.25	22.00	12.70	25.74	AETL
MC 5460 BG II	55.00	13.70	15.72	11.70	24.03	AETL
RCH 989 BG II	60.00	13.04	20.20	14.00	26.81	AETL
US 707 BG II	55.00	11.79	21.73	12.00	25.13	AETL
ARCH 3079 BG II	60.00	16.85	14.15	9.30	25.07	AETL
US 708 BG II	60.00	10.64	17.52	14.30	25.62	AETL
C 9335 BG II	55.00	19.27	23.34	15.30	28.23	AETL
BG II Local Check	55.00	15.56	17.66	11.30	24.88	AETL
ACH 909-2 BG II	60.00	13.67	20.78	11.00	26.36	AETL
Daftari 2244 BG II	60.00	9.14	18.88	10.30	24.58	AETL
C 9336 BG II	55.00	13.32	19.86	11.00	24.79	AETL
RCH 659 B II (ZC)	60.00	10.60	21.12	12.00	25.93	AETL
ASRCH 108 BG I	60.00	24.08	21.57	10.30	28.99	AETL
GANDEEVAM BG II	55.00	17.34	20.15	19.70	28.05	AETL
RCH 981 BG II	55.00	19.82	19.81	15.00	27.41	AETL
Super 2141 BG II	55.00	16.89	16.68	16.00	26.14	AETL

Table. Initial HxH Trial under unprotected conditions in South Zone -- Locule damage

Name of Entry	Locule damage (%)			
	Raichur	Guntur	Coimbatore	Mean
BIO GHH 074 BG II	38.38	10.31	12.07	20.25
ARCH 3181 BG II	35.00	11.08	9.66	18.58
ASRCH 306 BG I	46.13	11.63	12.70	23.48
SRIKAR GOLD BG II	27.75	7.84	12.09	15.89
D 1199 BG II	27.75	9.73	13.00	16.83
MC 5460 BG II	30.00	8.59	11.10	16.56
RCH 989 BG II	32.45	9.51	14.40	18.79
US 707 BG II	40.38	8.41	14.30	21.03
ARCH 3079 BG II	33.75	11.19	12.13	19.03
US 708 BG II	37.25	7.92	12.43	19.20
C 9335 BG II	41.25	13.33	12.77	22.45
BG II Local Check	30.00	11.60	12.98	18.19
ACH 909-2 BG II	26.25	9.75	14.98	16.99
Daftari 2244 BG II	42.50	5.99	12.83	20.44
C 9336 BG II	21.25	8.53	12.43	14.07
RCH 659 B II (ZC)	32.50	8.76	13.07	18.11
ASRCH 108 BG I	26.25	16.18	15.43	19.29
GANDEEVAM BG II	36.38	9.72	12.31	19.47
RCH 981 BG II	32.50	13.79	14.57	20.29
Super 2141 BG II	31.38	11.25	11.66	18.09

Table. Initial HXH Trial under unprotected conditions in South Zone --Jassid Injury Grade

Name of Entry	JIG (Average of 3 leaves/plant)	
	Guntur	Mean
BIO GHH 074 BG II	2	2
ARCH 3181 BG II	2	2
ASRCH 306 BG I	2	2
SRIKAR GOLD BG II	2	2
D 1199 BG II	2	2
MC 5460 BG II	2	2
RCH 989 BG II	2	2
US 707 BG II	2	2
ARCH 3079 BG II	2	2
US 708 BG II	2	2
C 9335 BG II	3	3
BG II Local Check	2	2
ACH 909-2 BG II	2	2
Daftari 2244 BG II	3	3
C 9336 BG II	2	2
RCH 659 B II (ZC)	2	2
ASRCH 108 BG I	2	2
GANDEEVAM BG II	2	2
RCH 981 BG II	1	1
Super 2141 BG II	2	2

Reaction to Diseases

Table: Initial Evaluation Trial of Intra-Hirsutum Hybrids – Irrigated (Unprotected: South Zone)

Entries	Average PDI & Disease Reaction (DR): Un-Protected													
	TSV				ALB		GM		Rust				CoLS	
	Coimbatore		Guntur		Coimbatore		Coimbatore		Coimbatore		Guntur		Guntur	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
BIO GHH 074 BG II	0.0	DF	16.6	R	9.4	R	0.0	DF	6.8	R	22.5	R	23.0	R
ARCH 3181 BG II	0.0	DF	18.2	R	6.5	R	0.0	DF	8.4	R	27.5	MR	23.5	R
ASRCH 306 BG I	0.0	DF	18.0	R	13.5	R	1.4	R	6.4	R	24.0	R	21.5	R
SRIKAR GOLD BG II	0.0	DF	6.2	R	7.9	R	0.0	DF	6.6	R	23.5	R	17.7	R
D 1199 BG II	0.0	DF	10.0	R	8.9	R	0.0	DF	8.9	R	29.3	MR	22.2	R
MC 5460 BG II	0.0	DF	0.0	R	9.4	R	2.0	R	7.3	R	27.8	MR	19.5	R
RCH 989 BG II	0.0	DF	12.5	R	4.6	R	4.4	R	8.0	R	25.3	MR	18.2	R
US 707 BG II	0.0	DF	30.9	MR	2.7	R	0.0	DF	8.2	R	23.8	R	22.2	R
ARCH 3079 BG II	1.3	R	13.9	R	6.6	R	0.0	DF	5.4	R	22.8	R	17.7	R
US 708 BG II	0.0	DF	16.6	R	4.9	R	0.0	DF	9.5	R	25.3	MR	19.5	R
C 9335 BG II	0.0	DF	20.8	R	8.9	R	0.0	DF	5.9	R	22.3	R	20.0	R
BG II (LC)	0.0	DF	22.2	R	8.4	R	0.0	DF	8.1	R	23.5	R	21.5	R
ACH 909-2 BG II	0.0	DF	18.0	R	9.3	R	0.0	DF	6.9	R	21.8	R	20.0	R
Daftari 2244 BG II	0.0	DF	25.9	MR	7.0	R	0.0	DF	8.7	R	24.0	R	17.2	R
C 9336 BG II	0.0	DF	29.8	MR	6.0	R	0.0	DF	10.9	R	29.0	MR	21.2	R
RCH 659 B II (ZC)	0.0	DF	29.2	MR	10.8	R	0.0	DF	6.7	R	27.3	MR	16.2	R
ASRCH 108 BG I	0.0	DF	18.7	R	11.1	R	0.0	DF	5.6	R	19.8	R	19.7	R
GANDEEVAM BG II	0.0	DF	25.4	MR	12.3	R	1.2	R	6.4	R	25.0	R	20.5	R
RCH 981 BG II	0.0	DF	5.5	R	5.1	R	1.9	R	9.1	R	29.5	MR	19.0	R
Super 2141 BG II	0.0	DF	5.5	R	8.4	R	3.8	R	7.5	R	27.0	MR	22.5	R

Table: Initial Evaluation Trial of Intra-Hirsutum Hybrids – Irrigated (Unprotected: Warangal)

Entry	Average PDI & Disease Reaction (DR): Un-Protected: RARS, Warangal,PJTSAU									
	ALB		GM		Rust		CoLS		BLB	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
BIO GHH 074 BG II	13.3	R	11.4	R	23.6	R	12.8	R	20.3	R
ARCH 3181 BG II	12.5	R	8.6	R	20.0	R	12.2	R	19.7	R
ASRCH 306 BG I	12.5	R	6.1	R	17.8	R	13.0	R	20.3	R
SRIKAR GOLD BG II	16.4	R	9.7	R	19.4	R	15.5	R	25.8	MR
D 1199 BG II	15.0	R	8.3	R	18.3	R	12.5	R	25.5	MR
MC 5460 BG II	14.4	R	9.7	R	18.6	R	17.8	R	28.1	MR
RCH 989 BG II	13.6	R	12.2	R	21.1	R	12.2	R	21.6	R
US 707 BG II	13.0	R	13.9	R	15.8	R	12.7	R	17.8	R
ARCH 3079 BG II	13.0	R	13.0	R	16.9	R	10.8	R	18.0	R
US 708 BG II	14.7	R	14.1	R	20.0	R	14.1	R	24.2	R
C 9335 BG II	13.3	R	12.2	R	20.8	R	16.9	R	23.9	R
BG II (LC)	12.5	R	8.6	R	17.8	R	13.0	R	16.6	R
ACH 909-2 BG II	11.4	R	9.2	R	14.1	R	11.9	R	18.4	R
Daftari 2244 BG II	14.1	R	9.4	R	17.8	R	12.8	R	21.1	R
C 9336 BG II	14.7	R	14.7	R	24.7	R	13.1	R	23.6	R
RCH 659 B II (ZC)	13.9	R	13.0	R	18.9	R	13.6	R	23.9	R
ASRCH 108 BG I	11.7	R	9.4	R	19.7	R	13.3	R	20.0	R
GANDEEVAM BG II	13.0	R	9.4	R	16.7	R	16.1	R	21.4	R
RCH 981 BG II	13.0	R	14.4	R	21.4	R	11.4	R	23.9	R
Super 2141 BG II	13.0	R	15.8	R	16.7	R	13.6	R	23.9	R

Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids in South Zone (2020-21) under Irrigated Condition

Constitution of Trial

The trial was constituted with 17 Bt cotton hybrids containing MON 15985 event sponsored by various organization along with two different check hybrids as furnished below.

S. No.	Name of the Entry	Sponsored by
1	G COT HY 12 BG II*	NAU, Surat
2	GBCH 1801 BG II	Green Gold Seeds Pvt Ltd
3	C 376 BG II	Sungro
4	JAI HO BG II	Eldora Agri Tech
5	SP 7679 BG II	Bayer Biosciences
6	RCH 979 BG II	Rasi Seeds Pvt Ltd
7	JKCH 161042 BG II	J K Agri Genetics Ltd
8	MC 5444 BG II	Metahelix Life Sciences Ltd
9	US 704 BG II	Seed Works International Pvt Ltd
10	VSCH 369 BG II	Veda Seed Science Pvt Ltd
11	ARCH 3106 BG II	Ankur Seeds Pvt Ltd
12	**RCH 659 B II (ZC)**	
13	ACH 52-2 BG II	Ajeet Seeds Pvt Ltd
14	C 9356 BG II	Mahyco Pvt Ltd
15	KCH 9292 BG II	Kaveri Seeds Pvt Ltd
16	US 703 BG II	Seed Works International Pvt Ltd
17	RCH 971 BG II	Rasi Seeds Pvt Ltd
18	**BG II Local Check**	
19	ARCH 3001 BG II	Ankur Seeds Pvt Ltd

***Showed poor germination and plant stand in most of the centres**

The trial was conducted in five different locations and detail is furnished below.

Name of the trial location	Coimbatore	Lam	Warangal	Raichur	B'Gudi
Local check Bt hybrid	MRC 7351 BG II	NCS 245 BG II	MRC 7351 BG II	NCS 864 BG II	NCS 864 BG II

Spacing: Recommended spacing for the hybrid has been followed.

Number of rows:4 rows of 6 meters per entry with three replications

Data recorded:

Biometric evaluation

Plant height (cm) at harvest in Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	G COT HY 12 BG II	-	143.2	-	-	-	**143.2**
2	GBCH 1801 BG II	104.7	163.9	110.3	138.0	138.0	**131.0**
3	C 376 BG II	100.9	133.1	111.7	146.7	132.6	**125.0**
4	JAI HO BG II	100.4	117.9	116.7	146.7	127.4	**121.8**
5	SP 7679 BG II	99.3	134.3	110.4	152.0	138.6	**126.9**
6	RCH 979 BG II	103.2	123.7	110.1	134.3	124.9	**119.2**
7	JKCH 161042 BG II	108.9	131.8	113.3	162.0	142.3	**131.7**
8	MC 5444 BG II	109.4	123.5	124.5	150.3	137.4	**129.0**
9	US 704 BG II	103.7	148.7	129.1	147.0	138.6	**133.4**
10	VSCH 369 BG II	106.5	178.2	113.7	134.7	117.6	**130.1**
11	ARCH 3106 BG II	106.3	153.9	109.9	142.3	114.4	**125.4**
12	**RCH 659 B II (ZC)**	101.3	136.6	124.7	151.3	113.1	**125.4**
13	ACH 52-2 BG II	99.2	137.9	111.6	137.5	127.7	**122.8**
14	C 9356 BG II	99.9	134.1	113.6	139.7	115.9	**120.6**
15	KCH 9292 BG II	104.2	175.1	124.5	160.3	133.0	**139.4**
16	US 703 BG II	103.4	147.2	114.0	141.3	152.8	**131.7**
17	RCH 971 BG II	101.6	128.2	109.9	135.0	114.6	**117.9**
18	**BG II Local Check**	91.3	153.2	108.7	129.7	129.7	**122.5**
19	ARCH 3001 BG II	107.1	140.4	115.8	128.7	142.1	**126.8**
	CD @ 5%	NS	15.6	6.4	11.6	21.5	
	CV %	7.0	6.6	5.8	8.4	10.0	

Number of monopodia in Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	G COT HY 12 BG II	-	1.9	-	-	-	**1.9**
2	GBCH 1801 BG II	0.2	2.2	0.9	1.1	1.0	**1.1**
3	C 376 BG II	0.0	2.1	1.1	1.9	1.7	**1.4**
4	JAI HO BG II	0.3	1.8	1.2	1.1	0.9	**1.1**
5	SP 7679 BG II	0.3	2.2	1.1	0.9	0.8	**1.1**
6	RCH 979 BG II	0.3	2.1	0.9	1.5	0.8	**1.1**
7	JKCH 161042 BG II	0.2	2.2	1.0	1.5	1.0	**1.2**
8	MC 5444 BG II	0.3	2.1	0.7	1.1	1.0	**1.0**
9	US 704 BG II	0.5	2.2	1.0	1.3	0.3	**1.1**
10	VSCH 369 BG II	1.1	2.3	1.1	1.1	1.4	**1.4**
11	ARCH 3106 BG II	0.5	2.3	1.1	1.0	0.9	**1.2**
12	**RCH 659 B II (ZC)**	0.1	1.9	1.1	0.9	1.0	**1.0**
13	ACH 52-2 BG II	0.2	1.9	0.7	0.9	0.6	**0.9**
14	C 9356 BG II	0.3	2.5	0.9	1.1	1.0	**1.2**
15	KCH 9292 BG II	0.1	2.1	0.7	0.7	0.6	**0.8**
16	US 703 BG II	0.1	1.9	0.6	0.9	0.6	**0.8**
17	RCH 971 BG II	0.1	2.0	1.0	1.1	0.4	**0.9**
18	**BG II Local Check**	0.1	1.9	1.1	1.3	0.4	**1.0**
19	ARCH 3001 BG II	0.1	2.4	1.2	0.9	0.8	**1.1**
	CD @ 5%	0.5	N/A	0.2	0.3	0.5	
	CV %	106.8	16.3	19.7	19.2	13.8	

Number of sympodia in Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	G COT HY 12 BG II	-	17.1	-	-	-	**17.1**
2	GBCH 1801 BG II	17.8	18.7	14.1	24.7	29.4	**20.9**
3	C 376 BG II	15.1	15.6	14.6	21.3	27.1	**18.7**
4	JAI HO BG II	16.0	15.2	16.8	21.3	26.6	**19.2**
5	SP 7679 BG II	15.5	19.4	14.9	20.0	29.9	**19.9**
6	RCH 979 BG II	15.8	16.1	14.7	22.7	26.2	**19.1**
7	JKCH 161042 BG II	16.0	18.8	17.0	23.3	30.2	**21.1**
8	MC 5444 BG II	20.5	19.0	17.5	22.7	31.7	**22.3**
9	US 704 BG II	17.2	16.2	16.8	20.7	29.1	**20.0**
10	VSCH 369 BG II	16.1	15.5	19.5	19.5	28.0	**19.7**
11	ARCH 3106 BG II	14.9	18.3	13.0	24.7	25.8	**19.3**
12	**RCH 659 B II (ZC)**	15.3	19.0	14.4	21.3	25.0	**19.0**
13	ACH 52-2 BG II	15.2	15.1	19.0	20.1	26.8	**19.2**
14	C 9356 BG II	15.6	16.5	11.9	20.7	27.7	**18.5**
15	KCH 9292 BG II	15.7	13.8	14.7	20.1	28.9	**18.6**
16	US 703 BG II	14.9	14.7	13.0	24.0	30.3	**19.4**
17	RCH 971 BG II	16.1	16.6	12.8	20.0	26.4	**18.4**
18	**BG II Local Check**	15.1	16.3	13.4	21.3	27.0	**18.6**
19	ARCH 3001 BG II	16.5	14.3	13.5	23.0	31.6	**19.8**
	CD @ 5%	2.7	2.6	1.2	2.7	NS	
	CV %	10.2	9.3	8.4	13.2	10.8	

Number of bolls / plant in Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	G COT HY 12 BG II	-	60.2	-	-	-	**60.2**
2	GBCH 1801 BG II	24.9	62.8	21.8	45.0	25.8	**36.1**
3	C 376 BG II	23.8	54.8	22.4	42.1	20.1	**32.6**
4	JAI HO BG II	21.9	65.7	25.3	40.0	17.8	**34.1**
5	SP 7679 BG II	25.6	60.1	22.6	36.3	14.9	**31.9**
6	RCH 979 BG II	32.3	75.0	22.2	40.8	17.8	**37.6**
7	JKCH 161042 BG II	24.3	55.1	25.4	42.7	26.8	**34.9**
8	MC 5444 BG II	26.5	53.4	26.7	40.9	25.1	**34.5**
9	US 704 BG II	27.1	64.8	25.7	39.8	19.6	**35.4**
10	VSCH 369 BG II	24.0	59.2	29.8	45.8	14.2	**34.6**
11	ARCH 3106 BG II	24.5	65.7	19.3	45.3	15.3	**34.0**
12	**RCH 659 B II (ZC)**	22.5	64.1	22.1	38.6	15.4	**32.5**
13	ACH 52-2 BG II	29.9	59.7	29.4	45.6	17.4	**36.4**
14	C 9356 BG II	20.2	51.1	17.3	37.8	17.9	**28.9**
15	KCH 9292 BG II	22.4	60.8	22.3	35.5	23.0	**32.8**
16	US 703 BG II	22.0	50.1	20.0	41.7	19.1	**30.6**
17	RCH 971 BG II	23.7	62.1	18.7	35.3	13.8	**30.7**
18	**BG II Local Check**	24.0	69.2	20.5	39.8	18.3	**34.4**
19	ARCH 3001 BG II	24.5	53.3	19.8	41.7	24.1	**32.7**
	CD @ 5%	6.7	10.8	1.9	3.3	5.7	
	CV %	17.3	10.7	8.5	8.3	8.0	

Number of bolls / sq.m. in Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Lam	Coimbatore	Mean
1	G COT HY 12 BG II	102.6	-	**102.6**
2	GBCH 1801 BG II	112.8	47.7	**80.3**
3	C 376 BG II	115.9	37.2	**76.6**
4	JAI HO BG II	102.7	32.9	**67.8**
5	SP 7679 BG II	104.7	27.6	**66.1**
6	RCH 979 BG II	109.3	32.9	**71.1**
7	JKCH 161042 BG II	68.4	49.6	**59.0**
8	MC 5444 BG II	84.6	46.5	**65.6**
9	US 704 BG II	105.5	36.2	**70.9**
10	VSCH 369 BG II	84.0	26.3	**55.2**
11	ARCH 3106 BG II	106.5	28.4	**67.4**
12	**RCH 659 B II (ZC)**	100.5	28.6	**64.6**
13	ACH 52-2 BG II	82.6	32.3	**57.5**
14	C 9356 BG II	73.8	33.1	**53.5**
15	KCH 9292 BG II	103.6	42.6	**73.1**
16	US 703 BG II	80.9	35.4	**58.1**
17	RCH 971 BG II	100.6	25.5	**63.1**
18	**BG II Local Check**	110.4	34.0	**72.2**
19	ARCH 3001 BG II	79.1	44.7	**61.9**
	CD @ 5%	12.0	10.6	
	CV %	7.5	8.0	

Lint Index (g) in Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	G COT HY 12 BG II	-	6.0	-	-	-	**6.0**
2	GBCH 1801 BG II	4.0	6.4	5.3	6.1	6.9	**5.7**
3	C 376 BG II	5.2	6.3	6.4	6.6	7.2	**6.3**
4	JAI HO BG II	5.0	6.1	5.7	5.4	7.3	**5.9**
5	SP 7679 BG II	5.0	6.2	5.6	7.1	7.3	**6.2**
6	RCH 979 BG II	4.5	7.0	6.6	6.6	7.4	**6.4**
7	JKCH 161042 BG II	4.8	6.3	7.1	8.3	8.3	**7.0**
8	MC 5444 BG II	4.0	6.1	5.8	6.1	6.7	**5.7**
9	US 704 BG II	4.9	7.2	6.6	6.4	7.6	**6.5**
10	VSCH 369 BG II	4.0	6.1	5.3	6.3	7.5	**5.8**
11	ARCH 3106 BG II	4.9	6.6	6.1	6.7	6.6	**6.2**
12	**RCH 659 B II (ZC)**	3.8	6.8	6.8	6.7	6.8	**6.2**
13	ACH 52-2 BG II	3.9	6.1	6.1	5.9	6.7	**5.7**
14	C 9356 BG II	4.4	6.8	6.4	6.0	7.1	**6.1**
15	KCH 9292 BG II	4.2	6.1	6.3	6.5	7.6	**6.1**
16	US 703 BG II	5.5	5.5	6.2	7.4	7.8	**6.5**
17	RCH 971 BG II	3.9	6.7	5.9	6.4	7.0	**6.0**
18	**BG II Local Check**	3.0	7.5	5.9	6.3	6.6	**5.9**
19	ARCH 3001 BG II	3.9	7.4	5.3	6.4	6.2	**5.8**
	CD @ 5%		N/A	0.5	0.4	0.6	
	CV %		11.0	8.5	7.0	5.0	

Seed Index (g) in Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	G COT HY 12 BG II	-	10.7	-	-	-	**10.7**
2	GBCH 1801 BG II	8.0	12.5	11.3	10.5	12.2	**10.9**
3	C 376 BG II	8.3	9.5	11.8	12.0	13.0	**10.9**
4	JAI HO BG II	8.9	12.6	11.7	10.1	12.7	**11.2**
5	SP 7679 BG II	7.0	12.2	11.5	11.9	12.1	**10.9**
6	RCH 979 BG II	9.5	10.7	12.5	11.5	13.2	**11.5**
7	JKCH 161042 BG II	6.6	9.5	10.4	11.9	11.7	**10.0**
8	MC 5444 BG II	7.1	12.4	11.5	11.3	12.5	**11.0**
9	US 704 BG II	8.7	11.1	12.5	10.9	13.1	**11.3**
10	VSCH 369 BG II	8.1	11.8	11.4	10.7	12.9	**11.0**
11	ARCH 3106 BG II	8.1	11.7	11.8	12.2	11.9	**11.1**
12	**RCH 659 B II (ZC)**	7.7	11.7	12.5	11.6	12.5	**11.2**
13	ACH 52-2 BG II	8.2	10.8	11.6	10.4	12.2	**10.6**
14	C 9356 BG II	8.5	12.4	12.1	11.2	13.3	**11.5**
15	KCH 9292 BG II	7.6	9.6	11.6	11.3	12.9	**10.6**
16	US 703 BG II	9.5	12.6	11.1	11.4	11.8	**11.3**
17	RCH 971 BG II	8.8	12.2	11.9	11.8	12.6	**11.5**
18	**BG II Local Check**	5.7	9.3	11.5	11.6	11.7	**10.0**
19	ARCH 3001 BG II	7.2	12.6	10.5	10.6	10.9	**10.4**
	CD @ 5%		1.9	0.5	0.6	0.9	
	CV %		10.2	4.2	5.8	4.6	

Ginning outturn (%) in Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	G COT HY 12 BG II	-	37.3	-	-	-	**37.3**
2	GBCH 1801 BG II	34.2	34.0	31.9	36.8	36.2	**34.6**
3	C 376 BG II	31.2	38.0	34.9	35.6	35.6	**35.1**
4	JAI HO BG II	32.0	34.8	32.6	34.8	36.3	**34.1**
5	SP 7679 BG II	34.0	38.9	32.4	37.4	37.7	**36.1**
6	RCH 979 BG II	33.1	38.9	34.6	36.3	35.9	**35.8**
7	JKCH 161042 BG II	32.2	37.6	40.8	41.1	41.4	**38.6**
8	MC 5444 BG II	31.5	36.3	33.5	34.9	34.8	**34.2**
9	US 704 BG II	34.6	31.4	34.5	37.2	36.6	**34.9**
10	VSCH 369 BG II	32.6	31.4	35.0	37.1	36.6	**34.5**
11	ARCH 3106 BG II	31.6	38.8	34.0	35.5	35.4	**35.1**
12	**RCH 659 B II (ZC)**	32.7	35.5	35.0	36.6	35.4	**35.0**
13	ACH 52-2 BG II	31.6	31.4	35.2	36.4	35.5	**34.0**
14	C 9356 BG II	32.0	35.0	34.6	34.6	34.6	**34.2**
15	KCH 9292 BG II	34.3	33.1	35.1	36.5	37.1	**35.2**
16	US 703 BG II	36.0	36.1	35.9	39.5	39.6	**37.4**
17	RCH 971 BG II	31.2	33.9	33.0	35.1	35.9	**33.8**
18	**BG II Local Check**	32.5	32.2	33.9	35.1	36.2	**34.0**
19	ARCH 3001 BG II	34.0	36.3	33.4	37.7	36.2	**35.5**
	CD @ 5%		5.0	1.3	1.0	1.5	
	CV %		8.6	3.9	2.9	2.5	

Upper Half Mean Length (mm) under HVI Mode in Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	G COT HY 12 BG II	-	27.2	-	-	-	**27.2**
2	GBCH 1801 BG II	29.3	26.5	29.2	29.4	30.7	**29.0**
3	C 376 BG II	30.4	27.5	29.3	30.3	30.7	**29.6**
4	JAI HO BG II	29.4	27.4	28.9	30.0	30.7	**29.3**
5	SP 7679 BG II	27.8	25.7	27.5	28.1	28.3	**27.5**
6	RCH 979 BG II	28.9	27.0	28.0	29.0	30.2	**28.6**
7	JKCH 161042 BG II	26.4	24.0	26.0	26.2	27.6	**26.0**
8	MC 5444 BG II	26.5	24.8	27.5	28.1	28.6	**27.1**
9	US 704 BG II	30.2	27.9	29.8	30.7	32.1	**30.1**
10	VSCH 369 BG II	29.2	27.5	29.3	28.4	29.2	**28.7**
11	ARCH 3106 BG II	27.3	25.3	27.7	28.5	29.0	**27.6**
12	**RCH 659 B II (ZC)**	29.1	26.7	29.4	29.5	30.2	**29.0**
13	ACH 52-2 BG II	29.8	26.6	29.2	29.4	31.3	**29.3**
14	C 9356 BG II	30.8	28.5	29.1	30.2	30.6	**29.8**
15	KCH 9292 BG II	29.2	27.6	28.6	29.0	30.2	**28.9**
16	US 703 BG II	29.3	26.7	28.4	28.7	29.7	**28.6**
17	RCH 971 BG II	29.0	26.7	28.7	29.2	29.8	**28.7**
18	**BG II Local Check**	29.8	28.7	29.3	30.0	29.8	**29.5**
19	ARCH 3001 BG II	27.3	24.2	27.6	27.9	28.2	**27.0**

Uniformity index under HVI Mode in Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	G COT HY 12 BG II	-	85.0	-	-	-	**85.0**
2	GBCH 1801 BG II	83.0	83.0	83.0	83.0	86.7	**83.7**
3	C 376 BG II	84.0	84.0	85.0	84.0	85.2	**84.4**
4	JAI HO BG II	83.0	84.0	85.0	85.0	86.5	**84.7**
5	SP 7679 BG II	83.0	85.0	85.0	85.0	87.3	**85.1**
6	RCH 979 BG II	83.0	85.0	84.0	84.0	87.5	**84.7**
7	JKCH 161042 BG II	82.0	82.0	84.0	84.0	84.3	**83.3**
8	MC 5444 BG II	82.0	84.0	86.0	85.0	86.9	**84.8**
9	US 704 BG II	84.0	83.0	83.0	84.0	88.2	**84.4**
10	VSCH 369 BG II	83.0	84.0	85.0	84.0	86.1	**84.4**
11	ARCH 3106 BG II	82.0	84.0	86.0	85.0	87.9	**85.0**
12	**RCH 659 B II (ZC)**	83.0	84.0	84.0	85.0	87.4	**84.7**
13	ACH 52-2 BG II	83.0	83.0	84.0	83.0	87.4	**84.1**
14	C 9356 BG II	84.0	85.0	85.0	84.0	86.9	**85.0**
15	KCH 9292 BG II	83.0	84.0	85.0	82.0	84.8	**83.8**
16	US 703 BG II	83.0	84.0	84.0	82.0	84.8	**83.6**
17	RCH 971 BG II	83.0	84.0	84.0	84.0	88.6	**84.7**
18	**BG II Local Check**	83.0	84.0	84.0	84.0	87.8	**84.6**
19	ARCH 3001 BG II	82.0	82.0	85.0	83.0	85.1	**83.4**

Micronaire under HVI Mode in Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	G COT HY 12 BG II	-	4.3	-	-	-	**4.3**
2	GBCH 1801 BG II	4.9	5.2	5.1	5.3	5.3	**5.2**
3	C 376 BG II	4.2	4.2	4.2	3.8	4.1	**4.1**
4	JAI HO BG II	4.5	4.5	4.5	3.9	4.2	**4.3**
5	SP 7679 BG II	3.9	4.5	4.5	4.3	4.1	**4.3**
6	RCH 979 BG II	5.0	4.6	4.5	4.4	4.4	**4.6**
7	JKCH 161042 BG II	5.5	5.8	5.8	5.6	6.3	**5.8**
8	MC 5444 BG II	4.6	4.4	4.5	4.1	4.2	**4.4**
9	US 704 BG II	4.7	4.7	4.5	4.4	4.5	**4.6**
10	VSCH 369 BG II	4.8	4.2	4.3	4.0	4.9	**4.4**
11	ARCH 3106 BG II	4.6	4.6	4.7	4.3	4.3	**4.5**
12	**RCH 659 B II (ZC)**	4.5	4.6	4.4	4.1	3.9	**4.3**
13	ACH 52-2 BG II	4.4	4.3	4.4	3.9	4.0	**4.2**
14	C 9356 BG II	4.0	4.0	4.3	3.8	3.9	**4.0**
15	KCH 9292 BG II	5.0	5.3	5.3	5.8	5.5	**5.4**
16	US 703 BG II	4.2	3.9	4.0	3.8	3.7	**3.9**
17	RCH 971 BG II	4.2	4.3	4.3	4.2	3.9	**4.2**
18	**BG II Local Check**	4.1	5.1	4.0	4.4	4.3	**4.4**
19	ARCH 3001 BG II	5.0	5.1	5.0	5.1	5.2	**5.1**

Tenacity under HVI Mode in Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	G COT HY 12 BG II	-	29.2	-	-	-	**29.2**
2	GBCH 1801 BG II	27.8	27.6	27.4	29.6	26.7	**27.8**
3	C 376 BG II	31.3	27.7	27.6	28.6	27.7	**28.6**
4	JAI HO BG II	30.3	29.0	28.2	29.1	27.3	**28.8**
5	SP 7679 BG II	28.2	27.6	27.5	29.0	29.0	**28.3**
6	RCH 979 BG II	27.2	27.2	28.1	27.9	28.8	**27.8**
7	JKCH 161042 BG II	26.0	24.5	27.5	26.5	25.3	**26.0**
8	MC 5444 BG II	29.6	26.0	27.4	29.4	26.6	**27.8**
9	US 704 BG II	30.7	27.1	26.0	25.6	27.6	**27.4**
10	VSCH 369 BG II	29.1	27.9	27.1	29.8	26.1	**28.0**
11	ARCH 3106 BG II	29.0	26.9	28.1	28.6	29.6	**28.4**
12	**RCH 659 B II (ZC)**	29.7	28.4	29.3	28.9	30.5	**29.4**
13	ACH 52-2 BG II	31.6	28.7	26.8	28.0	31.1	**29.2**
14	C 9356 BG II	31.4	30.7	26.5	28.5	29.1	**29.2**
15	KCH 9292 BG II	28.6	29.2	28.0	27.9	26.6	**28.1**
16	US 703 BG II	30.2	26.8	25.6	25.9	27.1	**27.1**
17	RCH 971 BG II	30.5	28.1	27.7	28.7	27.1	**28.4**
18	**BG II Local Check**	30.5	29.9	28.2	29.4	28.4	**29.3**
19	ARCH 3001 BG II	27.1	25.8	28.4	26.8	26.6	**26.9**

Seed Cotton Yield (q/ha)in Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean	Rank
1	G COT HY 12 BG II	-	24.75	-	-	-	**24.75**	
2	GBCH 1801 BG II	12.27	25.10	21.56	38.26	23.23	**24.08**	2
3	C 376 BG II	12.33	25.03	22.52	34.22	20.27	**22.87**	10
4	JAI HO BG II	12.05	26.55	25.60	32.61	18.80	**23.12**	8
5	SP 7679 BG II	11.92	27.26	22.75	30.48	14.66	**21.41**	14
6	RCH 979 BG II	12.87	28.24	22.43	32.95	20.41	**23.38**	4
7	JKCH 161042 BG II	9.29	21.28	26.34	36.53	22.39	**23.17**	7
8	MC 5444 BG II	11.66	23.62	27.40	34.14	19.99	**23.36**	5
9	US 704 BG II	14.00	26.36	26.17	32.12	22.41	**24.21**	1
10	VSCH 369 BG II	13.66	19.04	30.54	38.36	14.63	**23.25**	6
11	ARCH 3106 BG II	12.15	27.58	19.86	38.44	16.56	**22.92**	9
12	**RCH 659 B II (ZC)**	12.48	22.64	22.42	31.65	15.07	**20.85**	16
13	ACH 52-2 BG II	11.92	22.19	29.67	39.28	16.08	**23.83**	3
14	C 9356 BG II	9.55	21.91	17.08	32.00	18.25	**19.76**	18
15	KCH 9292 BG II	11.93	26.95	22.52	30.26	19.28	**22.19**	11
16	US 703 BG II	12.87	20.79	20.15	35.54	20.10	**21.89**	13
17	RCH 971 BG II	11.76	26.52	18.84	29.38	17.99	**20.90**	15
18	**BG II Local Check**	9.00	28.31	20.54	32.23	19.67	**21.95**	12
19	ARCH 3001 BG II	10.06	19.17	20.08	35.91	15.93	**20.23**	17
	CD @ 5%	0.85	3.06	1.99	3.02	4.68		
	CV %	4.30	7.56	8.99	9.23	10.11		

Qualitative Cry Protein Evaluation

All the above entries were positive for Cry 1Ac Protein in qualitative ELISA Test

All the above entries were positive for Cry 2Ab Protein in qualitative ELISA Test

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect Pests

Table. Advance HxH Trial under protected conditions in South Zone -- Aphid

Name of Entry	Aphid (Average of 3 leaves/plant)	
	Raichur	Mean
G COT HY 12 BG II	1.76	1.76
GBCH7777BGII	4.90	4.90
C 376 BG II	3.77	3.77
JAI HO BG II	5.03	5.03
SP 7679 BG II	2.40	2.40
RCH 979 BG II	3.83	3.83
JKCH 161042 BG II	4.22	4.22
MC 5444 BG II	2.30	2.30
US 704 BG II	4.90	4.90
VSCH 369 BG II	4.17	4.17
ARCH 3106 BG II	4.75	4.75
RCH 659 B II (ZC)	4.14	4.14
ACH 52-2 BG II	2.76	2.76
C 9356 BG II	3.67	3.67
KCH 9292 BG II	4.88	4.88
US 703 BG II	4.65	4.65
RCH 971 BG II	5.99	5.99
BG II Local Check	2.60	2.60
ARCH 3001 BG II	4.55	4.55

Table. Advance HxH Trial under protected conditions in South Zone -- Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)				
	Raichur	Coimbatore	Warangal	Mean	Remarks*
G COT HY 12 BG II	0.00	0.73		0.37	BETL
GBCH7777BGII	1.37	2.58	2.5	2.15	BETL
C 376 BG II	0.54	2.22	2.7	1.82	BETL
JAI HO BG II	1.68	1.91	2.8	2.13	BETL
SP 7679 BG II	1.02	2.49	2.5	2.00	BETL
RCH 979 BG II	0.00	2.96	2.6	1.85	BETL
JKCH 161042 BG II	0.74	3.07	2.6	2.14	BETL
MC 5444 BG II	0.05	2.58	2.7	1.78	BETL
US 704 BG II	0.22	2.56	2.6	1.79	BETL
VSCH 369 BG II	0.51	2.07	2.8	1.79	BETL
ARCH 3106 BG II	0.24	1.96	2.7	1.63	BETL
RCH 659 B II (ZC)	0.36	2.18	2.5	1.68	BETL
ACH 52-2 BG II	1.16	2.36	2.6	2.04	BETL
C 9356 BG II	0.34	2.04	2.8	1.73	BETL
KCH 9292 BG II	0.39	2.73	2.5	1.87	BETL
US 703 BG II	0.27	1.47	2.4	1.38	BETL
RCH 971 BG II	0.48	1.82	2.6	1.63	BETL
BG II Local Check	0.73	1.67	2.7	1.70	BETL
ARCH 3001 BG II	0.34	1.98	2.6	1.64	BETL

Table. Advance HxH Trial under protected conditions in South Zone -- Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)				
	Raichur	Coimbatore	Warangal	Mean	Remarks*
G COT HY 12 BG II	2.50	6.87		4.68	BETL
GBCH7777BGII	12.00	5.49	3.6	7.03	BETL
C 376 BG II	7.00	5.16	4.0	5.39	BETL
JAI HO BG II	7.15	5.00	4.4	5.52	BETL
SP 7679 BG II	8.00	4.82	3.9	5.57	BETL
RCH 979 BG II	9.75	5.58	4.3	6.54	BETL
JKCH 161042 BG II	6.60	5.16	3.9	5.22	BETL
MC 5444 BG II	10.00	6.07	4.2	6.76	BETL
US 704 BG II	9.25	5.20	3.8	6.08	BETL
VSCH 369 BG II	9.00	4.78	4.3	6.03	BETL
ARCH 3106 BG II	7.50	6.00	4.4	5.97	BETL
RCH 659 B II (ZC)	8.50	4.73	4.2	5.81	BETL
ACH 52-2 BG II	5.75	3.82	4.2	4.59	BETL
C 9356 BG II	8.00	6.04	4.2	6.08	BETL
KCH 9292 BG II	5.40	5.38	4.2	4.99	BETL
US 703 BG II	9.75	6.51	4	6.75	BETL
RCH 971 BG II	9.00	4.96	4.2	6.05	BETL
BG II Local Check	8.90	7.47	4.2	6.86	BETL
ARCH 3001 BG II	7.25	4.04	4.6	5.30	BETL

Table. Advance HxH Trial under protected conditions in South Zone -- Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)				
	Raichur	Coimbatore	Warangal	Mean	Remarks*
G COT HY 12 BG II	0.00	0.33		0.17	BETL
GBCH7777BGII	0.38	0.42	1.8	0.87	BETL
C 376 BG II	0.46	0.27	1.9	0.88	BETL
JAI HO BG II	1.38	0.36	2.1	1.28	BETL
SP 7679 BG II	0.26	0.47	1.9	0.87	BETL
RCH 979 BG II	2.00	0.36	1.8	1.39	BETL
JKCH 161042 BG II	1.33	0.24	1.9	1.16	BETL
MC 5444 BG II	1.36	0.40	1.9	1.22	BETL
US 704 BG II	1.33	0.38	1.9	1.20	BETL
VSCH 369 BG II	1.29	0.53	1.8	1.21	BETL
ARCH 3106 BG II	1.45	0.56	1.8	1.27	BETL
RCH 659 B II (ZC)	1.46	0.91	1.8	1.39	BETL
ACH 52-2 BG II	1.60	0.82	1.8	1.41	BETL
C 9356 BG II	1.70	0.67	2.0	1.46	BETL
KCH 9292 BG II	1.28	0.82	1.8	1.30	BETL
US 703 BG II	1.62	0.51	1.6	1.24	BETL
RCH 971 BG II	2.88	0.58	1.9	1.79	BETL
BG II Local Check	1.73	0.44	1.9	1.36	BETL
ARCH 3001 BG II	1.45	0.71	1.7	1.29	BETL

Table. Advance HxH Trial under protected conditions in South Zone -- Natural Enemies

Name of Entry	Natural enemies (No./Plant)	
	Warangal	Mean
G COT HY 12 BG II		
GBCH7777BGII	1.3	1.30
C 376 BG II	1.3	1.30
JAI HO BG II	1.3	1.30
SP 7679 BG II	1.4	1.40
RCH 979 BG II	1.3	1.30
JKCH 161042 BG II	1.3	1.30
MC 5444 BG II	1.3	1.30
US 704 BG II	1.4	1.40
VSCH 369 BG II	1.4	1.40
ARCH 3106 BG II	1.4	1.40
RCH 659 B II (ZC)	1.3	1.30
ACH 52-2 BG II	1.3	1.30
C 9356 BG II	1.4	1.40
KCH 9292 BG II	1.4	1.40
US 703 BG II	1.3	1.30
RCH 971 BG II	1.3	1.30
BG II Local Check	1.4	1.40
ARCH 3001 BG II	1.4	1.40

Table. Advance HxH Trial under protected conditions in South Zone -- Bollworms - *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)			
	Raichur	Coimbatore	Mean	Remarks*
G COT HY 12 BG II	0.00	0.00	0.00	BETL
GBCH7777BGII	0.00	0.00	0.00	BETL
C 376 BG II	0.00	0.00	0.00	BETL
JAI HO BG II	0.00	0.00	0.00	BETL
SP 7679 BG II	0.00	0.00	0.00	BETL
RCH 979 BG II	0.00	0.00	0.00	BETL
JKCH 161042 BG II	0.00	0.00	0.00	BETL
MC 5444 BG II	0.00	0.00	0.00	BETL
US 704 BG II	0.00	0.00	0.00	BETL
VSCH 369 BG II	0.00	0.00	0.00	BETL
ARCH 3106 BG II	0.00	0.00	0.00	BETL
RCH 659 B II (ZC)	0.00	0.00	0.00	BETL
ACH 52-2 BG II	0.00	0.00	0.00	BETL
C 9356 BG II	0.00	0.00	0.00	BETL
KCH 9292 BG II	0.00	0.00	0.00	BETL
US 703 BG II	0.00	0.00	0.00	BETL
RCH 971 BG II	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	BETL
ARCH 3001 BG II	0.00	0.00	0.00	BETL

Table. Advance HxH Trial under protected conditions in South Zone -- Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)				
	Raichur	Coimbatore	Warangal	Mean	Remarks*
G COT HY 12 BG II	0.00	0.00	0.00	0.00	BETL
GBCH7777BGII	0.00	0.00	0.00	0.00	BETL
C 376 BG II	0.00	0.00	0.00	0.00	BETL
JAI HO BG II	0.00	0.00	0.00	0.00	BETL
SP 7679 BG II	0.00	0.00	0.00	0.00	BETL
RCH 979 BG II	0.00	0.00	0.00	0.00	BETL
JKCH 161042 BG II	0.00	0.00	0.00	0.00	BETL
MC 5444 BG II	0.00	0.00	0.00	0.00	BETL
US 704 BG II	0.00	0.00	0.00	0.00	BETL
VSCH 369 BG II	0.00	0.00	0.00	0.00	BETL
ARCH 3106 BG II	0.00	0.00	0.00	0.00	BETL
RCH 659 B II (ZC)	0.00	0.00	0.00	0.00	BETL
ACH 52-2 BG II	0.00	0.00	0.00	0.00	BETL
C 9356 BG II	0.00	0.00	0.00	0.00	BETL
KCH 9292 BG II	0.00	0.00	0.00	0.00	BETL
US 703 BG II	0.00	0.00	0.00	0.00	BETL
RCH 971 BG II	0.00	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	0.00	BETL
ARCH 3001 BG II	0.00	0.00	0.00	0.00	BETL

Table. Advance HxH Trial under protected conditions in South Zone -- *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)			
	Raichur	Coimbatore	Mean	Remarks*
G COT HY 12 BG II	0.00	0.00	0.00	BETL
GBCH7777BGII	0.00	0.00	0.00	BETL
C 376 BG II	0.00	0.00	0.00	BETL
JAI HO BG II	0.00	0.00	0.00	BETL
SP 7679 BG II	0.00	0.00	0.00	BETL
RCH 979 BG II	0.00	0.00	0.00	BETL
JKCH 161042 BG II	0.00	0.00	0.00	BETL
MC 5444 BG II	0.00	0.00	0.00	BETL
US 704 BG II	0.00	0.00	0.00	BETL
VSCH 369 BG II	0.00	0.00	0.00	BETL
ARCH 3106 BG II	0.00	0.00	0.00	BETL
RCH 659 B II (ZC)	0.00	0.00	0.00	BETL
ACH 52-2 BG II	0.00	0.00	0.00	BETL
C 9356 BG II	0.00	0.00	0.00	BETL
KCH 9292 BG II	0.00	0.00	0.00	BETL
US 703 BG II	0.00	0.00	0.00	BETL
RCH 971 BG II	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	BETL
ARCH 3001 BG II	0.00	0.00	0.00	BETL

Table. Advance HxH Trial under protected conditions in South Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)			
	Raichur	Coimbatore	Warangal/ 5 plant	Mean
G COT HY 12 BG II	0.83	1.44		1.14
GBCH7777BGII	1.33	1.67	20.70	7.90
C 376 BG II	1.00	1.67	24.30	8.99
JAI HO BG II	1.50	1.78	32.00	11.76
SP 7679 BG II	1.00	2.00	28.00	10.33
RCH 979 BG II	1.17	1.44	24.70	9.10
JKCH 161042 BG II	1.00	1.11	20.70	7.60
MC 5444 BG II	1.33	1.78	26.00	9.70
US 704 BG II	1.33	1.78	33.30	12.14
VSCH 369 BG II	0.67	1.22	27.70	9.86
ARCH 3106 BG II	1.00	1.11	33.30	11.80
RCH 659 B II (ZC)	1.33	1.67	34.30	12.43
ACH 52-2 BG II	1.00	0.89	29.70	10.53
C 9356 BG II	1.83	2.11	46.00	16.65
KCH 9292 BG II	1.17	1.78	20.70	7.88
US 703 BG II	1.50	1.11	20.30	7.64
RCH 971 BG II	1.50	2.56	28.00	10.69
BG II Local Check	0.83	1.00	25.00	8.94
ARCH 3001 BG II	1.67	1.22	24.70	9.20

Table. Advance HxH Trial under protected conditions in South Zone --Green Boll damage

Name of Entry	Green Boll damage (%)			
	Raichur	Coimbatore	**Mean**	**Remarks***
G COT HY 12 BG II	0.00	0.00	0.00	BETL
GBCH7777BGII	0.00	0.00	0.00	BETL
C 376 BG II	0.00	0.00	0.00	BETL
JAI HO BG II	0.00	0.00	0.00	BETL
SP 7679 BG II	0.00	0.00	0.00	BETL
RCH 979 BG II	0.00	0.00	0.00	BETL
JKCH 161042 BG II	0.00	0.00	0.00	BETL
MC 5444 BG II	0.00	0.00	0.00	BETL
US 704 BG II	0.00	0.00	0.00	BETL
VSCH 369 BG II	0.00	0.00	0.00	BETL
ARCH 3106 BG II	0.00	0.00	0.00	BETL
RCH 659 B II (ZC)	0.00	0.00	0.00	BETL
ACH 52-2 BG II	0.00	0.00	0.00	BETL
C 9356 BG II	0.00	0.00	0.00	BETL
KCH 9292 BG II	0.00	0.00	0.00	BETL
US 703 BG II	0.00	0.00	0.00	BETL
RCH 971 BG II	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	BETL
ARCH 3001 BG II	0.00	0.00	0.00	BETL

Table. Advance HxH Trial under protected conditions in South Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)				
	Raichur	Coimbatore	Warangal	Mean	Remarks*
G COT HY 12 BG II	17.50	23.05		20.27	AETL
GBCH7777BGII	19.12	16.63	8.3	14.68	AETL
C 376 BG II	20.00	17.82	8.0	15.27	AETL
JAI HO BG II	15.00	16.30	8.3	13.20	AETL
SP 7679 BG II	15.00	16.21	9.3	13.50	AETL
RCH 979 BG II	18.15	18.63	9.0	15.26	AETL
JKCH 161042 BG II	12.50	14.64	6.0	11.05	AETL
MC 5444 BG II	10.00	16.81	5.3	10.70	AETL
US 704 BG II	15.00	14.00	10.7	13.23	AETL
VSCH 369 BG II	5.00	15.39	9.7	10.03	AETL
ARCH 3106 BG II	21.25	19.27	9.3	16.61	AETL
RCH 659 B II (ZC)	17.66	15.28	6.3	13.08	AETL
ACH 52-2 BG II	7.50	18.81	7.0	11.10	AETL
C 9356 BG II	23.64	17.34	8.3	16.43	AETL
KCH 9292 BG II	17.50	16.83	7.7	14.01	AETL
US 703 BG II	19.16	20.10	9.0	16.09	AETL
RCH 971 BG II	18.34	15.36	7.0	13.57	AETL
BG II Local Check	17.50	14.96	11.3	14.59	AETL
ARCH 3001 BG II	18.46	19.35	6.3	14.70	AETL

Table. Advance HxH Trial under protected conditions in South Zone -- Locule damage

Name of Entry	Locule damage (%)		
	Raichur	Coimbatore	Mean
G COT HY 12 BG II	15.00	15.30	15.15
GBCH7777BGII	17.24	13.76	15.50
C 376 BG II	18.21	12.70	15.46
JAI HO BG II	15.00	11.19	13.09
SP 7679 BG II	16.50	8.57	12.53
RCH 979 BG II	21.00	10.96	15.98
JKCH 161042 BG II	15.00	11.87	13.43
MC 5444 BG II	10.50	11.73	11.12
US 704 BG II	16.50	10.59	13.54
VSCH 369 BG II	6.25	8.70	7.48
ARCH 3106 BG II	19.16	10.67	14.91
RCH 659 B II (ZC)	17.32	10.87	14.09
ACH 52-2 BG II	6.75	13.63	10.19
C 9356 BG II	21.56	14.57	18.06
KCH 9292 BG II	18.00	12.24	15.12
US 703 BG II	20.11	11.63	15.87
RCH 971 BG II	18.88	13.39	16.13
BG II Local Check	15.00	10.26	12.63
ARCH 3001 BG II	19.66	14.43	17.05

Table. Advance HxH Trial under protected conditions in South Zone -- No. of spray for sap sucking pest

Name of Entry	Spray applied for sap sucking pest (Nos.)	
	Warangal	Mean
G COT HY 12 BG II	11	11.00
GBCH7777BGII	11	11.00
C 376 BG II	11	11.00
JAI HO BG II	11	11.00
SP 7679 BG II	11	11.00
RCH 979 BG II	11	11.00
JKCH 161042 BG II	11	11.00
MC 5444 BG II	11	11.00
US 704 BG II	11	11.00
VSCH 369 BG II	11	11.00
ARCH 3106 BG II	11	11.00
RCH 659 B II (ZC)	11	11.00
ACH 52-2 BG II	11	11.00
C 9356 BG II	11	11.00
KCH 9292 BG II	11	11.00
US 703 BG II	11	11.00
RCH 971 BG II	11	11.00
BG II Local Check	11	11.00
ARCH 3001 BG II	11	11.00

Reaction to Diseases

Table: Advanced Evaluation Trial of Intra-hirsutum Hybrids-I – Irrigated (Protected: South Zone)

Entry	Average PDI & Disease Reaction (DR): Protected													
	TSV				ALB		GM		RUST				CoLS	
	Coimbatore		Guntur		Coimbatore		Coimbatore		Coimbatore		Guntur		Guntur	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
G COT HY 12 BG II	-	-	0.0	DF	-	-	-	-	-	-	17.0	R	13.5	R
GBCH 1801 BG II	0.8	R	2.6	R	3.5	R	0.0	DF	6.7	R	20.0	R	15.5	R
C 376 BG II	0.6	R	0.0	DF	1.1	R	2.0	R	8.2	R	23.5	R	13.0	R
JAI HO BG II	0.4	R	0.0	DF	2.8	R	2.6	R	3.9	R	22.5	R	14.8	R
SP 7679 BG II	0.0	DF	0.0	DF	2.4	R	0.0	DF	8.1	R	21.0	R	14.5	R
RCH 979 BG II	0.0	DF	0.0	DF	0.0	DF	0.0	DF	6.7	R	22.0	R	15.0	R
JKCH 161042 BG II	0.2	R	0.0	DF	4.5	R	1.6	R	7.4	R	21.0	R	14.0	R
MC 5444 BG II	0.0	DF	0.0	DF	6.2	R	0.0	DF	5.9	R	19.5	R	15.5	R
US 704 BG II	0.0	DF	0.0	DF	0.0	DF	0.0	DF	5.3	R	18.0	R	13.5	R
VSCH 369 BG II	0.0	DF	2.1	R	4.9	R	0.0	DF	4.0	R	19.5	R	12.8	R
ARCH 3106 BG II	0.0	DF	0.0	DF	4.6	R	0.0	DF	3.7	R	20.5	R	14.5	R
RCH 659 B II (ZC)	0.0	DF	0.0	DF	3.9	R	3.9	R	4.7	R	18.8	R	14.3	R
ACH 52-2 BG II	0.4	R	0.0	DF	5.1	R	0.0	DF	4.8	R	21.0	R	14.5	R
C 9356 BG II	0.6	R	0.0	DF	4.1	R	0.0	DF	5.1	R	20.5	R	17.0	R
KCH 9292 BG II	0.0	DF	1.3	R	3.8	R	3.3	R	7.7	R	19.0	R	13.8	R
US 703 BG II	0.4	R	0.0	DF	2.8	R	0.0	DF	6.3	R	19.8	R	14.3	R
RCH 971 BG II	0.0	DF	0.0	DF	2.7	R	4.3	R	6.2	R	19.0	R	15.5	R
BG II (LC)	0.0	DF	1.3	R	3.7	R	0.0	DF	3.8	R	20.3	R	13.8	R
ARCH 3001 BG II	0.0	DF	1.3	R	8.5	R	1.9	R	4.7	R	18.5	R	11	R

Table: Advanced Evaluation Trial of Intra-hirsutum Hybrids-I – Irrigated (Protected: Warangal)

Entry	Average PDI & Disease Reaction (DR): Protected: RARS, Warangal, PJTSAU									
	ALB		GM		Rust		CoLS		BLB	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
G COT HY 12 BG II	-	-	-	-	-	-	-	-	-	-
GBCH 1801 BG II	15.0	R	23.0	R	27.2	MR	14.7	R	24.7	R
C 376 BG II	14.8	R	18.3	R	21.3	R	16.2	R	22.0	R
JAI HO BG II	14.3	R	17.2	R	25.5	MR	15.0	R	23.3	R
SP 7679 BG II	14.8	R	18.7	R	22.3	R	17.5	R	25.8	MR
RCH 979 BG II	14.5	R	19.0	R	32.7	MR	15.0	R	25.5	MR
JKCH 161042 BG II	16.0	R	19.8	R	29.0	MR	15.8	R	24.2	R
MC 5444 BG II	14.0	R	19.3	R	27.7	MR	17.3	R	24.8	R
US 704 BG II	17.2	R	21.5	R	33.3	MR	16.3	R	27.5	MR
VSCH 369 BG II	15.0	R	19.8	R	23.0	R	15.0	R	22.0	R
ARCH 3106 BG II	14.5	R	18.6	R	22.3	R	15.2	R	19.0	R
RCH 659 B II (ZC)	16.5	R	18.5	R	22.5	R	17.2	R	22.3	R
ACH 52-2 BG II	14.7	R	17.7	R	22.5	R	17.0	R	27.0	MR
C 9356 BG II	15.0	R	18.7	R	25.5	MR	15.3	R	28.8	MR
KCH 9292 BG II	13.8	R	20.8	R	25.3	MR	15.3	R	25.7	MR
US 703 BG II	15.3	R	19.5	R	24.2	R	15.0	R	23.0	R
RCH 971 BG II	15.2	R	21.8	R	32.2	MR	14.7	R	23.0	R
BG II (LC)	14.8	R	16.3	R	25.7	MR	15.8	R	27.5	MR
ARCH 3001 BG II	15.8	R	17.3	R	27.0	MR	16.5	R	25.8	MR

Evaluation under unprotected condition for insect pests and diseases

Reaction to Insect Pests

Table. Advance HxH Trial under unprotected conditions in South Zone -- Aphid

Name of Entry	Aphid (Average of 3 leaves/plant)		
	Raichur	Guntur	Mean
G COT HY 12 BG II	3.30	11.30	7.30
GBCH7777BGII	3.20	13.40	8.30
C 376 BG II	3.73	13.03	8.38
JAI HO BG II	4.43	11.00	7.71
SP 7679 BG II	2.25	12.70	7.48
RCH 979 BG II	1.46	8.67	5.06
JKCH 161042 BG II	1.38	7.00	4.19
MC 5444 BG II	1.14	8.33	4.74
US 704 BG II	2.34	7.57	4.95
VSCH 369 BG II	2.95	8.20	5.58
ARCH 3106 BG II	3.95	6.87	5.41
RCH 659 B II (ZC)	3.75	8.30	6.03
ACH 52-2 BG II	2.43	5.43	3.93
C 9356 BG II	1.33	5.47	3.40
KCH 9292 BG II	0.75	10.90	5.83
US 703 BG II	1.33	8.40	4.86
RCH 971 BG II	2.23	10.23	6.23
BG II Local Check	0.48	9.40	4.94
ARCH 3001 BG II	0.43	10.93	5.68

Table. Advance HxH Trial under unprotected conditions in South Zone -- Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
G COT HY 12 BG II	0.65	2.32	1.58		1.51	BETL
GBCH7777BGII	1.10	1.70	4.20	2.9	2.48	BETL
C 376 BG II	0.90	3.00	3.20	2.6	2.43	BETL
JAI HO BG II	1.60	3.47	4.91	3.1	3.27	BETL
SP 7679 BG II	1.35	1.83	2.09	3.2	2.12	BETL
RCH 979 BG II	0.35	2.57	2.78	2.9	2.15	BETL
JKCH 161042 BG II	0.85	3.20	2.93	3	2.50	BETL
MC 5444 BG II	0.40	3.17	3.67	2.9	2.53	BETL
US 704 BG II	1.50	3.10	2.76	3.2	2.64	BETL
VSCH 369 BG II	1.43	3.23	2.58	3.3	2.63	BETL
ARCH 3106 BG II	1.00	3.50	4.31	3.1	2.98	BETL
RCH 659 B II (ZC)	1.00	4.23	3.40	3.3	2.98	BETL
ACH 52-2 BG II	0.83	2.60	2.64	3.3	2.34	BETL
C 9356 BG II	0.35	2.50	2.87	3.1	2.20	BETL
KCH 9292 BG II	0.60	2.97	3.64	3	2.55	BETL
US 703 BG II	0.78	2.73	2.73	3.1	2.34	BETL
RCH 971 BG II	0.35	2.07	2.11	3	1.88	BETL
BG II Local Check	0.80	3.00	2.62	2.9	2.33	BETL
ARCH 3001 BG II	0.45	2.50	2.96	3	2.23	BETL

Table. Advance HxH Trial under unprotected conditions in South Zone -- Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
G COT HY 12 BG II	2.80	2.67	0.89		2.12	BETL
GBCH7777BGII	2.90	4.63	1.91	2.7	3.04	BETL
C 376 BG II	2.70	2.17	2.29	2.7	2.46	BETL
JAI HO BG II	4.90	5.63	2.56	2.7	3.95	BETL
SP 7679 BG II	6.55	3.50	1.71	2.8	3.64	BETL
RCH 979 BG II	3.30	3.17	2.38	2.8	2.91	BETL
JKCH 161042 BG II	7.20	3.10	3.04	2.6	3.99	BETL
MC 5444 BG II	4.50	4.67	3.04	2.6	3.70	BETL
US 704 BG II	4.00	7.87	2.07	2.7	4.16	BETL
VSCH 369 BG II	5.05	8.27	1.42	2.9	4.41	BETL
ARCH 3106 BG II	1.75	4.57	1.76	2.4	2.62	BETL
RCH 659 B II (ZC)	3.80	3.60	1.76	2.8	2.99	BETL
ACH 52-2 BG II	3.10	3.20	2.07	2.7	2.77	BETL
C 9356 BG II	2.80	3.87	3.04	2.8	3.13	BETL
KCH 9292 BG II	2.00	5.83	2.13	2.8	3.19	BETL
US 703 BG II	3.55	8.37	2.93	2.5	4.34	BETL
RCH 971 BG II	4.40	5.87	2.42	2.5	3.80	BETL
BG II Local Check	0.50	7.37	2.69	2.5	3.26	BETL
ARCH 3001 BG II	0.00	6.03	1.56	2.6	2.55	BETL

Table. Advance HxH Trial under unprotected conditions in South Zone -- Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
G COT HY 12 BG II	1.93	0.23	0.31		0.82	BETL
GBCH7777BGII	2.70	1.47	1.00	1.6	1.69	BETL
C 376 BG II	2.28	1.03	0.78	1.6	1.42	BETL
JAI HO BG II	1.68	1.20	0.69	1.8	1.34	BETL
SP 7679 BG II	2.23	0.93	0.44	2	1.40	BETL
RCH 979 BG II	2.98	1.90	0.89	1.9	1.92	BETL
JKCH 161042 BG II	3.45	2.67	0.91	2	2.26	BETL
MC 5444 BG II	2.33	2.00	1.18	2	1.88	BETL
US 704 BG II	3.05	1.57	0.82	2	1.86	BETL
VSCH 369 BG II	2.13	1.97	0.53	2	1.66	BETL
ARCH 3106 BG II	3.15	1.70	0.80	2	1.91	BETL
RCH 659 B II (ZC)	2.03	1.87	0.64	2	1.63	BETL
ACH 52-2 BG II	1.95	2.77	0.89	2	1.90	BETL
C 9356 BG II	2.93	2.20	0.29	2.1	1.88	BETL
KCH 9292 BG II	2.20	1.43	0.78	2.1	1.63	BETL
US 703 BG II	3.93	0.77	0.69	2	1.85	BETL
RCH 971 BG II	2.63	1.37	0.62	1.8	1.60	BETL
BG II Local Check	2.45	1.03	0.71	1.7	1.47	BETL
ARCH 3001 BG II	2.50	1.50	0.69	1.6	1.57	BETL

Table. Advance HxH Trial under unprotected conditions in South Zone -- Natural Enemies

Name of Entry	Natural enemies (No./Plant)	
	Warangal	Mean
G COT HY 12 BG II		
GBCH7777BGII	1.2	1.20
C 376 BG II	1.3	1.30
JAI HO BG II	1.3	1.30
SP 7679 BG II	1.3	1.30
RCH 979 BG II	1.3	1.30
JKCH 161042 BG II	1.3	1.30
MC 5444 BG II	1.3	1.30
US 704 BG II	1.3	1.30
VSCH 369 BG II	1.4	1.40
ARCH 3106 BG II	1.4	1.40
RCH 659 B II (ZC)	1.3	1.30
ACH 52-2 BG II	1.3	1.30
C 9356 BG II	1.3	1.30
KCH 9292 BG II	1.3	1.30
US 703 BG II	1.2	1.20
RCH 971 BG II	1.2	1.20
BG II Local Check	1.3	1.30
ARCH 3001 BG II	1.2	1.20

Table. Advance HxH Trial under unprotected conditions in South Zone -- Bollworms - *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)				
	Raichur	Guntur	Coimbatore	Mean	Remarks*
G COT HY 12 BG II	0.00	0.00	0.00	0.00	BETL
GBCH7777BGII	0.00	0.00	0.00	0.00	BETL
C 376 BG II	0.00	0.00	0.00	0.00	BETL
JAI HO BG II	0.00	0.00	0.00	0.00	BETL
SP 7679 BG II	0.00	0.00	0.00	0.00	BETL
RCH 979 BG II	0.00	0.00	0.00	0.00	BETL
JKCH 161042 BG II	0.00	0.00	0.00	0.00	BETL
MC 5444 BG II	0.00	0.00	0.00	0.00	BETL
US 704 BG II	0.00	0.00	0.00	0.00	BETL
VSCH 369 BG II	0.00	0.00	0.00	0.00	BETL
ARCH 3106 BG II	0.00	0.00	0.00	0.00	BETL
RCH 659 B II (ZC)	0.00	0.00	0.00	0.00	BETL
ACH 52-2 BG II	0.00	0.00	0.00	0.00	BETL
C 9356 BG II	0.00	0.00	0.00	0.00	BETL
KCH 9292 BG II	0.00	0.00	0.00	0.00	BETL
US 703 BG II	0.00	0.00	0.00	0.00	BETL
RCH 971 BG II	0.00	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	0.00	BETL
ARCH 3001 BG II	0.00	0.00	0.00	0.00	BETL

Table. Advance HxH Trial under unprotected conditions in South Zone -- Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
G COT HY 12 BG II	0.00	0.00	0.00	0.00	0.00	BETL
GBCH7777BGII	0.00	0.00	0.00	0.00	0.00	BETL
C 376 BG II	0.00	0.00	0.00	0.00	0.00	BETL
JAI HO BG II	0.00	0.00	0.00	0.00	0.00	BETL
SP 7679 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 979 BG II	0.00	0.00	0.00	0.00	0.00	BETL
JKCH 161042 BG II	0.00	0.00	0.00	0.00	0.00	BETL
MC 5444 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 704 BG II	0.00	0.00	0.00	0.00	0.00	BETL
VSCH 369 BG II	0.00	0.00	0.00	0.00	0.00	BETL
ARCH 3106 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 659 B II (ZC)	0.00	0.00	0.00	0.00	0.00	BETL
ACH 52-2 BG II	0.00	0.00	0.00	0.00	0.00	BETL
C 9356 BG II	0.00	0.00	0.00	0.00	0.00	BETL
KCH 9292 BG II	0.00	0.00	0.00	0.00	0.00	BETL
US 703 BG II	0.00	0.00	0.00	0.00	0.00	BETL
RCH 971 BG II	0.00	0.00	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	0.00	0.00	BETL
ARCH 3001 BG II	0.00	0.00	0.00	0.00	0.00	BETL

Table. Advance HxH Trial under unprotected conditions in South Zone -- *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)				
	Raichur	Guntur	Coimbatore	Mean	Remarks*
G COT HY 12 BG II	0.00	0.00	0.00	0.00	BETL
GBCH7777BGII	0.00	0.00	0.00	0.00	BETL
C 376 BG II	0.00	0.00	0.00	0.00	BETL
JAI HO BG II	0.00	0.00	0.00	0.00	BETL
SP 7679 BG II	0.00	0.00	0.00	0.00	BETL
RCH 979 BG II	0.00	0.00	0.00	0.00	BETL
JKCH 161042 BG II	0.00	0.00	0.00	0.00	BETL
MC 5444 BG II	0.00	0.00	0.00	0.00	BETL
US 704 BG II	0.00	0.00	0.00	0.00	BETL
VSCH 369 BG II	0.00	0.00	0.00	0.00	BETL
ARCH 3106 BG II	0.00	0.00	0.00	0.00	BETL
RCH 659 B II (ZC)	0.00	0.00	0.00	0.00	BETL
ACH 52-2 BG II	0.00	0.00	0.00	0.00	BETL
C 9356 BG II	0.00	0.00	0.00	0.00	BETL
KCH 9292 BG II	0.00	0.00	0.00	0.00	BETL
US 703 BG II	0.00	0.00	0.00	0.00	BETL
RCH 971 BG II	0.00	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	0.00	BETL
ARCH 3001 BG II	0.00	0.00	0.00	0.00	BETL

Table. Advance HxH Trial under unprotected conditions in South Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)				
	Raichur	Guntur	Coimbatore	Warangal/ 5 plant	Mean
G COT HY 12 BG II	3.33	5.00	0.44		2.92
GBCH7777BGII	2.67	11.00	0.44	15.10	7.30
C 376 BG II	4.67	10.50	1.11	16.90	8.30
JAI HO BG II	6.67	11.00	1.00	18.70	9.34
SP 7679 BG II	2.00	10.00	0.56	16.30	7.22
RCH 979 BG II	3.33	10.00	1.56	24.00	9.72
JKCH 161042 BG II	4.00	10.50	1.22	23.70	9.86
MC 5444 BG II	2.00	13.00	1.11	18.50	8.65
US 704 BG II	6.00	12.50	0.78	23.00	10.57
VSCH 369 BG II	2.00	14.50	0.22	23.40	10.03
ARCH 3106 BG II	7.33	10.50	0.89	17.40	9.03
RCH 659 B II (ZC)	7.33	9.50	0.56	21.80	9.80
ACH 52-2 BG II	4.67	13.50	0.89	19.70	9.69
C 9356 BG II	6.67	12.50	0.89	17.60	9.42
KCH 9292 BG II	6.00	11.50	0.33	18.80	9.16
US 703 BG II	3.33	12.50	0.67	20.60	9.28
RCH 971 BG II	2.67	6.00	0.78	19.30	7.19
BG II Local Check	0.67	10.00	0.78	21.80	8.31
ARCH 3001 BG II	2.67	9.50	0.78	19.90	8.21

Table. Advance HxH Trial under unprotected conditions in South Zone --Green Boll damage

Name of Entry	Green Boll damage (%)				
	Raichur	**Guntur**	Coimbatore	**Mean**	**Remarks***
G COT HY 12 BG II	0.00	40.00	0.00	13.33	AETL
GBCH7777BGII	0.00	65.00	0.00	21.67	AETL
C 376 BG II	0.00	65.00	0.00	21.67	AETL
JAI HO BG II	0.00	60.00	0.00	20.00	AETL
SP 7679 BG II	0.00	75.00	0.00	25.00	AETL
RCH 979 BG II	0.00	60.00	0.00	20.00	AETL
JKCH 161042 BG II	0.00	60.00	0.00	20.00	AETL
MC 5444 BG II	0.00	70.00	0.00	23.33	AETL
US 704 BG II	0.00	75.00	0.00	25.00	AETL
VSCH 369 BG II	0.00	55.00	0.00	18.33	AETL
ARCH 3106 BG II	0.00	50.00	0.00	16.67	AETL
RCH 659 B II (ZC)	0.00	45.00	0.00	15.00	AETL
ACH 52-2 BG II	0.00	65.00	0.00	21.67	AETL
C 9356 BG II	0.00	75.00	0.00	25.00	AETL
KCH 9292 BG II	0.00	60.00	0.00	20.00	AETL
US 703 BG II	0.00	75.00	0.00	25.00	AETL
RCH 971 BG II	0.00	55.00	0.00	18.33	AETL
BG II Local Check	0.00	70.00	0.00	23.33	AETL
ARCH 3001 BG II	0.00	60.00	0.00	20.00	AETL

Table. Advance HxH Trial under unprotected conditions in South Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
G COT HY 12 BG II	55.00	38.71	23.33		39.01	AETL
GBCH7777BGII	60.00	23.99	15.47	11	27.62	AETL
C 376 BG II	55.00	25.86	14.88	10	26.44	AETL
JAI HO BG II	55.00	28.39	15.89	9.7	27.24	AETL
SP 7679 BG II	55.00	40.90	13.21	7	29.03	AETL
RCH 979 BG II	60.00	31.82	17.37	13.7	30.72	AETL
JKCH 161042 BG II	60.00	22.82	13.78	10.3	26.72	AETL
MC 5444 BG II	60.00	22.30	17.43	10.3	27.51	AETL
US 704 BG II	55.00	21.00	17.93	11.7	26.41	AETL
VSCH 369 BG II	55.00	29.10	14.43	12	27.63	AETL
ARCH 3106 BG II	65.00	25.75	11.20	11.7	28.41	AETL
RCH 659 B II (ZC)	65.00	26.84	13.43	7	28.07	AETL
ACH 52-2 BG II	60.00	30.90	18.11	9	29.50	AETL
C 9356 BG II	60.00	32.29	13.90	10.7	29.22	AETL
KCH 9292 BG II	55.00	33.02	14.57	9	27.90	AETL
US 703 BG II	55.00	24.93	13.30	14	26.81	AETL
RCH 971 BG II	60.00	16.51	12.90	7.3	24.18	AETL
BG II Local Check	55.00	18.02	11.32	8	23.09	AETL
ARCH 3001 BG II	60.00	14.60	13.52	9	24.28	AETL

Table. Advance HxH Trial under unprotected conditions in South Zone -- Locule damage

Name of Entry	Locule damage (%)			
	Raichur	Guntur	Coimbatore	Mean
G COT HY 12 BG II	37.50	11.14	10.22	19.62
GBCH7777BGII	50.00	16.61	10.90	25.84
C 376 BG II	45.00	17.85	10.80	24.55
JAI HO BG II	40.00	18.03	8.67	22.23
SP 7679 BG II	43.38	26.64	8.06	26.02
RCH 979 BG II	42.25	22.49	10.61	25.12
JKCH 161042 BG II	37.25	17.39	9.47	21.37
MC 5444 BG II	46.25	14.07	9.33	23.22
US 704 BG II	45.00	15.36	10.37	23.58
VSCH 369 BG II	40.75	22.03	9.37	24.05
ARCH 3106 BG II	57.25	23.11	9.87	30.08
RCH 659 B II (ZC)	52.25	19.23	8.10	26.53
ACH 52-2 BG II	48.38	20.61	10.60	26.53
C 9356 BG II	48.38	18.20	11.03	25.87
KCH 9292 BG II	50.00	20.44	9.18	26.54
US 703 BG II	43.38	16.25	8.23	22.62
RCH 971 BG II	42.25	9.36	7.13	19.58
BG II Local Check	48.38	12.46	8.83	23.22
ARCH 3001 BG II	46.13	13.34	7.76	22.41

Table. Advance HXH Trial under unprotected conditions in South Zone --Jassid Injury Grade

Name of Entry	JIG (Average of 3 leaves/plant)	
	Guntur	Mean
G COT HY 12 BG II	2	2
GBCH7777BGII	2	2
C 376 BG II	3	3
JAI HO BG II	2	2
SP 7679 BG II	2	2
RCH 979 BG II	2	2
JKCH 161042 BG II	2	2
MC 5444 BG II	2	2
US 704 BG II	3	3
VSCH 369 BG II	2	2
ARCH 3106 BG II	2	2
RCH 659 B II (ZC)	2	2
ACH 52-2 BG II	2	2
C 9356 BG II	2	2
KCH 9292 BG II	2	2
US 703 BG II	2	2
RCH 971 BG II	2	2
BG II Local Check	2	2
ARCH 3001 BG II	3	3

Reaction to Diseases

Table: Advanced Evaluation Trial of Intra-hirsutum Hybrids-I – Irrigated (Unprotected: South Zone)

Entry	Average PDI & Disease Reaction (DR): Un-Protected													
	TSV				ALB		GM		RUST				CoLS	
	Coimbatore		Guntur		Coimbatore		Coimbatore		Coimbatore		Guntur		Guntur	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
G COT HY 12 BG II	-	-	11.1	R	-	-	-	-	-	-	23.5	R	22.5	R
GBCH 1801 BG II	0.8	R	26.8	MR	5.2	R	0.0	DF	6.4	R	27.0	MR	22.5	R
C 376 BG II	0.6	R	11.8	R	6.1	R	0.0	DF	7.0	R	30.5	MR	24.7	R
JAI HO BG II	1.7	R	22.2	R	6.9	R	0.0	DF	6.0	R	27.5	MR	23.2	R
SP 7679 BG II	0.0	DF	0.0	DF	6.2	R	0.0	DF	6.9	R	26.5	MR	24.5	R
RCH 979 BG II	0.0	DF	19.5	R	3.9	R	0.0	DF	4.6	R	29.0	MR	27.7	MR
JKCH 161042 BG II	0.2	R	17.4	R	6.5	R	0.0	DF	7.5	R	27.0	MR	26.2	MR
MC 5444 BG II	0.2	R	11.8	R	6.9	R	1.9	R	4.8	R	27.0	MR	18.7	R
US 704 BG II	0.0	DF	23.6	R	5.0	R	0.0	DF	4.6	R	22.3	R	27.7	MR
VSCH 369 BG II	1.0	R	12.5	R	7.3	R	0.0	DF	3.7	R	26.0	MR	23.7	R
ARCH 3106 BG II	0.8	R	11.8	R	9.7	R	0.0	DF	4.3	R	26.0	MR	25.2	MR
RCH 659 B II (ZC)	2.0	R	31.0	MR	9.6	R	0.0	DF	4.1	R	24.5	R	21.0	R
ACH 52-2 BG II	1.3	R	19.7	R	8.7	R	0.0	DF	5.6	R	24.0	R	21.7	R
C 9356 BG II	0.6	R	28.5	MR	5.1	R	0.0	DF	4.6	R	26.8	MR	26.7	MR
KCH 9292 BG II	0.6	R	29.2	MR	7.1	R	0.0	DF	5.6	R	26.0	MR	25.2	MR
US 703 BG II	0.8	R	25.9	MR	2.1	R	0.0	DF	3.8	R	24.5	R	21.5	R
RCH 971 BG II	0.4	R	18.8	R	4.5	R	1.6	R	4.1	R	24.3	R	21.7	R
BG II (LC)	0.4	R	12.5	R	6.9	R	0.0	DF	5.0	R	25.5	MR	25.2	MR
ARCH 3001 BG II	0.0	DF	34.0	MR	9.6	R	0.0	DF	5.4	R	24.8	R	23.7	R

Table: Advanced Evaluation Trial of Intra-hirsutum Hybrids-I – Irrigated (Unprotected: Warangal)

Entry	Average PDI & Disease Reaction (DR): Unprotected: RARS, Warangal, PJTSAU							
	ALB		GM		CoLS		BLB	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR
G COT HY 12 BG II	-	-	-	-	-	-	-	-
GBCH 1801 BG II	13.6	MR	28.3	MS	15.2	MR	27.5	S
C 376 BG II	14.4	MR	19.1	MR	12.8	MR	28.6	S
JAI HO BG II	14.4	MR	21.4	MS	15.6	MR	27.5	S
SP 7679 BG II	15.5	MR	16.7	MR	14.5	MR	24.7	S
RCH 979 BG II	13.6	MR	15.6	MR	14.7	MR	20.3	S
JKCH 161042 BG II	15.5	MR	23.9	MS	16.9	MR	29.4	S
MC 5444 BG II	14.7	MR	15.0	MR	16.1	MR	24.7	S
US 704 BG II	15.0	MR	16.9	MR	13.6	MR	28.3	S
VSCH 369 BG II	15.3	MR	14.7	MR	13.3	MR	29.4	S
ARCH 3106 BG II	14.5	MR	16.1	MR	13.3	MR	21.4	S
RCH 659 B II (ZC)	13.9	MR	24.5	MS	13.9	MR	21.7	S
ACH 52-2 BG II	14.2	MR	14.4	MR	14.4	MR	26.2	S
C 9356 BG II	15.5	MR	17.8	MR	15.6	MR	32.8	S
KCH 9292 BG II	15.8	MR	24.1	MS	15.0	MR	25.8	S
US 703 BG II	14.7	MR	15.3	MR	14.7	MR	25.1	S
RCH 971 BG II	14.2	MR	14.4	MR	13.0	MR	22.2	S
BG II (LC)	15.0	MR	11.7	MR	13.1	MR	19.7	MS
ARCH 3001 BG II	14.7	MR	12.5	MR	13.9	MR	23.0	S

Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids in South Zone (2020-21) under Irrigated Condition

Constitution of Trial

The trial was constituted with 13 Bt cotton hybrids containing MON 15985 event sponsored by various Private organization along with two different check hybrids as furnished below.

S. No.	Name of the Entry	Sponsored by
1	MC5431 BGII	Metahelix Life Sciences Ltd
2	RCH 659 B II (ZC)	
3	ACH 171-2	Ajeet Seeds Pvt Ltd
4	NCS 2778	Nuziveedu Seeds Pvt Ltd
5	BG II Local Check	
6	RCH 953 BGII	Rasi Seeds Pvt Ltd

The trial was conducted in five different locations and detail is furnished below.

Name of the trial location	Coimbatore	Lam	Warangal	Raichur	B'Gudi
Local check Bt hybrid	MRC 7351 BG II	NCS 245 BG II	MRC 7351 BG II	NCS 864 BG II	NCS 864 BG II

Spacing: Recommended spacing for the hybrid has been followed.
Number of rows:4 rows of 6 meters per entry with four replications

Data recorded:

Biometric evaluation

Plant height (cm) at harvest in Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	MC5431 BGII	114.3	141.6	115.8	152.5	127.8	**130.4**
2	RCH 659 B II (ZC)	120.2	136.2	117.9	146.3	113.3	**126.8**
3	ACH 171-2	99.5	135.6	104.6	150.0	116.3	**121.2**
4	NCS 2778	105.3	122.2	102.4	136.3	98.4	**112.9**
5	BG II Local Check	91.3	118.3	107.2	135.5	109.1	**112.3**
6	RCH 953 BGII	105.2	122.2	101.3	139.5	107.0	**115.0**
	CD @ 5%	13.2	11.7	8.9	21.1	14.1	
	CV %	8.3	5.9	5.5	9.8	8.4	

Number of monopodia in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	MC5431 BGII	0.6	1.8	1.1	1.2	0.7	**1.1**
2	RCH 659 B II (ZC)	0.4	2.2	1.2	1.2	0.9	**1.2**
3	ACH 171-2	0.1	1.8	0.7	0.8	0.3	**0.7**
4	NCS 2778	0.2	1.9	0.6	1.0	0.2	**0.8**
5	BG II Local Check	0.1	1.9	1.5	1.2	0.4	**1.0**
6	RCH 953 BGII	0.4	1.5	1.1	1.8	0.6	**1.1**
	CD @ 5%	NS	0.4	0.6	0.6	0.4	
	CV %	96.0	13.5	14.5	18.7	9.3	

Number of sympodia in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	MC5431 BGII	21.5	16.1	17.7	23.8	28.3	**21.5**
2	RCH 659 B II (ZC)	17.2	19.0	16.4	18.9	26.2	**19.5**
3	ACH 171-2	16.3	19.9	14.7	19.9	26.5	**19.5**
4	NCS 2778	18.4	15.3	17.6	24.8	24.3	**20.1**
5	BG II Local Check	15.9	18.7	14.2	21.5	25.7	**19.2**
6	RCH 953 BGII	16.5	13.8	13.8	13.0	25.0	**16.4**
	CD @ 5%	3.0	2.5	1.7	3.4	NS	
	CV %	11.4	9.6	7.1	11.0	10.3	

Number of bolls / plant in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	MC5431 BGII	32.7	69.9	24.9	43.8	17.9	**37.8**
2	RCH 659 B II (ZC)	26.5	64.4	21.8	34.5	15.0	**32.4**
3	ACH 171-2	20.8	63.0	20.1	35.3	14.5	**30.7**
4	NCS 2778	23.7	67.8	25.0	45.8	15.9	**35.6**
5	BG II Local Check	23.0	60.4	18.6	38.3	15.2	**31.1**
6	RCH 953 BGII	26.7	52.5	18.4	39.5	19.1	**31.2**
	CD @ 5%	6.8	7.8	3.1	3.9	NS	
	CV %	17.8	8.1	9.6	6.6	8.0	

Number of bolls / sq.m. in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Lam	Coimbatore	Mean
1	MC5431 BGII	117.7	33.2	**75.4**
2	RCH 659 B II (ZC)	110.7	27.8	**69.2**
3	ACH 171-2	117.2	26.9	**72.0**
4	NCS 2778	111.6	29.5	**70.5**
5	BG II Local Check	108.7	28.1	**68.4**
6	RCH 953 BGII	104.8	35.3	**70.1**
	CD @ 5%	NS	NS	
	CV %	8.1	8.0	

Lint Index (g) in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	MC5431 BGII	4.8	6.3	6.9	6.4	7.1	**6.3**
2	RCH 659 B II (ZC)	4.3	5.6	6.3	6.1	6.7	**5.8**
3	ACH 171-2	4.3	6.3	5.9	6.7	6.7	**6.0**
4	NCS 2778	3.6	5.7	6.1	6.2	6.3	**5.6**
5	BG II Local Check	3.3	6.6	6.2	6.1	6.6	**5.8**
6	RCH 953 BGII	5.0	6.8	6.6	6.3	7.6	**6.5**
	CD @ 5%		0.6	0.6	0.8	0.6	
	CV %		6.8	6.6	8.6	5.6	

Seed Index (g) in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	MC5431 BGII	7.2	11.7	13.0	11.3	12.5	**11.1**
2	RCH 659 B II (ZC)	6.6	9.9	11.8	11.1	12.1	**10.3**
3	ACH 171-2	7.5	9.9	11.3	11.6	12.3	**10.5**
4	NCS 2778	6.3	10.7	11.1	11.0	12.2	**10.3**
5	BG II Local Check	5.9	11.8	12.1	11.3	11.7	**10.6**
6	RCH 953 BGII	8.7	10.7	12.3	11.3	13.5	**11.3**
	CD @ 5%		1.1	1.1	1.2	0.8	
	CV %		6.9	6.1	7.3	4.6	

Ginning outturn (%)in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	MC5431 BGII	31.5	36.8	34.6	35.9	36.2	**35.0**
2	RCH 659 B II (ZC)	30.4	35.0	35.0	35.4	35.6	**34.3**
3	ACH 171-2	30.7	37.1	34.3	36.5	35.0	**34.7**
4	NCS 2778	29.8	32.9	35.5	36.1	34.2	**33.7**
5	BG II Local Check	34.0	35.5	33.9	35.0	36.0	**34.9**
6	RCH 953 BGII	30.4	37.8	34.8	36.0	35.9	**35.0**
	CD @ 5%		NS	1.1	1.3	NS	
	CV %		6.6	2.2	2.4	2.8	

Upper Half Mean Length (mm) under HVI Mode in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	MC5431 BGII	29.7	26.6	28.8	28.3	30.6	**28.8**
2	RCH 659 B II (ZC)	30.1	26.8	28.6	30.0	30.2	**29.1**
3	ACH 171-2	29.9	27.3	29.2	29.2	30.6	**29.2**
4	NCS 2778	31.2	29.8	31.0	31.3	30.9	**30.8**
5	BG II Local Check	30.0	28.4	29.0	30.0	30.3	**29.5**
6	RCH 953 BGII	29.9	26.4	28.9	29.1	30.4	**28.9**

Uniformity index under HVI Mode in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	MC5431 BGII	83.0	84.0	86.0	84.0	87.7	**84.9**
2	RCH 659 B II (ZC)	83.0	85.0	84.0	85.0	86.1	**84.6**
3	ACH 171-2	83.0	83.0	85.0	85.0	86.8	**84.6**
4	NCS 2778	84.0	85.0	83.0	84.0	84.1	**84.0**
5	BG II Local Check	83.0	83.0	84.0	84.0	85.2	**83.8**
6	RCH 953 BGII	83.0	82.0	85.0	84.0	85.8	**84.0**

Micronaire under HVI Mode in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	MC5431 BGII	4.0	4.4	4.5	3.9	4.5	**4.3**
2	RCH 659 B II (ZC)	4.3	4.3	4.0	3.7	4.2	**4.1**
3	ACH 171-2	4.2	4.3	4.2	4.2	3.8	**4.1**
4	NCS 2778	4.9	4.8	4.4	4.3	4.3	**4.5**
5	BG II Local Check	4.4	4.8	4.8	4.1	4.5	**4.5**
6	RCH 953 BGII	4.8	4.7	4.3	4.5	4.5	**4.6**

Tenacity under HVI Mode in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	MC5431 BGII	31.2	27.6	28.7	29.0	28.4	**29.0**
2	RCH 659 B II (ZC)	30.9	28.8	28.3	30.4	27.6	**29.2**
3	ACH 171-2	31.6	28.8	28.3	27.2	30.3	**29.2**
4	NCS 2778	28.7	28.7	27.8	28.4	28.6	**28.4**
5	BG II Local Check	29.9	28.4	27.9	29.3	26.8	**28.5**
6	RCH 953 BGII	30.4	27.9	27.0	28.4	28.9	**28.5**

Seed Cotton Yield (q/ha)in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean	Rank
1	MC5431 BGII	9.29	26.91	27.27	41.08	22.26	**25.36**	1
2	RCH 659 B II (ZC)	9.90	23.53	23.68	31.03	16.62	**20.95**	5
3	ACH 171-2	9.03	25.97	22.21	33.51	14.69	**21.08**	4
4	NCS 2778	11.02	25.82	27.86	42.48	14.43	**24.32**	2
5	BG II Local Check	8.68	21.36	20.60	33.97	16.70	**20.26**	6
6	RCH 953 BGII	10.59	20.96	20.21	35.87	21.25	**21.78**	3
	CD @ 5%	1.14	1.66	3.33	6.68	3.05		
	CV %	7.70	4.53	9.35	12.21	11.45		

Quantity of Cry 1Ac Protein (ppm) at ICAR, CICR, Coimbatore in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

Entry	Leaf				Square			Bolls	
	30D	60D	90D	120D	60D	90D	120D	90D	120D
MC5431 BGII	1.29	4.17	5.26	2.29	2.15	1.63	1.11	2.55	1.79
RCH 659 B II (ZC)	1.72	2.75	4.54	2.78	2.43	1.46	1.59	1.71	1.60
ACH 171-2	1.77	3.27	4.21	1.76	2.98	1.52	1.26	2.04	1.50
NCS 2778	1.10	4.12	4.65	1.64	2.78	1.62	1.45	2.62	1.41
BG II Local Check	2.21	3.12	4.30	1.54	1.66	1.51	1.70	1.83	2.25
RCH 953 BGII	2.53	4.08	4.73	1.86	1.68	1.50	1.60	2.50	1.41

Quantity of Cry 2Ab Protein (ppm) at ICAR, CICR, Coimbatore in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

Entry	Leaf				Square			Bolls	
	30D	60D	90D	120D	60D	90D	120D	90D	120D
MC5431 BGII	137.92	283.98	313.22	181.48	288.54	158.46	160.12	245.04	149.09
RCH 659 B II (ZC)	135.66	272.04	362.23	153.04	271.54	158.07	136.53	265.29	155.68
ACH 171-2	187.70	266.54	335.86	146.52	269.08	152.68	165.77	245.86	140.24
NCS 2778	147.57	286.18	353.85	146.31	288.47	140.10	164.41	226.41	131.18
BG II Local Check	174.47	260.51	293.42	143.07	277.32	160.94	207.97	243.10	169.39
RCH 953 BGII	175.38	298.88	385.40	153.43	284.28	163.46	156.93	231.30	131.40

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect Pests

Table. Advance HxH Trial under protected conditions in South Zone -- Aphid

Name of Entry	Aphid (Average of 3 leaves/plant)	
	Raichur	Mean
MC5431 BGII	2.50	2.50
RCH 659 B II (ZC)	4.70	4.70
ACH 171-2	1.80	1.80
NCS 2778	4.05	4.05
BG II Local Check	1.15	1.15
RCH 953 BGII	3.25	3.25

Table. Advance HxH Trial under protected conditions in South Zone -- Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)				
	Raichur	Coimbatore	Warangal	Mean	Remarks*
MC5431 BGII	0.30	2.73	2.6	1.88	BETL
RCH 659 B II (ZC)	0.75	3.27	2.6	2.21	BETL
ACH 171-2	1.60	3.88	2.5	2.66	BETL
NCS 2778	1.50	4.12	2.7	2.77	BETL
BG II Local Check	0.90	2.93	2.5	2.11	BETL
RCH 953 BGII	1.30	2.75	2.5	2.18	BETL

Table. Advance HxH Trial under protected conditions in South Zone -- Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)				
	Raichur	Coimbatore	Warangal	Mean	Remarks*
MC5431 BGII	5.60	5.33	3.5	4.81	BETL
RCH 659 B II (ZC)	3.60	4.70	3.6	3.97	BETL
ACH 171-2	4.20	4.90	3.4	4.17	BETL
NCS 2778	3.20	5.02	3.6	3.94	BETL
BG II Local Check	4.55	5.78	3.2	4.51	BETL
RCH 953 BGII	5.70	5.88	3.4	4.99	BETL

Table. Advance HxH Trial under protected conditions in South Zone – Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)				
	Raichur	Coimbatore	Warangal	Mean	Remarks*
MC5431 BGII	2.03	0.58	1.8	1.47	BETL
RCH 659 B II (ZC)	0.70	0.48	1.8	0.99	BETL
ACH 171-2	1.15	0.80	1.7	1.22	BETL
NCS 2778	1.85	0.70	1.8	1.45	BETL
BG II Local Check	1.05	0.62	1.7	1.12	BETL
RCH 953 BGII	2.10	0.68	1.8	1.53	BETL

Table. Advance HxH Trial under protected conditions in South Zone -- Natural Enemies

Name of Entry	Natural enemies (No./Plant)	
	Warangal	Mean
MC5431 BGII	1.3	1.30
RCH 659 B II (ZC)	1.2	1.20
ACH 171-2	1.3	1.30
NCS 2778	1.3	1.30
BG II Local Check	1.3	1.30
RCH 953 BGII	1.3	1.30

Table. Advance HxH Trial under protected conditions in South Zone -- Bollworms - *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)			
	Raichur	Coimbatore	Mean	Remarks*
MC5431 BGII	0.00	0.00	0.00	BETL
RCH 659 B II (ZC)	0.00	0.00	0.00	BETL
ACH 171-2	0.00	0.00	0.00	BETL
NCS 2778	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	BETL
RCH 953 BGII	0.00	0.00	0.00	BETL

Table. Advance HxH Trial under protected conditions in South Zone -- Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)				
	Raichur	Coimbatore	Warangal	Mean	Remarks*
MC5431 BGII	0.00	0.00	0	0.00	BETL
RCH 659 B II (ZC)	0.00	0.00	0	0.00	BETL
ACH 171-2	0.00	0.00	0	0.00	BETL
NCS 2778	0.00	0.00	0	0.00	BETL
BG II Local Check	0.00	0.00	0	0.00	BETL
RCH 953 BGII	0.00	0.00	0	0.00	BETL

Table. Advance HxH Trial under protected conditions in South Zone -- *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)			
	Raichur	Coimbatore	Mean	Remarks*
MC5431 BGII	0.00	0.00	0.00	BETL
RCH 659 B II (ZC)	0.00	0.00	0.00	BETL
ACH 171-2	0.00	0.00	0.00	BETL
NCS 2778	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	BETL
RCH 953 BGII	0.00	0.00	0.00	BETL

Table. Advance HxH Trial under protected conditions in South Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)			
	Raichur	Coimbatore	Mean	Remarks*
MC5431 BGII	1.00	1.75	1.38	AETL
RCH 659 B II (ZC)	1.00	1.75	1.38	AETL
ACH 171-2	1.00	0.67	0.83	BETL
NCS 2778	0.50	1.42	0.96	BETL
BG II Local Check	1.00	1.42	1.21	AETL
RCH 953 BGII	1.50	1.75	1.63	AETL

Table. Advance HxH Trial under protected conditions in South Zone --Green Boll damage

Name of Entry	Green Boll damage (%)			
	Raichur	Coimbatore	Mean	Remarks*
MC5431 BGII	0.00	0.00	0.00	BETL
RCH 659 B II (ZC)	0.00	0.00	0.00	BETL
ACH 171-2	0.00	0.00	0.00	BETL
NCS 2778	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	BETL
RCH 953 BGII	0.00	0.00	0.00	BETL

Table. Advance HxH Trial under protected conditions in South Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)				
	Raichur	Coimbatore	Warangal	Mean	Remarks*
MC5431 BGII	15.0	20.91	12	15.97	AETL
RCH 659 B II (ZC)	17.5	24.37	9.3	17.06	AETL
ACH 171-2	17.5	22.10	11.5	17.03	AETL
NCS 2778	15.0	21.75	12.3	16.35	AETL
BG II Local Check	20.0	19.95	10	16.65	AETL
RCH 953 BGII	20.0	18.92	7	15.31	AETL

Table. Advance HxH Trial under protected conditions in South Zone -- Locule damage

Name of Entry	Locule damage (%)		
	Raichur	Coimbatore	Mean
MC5431 BGII	22.78	17.68	20.23
RCH 659 B II (ZC)	24.67	15.45	20.06
ACH 171-2	24.67	16.20	20.43
NCS 2778	22.78	16.45	19.61
BG II Local Check	26.55	18.50	22.53
RCH 953 BGII	26.55	13.90	20.23

Table. Advance HxH Trial under protected conditions in South Zone -- No. of spray for sap sucking pest

Name of Entry	Spray applied for sap sucking pest (Nos.)	
	Warangal	Mean
MC5431 BGII	11	11.00
RCH 659 B II (ZC)	11	11.00
ACH 171-2	11	11.00
NCS 2778	11	11.00
BG II Local Check	11	11.00
RCH 953 BGII	11	11.00

Reaction to Diseases

Table: Advanced Evaluation Trial of Intra-hirsutum Hybrids-II – Irrigated (Protected: South Zone)

Entry	Average PDI & Disease Reaction (DR): Protected													
	TSV				ALB		GM		RUST				CoLS	
	Coimbatore		Guntur		Coimbatore		Coimbatore		Coimbatore		Guntur		Guntur	
	PDI	R	PDI	R	PDI	R	PDI	R	PDI	R	PDI	R	PDI	R
MC5431 BGII	0.0	DF	0.0	DF	7.9	R	0.0	DF	4.3	R	22.5	R	13.5	R
RCH 659 B II (ZC)	0.0	DF	1.9	R	3.4	R	1.4	R	4.6	R	24.5	R	13.5	R
ACH 171-2	0.0	DF	0.0	DF	1.8	R	0.0	DF	4.3	R	21.5	R	9.5	R
NCS 2778	0.0	DF	0.0	DF	5.1	R	0.0	DF	4.9	R	25.0	R	13.5	R
BG II (LC)	0.2	R	0.7	R	3.2	R	0.0	DF	3.0	R	26.0	MR	11.5	R
RCH 953 BGII	0.3	R	0.0	DF	2.2	R	0.0	DF	5.1	R	24.0	R	14	R

Table: Advanced Evaluation Trial of Intra-hirsutum Hybrids-II – Irrigated (Protected: Warangal)

Entry	Average PDI & Disease Reaction (DR): Protected: RARS, Warangal, PJTSAU									
	ALB		GM		Rust		CoLS		BLB	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
MC5431 BGII	14.3	R	19.4	R	32.4	MR	18.0	R	35.4	MR
RCH 659 B II (ZC)	13.5	R	17.6	R	21.9	R	16.3	R	43.6	MR
ACH 171-2	13.4	R	18.0	R	26.4	MR	15.5	R	27.0	MR
NCS 2778	13.6	R	17.6	R	21.8	R	14.4	R	28.9	MR
BG II (LC)	15.0	R	17.1	R	20.1	R	14.1	R	27.6	MR
RCH 953 BGII	13.4	R	16.3	R	23.6	R	13.5	R	26.4	MR

Evaluation under unprotected condition for insect pests and diseases

Reaction to Insect Pests

Table. Advance HxH Trial under unprotected conditions in South Zone – Aphid

Name of Entry	Aphid (Average of 3 leaves/plant)		
	Raichur	Guntur	Mean
MC5431 BGII	4.50	12.00	8.25
RCH 659 B II (ZC)	4.78	7.60	6.19
ACH 171-2	3.75	9.90	6.83
NCS 2778	5.05	14.93	9.99
BG II Local Check	0.43	10.30	5.36
RCH 953 BGII	2.00	6.77	4.38

Table. Advance HxH Trial under unprotected conditions in South Zone -- Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
MC5431 BGII	0.53	2.73	6.47	2.449	3.04	BETL
RCH 659 B II (ZC)	0.75	3.47	7.10	2.853	3.54	BETL
ACH 171-2	1.40	2.93	8.30	2.82	3.86	BETL
NCS 2778	2.33	4.10	7.48	2.662	4.14	BETL
BG II Local Check	1.48	3.33	5.45	2.949	3.30	BETL
RCH 953 BGII	0.93	2.87	5.38	2.694	2.97	BETL

Table. Advance HxH Trial under unprotected conditions in South Zone -- Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
MC5431 BGII	7.95	6.37	2.62	3	4.98	BETL
RCH 659 B II (ZC)	4.90	3.70	1.38	3	3.25	BETL
ACH 171-2	5.85	4.23	1.95	2.9	3.73	BETL
NCS 2778	4.30	8.10	1.47	2.6	4.12	BETL
BG II Local Check	4.80	5.07	2.60	2.9	3.84	BETL
RCH 953 BGII	3.60	5.20	2.17	2.7	3.42	BETL

Table. Advance HxH Trial under unprotected conditions in South Zone -- Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
MC5431 BGII	2.58	1.37	0.60	1.659	1.55	BETL
RCH 659 B II (ZC)	2.15	0.73	0.70	1.693	1.32	BETL
ACH 171-2	1.53	1.03	0.48	1.602	1.16	BETL
NCS 2778	1.73	1.23	0.55	1.771	1.32	BETL
BG II Local Check	2.45	1.30	0.58	1.681	1.50	BETL
RCH 953 BGII	2.40	1.87	0.55	1.365	1.55	BETL

Table. Advance HxH Trial under unprotected conditions in South Zone -- Natural Enemies

Name of Entry	Natural enemies (No./Plant)	
	Warangal	Mean
MC5431 BGII	1.016	1.02
RCH 659 B II (ZC)	1.08	1.08
ACH 171-2	1.033	1.03
NCS 2778	1.048	1.05
BG II Local Check	1.016	1.02
RCH 953 BGII	1.033	1.03

Table. Advance HxH Trial under unprotected conditions in South Zone -- Bollworms - *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)				
	Raichur	Guntur	Coimbatore	Mean	Remarks*
MC5431 BGII	0.00	0.00	0.00	0.00	BETL
RCH 659 B II (ZC)	0.00	0.00	0.00	0.00	BETL
ACH 171-2	0.00	0.00	0.00	0.00	BETL
NCS 2778	0.00	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	0.00	BETL
RCH 953 BGII	0.00	0.00	0.00	0.00	BETL

Table. Advance HxH Trial under unprotected conditions in South Zone -- Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
MC5431 BGII	0.00	0.00	0.00	0.00	0.00	BETL
RCH 659 B II (ZC)	0.00	0.00	0.00	0.00	0.00	BETL
ACH 171-2	0.00	0.00	0.00	0.00	0.00	BETL
NCS 2778	0.00	0.00	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	0.00	0.00	BETL
RCH 953 BGII	0.00	0.00	0.00	0.00	0.00	BETL

Table. Advance HxH Trial under unprotected conditions in South Zone -- *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)				
	Raichur	Guntur	Coimbatore	Mean	Remarks*
MC5431 BGII	0.00	0.00	0.00	0.00	BETL
RCH 659 B II (ZC)	0.00	0.00	0.00	0.00	BETL
ACH 171-2	0.00	0.00	0.00	0.00	BETL
NCS 2778	0.00	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	0.00	BETL
RCH 953 BGII	0.00	0.00	0.00	0.00	BETL

Table. Advance HxH Trial under unprotected conditions in South Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)				
	Raichur	Guntur	Coimbatore	Mean	Remarks*
MC5431 BGII	3.00	13.00	0.58	5.53	AETL
RCH 659 B II (ZC)	1.00	9.50	0.17	3.56	AETL
ACH 171-2	2.00	12.00	0.33	4.78	AETL
NCS 2778	2.00	14.50	0.50	5.67	AETL
BG II Local Check	5.00	10.00	0.25	5.08	AETL
RCH 953 BGII	3.00	15.50	1.08	6.53	AETL

Table. Advance HxH Trial under unprotected conditions in South Zone --Green Boll damage

Name of Entry	Green Boll damage (%)				
	Raichur	Guntur	Coimbatore	Mean	Remarks*
MC5431 BGII	0.00	0.00	0.00	0.00	BETL
RCH 659 B II (ZC)	0.00	0.00	0.00	0.00	BETL
ACH 171-2	0.00	0.00	0.00	0.00	BETL
NCS 2778	0.00	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	0.00	BETL
RCH 953 BGII	0.00	0.00	0.00	0.00	BETL

Table. Advance HxH Trial under unprotected conditions in South Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
MC5431 BGII	75.0	28.42	15.82	12	32.81	32.81
RCH 659 B II (ZC)	55.0	21.50	14.24	18.7	27.36	27.36
ACH 171-2	55.0	20.20	23.17	8.7	26.77	26.77
NCS 2778	60.0	27.30	23.99	15.3	31.65	31.65
BG II Local Check	65.0	32.61	20.58	13	32.80	32.80
RCH 953 BGII	55.0	28.12	17.75	11.7	28.14	28.14

Table. Advance HxH Trial under unprotected conditions in South Zone -- Locule damage

Name of Entry	Locule damage (%)			
	Raichur	Guntur	Coimbatore	Mean
MC5431 BGII	42.13	17.12	7.35	22.20
RCH 659 B II (ZC)	37.38	14.81	6.18	19.45
ACH 171-2	42.25	15.06	10.73	22.68
NCS 2778	42.25	20.78	9.47	24.16
BG II Local Check	50.00	19.17	9.08	26.08
RCH 953 BGII	28.38	18.14	13.56	20.02

Table. Advance HXH Trial under unprotected conditions in South Zone --Jassid Injury Grade

Name of Entry	JIG (Average of 3 leaves/plant)	
	Guntur	Mean
MC5431 BGII	2	2
RCH 659 B II (ZC)	2	2
ACH 171-2	3	3
NCS 2778	3	3
BG II Local Check	2	2
RCH 953 BGII	2	2

Table*. Helicoverpa armigera* bioassay on Advance HxH hybrid trial in leaf, Square, Bolls in laboratory condition at Coimbatore

Name of Entry	leaf % Mortality			
	60DAS	90 DAS	120 DAS	Mean
MC5431 BGII	100	95.00	92.50	95.83
RCH 659 B II (ZC)	100	92.50	90.00	94.17
ACH 171-2	100	97.50	90.00	95.83
NCS 2778	100	97.50	82.50	93.33
BG II Local Check	100	97.50	100	99.17
RCH 953 BGII	100	100	87.50	95.83

Name of Entry	Square % Mortality				Bolls % Mortality			
	60DAS	90 DAS	150 DAS	Mean	90DAS	120 DAS	150 DAS	Mean
MC5431 BGII	100	100	93.33	97.78	50.00	92.50	100	80.83
RCH 659 B II (ZC)	100	100	96.67	98.89	75.00	100	100	91.67
ACH 171-2	100	97.50	96.67	98.06	70.00	92.50	100	87.50
NCS 2778	100	100	90.00	96.67	67.50	95.00	100	87.50
BG II Local Check	100	100	90.00	96.67	75.00	92.50	100	89.17
RCH 953 BGII	100	100	93.33	97.78	72.50	92.50	100	88.33

Table. Pink Bollworm bioassay on Advance HxH hybrid trial in Bolls in laboratory condition at Coimbatore

Name of Entry	Bolls % Mortality	
	120 DAS	Mean
MC5431 BGII	90.00	90.00
RCH 659 B II (ZC)	93.33	93.33
ACH 171-2	96.67	96.67
NCS 2778	90.00	90.00
BG II Local Check	86.67	86.67
RCH 953 BGII	96.67	96.67

Reaction to Diseases

Table: Advanced Evaluation Trial of Intra-hirsutum Hybrids-II – Irrigated (Unprotected: South Zone)

Entry	Average PDI & Disease Reaction (DR): Un-Protected													
	TSV				ALB		GM		RUST				CoLS	
	Coimbatore		Guntur		Coimbatore		Coimbatore		Coimbatore		Guntur		Guntur	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
MC5431 BGII	0.0	DF	11.1	R	9.7	R	0.0	DF	6.1	R	28	MR	19.7	R
RCH 659 B II (ZC)	0.0	DF	14.3	R	11.2	R	3.3	R	6.8	R	29.7	MR	17.7	R
ACH 171-2	0.0	DF	23.6	R	12.3	R	0.0	DF	6.5	R	25.5	MR	17.2	R
NCS 2778	0.0	DF	22.2	R	11.8	R	0.0	DF	7.0	R	30.0	MR	18.7	R
BG II (LC)	0.0	DF	29.15	MR	6.8	R	0.0	DF	5.6	R	33.0	MR	18.2	R
RCH 953 BGII	0.0	DF	24.3	R	5.2	R	0.0	DF	8.6	R	29.5	MR	16.7	R

Table: Advanced Evaluation Trial of Intra-hirsutum Hybrids-II – Irrigated (Unprotected: Warangal)

Entry	Average PDI & Disease Reaction (DR): Unprotected: RARS, Warangal, PJTSAU									
	ALB		GM		Rust		CoLS		BLB	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
MC5431 BGII	13.9	MR	14.4	MR	19.5	MR	15.3	MR	27.5	S
RCH 659 B II (ZC)	13.1	MR	17.5	MR	25.0	MS	13.9	MR	31.1	S
ACH 171-2	12.5	MR	10.0	MR	18.9	MR	13.1	MR	25.5	S
NCS 2778	12.5	MR	10.6	MR	19.4	MR	11.4	MR	24.7	S
BG II (LC)	13.6	MR	13.3	MR	19.3	MR	11.6	MR	23.9	S
RCH 953 BGII	15.3	MR	14.4	MR	27.8	MS	13.1	MR	25.8	S

Initial Evaluation Trial of Hirsutum Varieties in South Zone (2020-21) under Irrigated Condition

Constitution of Trial

The trial was constituted with four Bt cotton varieties containing deregulated event along with two different check varieties as furnished below.

S. No.	Name of Variety
1	CICR 61 Bt
2	CICR Bt 20-31
3	Suraj (ZC)
4	CICR 1002 Bt
5	Local Check
6	CICR 20 Bt

The trial was conducted in four different locations and detail is furnished below.

Name of the trial location	**Coimbatore**	**Lam**	**Warangal**	**Raichur**	**B'Gudi**
Local check Non Bt Variety	CCH 2623	Sivanandi	WGCV 48	Sujay	Sujay

Spacing: Recommended spacing for the variety has been followed.
Number of rows:4 rows of 6 meters per entry with three replications

Data recorded:

Biometric evaluation

Plant height (cm) at harvest in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	CICR 61 Bt	92.1	109.9	123.6	178.0	157.7	**132.3**
2	CICR Bt 20-31	89.4	111.0	114.3	126.8	101.3	**108.6**
3	Suraj (ZC)	86.3	113.7	120.6	133.5	118.4	**114.5**
4	CICR 1002 Bt	92.2	110.6	119.2	131.0	111.0	**112.8**
5	Local Check	98.8	97.4	117.7	160.0	137.8	**122.3**
6	CICR 20 Bt	63.1	116.4	102.9	117.8	95.6	**99.2**
	CD @ 5%	9.3	NS	21.2	15.5	14.1	
	CV %	12.2	8.6	12.1	7.3	7.8	

Number of monopodia in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	CICR 61 Bt	0.1	1.5	0.8	0.8	1.2	**0.9**
2	CICR Bt 20-31	0.5	1.0	1.0	1.0	0.3	**0.8**
3	Suraj (ZC)	0.1	1.5	0.8	0.8	0.7	**0.8**
4	CICR 1002 Bt	0.9	1.6	1.1	1.1	0.8	**1.1**
5	Local Check	0.8	1.0	0.9	1.8	0.8	**1.1**
6	CICR 20 Bt	0.1	1.6	0.5	0.6	0.3	**0.6**
	CD @ 5%	0.3	0.4	0.2	0.6	0.5	
	CV %	50.6	14.8	18.9	17.9	15.5	

Number of sympodia in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	CICR 61 Bt	15.1	15.9	14.1	16.8	36.0	**19.6**
2	CICR Bt 20-31	15.6	14.9	15.2	15.8	27.8	**17.9**
3	Suraj (ZC)	15.7	16.4	15.9	13.8	28.4	**18.0**
4	CICR 1002 Bt	17.1	13.5	16.3	14.3	29.7	**18.2**
5	Local Check	18.6	14.4	14.6	14.0	30.3	**18.4**
6	CICR 20 Bt	12.3	15.2	12.6	11.5	23.2	**15.0**
	CD @ 5%	2.5	NS	2.0	4.2	3.6	
	CV %	10.7	8.7	9.0	19.5	8.2	

Number of bolls / plant in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	CICR 61 Bt	12.8	46.1	17.7	24.8	14.7	**23.2**
2	CICR Bt 20-31	17.1	51.5	18.9	24.0	21.3	**26.6**
3	Suraj (ZC)	20.1	53.4	19.7	22.0	17.8	**26.6**
4	CICR 1002 Bt	22.3	39.2	20.2	23.0	16.0	**24.1**
5	Local Check	25.3	43.7	18.0	22.5	24.5	**26.8**
6	CICR 20 Bt	20.8	50.7	15.6	18.0	22.8	**25.6**
	CD @ 5%	4.4	9.4	3.8	6.0	6.2	
	CV %	14.7	10.7	13.9	17.8	11.0	

Number of bolls / sq.m. in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Lam	Coimbatore	Mean
1	CICR 61 Bt	84.2	27.2	**55.7**
2	CICR Bt 20-31	108.1	39.4	**73.8**
3	Suraj (ZC)	110.4	32.9	**71.7**
4	CICR 1002 Bt	76.7	29.6	**53.2**
5	Local Check	91.9	45.4	**68.7**
6	CICR 20 Bt	83.8	42.3	**63.1**
	CD @ 5%	17.7	11.4	
	CV %	10.2	11.0	

Lint Index (g) in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	CICR 61 Bt	3.6	6.6	5.2	5.7	5.7	**5.4**
2	CICR Bt 20-31	3.3	6.5	5.7	6.2	6.4	**5.6**
3	Suraj (ZC)	3.4	6.3	5.5	5.7	6.8	**5.5**
4	CICR 1002 Bt	4.2	6.5	5.6	5.5	6.5	**5.7**
5	Local Check	3.9	6.2	5.9	5.2	6.3	**5.5**
6	CICR 20 Bt	3.7	5.8	5.3	5.5	5.6	**5.2**
	CD @ 5%		NS	0.5	0.9	0.3	
	CV %		6.9	6.5	10.8	3.5	

Seed Index (g) in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	CICR 61 Bt	5.6	10.2	9.6	8.9	21.7	**11.2**
2	CICR Bt 20-31	4.4	9.7	9.3	9.8	22.6	**11.2**
3	Suraj (ZC)	5.7	9.7	10.8	9.8	25.0	**12.2**
4	CICR 1002 Bt	6.6	10.5	11.5	9.6	23.7	**12.4**
5	Local Check	6.9	11.2	10.8	9.7	23.4	**12.4**
6	CICR 20 Bt	5.9	10.5	9.7	9.4	21.0	**11.3**
	CD @ 5%		NS	0.8	1.6	1.2	
	CV %		6.7	5.4	10.8	3.5	

Ginning outturn (%) in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	CICR 61 Bt	34.6	37.0	35.1	38.9	35.3	**36.2**
2	CICR Bt 20-31	37.5	32.6	38.0	38.8	39.5	**37.3**
3	Suraj (ZC)	34.7	35.6	33.7	36.6	37.0	**35.5**
4	CICR 1002 Bt	31.2	36.6	32.9	36.4	37.3	**34.9**
5	Local Check	27.1	35.4	35.3	35.0	36.6	**33.9**
6	CICR 20 Bt	31.2	32.7	35.2	37.1	36.4	**34.5**
	CD @ 5%		NS	1.6	0.9	1.6	
	CV %		5.8	3.0	1.6	2.8	

Upper Half Mean Length (mm) under HVI Mode in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	CICR 61 Bt	26.0	24.5	26.0	26.4	25.8	**25.7**
2	CICR Bt 20-31	26.4	23.7	25.4	25.0	25.9	**25.3**
3	Suraj (ZC)	31.3	29.3	30.9	31.3	29.7	**30.5**
4	CICR 1002 Bt	28.4	27.4	28.3	26.8	28.8	**27.9**
5	Local Check	27.8	27.5	29.4	30.7	27.4	**28.6**
6	CICR 20 Bt	28.0	26.2	24.7	26.7	26.7	**26.5**

Uniformity index under HVI Mode in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	CICR 61 Bt	81.0	81.0	83.0	82.0	84.8	**82.4**
2	CICR Bt 20-31	81.0	84.0	81.0	84.0	83.0	**82.6**
3	Suraj (ZC)	83.0	85.0	85.0	86.0	85.8	**85.0**
4	CICR 1002 Bt	82.0	83.0	85.0	82.0	85.7	**83.5**
5	Local Check	82.0	85.0	84.0	83.0	80.8	**83.0**
6	CICR 20 Bt	82.0	82.0	80.0	80.0	79.0	**80.6**

Micronaire under HVI Mode in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	CICR 61 Bt	4.1	4.2	4.3	3.9	3.7	**4.0**
2	CICR Bt 20-31	4.7	5.1	5.4	5.1	5.0	**5.1**
3	Suraj (ZC)	4.2	4.7	4.8	4.3	4.8	**4.6**
4	CICR 1002 Bt	4.0	5.0	4.6	4.6	5.0	**4.6**
5	Local Check	4.9	4.5	5.0	4.1	4.5	**4.6**
6	CICR 20 Bt	4.0	4.1	4.6	4.3	4.6	**4.3**

Tenacity under HVI Mode in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	CICR 61 Bt	28.1	25.7	27.0	30.4	24.2	**27.1**
2	CICR Bt 20-31	27.9	23.9	25.6	24.7	23.8	**25.2**
3	Suraj (ZC)	32.4	30.2	28.8	29.5	28.5	**29.9**
4	CICR 1002 Bt	29.4	26.1	27.5	26.4	25.5	**27.0**
5	Local Check	27.1	29.3	26.0	27.4	25.3	**27.0**
6	CICR 20 Bt	27.4	25.1	25.9	27.5	24.9	**26.2**

Seed Cotton Yield (q/ha) in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean	Rank
1	CICR 61 Bt	7.87	21.14	17.49	36.03	12.67	**19.04**	1
2	CICR Bt 20-31	5.44	18.29	18.58	34.99	14.59	**18.38**	4
3	Suraj (ZC)	9.03	18.72	19.62	31.51	15.56	**18.89**	3
4	CICR 1002 Bt	6.37	16.58	20.07	32.82	12.32	**17.63**	5
5	Local Check	8.68	17.18	17.87	32.56	18.86	**19.03**	2
6	CICR 20 Bt	6.71	15.43	14.93	25.08	12.82	**14.99**	6
	CD @ 5%	1.85	2.81	3.28	6.47	NS		
	CV %	16.80	8.52	12.01	13.35	11.27		

Qualitative Cry Protein Evaluation

All the above entries were positive for Cry 1Ac Protein in qualitative ELISA Test except Zonal check and Local check.

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect pests

Table. Initial Variety Trial under protected conditions in South Zone -- Aphid

Name of Entry	Aphid (Average of 3 leaves/plant)	
	Raichur	Mean
CICR 61 Bt	4.50	4.50
CICR Bt 20-31	3.25	3.25
Suraj (ZC)	5.25	5.25
CICR 1002 Bt	5.25	5.25
Local Check	4.75	4.75
CICR 20 Bt	4.50	4.50

Table. Initial Variety Trial under protected conditions in South Zone -- Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)				
	Raichur	Coimbatore	Warangal	Mean	Remarks*
CICR 61 Bt	1.50	4.03	2.5	2.68	BETL
CICR Bt 20-31	2.00	4.00	2.2	2.73	BETL
Suraj (ZC)	1.75	4.02	2.5	2.76	BETL
CICR 1002 Bt	2.50	2.05	2.5	2.35	BETL
Local Check	2.25	3.90	2.5	2.88	BETL
CICR 20 Bt	2.00	3.27	2.6	2.62	BETL

Table. Initial Variety Trial under protected conditions in South Zone -- Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)				
	Raichur	Coimbatore	Warangal	Mean	Remarks*
CICR 61 Bt	4.75	2.38	3.2	3.44	BETL
CICR Bt 20-31	5.25	1.93	2.9	3.36	BETL
Suraj (ZC)	4.50	3.10	3.3	3.63	BETL
CICR 1002 Bt	3.00	2.40	3.1	2.83	BETL
Local Check	4.50	2.75	3.3	3.52	BETL
CICR 20 Bt	3.75	2.22	3.5	3.16	BETL

Table. Initial Variety Trial under protected conditions in South Zone -- Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)				
	Raichur	Coimbatore	Warangal	Mean	Remarks*
CICR 61 Bt	2.75	1.15	1.6	1.83	BETL
CICR Bt 20-31	2.75	0.78	1.6	1.71	BETL
Suraj (ZC)	2.75	0.92	1.7	1.79	BETL
CICR 1002 Bt	2.75	0.53	1.8	1.69	BETL
Local Check	2.50	1.00	1.7	1.73	BETL
CICR 20 Bt	2.00	0.67	1.6	1.42	BETL

Table. Initial Variety Trial under protected conditions in South Zone -- Natural Enemies

Name of Entry	Natural enemies (No./Plant)	
	Warangal	Mean
CICR 61 Bt	1.3	1.30
CICR Bt 20-31	1.2	1.20
Suraj (ZC)	1.3	1.30
CICR 1002 Bt	1.3	1.30
Local Check	1.3	1.30
CICR 20 Bt	1.2	1.20

Table. Initial Variety Trial under protected conditions in South Zone -- Bollworms - *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)			
	Raichur	Coimbatore	Mean	Remarks*
CICR 61 Bt	0.00	0.00	0.00	BETL
CICR Bt 20-31	0.00	0.00	0.00	BETL
Suraj (ZC)	0.00	0.00	0.00	BETL
CICR 1002 Bt	0.00	0.00	0.00	BETL
Local Check	0.00	0.00	0.00	BETL
CICR 20 Bt	0.00	0.00	0.00	BETL

Table. Initial Variety Trial under protected conditions in South Zone -- Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)				
	Raichur	Coimbatore	Warangal	Mean	Remarks*
CICR 61 Bt	0.00	0.00	**0**	0.00	BETL
CICR Bt 20-31	0.00	0.00	0	0.00	BETL
Suraj (ZC)	0.00	0.00	0	0.00	BETL
CICR 1002 Bt	0.00	0.00	0	0.00	BETL
Local Check	0.00	0.00	0	0.00	BETL
CICR 20 Bt	0.00	0.00	0	0.00	BETL

Table. Initial Variety Trial under protected conditions in South Zone -- *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)			
	Raichur	Coimbatore	Mean	Remarks*
CICR 61 Bt	0.00	0.00	0.00	BETL
CICR Bt 20-31	0.00	0.00	0.00	BETL
Suraj (ZC)	0.00	0.00	0.00	BETL
CICR 1002 Bt	0.00	0.00	0.00	BETL
Local Check	0.00	0.00	0.00	BETL
CICR 20 Bt	0.00	0.00	0.00	BETL

Table. Initial Variety Trial under protected conditions in South Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 boll of destructive sampling)			
	Raichur	Coimbatore	Mean	Remarks*
CICR 61 Bt	1.50	1.33	1.42	AETL
CICR Bt 20-31	1.67	0.83	1.25	AETL
Suraj (ZC)	1.00	0.83	0.92	BETL
CICR 1002 Bt	1.00	1.08	1.04	AETL
Local Check	2.17	0.50	1.33	AETL
CICR 20 Bt	1.50	1.67	1.58	AETL

Table. Initial Variety Trial under protected conditions in South Zone --Green Boll damage

Name of Entry	Green Boll damage (%)			
	Raichur	Coimbatore	Mean	Remarks*
CICR 61 Bt	0.00	0.00	0.00	BETL
CICR Bt 20-31	0.00	0.00	0.00	BETL
Suraj (ZC)	0.00	0.00	0.00	BETL
CICR 1002 Bt	0.00	0.00	0.00	BETL
Local Check	0.00	0.00	0.00	BETL
CICR 20 Bt	0.00	0.00	0.00	BETL

Table. Initial Variety Trial under protected conditions in South Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)				
	Raichur	Coimbatore	Warangal	Mean	Remarks*
CICR 61 Bt	25.0	20.64	5.5	17.0	AETL
CICR Bt 20-31	20.0	15.49	12.5	16.0	AETL
Suraj (ZC)	17.5	19.26	10.3	15.7	AETL
CICR 1002 Bt	17.5	18.26	6.8	14.2	AETL
Local Check	25.0	16.12	14.3	18.5	AETL
CICR 20 Bt	20.0	17.70	8	15.2	AETL

Table. Initial Variety Trial under protected conditions in South Zone -- Locule damage

Name of Entry	Locule damage (%)		
	Raichur	Coimbatore	Mean
CICR 61 Bt	22.50	14.63	18.57
CICR Bt 20-31	17.50	14.90	16.20
Suraj (ZC)	12.50	15.29	13.90
CICR 1002 Bt	12.50	13.46	12.98
Local Check	20.00	14.58	17.29
CICR 20 Bt	15.00	15.87	15.43

Table. Initial Variety Trial under protected conditions in South Zone -- No. of spray for sap sucking pest

Name of Entry	Spray applied for sap sucking pest (Nos.)	
	Warangal	Mean
CICR 61 Bt	11	11.00
CICR Bt 20-31	11	11.00
Suraj (ZC)	11	11.00
CICR 1002 Bt	11	11.00
Local Check	11	11.00
CICR 20 Bt	11	11.00

Reaction to Diseases

Table: Initial Evaluation Trial of Hirsutum Varieties – Irrigated (Protected: South Zone)

Entry	Average PDI & Disease Reaction (DR): Protected													
	TSV				ALB		GM		RUST				CoLS	
	Coimbatore		Guntur		Coimbatore		Coimbatore		Coimbatore		Guntur		Guntur	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
CICR 61 Bt	0.9	R	2.5	R	11.1	R	0.0	DF	5.1	R	9.0	R	8.5	R
CICR Bt 20-31	0.0	DF	0.0	DF	3.7	R	0.0	DF	4.4	R	8.5	R	12.5	R
Suraj (ZC)	0.0	DF	0.0	DF	4.7	R	0.0	DF	3.5	R	10.0	R	11.5	R
CICR 1002 Bt	0.0	DF	0.0	DF	1.8	R	0.0	DF	5.3	R	7.0	R	15.0	R
(LC)	0.0	DF	1.3	R	6.5	R	0.0	DF	5.8	R	19.0	R	10.5	R
CICR 20 Bt	0.0	DF	1.3	R	7.2	R	0.0	DF	3.6	R	8.5	R	12.0	R

Table: Initial Evaluation Trial of Hirsutum Varieties – Irrigated (Protected: Warangal)

Entry	Average PDI & Disease Reaction (DR): Protected: RARS, Warangal, PJTSAU									
	ALB		GM		Rust		CoLS		BLB	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
CICR 61 Bt	12.9	R	10.5	R	11.9	R	15.5	R	21.4	R
CICR Bt 20-31	14.0	R	13.4	R	12.0	R	15.1	R	22.9	R
Suraj (ZC)	14.4	R	8.8	R	9.8	R	13.4	R	32.1	MR
CICR 1002 Bt	14.8	R	14.3	R	16.0	R	14.5	R	23.6	R
(LC)	15.4	R	14.4	R	24.6	R	14.0	R	23.0	R
CICR 20 Bt	13.4	R	26.4	R	23.6	R	14.3	R	23.0	R

Evaluation under unprotected condition for insect pests and diseases:

Reaction to Insect Pests

Table. Initial Variety Trial under unprotected conditions in South Zone -- Aphid

Name of Entry	Aphid (Average of 3 leaves/plant)		
	Raichur	Guntur	Mean
CICR 61 Bt	6.50	6.00	6.25
CICR Bt 20-31	6.00	10.73	8.37
Suraj (ZC)	8.00	5.47	6.73
CICR 1002 Bt	7.50	4.23	5.87
Local Check	6.50	7.33	6.92
CICR 20 Bt	6.25	9.73	7.99

Table. Initial Variety Trial under unprotected conditions in South Zone -- Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
CICR 61 Bt	2.25	3.47	6.83	2.7	3.81	BETL
CICR Bt 20-31	2.25	2.77	3.60	2.5	2.78	BETL
Suraj (ZC)	2.00	2.63	4.18	2.7	2.88	BETL
CICR 1002 Bt	3.00	2.77	1.98	2.4	2.54	BETL
Local Check	2.75	3.27	4.75	2.3	3.27	BETL
CICR 20 Bt	2.00	4.37	2.83	2.3	2.88	BETL

Table. Initial Variety Trial under unprotected conditions in South Zone -- Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
CICR 61 Bt	6.25	2.37	2.27	2.864	3.44	BETL
CICR Bt 20-31	6.50	3.30	1.12	2.639	3.39	BETL
Suraj (ZC)	6.25	4.60	2.58	2.664	4.02	BETL
CICR 1002 Bt	5.00	3.87	2.22	2.683	3.44	BETL
Local Check	6.00	3.07	2.25	2.873	3.55	BETL
CICR 20 Bt	5.00	3.73	2.12	2.515	3.34	BETL

Table. Initial Variety Trial under unprotected conditions in South Zone -- Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
CICR 61 Bt	3.75	0.97	0.50	1.58	1.70	BETL
CICR Bt 20-31	3.00	1.83	0.47	1.413	1.68	BETL
Suraj (ZC)	3.50	1.60	0.68	1.725	1.88	BETL
CICR 1002 Bt	3.50	0.70	0.50	1.414	1.53	BETL
Local Check	2.75	1.30	0.62	1.638	1.58	BETL
CICR 20 Bt	2.50	0.83	0.53	1.339	1.30	BETL

Table. Initial Variety Trial under unprotected conditions in South Zone -- Bollworms - *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
CICR 61 Bt	0.00	0.00	0.00	1.341	0.34	BETL
CICR Bt 20-31	0.00	0.00	0.00	1.263	0.32	BETL
Suraj (ZC)	0.00	0.00	0.00	1.264	0.32	BETL
CICR 1002 Bt	0.00	0.00	0.00	1.244	0.31	BETL
Local Check	0.00	0.00	0.00	1.351	0.34	BETL
CICR 20 Bt	0.00	0.00	0.00	1.079	0.27	BETL

Table. Initial Variety Trial under unprotected conditions in South Zone -- Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
CICR 61 Bt	0.00	0.00	0.00	0	0.00	BETL
CICR Bt 20-31	0.00	0.00	0.00	0	0.00	BETL
Suraj (ZC)	0.00	0.00	0.00	0	0.00	BETL
CICR 1002 Bt	0.00	0.00	0.00	0	0.00	BETL
Local Check	0.00	0.00	0.00	0	0.00	BETL
CICR 20 Bt	0.00	0.00	0.00	0	0.00	BETL

Table. Initial Variety Trial under unprotected conditions in South Zone -- *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)				
	Raichur	Guntur	Coimbatore	Mean	Remarks*
CICR 61 Bt	0.00	0.00	0.00	0.00	BETL
CICR Bt 20-31	0.00	0.00	0.00	0.00	BETL
Suraj (ZC)	0.00	0.00	0.00	0.00	BETL
CICR 1002 Bt	0.00	0.00	0.00	0.00	BETL
Local Check	0.00	0.00	0.00	0.00	BETL
CICR 20 Bt	0.00	0.00	0.00	0.00	BETL

Table. Initial Variety Trial under unprotected conditions in South Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)				
	Raichur	Guntur	Coimbatore	Mean	Remarks*
CICR 61 Bt	4.33	7.50	0.75	4.19	AETL
CICR Bt 20-31	4.00	7.50	0.25	3.92	AETL
Suraj (ZC)	4.00	5.00	0.58	3.19	AETL
CICR 1002 Bt	6.67	9.00	0.33	5.33	AETL
Local Check	5.67	9.50	0.50	5.22	AETL
CICR 20 Bt	5.67	7.00	0.75	4.47	AETL

Table. Initial Variety Trial under unprotected conditions in South Zone --Green Boll damage

Name of Entry	Green Boll damage (%)				
	Raichur	Guntur	Coimbatore	Mean	Remarks*
CICR 61 Bt	0.00	0.00	0.00	0.00	BETL
CICR Bt 20-31	0.00	0.00	0.00	0.00	BETL
Suraj (ZC)	0.00	0.00	0.00	0.00	BETL
CICR 1002 Bt	0.00	0.00	0.00	0.00	BETL
Local Check	0.00	0.00	0.00	0.00	BETL
CICR 20 Bt	0.00	0.00	0.00	0.00	BETL

Table. Initial Variety Trial under unprotected conditions in South Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
CICR 61 Bt	75.0	41.69	26.63	13.7	39.3	AETL
CICR Bt 20-31	75.0	31.39	22.64	13.3	35.6	AETL
Suraj (ZC)	65.0	36.89	29.20	14	36.3	AETL
CICR 1002 Bt	55.0	34.69	28.25	15	33.2	AETL
Local Check	75.0	44.48	27.05	12	39.6	AETL
CICR 20 Bt	55.0	55.18	27.65	15.7	38.4	AETL

Table. Initial Variety Trial under unprotected conditions in South Zone -- Locule damage

Name of Entry	Locule damage (%)			
	Raichur	Guntur	Coimbatore	Mean
CICR 61 Bt	37.50	24.41	21.39	27.77
CICR Bt 20-31	45.00	17.97	15.64	26.20
Suraj (ZC)	50.00	27.78	19.99	32.59
CICR 1002 Bt	45.00	19.60	18.44	27.68
Local Check	50.00	31.31	17.20	32.84
CICR 20 Bt	50.00	34.38	14.30	32.89

Table. Initial Variety Trial under unprotected conditions in South Zone --Jassid Injury Grade

Name of Entry	JIG (Average of 3 leaves/plant)	
	Guntur	Mean
CICR 61 Bt	3	3.00
CICR Bt 20-31	3	3.00
Suraj (ZC)	2	2.00
CICR 1002 Bt	2	2.00
Local Check	2	2.00
CICR 20 Bt	2	2.00

Reaction to Diseases

Table: Initial Evaluation Trial of Hirsutum Varieties - Irrigated (Unprotected: South Zone)

Entry	Average PDI & Disease Reaction (DR): Un-Protected													
	TSV				ALB		GM		RUST				CoLS	
	Coimbatore		Guntur		Coimbatore		Coimbatore		Coimbatore		Guntur		Guntur	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
CICR 61 Bt	0.0	DF	22.2	R	9.9	R	0.0	DF	6.0	R	17.5	R	14.6	R
CICR Bt 20-31	0.0	DF	11.1	R	5.1	R	0.0	DF	4.1	R	15.3	R	18.8	R
Suraj (ZC)	0.0	DF	11.8	R	10.8	R	0.0	DF	3.8	R	13.8	R	20.3	R
CICR 1002 Bt	0.0	DF	25.0	R	9.1	R	0.9	R	5.2	R	11.1	R	20.3	R
(LC)	0.0	DF	27.8	MR	8.9	R	1.2	R	5.7	R	27.3	MR	15.3	R
CICR 20 Bt	0.0	DF	29.2	MR	9.4	R	0.0	DF	4.0	R	10.8	R	17.5	R

Table: Initial Evaluation Trial of Hirsutum Varieties – Irrigated (Unprotected: Warangal)

Entry	Average PDI & Disease Reaction (DR): Unprotected: RARS, Warangal, PJTSAU									
	ALB		GM		Rust		CoLS		BLB	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
CICR 61 Bt	11.1	R	7.6	R	14.2	R	11.2	R	20.3	R
CICR Bt 20-31	8.7	R	7.5	R	12.5	R	9.7	R	13.0	R
Suraj (ZC)	12.1	R	6.9	R	17.2	R	10.3	R	18.7	R
CICR 1002 Bt	11.8	R	11.4	R	19.2	R	11.4	R	21.1	R
(LC)	12.5	R	15.3	R	21.7	R	12.3	R	25.3	MR
CICR 20 Bt	12.5	R	10.6	R	15.4	R	10.8	R	22.2	R

Advanced Evaluation Trial of Hirsutum Varieties in South Zone (2020-21) under Irrigated Condition

Constitution of Trial

The trial was constituted with two Bt cotton varieties containing deregulated event viz., CICR 26 Bt and CICR 25 Bt along with Suraj as non-Bt Zonal Check and a non-Bt local check variety.

The trial was conducted in five different locations and detail is furnished below.

Name of the trial location	**Coimbatore**	**Lam**	**Warangal**	**Raichur**	**B'Gudi**
Local check Non Bt Variety	CCH 2623	Sivanandi	WGCV 48	Sujay	Sujay

Spacing: Two separate trials viz., one with recommended spacing for the variety and another with half the spacing between plants have been followed.
Number of rows:4 rows of 6 meters per entry with five replications

Data recorded:

Biometric evaluation

Plant height (cm) at harvest in Advanced Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	**Suraj (ZC)**	84.0	150.4	108.6	140.8	104.9	**117.7**
2	CICR 26 Bt	88.2	120.6	122.4	129.6	128.7	**117.9**
3	**Local Check**	91.6	124.7	131.5	154.2	128.5	**126.1**
4	CICR 25 Bt	71.7	146.2	102.1	113.0	97.0	**106.0**
	CD @ 5%	12.5	11.8	15.7	14.1	16.6	
	CV %	10.7	6.3	9.8	7.6	10.5	

Number of monopodia in Advanced Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	**Suraj (ZC)**	0.1	1.0	0.9	1.4	1.0	**0.9**
2	CICR 26 Bt	0.5	1.2	1.1	2.0	1.4	**1.2**
3	**Local Check**	0.3	0.9	1.1	1.8	1.2	**1.1**
4	CICR 25 Bt	0.6	1.6	0.8	1.3	0.9	**1.0**
	CD @ 5%	0.3	0.3	0.3	0.6	NS	
	CV %	70.1	20.7	19.6	18.8	9.5	

Number of sympodia in Advanced Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	**Suraj (ZC)**	13.3	19.1	17.0	22.0	22.5	**18.8**
2	CICR 26 Bt	14.0	20.8	16.5	17.9	24.0	**18.6**
3	**Local Check**	17.6	19.1	14.6	19.2	24.1	**18.9**
4	CICR 25 Bt	12.9	20.7	15.4	21.6	24.4	**19.0**
	CD @ 5%	3.4	NS	2.0	3.3	NS	
	CV %	17.2	5.9	9.2	11.9	10.5	

Number of bolls / plant in Advanced Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	**Suraj (ZC)**	19.2	46.9	22.9	18.4	17.3	**24.9**
2	CICR 26 Bt	15.7	58.5	21.8	17.7	24.6	**27.7**
3	**Local Check**	17.1	54.1	17.1	18.9	23.1	**26.1**
4	CICR 25 Bt	16.6	47.7	18.5	13.7	20.5	**23.4**
	CD @ 5%	NS	6.3	3.4	4.6	NS	
	CV %	18.5	9.0	12.3	19.2	10.5	

Number of bolls / sq.m. in Advanced Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Lam	Coimbatore	Mean
1	**Suraj (ZC)**	96.3	32.1	**64.2**
2	CICR 26 Bt	112.4	45.6	**79.0**
3	**Local Check**	94.6	42.8	**68.7**
4	CICR 25 Bt	90.7	38.0	**64.4**
	CD @ 5%	9.0	NS	
	CV %	6.9	10.5	

Lint Index (g) in Advanced Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	**Suraj (ZC)**	3.7	6.3	5.4	5.9	6.8	**5.6**
2	CICR 26 Bt	3.0	6.8	4.8	5.7	5.5	**5.2**
3	**Local Check**	4.1	6.3	5.5	5.9	6.6	**5.7**
4	CICR 25 Bt	3.4	6.6	4.0	5.5	5.1	**4.9**
	CD @ 5%		0.4	0.5	0.9	0.4	
	CV %		5.0	6.8	11.6	4.8	

Seed Index (g) in Advanced Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	**Suraj (ZC)**	6.8	10.8	11.4	11.2	11.7	**10.4**
2	CICR 26 Bt	5.4	11.9	9.3	10.7	9.6	**9.4**
3	**Local Check**	6.4	9.8	10.1	10.7	11.0	**9.6**
4	CICR 25 Bt	5.1	11.1	8.7	9.9	9.8	**8.9**
	CD @ 5%		1.2	0.5	2.1	0.9	
	CV %		8.1	3.4	14.2	5.9	

Ginning outturn (%) in Advanced Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	**Suraj (ZC)**	30.1	33.7	32.2	34.5	36.7	**33.4**
2	CICR 26 Bt	33.0	36.0	33.9	34.7	36.3	**34.8**
3	**Local Check**	28.3	33.3	35.3	35.6	37.6	**34.0**
4	CICR 25 Bt	32.2	35.7	31.5	35.7	34.2	**33.9**
	CD @ 5%		NS	2.5	2.6	1.6	
	CV %		4.8	5.8	5.3	3.2	

Upper Half Mean Length (mm) under HVI Mode in Advanced Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	**Suraj (ZC)**	30.7	25.6	30.3	32.5	32.0	**30.2**
2	CICR 26 Bt	27.0	25.7	26.6	30.3	27.6	**27.4**
3	**Local Check**	27.5	26.5	29.5	28.2	28.1	**28.0**
4	CICR 25 Bt	25.8	24.1	25.2	26.9	24.6	**25.3**

Uniformity index under HVI Mode in Advanced Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	**Suraj (ZC)**	83.0	81.0	84.0	87.0	87.0	**84.4**
2	CICR 26 Bt	82.0	82.0	83.0	82.0	85.8	**83.0**
3	**Local Check**	82.0	82.0	83.0	82.0	84.2	**82.6**
4	CICR 25 Bt	81.0	80.0	81.0	84.0	81.8	**81.6**

Micronaire under HVI Mode in Advanced Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	**Suraj (ZC)**	4.6	3.4	4.6	4.6	4.9	**4.4**
2	CICR 26 Bt	4.4	4.4	4.5	4.6	4.8	**4.5**
3	**Local Check**	4.9	4.4	4.5	4.4	4.6	**4.6**
4	CICR 25 Bt	3.7	3.7	4.0	4.4	4.1	**4.0**

Tenacity under HVI Mode in Advanced Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean
1	**Suraj (ZC)**	31.7	23.5	28.7	31.1	28.7	**28.7**
2	CICR 26 Bt	29.2	26.9	27.6	28.6	26.4	**27.7**
3	**Local Check**	27.5	27.8	28.2	26.1	26.5	**27.2**
4	CICR 25 Bt	24.8	23.8	24.8	29.3	22.8	**25.1**

Seed Cotton Yield (q/ha) in Advanced Evaluation Trial of Hirsutum Varieties under normal spacing

S. No.	Name of Variety	Warangal	Lam	Raichur	B'Gudi	Coimbatore	Mean	Rank
1	**Suraj (ZC)**	7.78	19.33	20.55	31.43	14.6	**18.74**	1
2	CICR 26 Bt	7.59	23.49	19.49	28.09	13.8	**18.50**	2
3	**Local Check**	8.33	22.05	16.46	23.95	16.0	**17.37**	4
4	CICR 25 Bt	7.50	18.43	17.41	32.28	13.2	**17.76**	3
	CD @ 5%	NS	2.24	2.78	5.19	NS		
	CV %	12.20	7.96	10.91	13.01	13.8		

Number of bolls / sq.m. in Advanced Evaluation Trial of Hirsutum Varieties under closer spacing

S. No.	Name of Variety	Lam	Coimbatore	Mean
1	**Suraj (ZC)**	102.4	63.7	**83.1**
2	CICR 26 Bt	122.6	67.9	**95.3**
3	**Local Check**	107.0	76.3	**91.6**
4	CICR 25 Bt	92.0	66.7	**79.3**
	CD @ 5%	13.8	NS	
	CV %	9.6	16.6	

Seed Cotton Yield (q/ha) in Advanced Evaluation Trial of Hirsutum Varieties under closer spacing

S. No.	Name of Variety	Warangal	Lam	Coimbatore	Mean	Rank
1	**Suraj (ZC)**	8.43	23.98	22.06	**18.16**	2
2	CICR 26 Bt	7.31	26.01	21.09	**18.14**	3
3	**Local Check**	7.96	25.15	24.47	**19.19**	1
4	CICR 25 Bt	6.48	23.39	19.65	**16.51**	4
	CD @ 5%	NS	NS	NS		
	CV %	20.00	7.73	11.47		

Qualitative Cry Protein Evaluation

All the above entries were positive for Cry 1Ac Protein in qualitative ELISA Test except Zonal check and Local check.

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect pests

Table. Advance Variety Trial under protected conditions in South Zone -- Aphid

Name of Entry	Aphid (Average of 3 leaves/plant)	
	Raichur	Mean
Suraj (ZC)	5.25	5.25
CICR 26 Bt	5.60	5.60
Local Check	5.35	5.35
CICR 25 Bt	3.95	3.95

Table. Advance Variety Trial under protected conditions in South Zone -- Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)				
	Raichur	Coimbatore	Warangal	Mean	Remarks*
Suraj (ZC)	3.25	5.65	2.3	3.73	BETL
CICR 26 Bt	2.75	5.24	2.4	3.46	BETL
Local Check	2.75	7.25	2.2	4.07	BETL
CICR 25 Bt	3.00	4.33	2.2	3.18	BETL

Table. Advance Variety Trial under protected conditions in South Zone -- Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)				
	Raichur	Coimbatore	Warangal	Mean	Remarks*
Suraj (ZC)	5.00	5.35	2.8	4.38	BETL
CICR 26 Bt	4.75	4.85	3	4.20	BETL
Local Check	5.00	5.68	3	4.56	BETL
CICR 25 Bt	5.25	4.40	2.5	4.05	BETL

Table. Advance Variety Trial under protected conditions in South Zone -- Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)				
	Raichur	Coimbatore	Warangal	Mean	Remarks*
Suraj (ZC)	2.58	1.96	1.6	2.05	BETL
CICR 26 Bt	3.00	1.39	1.7	2.03	BETL
Local Check	3.60	2.27	1.7	2.52	BETL
CICR 25 Bt	3.00	1.43	1.7	2.04	BETL

Table. Advance Variety Trial under protected conditions in South Zone -- Natural Enemies

Name of Entry	Natural enemies (No./Plant)	
	Warangal	Mean
Suraj (ZC)	1.3	1.3
CICR 26 Bt	1.3	1.3
Local Check	1.2	1.2
CICR 25 Bt	1.2	1.2

Table. Advance Variety Trial under protected conditions in South Zone -- Bollworms - *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)			
	Raichur	Coimbatore	Mean	Remarks*
Suraj (ZC)	0.00	0.00	0.00	BETL
CICR 26 Bt	0.00	0.00	0.00	BETL
Local Check	0.00	0.00	0.00	BETL
CICR 25 Bt	0.00	0.00	0.00	BETL

Table. Advance Variety Trial under protected conditions in South Zone -- Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)				
	Raichur	Coimbatore	Warangal	Mean	Remarks*
Suraj (ZC)	0.00	0.00	0	0.00	BETL
CICR 26 Bt	0.00	0.00	0	0.00	BETL
Local Check	0.00	0.00	0	0.00	BETL
CICR 25 Bt	0.00	0.00	0	0.00	BETL

Table. Advance Variety Trial under protected conditions in South Zone -- *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)			
	Raichur	Coimbatore	Mean	Remarks*
Suraj (ZC)	0.00	0.00	0.00	BETL
CICR 26 Bt	0.00	0.00	0.00	BETL
Local Check	0.00	0.00	0.00	BETL
CICR 25 Bt	0.00	0.00	0.00	BETL

Table. Advance Variety Trial under protected conditions in South Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)			
	Raichur	Coimbatore	Mean	Remarks*
Suraj (ZC)	1.00	1.13	1.07	AETL
CICR 26 Bt	1.00	1.40	1.20	AETL
Local Check	1.50	0.93	1.22	AETL
CICR 25 Bt	2.00	1.73	1.87	AETL

Table. Advance Variety Trial under protected conditions in South Zone --Green Boll damage

Name of Entry	Green Boll damage (%)			
	Raichur	Coimbatore	Mean	Remarks*
Suraj (ZC)	0.00	0.00	0.00	BETL
CICR 26 Bt	0.00	0.00	0.00	BETL
Local Check	0.00	0.00	0.00	BETL
CICR 25 Bt	0.00	0.00	0.00	BETL

Table. Advance Variety Trial under protected conditions in South Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)				
	Raichur	Coimbatore	Warangal	Mean	Remarks*
Suraj (ZC)	10.0	13.23	9.2	10.81	AETL
CICR 26 Bt	15.0	12.85	8.2	12.02	AETL
Local Check	20.0	12.77	11	14.59	AETL
CICR 25 Bt	27.5	14.89	9.4	17.26	AETL

Table. Advance Variety Trial under protected conditions in South Zone -- Locule damage

Name of Entry	Locule damage (%)		
	Raichur	Coimbatore	Mean
Suraj (ZC)	10.00	4.41	7.20
CICR 26 Bt	12.50	6.82	9.66
Local Check	22.50	6.88	14.69
CICR 25 Bt	25.00	5.02	15.01

Table. Advance Variety Trial under protected conditions in South Zone -- No. of spray for sap sucking pest

Name of Entry	Spray applied for sap sucking pest (Nos.)	
	Warangal	Mean
Suraj (ZC)	11	11
CICR 26 Bt	11	11
Local Check	11	11
CICR 25 Bt	11	11

Table. Advance Variety Trial under protected conditions in South Zone -- Jassid (HDPS)

Name of Entry	Jassid (Average of 3 leaves/plant)		
	Coimbatore	Mean	Remarks*
Suraj (ZC)	3.23	3.23	BETL
CICR 26 Bt	2.77	2.77	BETL
Local Check	4.08	4.08	BETL
CICR 25 Bt	2.23	2.23	BETL

Table. Advance Variety Trial under protected conditions in South Zone -- Thrips (HDPS)

Name of Entry	Thrips (Average of 3 leaves/plant)		
	Coimbatore	Mean	Remarks*
Suraj (ZC)	3.79	3.79	BETL
CICR 26 Bt	3.49	3.49	BETL
Local Check	3.49	3.49	BETL
CICR 25 Bt	4.33	4.33	BETL

Table. Advance Variety Trial under protected conditions in South Zone – Whitefly (HDPS)

Name of Entry	Whitefly (Average of 3 leaves/plant)		
	Coimbatore	Mean	Remarks*
Suraj (ZC)	0.57	0.57	BETL
CICR 26 Bt	0.63	0.63	BETL
Local Check	0.69	0.69	BETL
CICR 25 Bt	0.47	0.47	BETL

Table. Advance Variety Trial under protected conditions in South Zone -- Bollworms - *Helicoverpa armigera* (HDPS)

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)		
	Coimbatore	Mean	Remarks*
Suraj (ZC)	0.00	0.00	BETL
CICR 26 Bt	0.00	0.00	BETL
Local Check	0.00	0.00	BETL
CICR 25 Bt	0.00	0.00	BETL

Table. Advance Variety Trial under protected conditions in South Zone -- Spotted Bollworms (HDPS)

Name of Entry	Spotted Bollworms (No. / 5 plants)		
	Coimbatore	Mean	Remarks*
Suraj (ZC)	0.00	0.00	BETL
CICR 26 Bt	0.00	0.00	BETL
Local Check	0.00	0.00	BETL
CICR 25 Bt	0.00	0.00	BETL

Table. Advance Variety Trial under protected conditions in South Zone -- *Spodoptera litura* (HDPS)

Name of Entry	*Spodoptera litura* (No. / 5 plants)		
	Coimbatore	Mean	Remarks*
Suraj (ZC)	0.00	0.00	BETL
CICR 26 Bt	0.00	0.00	BETL
Local Check	0.00	0.00	BETL
CICR 25 Bt	0.00	0.00	BETL

Table. Advance Variety Trial under protected conditions in South Zone -- Pink bollworm (HDPS)

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)		
	Coimbatore	Mean	Remarks*
Suraj (ZC)	1.93	1.93	AETL
CICR 26 Bt	1.07	1.07	AETL
Local Check	1.40	1.40	AETL
CICR 25 Bt	1.20	1.20	AETL

Table. Advance Variety Trial under protected conditions in South Zone --Green Boll damage (HDPS)

Name of Entry	Green Boll damage (%)		
	Coimbatore	Mean	Remarks*
Suraj (ZC)	0.00	0.00	BETL
CICR 26 Bt	0.00	0.00	BETL
Local Check	0.00	0.00	BETL
CICR 25 Bt	0.00	0.00	BETL

Table. Advance Variety Trial under protected conditions in South Zone -- Open Boll damage (HDPS)

Name of Entry	Open Boll damage (%)		
	Coimbatore	Mean	Remarks*
Suraj (ZC)	19.12	19.12	AETL
CICR 26 Bt	22.36	22.36	AETL
Local Check	22.16	22.16	AETL
CICR 25 Bt	18.76	18.76	AETL

Table. Advance Variety Trial under protected conditions in South Zone -- Locule damage (HDPS)

Name of Entry	Locule damage (%)	
	Coimbatore	Mean
Suraj (ZC)	10.34	10.34
CICR 26 Bt	8.61	8.61
Local Check	9.15	9.15
CICR 25 Bt	8.12	8.12

Reaction to Diseases

Table: Advanced Evaluation Trial of Hirsutum Varieties – Irrigated (Protected: South Zone)

Entry	Average PDI & Disease Reaction (DR): Protected													
	TSV				ALB		GM		RUST				CoLS	
	Coimbatore		Guntur		Coimbatore		Coimbatore		Coimbatore		Guntur		Guntur	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
Suraj (ZC)	0.0	DF	1.3	R	2.3	R	0.0	DF	3.0	R	7.5	R	13.0	R
CICR 26 Bt	0.3	R	0.0	DF	0.6	R	0.0	DF	7.8	R	11.0	R	11.0	R
(LC)	0.0	DF	0.0	DF	4.5	R	1.1	R	6.8	R	11.5	R	12.5	R
CICR 25 Bt	0.1	R	0.0	DF	0.0	DF	0.0	DF	4.2	R	9.0	R	13.5	R

Table: Advanced Evaluation Trial of Hirsutum Varieties – Irrigated (Protected: Warangal)

Entry	Average PDI & Disease Reaction (DR): Protected: RARS, Warangal, PJTSAU									
	ALB		GM		Rust		CoLS		BLB	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
Suraj (ZC)	13.5	R	10.0	R	12.3	R	12.5	R	22.9	R
CICR 26 Bt	13.5	R	11.8	R	18.0	R	13.5	R	20.1	R
(LC)	14.3	R	15.5	R	24.2	R	13.0	R	26.1	MR
CICR 25 Bt	13.4	R	10.8	R	12.4	R	11.5	R	21.2	R

Evaluation under unprotected condition for insect pests and diseases:
Reaction to Insect Pests

Table. Advance Variety Trial under unprotected conditions in South Zone -- Aphid

Name of Entry	Aphid (Average of 3 leaves/plant)		
	Raichur	Guntur	Mean
Suraj (ZC)	6.78	7.27	7.02
CICR 26 Bt	6.55	7.80	7.18
Local Check	6.85	9.87	8.36
CICR 25 Bt	5.40	14.07	9.73

Table. Advance Variety Trial under unprotected conditions in South Zone -- Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
Suraj (ZC)	4.05	4.33	3.16	3.5	3.76	BETL
CICR 26 Bt	3.75	3.47	1.32	3.3	2.96	BETL
Local Check	3.50	2.73	2.61	3.3	3.04	BETL
CICR 25 Bt	3.50	1.60	1.71	3.1	2.48	BETL

Table. Advance Variety Trial under unprotected conditions in South Zone -- Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
Suraj (ZC)	6.88	3.10	2.24	2.7	3.73	BETL
CICR 26 Bt	6.25	3.57	2.48	2.5	3.70	BETL
Local Check	7.50	5.73	2.65	2.4	4.57	BETL
CICR 25 Bt	6.75	6.83	2.84	2.5	4.73	BETL

Table. Advance Variety Trial under unprotected conditions in South Zone -- Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
Suraj (ZC)	2.58	3.10	0.63	1.7	2.00	BETL
CICR 26 Bt	3.00	3.57	0.45	1.4	2.11	BETL
Local Check	3.60	5.73	0.68	1.5	2.88	BETL
CICR 25 Bt	3.00	6.83	0.49	1.4	2.93	BETL

Table. Advance Variety Trial under unprotected conditions in South Zone -- Bollworms - *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)				
	Raichur	Guntur	Coimbatore	Mean	Remarks*
Suraj (ZC)	0.00	0.00	0.00	0.00	BETL
CICR 26 Bt	0.00	0.00	0.00	0.00	BETL
Local Check	0.00	0.00	0.00	0.00	BETL
CICR 25 Bt	0.00	0.00	0.00	0.00	BETL

Table. Advance Variety Trial under unprotected conditions in South Zone -- *Spotted Bollworms*

Name of Entry	Spotted Bollworms (No. / 5 plants)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
Suraj (ZC)	0.00	0.00	0.00	0	0.00	BETL
CICR 26 Bt	0.00	0.00	0.00	0	0.00	BETL
Local Check	0.00	0.00	0.00	0	0.00	BETL
CICR 25 Bt	0.00	0.00	0.00	0	0.00	BETL

Table. Advance Variety Trial under unprotected conditions in South Zone -- *Spodoptera litura*

Name of Entry	Spodoptera litura (No. / 5 plants)				
	Raichur	Guntur	Coimbatore	Mean	Remarks*
Suraj (ZC)	0.00	0.00	0.00	0.00	BETL
CICR 26 Bt	0.00	0.00	0.00	0.00	BETL
Local Check	0.00	0.00	0.00	0.00	BETL
CICR 25 Bt	0.00	0.00	0.00	0.00	BETL

Table. Advance Variety Trial under unprotected conditions in South Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)				
	Raichur	Guntur	Coimbatore	Mean	Remarks*
Suraj (ZC)	3.33	8.50	0.93	4.26	AETL
CICR 26 Bt	5.00	9.00	0.73	4.91	AETL
Local Check	6.33	10.50	0.53	5.79	AETL
CICR 25 Bt	5.33	7.50	0.33	4.39	AETL

Table. Advance Variety Trial under unprotected conditions in South Zone --Green Boll damage

Name of Entry	Green Boll damage (%)				
	Raichur	Guntur	Coimbatore	Mean	Remarks*
Suraj (ZC)	0.00	0.00	0.00	0.00	BETL
CICR 26 Bt	0.00	0.00	0.00	0.00	BETL
Local Check	0.00	0.00	0.00	0.00	BETL
CICR 25 Bt	0.00	0.00	0.00	0.00	BETL

Table. Advance Variety Trial under unprotected conditions in South Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)					
	Raichur	Guntur	Coimbatore	Warangal	Mean	Remarks*
Suraj (ZC)	55.0	31.10	24.09	10.7	30.22	AETL
CICR 26 Bt	65.0	48.71	20.65	10.3	36.17	AETL
Local Check	50.0	34.26	20.74	15.3	30.08	AETL
CICR 25 Bt	55.0	29.33	18.30	12	28.66	AETL

Table. Advance Variety Trial under unprotected conditions in South Zone -- Locule damage

Name of Entry	Locule damage (%)			
	Raichur	Guntur	Coimbatore	Mean
Suraj (ZC)	42.50	21.01	17.72	27.08
CICR 26 Bt	41.50	32.63	16.94	30.36
Local Check	35.00	25.75	17.29	26.02
CICR 25 Bt	43.50	21.78	18.04	27.77

Table. Advance Variety Trial under unprotected conditions in South Zone --Jassid Injury Grade

Name of Entry	JIG (Average of 3 leaves/plant)	
	Guntur	Mean
Suraj (ZC)	2.00	2.00
CICR 26 Bt	2.00	2.00
Local Check	2.00	2.00
CICR 25 Bt	2.00	2.00

Reaction to Diseases

Table: Advanced Evaluation Trial of Hirsutum Varieties – Irrigated (Unprotected: South Zone)

Entry	Average PDI & Disease Reaction (DR): Protected													
	TSV				ALB		GM		RUST				CoLS	
	Coimbatore		Guntur		Coimbatore		Coimbatore		Coimbatore		Guntur		Guntur	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
Suraj (ZC)	0.1	R	21.5	R	4.0	R	0.0	DF	3.8	R	13.0	R	21.5	R
CICR 26 Bt	0.1	R	17.0	R	1.6	R	0.0	DF	6.7	R	17.5	R	17.0	R
(LC)	0.1	R	22.5	R	6.0	R	1.5	R	6.3	R	19.8	R	22.5	R
CICR 25 Bt	0.0	DF	15.3	R	1.5	R	0.0	DF	5.4	R	14.0.	R	15.3	R

Table: Advanced Evaluation Trial of Hirsutum Varieties – Irrigated (Unprotected: Warangal)

Entry	Average PDI & Disease Reaction (DR): Unprotected: RARS, Warangal, PJTSAU									
	ALB		GM		Rust		CoLS		BLB	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
Suraj (ZC)	11.4	R	11.1	R	17.5	R	11.1	R	26.6	MR
CICR 26 Bt	12.5	R	16.2	R	20.0	R	12.2	R	26.1	MR
(LC)	13.1	R	17.2	R	26.7	MR	13.6	R	37.0	MR
CICR 25 Bt	11.9	R	8.0	R	15.8	R	10.3	R	16.7	R

Combined Evaluation Trial of Hirsutum x Barbadense Hybrids in South Zone (2020-21) under Irrigated Condition

Constitution of Trial

The trial was constituted with six Hirsutum x Barbadense Bt cotton Hybrids containing MON 15985 event sponsored by various organization along with two different check hybrids as furnished below.

S. No.	Name of hybrid	Sponsored by
1	C 7928 BG II	Mahyco Pvt Ltd
2	DHB 1071 BG II	KSSC*
3	MRC 7918 BG II (ZC)	
4	MC 5500 BG II	Rallis India Ltd.
5	KCH 9494 BG II	Kaveri Seeds Pvt Ltd
6	BG II Local Check	
7	C 7938 BG II	Mahyco Pvt Ltd
8	Indam 1634 BG II	Indo-American Hybrid Seeds (I) Pvt Ltd

***KSSC data has been withheld due to non payment of testing fee**

The trial was conducted in four different locations and detail is furnished below.

Name of the trial location	Coimbatore	Lam	Dharwad	Chamrajnagara
BG II Local Check	RCHB 708 BG II	-	-	Puli BG II

Spacing: Recommended spacing for the hybrid has been followed.

Number of rows:4 rows of 6 meters per entry with three replications

Data recorded:

Biometric evaluation

Plant height (cm) at harvest in Hirsutum x Barbadense Hybrids trial

S. No.	Name of hybrid	Lam	Dharwad	Chamrajnagar	Coimbatore	Mean
1	C 7928 BG II	181.7	123.3	239.9	156.8	**175.4**
2	DHB 1071 BG II					
3	MRC 7918 BG II (ZC)	153.4	127.3	215.1	146.7	**160.6**
4	MC 5500 BG II	152.0	116.2	225.7	170.7	**166.2**
5	KCH 9494 BG II	142.6	121.3	233.0	160.8	**164.4**
6	BG II Local Check	164.3	-	231.9	151.4	**182.5**
7	C 7938 BG II	154.1	102.1	186.7	152.1	**148.8**
8	Indam 1634 BG II	157.6	115.3	226.8	147.8	**161.9**
	CD @ 5%	14.3		19.6	NS	
	CV %	5.1		5.0	9.6	

Number of monopodia in Hirsutum x Barbadense Hybrids trial

S. No.	Name of hybrid	Lam	Dharwad	Chamrajnagar	Coimbatore	Mean
1	C 7928 BG II	2.7	2.7	1.7	1.3	**2.1**
2	DHB 1071 BG II					
3	MRC 7918 BG II (ZC)	2.6	2.0	1.8	1.1	**1.9**
4	MC 5500 BG II	2.9	2.5	1.9	1.2	**2.1**
5	KCH 9494 BG II	2.7	1.5	2.0	0.8	**1.8**
6	BG II Local Check	3.1	-	1.4	1.8	**2.1**
7	C 7938 BG II	2.9	2.1	2.3	1.1	**2.1**
8	Indam 1634 BG II	2.4	2.8	1.9	1.3	**2.1**
	CD @ 5%	NS		0.3	NS	
	CV %	12.0		9.2	12.3	

Number of sympodia in Hirsutum x Barbadense Hybrids trial

S. No.	Name of hybrid	Lam	Dharwad	Chamrajnagar	Coimbatore	Mean
1	C 7928 BG II	24.1	21.7	25.9	34.8	**26.6**
2	DHB 1071 BG II					
3	MRC 7918 BG II (ZC)	21.9	21.4	24.5	36.2	**26.0**
4	MC 5500 BG II	21.4	20.5	23.8	36.1	**25.5**
5	KCH 9494 BG II	21.5	21.5	22.2	36.7	**25.5**
6	BG II Local Check	24.5	-	24.0	37.9	**28.8**
7	C 7938 BG II	21.4	19.5	18.8	35.6	**23.8**
8	Indam 1634 BG II	22.1	20.6	21.8	35.7	**25.0**
	CD @ 5%	1.8		3.1	NS	
	CV %	4.7		7.8	6.4	

Number of bolls / plant in Hirsutum x Barbadense Hybrids trial

S. No.	Name of hybrid	Lam	Dharwad	Chamrajnagar	Coimbatore	Mean
1	C 7928 BG II	91.9	12.8	62.3	13.2	**45.1**
2	DHB 1071 BG II					
3	MRC 7918 BG II (ZC)	109.1	14.1	69.4	14.0	**51.7**
4	MC 5500 BG II	104.1	17.7	70.2	21.7	**53.4**
5	KCH 9494 BG II	112.3	12.6	72.9	15.8	**53.4**
6	BG II Local Check	101.3	-	59.2	10.4	**57.0**
7	C 7938 BG II	91.6	14.8	41.3	18.6	**41.6**
8	Indam 1634 BG II	111.5	16.5	53.9	17.3	**49.8**
	CD @ 5%	7.0		11.2	4.9	
	CV %	3.9		10.5	17.8	

Number of bolls / sq.m.in Hirsutum x Barbadense Hybrids trial

S. No.	Name of hybrid	Dharwad	Chamrajnagar	Coimbatore	Mean
1	C 7928 BG II	157.7	115.3	24.5	**99.2**
2	DHB 1071 BG II				
3	MRC 7918 BG II (ZC)	182.7	128.4	25.9	**112.3**
4	MC 5500 BG II	176.3	129.9	40.1	**115.4**
5	KCH 9494 BG II	152.7	134.8	29.2	**105.6**
6	BG II Local Check	-	109.5	19.3	**64.4**
7	C 7938 BG II	167.3	76.4	34.4	**92.7**
8	Indam 1634 BG II	178.0	99.7	32.1	**103.3**
	CD @ 5%		17.9	9.2	
	CV %		9.8	17.8	

Lint Index (g) in Hirsutum x Barbadense Hybrids trial

S. No.	Name of hybrid	Lam	Dharwad	Coimbatore	Mean
1	C 7928 BG II	6.7	5.9	6.7	**6.4**
2	DHB 1071 BG II				
3	MRC 7918 BG II (ZC)	6.9	5.3	5.6	**5.9**
4	MC 5500 BG II	6.1	5.3	6.2	**5.9**
5	KCH 9494 BG II	6.3	5.4	5.9	**5.9**
6	BG II Local Check	6.1	-	6.4	**6.2**
7	C 7938 BG II	6.0	5.7	6.9	**6.2**
8	Indam 1634 BG II	5.8	5.2	6.6	**5.9**
	CD @ 5%	NS		0.3	
	CV %	6.5		3.0	

Seed Index (g) in Hirsutum x Barbadense Hybrids trial

S. No.	Name of hybrid	Lam	Dharwad	Coimbatore	Mean
1	C 7928 BG II	12.1	13.5	16.4	**14.0**
2	DHB 1071 BG II				
3	MRC 7918 BG II (ZC)	10.4	10.5	12.1	**11.0**
4	MC 5500 BG II	10.5	11.0	13.8	**11.8**
5	KCH 9494 BG II	12.3	12.0	13.8	**12.7**
6	BG II Local Check	11.9	-	15.8	**13.8**
7	C 7938 BG II	12.9	12.0	14.1	**13.0**
8	Indam 1634 BG II	12.4	11.5	14.6	**12.8**
	CD @ 5%	1.4		1.2	
	CV %	6.7		4.6	

Ginning outturn (%) in Hirsutum x Barbadense Hybrids trial

S. No.	Name of hybrid	Lam	Dharwad	Coimbatore	Mean
1	C 7928 BG II	34.7	30.4	29.1	**31.4**
2	DHB 1071 BG II				
3	MRC 7918 BG II (ZC)	34.0	33.4	31.8	**33.1**
4	MC 5500 BG II	31.1	32.4	31.2	**31.6**
5	KCH 9494 BG II	32.8	30.9	30.0	**31.2**
6	BG II Local Check	34.1	-	28.8	**31.5**
7	C 7938 BG II	32.7	32.3	32.9	**32.6**
8	Indam 1634 BG II	34.0	31.3	31.1	**32.1**
	CD @ 5%	NS		1.6	
	CV %	6.3		3.0	

Upper Half Mean Length (mm) under HVI Mode in Hirsutum x Barbadense Hybrids trial

S. No.	Name of hybrid	Lam	Dharwad	Coimbatore	Mean
1	C 7928 BG II	37.0	36.2	37.7	**37.0**
2	DHB 1071 BG II				
3	MRC 7918 BG II (ZC)	34.2	34.4	35.7	**34.8**
4	MC 5500 BG II	34.2	32.5	34.3	**33.7**
5	KCH 9494 BG II	35.2	34.9	36.8	**35.6**
6	BG II Local Check	34.6	-	37.3	**36.0**
7	C 7938 BG II	34.8	35.1	37.8	**35.9**
8	Indam 1634 BG II	34.4	36.0	36.6	**35.7**

Uniformity index under HVI Mode in Hirsutum x Barbadense Hybrids trial

S. No.	Name of hybrid	Lam	Dharwad	Coimbatore	Mean
1	C 7928 BG II	87.0	87.0	86.5	**86.8**
2	DHB 1071 BG II				
3	MRC 7918 BG II (ZC)	86.0	86.0	85.7	**85.9**
4	MC 5500 BG II	85.0	85.0	85.5	**85.2**
5	KCH 9494 BG II	87.0	86.0	85.6	**86.2**
6	BG II Local Check	86.0	-	86.6	**86.3**
7	C 7938 BG II	86.0	85.0	87.8	**86.3**
8	Indam 1634 BG II	86.0	85.0	87.0	**86.0**

Micronaire under HVI Mode in Hirsutum x Barbadense Hybrids trial

S. No.	Name of hybrid	Lam	Dharwad	Coimbatore	Mean
1	C 7928 BG II	3.0	3.5	3.8	**3.4**
2	DHB 1071 BG II				
3	MRC 7918 BG II (ZC)	3.2	3.2	3.3	**3.2**
4	MC 5500 BG II	4.0	4.0	4.2	**4.1**
5	KCH 9494 BG II	3.8	4.0	4.2	**4.0**
6	BG II Local Check	3.1	-	3.9	**3.5**
7	C 7938 BG II	3.3	3.3	3.7	**3.4**
8	Indam 1634 BG II	3.4	3.5	3.8	**3.6**

Tenacity under HVI Mode in Hirsutum x Barbadense Hybrids trial

S. No.	Name of hybrid	Lam	Dharwad	Coimbatore	Mean
1	C 7928 BG II	35.5	30.5	38.5	**34.8**
2	DHB 1071 BG II				
3	MRC 7918 BG II (ZC)	31.1	28.1	35.2	**31.5**
4	MC 5500 BG II	32.0	28.2	31.1	**30.4**
5	KCH 9494 BG II	34.4	28.8	33.6	**32.3**
6	BG II Local Check	31.9	-	36.0	**34.0**
7	C 7938 BG II	34.5	28.4	38.1	**33.7**
8	Indam 1634 BG II	31.7	29.8	36.1	**32.5**

Seed Cotton Yield (q/ha)in Hirsutum x Barbadense Hybrids trial

S. No.	Name of hybrid	Lam	Dharwad	Chamrajnagar	Coimbatore	Mean	Rank
1	C 7928 BG II	22.41	4.55	25.40	8.83	**15.30**	
2	DHB 1071 BG II						
3	MRC 7918 BG II (ZC)	24.82	4.82	23.70	8.14	**15.37**	
4	MC 5500 BG II	20.96	6.33	24.60	16.82	**17.18**	
5	KCH 9494 BG II	27.06	5.22	21.00	11.02	**16.07**	
6	BG II Local Check	24.80	-	21.80	7.57	**18.06**	
7	C 7938 BG II	20.15	6.41	14.70	14.07	**13.83**	
8	Indam 1634 BG II	28.95	5.62	19.70	12.89	**16.79**	
	CD @ 5%	3.20	1.23	3.95	4.42		
	CV %	7.66	13.04	10.63	13.02		

Quantity of Cry 1Ac Protein (ppm) at ICAR, CICR, Coimbatore in Hirsutum x Barbadense Hybrids trial

Entry	Leaf				Square			Bolls	
	30D	60D	90D	120D	60D	90D	120D	90D	120D
C 7928 BG II	2.54	3.60	4.13	1.65	2.54	1.57	2.07	1.67	1.38
DHB 1071 BG II									
MRC 7918 BG II (ZC)	2.11	3.97	4.34	1.40	2.91	1.51	1.66	1.89	1.44
MC 5500 BG II	2.23	3.41	4.37	1.43	2.81	1.76	1.50	1.73	1.80
KCH 9494 BG II	1.22	3.67	4.29	1.54	2.67	2.10	1.41	1.60	1.33
BG II Local Check	1.85	3.58	4.31	1.46	2.30	1.64	1.32	2.33	1.54
C 7938 BG II	2.17	4.09	4.56	1.58	1.90	1.81	2.05	1.59	1.19
Indam 1634 BG II	1.47	4.11	5.28	2.58	2.77	1.41	1.52	2.59	1.47

Quantity of Cry 2Ab Protein (ppm) at ICAR, CICR, Coimbatore in Hirsutum x Barbadense Hybrids trial

Entry	Leaf				Square			Bolls	
	30D	60D	90D	120D	60D	90D	120D	90D	120D
C 7928 BG II	172.60	298.20	365.27	151.33	259.98	137.63	173.95	192.46	133.09
DHB 1071 BG II									
MRC 7918 BG II (ZC)	139.47	291.83	371.44	139.97	227.20	148.16	161.21	280.73	137.30
MC 5500 BG II	172.75	281.40	355.27	152.14	280.65	142.28	212.69	252.23	157.81
KCH 9494 BG II	171.99	288.91	332.53	141.31	256.44	139.75	139.25	288.04	133.99
BG II Local Check	184.72	291.00	320.53	141.39	281.21	144.03	169.18	223.19	130.55
C 7938 BG II	196.67	287.93	329.37	153.13	284.96	204.08	117.25	294.14	195.12
Indam 1634 BG II	187.67	283.47	367.54	166.68	293.23	255.68	204.56	296.60	161.16

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect pests

Table. Combined HXB Trial under protected conditions in South Zone -- Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)			
	Dharwad	Coimbatore	Mean	Remarks*
C 7928 BG II	4.08	5.42	4.75	BETL
DHB 1071 BG II				
MRC 7918 BG II (ZC)	4.56	4.84	4.70	BETL
MC 5500 BG II	4.52	4.38	4.45	BETL
KCH 9494 BG II	3.98	4.80	4.39	BETL
BG II Local Check		5.04	5.04	BETL
C 7938 BG II	4.17	4.78	4.47	BETL
Indam 1634 BG II	4.41	4.53	4.47	BETL

Table. Combined HXB Trial under protected conditions in South Zone --Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)			
	Dharwad	Coimbatore	Mean	Remarks*
C 7928 BG II	8.50	2.02	5.26	BETL
DHB 1071 BG II				
MRC 7918 BG II (ZC)	7.90	1.40	4.65	BETL
MC 5500 BG II	9.30	1.69	5.49	BETL
KCH 9494 BG II	9.00	1.51	5.26	BETL
BG II Local Check		1.22	1.22	BETL
C 7938 BG II	9.80	1.47	5.63	BETL
Indam 1634 BG II	8.90	1.73	5.32	BETL

Table. Combined HXB Trial under protected conditions in South Zone --Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)			
	Dharwad	Coimbatore	Mean	Remarks*
C 7928 BG II	1.20	0.38	0.79	BETL
DHB 1071 BG II				
MRC 7918 BG II (ZC)	1.30	0.62	0.96	BETL
MC 5500 BG II	1.20	0.31	0.76	BETL
KCH 9494 BG II	1.10	0.71	0.91	BETL
BG II Local Check		0.58	0.58	BETL
C 7938 BG II	1.20	0.47	0.83	BETL
Indam 1634 BG II	1.00	0.67	0.83	BETL

Table. Combined HXB Trial under protected conditions in South Zone --*Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)		
	Dharwad	Mean	Remarks*
C 7928 BG II	0.00	0.00	BETL
DHB 1071 BG II			
MRC 7918 BG II (ZC)	0.00	0.00	BETL
MC 5500 BG II	0.00	0.00	BETL
KCH 9494 BG II	0.00	0.00	BETL
BG II Local Check			
C 7938 BG II	0.00	0.00	BETL
Indam 1634 BG II	0.00	0.00	BETL

Table. Combined HXB Trial under protected conditions in South Zone --Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)			
	Dharwad	Coimbatore	Mean	Remarks*
C 7928 BG II	0	0	0.00	BETL
DHB 1071 BG II				
MRC 7918 BG II (ZC)	0	0	0.00	BETL
MC 5500 BG II	0	0	0.00	BETL
KCH 9494 BG II	0	0	0.00	BETL
BG II Local Check				
C 7938 BG II	0	0	0.00	BETL
Indam 1634 BG II	0	0	0.00	BETL

Table 147. Combined HXB Trial under protected conditions in South Zone --*Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)			
	Dharwad	Coimbatore	Mean	Remarks*
C 7928 BG II	0	0	0.00	BETL
DHB 1071 BG II				
MRC 7918 BG II (ZC)	0	0	0.00	BETL
MC 5500 BG II	0	0	0.00	BETL
KCH 9494 BG II	0	0	0.00	BETL
BG II Local Check				
C 7938 BG II	0	0	0.00	BETL
Indam 1634 BG II	0	0	0.00	BETL

Table. Combined HXB Trial under protected conditions in South Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)			
	Dharwad	Coimbatore	Mean	Remarks*
C 7928 BG II	7.9	0.33	4.12	AETL
DHB 1071 BG II				
MRC 7918 BG II (ZC)	7.3	0.22	3.76	AETL
MC 5500 BG II	8.1	1.22	4.66	AETL
KCH 9494 BG II	6.8	0.56	3.68	AETL
BG II Local Check		1.00	1.00	ETL
C 7938 BG II	7.9	0.89	4.39	AETL
Indam 1634 BG II	7.6	0.44	4.02	AETL

Table. Combined HXB Trial under protected conditions in South Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)			
	Dharwad	Coimbatore	Mean	Remarks*
C 7928 BG II	13.7	24.87	19.29	AETL
DHB 1071 BG II				
MRC 7918 BG II (ZC)	12.4	23.32	17.86	AETL
MC 5500 BG II	12.7	22.70	17.70	AETL
KCH 9494 BG II	11.3	19.71	15.50	AETL
BG II Local Check		29.06	29.06	AETL
C 7938 BG II	10.4	25.36	17.88	AETL
Indam 1634 BG II	13.1	21.37	17.23	AETL

Table. Combined HXB Trial under protected conditions in South Zone -- Locule damage

Name of Entry	Locule damage (%)		
	Dharwad	Coimbatore	Mean
C 7928 BG II	7.4	10.83	9.12
DHB 1071 BG II			
MRC 7918 BG II (ZC)	3.4	8.97	6.18
MC 5500 BG II	8.1	9.28	8.69
KCH 9494 BG II	3.5	10.61	7.06
BG II Local Check		13.30	13.30
C 7938 BG II	6.1	11.77	8.93
Indam 1634 BG II	3.3	10.44	6.87

Table. Combined HXB Trial under protected conditions in South Zone -- Green boll damage

Name of Entry	Green boll damage(%)			
	Dharwad	Coimbatore	Mean	Remarks*
C 7928 BG II	0	0	0	BETL
DHB 1071 BG II	0	0	0	BTL
MRC 7918 BG II (ZC)	0	0	0	BETL
MC 5500 BG II	0	0	0	BETL
KCH 9494 BG II	0	0	0	BETL
BG II Local Check				BETL
C 7938 BG II	0	0	0	BETL
Indam 1634 BG II	0	0	0	BETL

Reaction to Diseases

Table: Combined Evaluation trial of Interspecific H X B Hybrids (New + Promoted Entries)-Irrigated (Protected: South Zone)

Entry	Average PDI & Disease Reaction (DR): Protected									
	Alternaria blight				Bacterial blight		Grey mildew			
	Dharwad		Coimbatore		Dharwad		Dharwad		Coimbatore	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
C 7928 BG II	8.5	R	18.9	R	0	R	0	R	0	DF
DHB 1071 BG II										
MRC 7918 BG II (ZC)	8.7	R	12.1	R	0	R	0	R	0	DF
MC 5500 BG II	11.2	R	11.1	R	0	R	0	R	0	DF
KCH 9494 BG II	11.0	R	11.4	R	0	R	0	R	0	DF
BG II (LC)	-	-	11.5	R	-	-	-	-	0	DF
C 7938 BG II	10.3	R	7.7	R	0	R	0	R	0	DF
Indam 1634 BG II	8.7	R	9.7	R	0	R	0	R	0	DF

Table: Combined Evaluation trial of Interspecific H X B Hybrids (New + Promoted Entries)-Irrigated (Protected: South Zone)

Entry	Average PDI & Disease Reaction (DR): Protected											
	CoLS		Rust						TSV			
	Guntur		Dharwad		Coimbatore		Guntur		Coimbatore		Guntur	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	R	PDI	R
C 7928 BG II	7.8	R	12.9	R	5.7	R	14.5	R	0.0	DF	0.0	DF
DHB 1071 BG II												
MRC 7918 BG II (ZC)	7.0	R	11.6	R	4.0	R	4.5	R	0.2	R	0.0	DF
MC 5500 BG II	7.5	R	12.9	R	5.3	R	9.0	R	0.6	R	0.7	R
KCH 9494 BG II	12.0	R	13.5	R	4.7	R	16.5	R	1.5	R	0.0	DF
BG II (LC)	8.0	R	-	-	4.5	R	5.0	R	0.0	DF	0.0	DF
C 7938 BG II	7.5	R	12.7	R	7.3	R	9.5	R	0.0	DF	0.0	DF
Indam 1634 BG II	6.0	R	13.3	R	7.7	R	9.5	R	0.0	DF	1.3	R

Evaluation under unprotected condition for insect pests and diseases:
Reaction to Insect Pests

Table. Combined HXB Trial under unprotected conditions in South Zone -- Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)				
	Guntur	Dharwad	Coimbatore	Mean	Remarks*
C 7928 BG II	7.63	4.23	21.87	11.24	AETL
DHB 1071 BG II					
MRC 7918 BG II (ZC)	7.83	4.27	19.96	10.69	AETL
MC 5500 BG II	7.73	4.07	19.49	10.43	AETL
KCH 9494 BG II	8.17	3.53	20.71	10.80	AETL
BG II Local Check	9.67		19.89	14.78	AETL
C 7938 BG II	8.60	4.27	21.22	11.36	AETL
Indam 1634 BG II	6.43	4.17	17.62	9.41	AETL

Table. Combined HXB Trial under unprotected conditions in South Zone -- Aphid

Name of Entry	Aphid (Average of 3 leaves/plant)	
	Guntur	Mean
C 7928 BG II	5.10	5.10
DHB 1071 BG II		
MRC 7918 BG II (ZC)	3.47	3.47
MC 5500 BG II	6.47	6.47
KCH 9494 BG II	7.20	7.20
BG II Local Check	2.73	2.73
C 7938 BG II	4.40	4.40
Indam 1634 BG II	5.00	5.00

Table. Combined HXB Trial under unprotected conditions in South Zone --Thrips

Name of Entry	Thrips (Average of 3 leaves/plant)				
	Guntur	Dharwad	Coimbatore	Mean	Remarks*
C 7928 BG II	2.87	19.33	2.27	8.15	BETL
DHB 1071 BG II					
MRC 7918 BG II (ZC)	3.87	15.19	1.33	6.80	BETL
MC 5500 BG II	2.53	18.44	2.80	7.92	BETL
KCH 9494 BG II	2.60	18.81	1.93	7.78	BETL
BG II Local Check	4.03		3.18	3.61	BETL
C 7938 BG II	2.00	22.73	2.38	9.04	BETL
Indam 1634 BG II	3.20	21.13	1.67	8.67	BETL

Table. Combined HXB Trial under unprotected conditions in South Zone --Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)				
	Guntur	Dharwad	Coimbatore	Mean	Remarks*
C 7928 BG II	0.57	1.4	0.91	0.96	BETL
DHB 1071 BG II					
MRC 7918 BG II (ZC)	0.60	1.52	0.33	0.82	BETL
MC 5500 BG II	0.97	1.39	0.64	1.00	BETL
KCH 9494 BG II	0.67	1.41	0.76	0.94	BETL
BG II Local Check	0.80		1.13	0.97	BETL
C 7938 BG II	0.77	1.35	0.76	0.96	BETL
Indam 1634 BG II	0.80	1.29	0.64	0.91	BETL

Table. Combined HXB Trial under unprotected conditions in South Zone --*Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)				
	Guntur	Dharwad	Coimbatore	Mean	Remarks*
C 7928 BG II	0.00	0.00	0.00	0.00	BETL
DHB 1071 BG II					
MRC 7918 BG II (ZC)	0.00	0.00	0.00	0.00	BETL
MC 5500 BG II	0.00	0.00	0.00	0.00	BETL
KCH 9494 BG II	0.00	0.00	0.00	0.00	BETL
BG II Local Check			0.00	0.00	BETL
C 7938 BG II	0.00	0.00	0.00	0.00	BETL
Indam 1634 BG II	0.00	0.00	0.00	0.00	BETL

Table. Combined HXB Trial under unprotected conditions in South Zone --Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)				
	Guntur	Dharwad	Coimbatore	Mean	Remarks*
C 7928 BG II	0.00	0	0.00	0.00	BETL
DHB 1071 BG II					
MRC 7918 BG II (ZC)	0.00	0	0.00	0.00	BETL
MC 5500 BG II	0.00	0	0.00	0.00	BETL
KCH 9494 BG II	0.00	0	0.00	0.00	BETL
BG II Local Check			0.00	0.00	BETL
C 7938 BG II	0.00	0	0.00	0.00	BETL
Indam 1634 BG II	0.00	0	0.00	0.00	BETL

Table. Combined HXB Trial under unprotected conditions in South Zone --*Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)				
	Guntur	Dharwad	Coimbatore	Mean	Remarks*
C 7928 BG II	0.00	0	0.00	0.00	BETL
DHB 1071 BG II					
MRC 7918 BG II (ZC)	0.00	0	0.00	0.00	BETL
MC 5500 BG II	0.00	0	0.00	0.00	BETL
KCH 9494 BG II	0.00	0	0.00	0.00	BETL
BG II Local Check			0.00	0.00	BETL
C 7938 BG II	0.00	0	0.00	0.00	BETL
Indam 1634 BG II	0.00	0	0.00	0.00	BETL

Table. Combined HXB Trial under unprotected conditions in South Zone -- Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls of destructive sampling)				
	Guntur	Dharwad	Coimbatore	Mean	Remarks*
C 7928 BG II	12.0	10.12	0.11	7.41	AETL
DHB 1071 BG II					
MRC 7918 BG II (ZC)	9.5	9.78	0.22	6.50	AETL
MC 5500 BG II	11.5	9.97	0.22	7.23	AETL
KCH 9494 BG II	9.5	8.83	0.56	6.30	AETL
BG II Local Check	12.0		0.00	6.00	AETL
C 7938 BG II	9.0	10.07	0.11	6.39	AETL
Indam 1634 BG II	14.0	9.86	0.22	8.03	AETL

Table. Combined HXB Trial under unprotected conditions in South Zone -- Open Boll damage

Name of Entry	Open Boll damage (%)				
	Guntur	Dharwad	Coimbatore	Mean	Remarks*
C 7928 BG II	70.52	15.9	23.57	36.66	AETL
DHB 1071 BG II					
MRC 7918 BG II (ZC)	46.52	14.6	27.03	29.38	AETL
MC 5500 BG II	68.54	16.5	16.98	34.01	AETL
KCH 9494 BG II	64.76	12.4	25.69	34.28	AETL
BG II Local Check	26.43		18.54	22.49	AETL
C 7938 BG II	59.76	11.6	18.00	29.79	AETL
Indam 1634 BG II	41.82	15.2	20.81	25.94	AETL

Table. Combined HXB Trial under unprotected conditions in South Zone -- Locule damage

Name of Entry	Locule damage (%)			
	Guntur	Dharwad	Coimbatore	Mean
C 7928 BG II	46.26	9.2	19.72	25.06
DHB 1071 BG II				
MRC 7918 BG II (ZC)	28.74	5.7	14.00	16.15
MC 5500 BG II	39.18	10.55	15.00	21.58
KCH 9494 BG II	36.64	7.43	18.33	20.80
BG II Local Check	18.56		15.74	17.15
C 7938 BG II	26.74	9.5	15.83	17.36
Indam 1634 BG II	24.69	7.7	17.61	16.67

Table. Combined HXB Trial under unprotected conditions in South Zone -- Green boll damage

Name of Entry	Green boll damage (%)				
	Guntur	Dharwad	Coimbatore	Mean	Remarks*
C 7928 BG II	0.00	0	0.00	0.00	BETL
DHB 1071 BG II					
MRC 7918 BG II (ZC)	0.00	0	0.00	0.00	BETL
MC 5500 BG II	0.00	0	0.00	0.00	BETL
KCH 9494 BG II	0.00	0	0.00	0.00	BETL
BG II Local Check	0.00		0.00	0.00	BETL
C 7938 BG II	0.00	0	0.00	0.00	BETL
Indam 1634 BG II	0.00	0	0.00	0.00	BETL

Table. Helicoverpa armigera bioassay on Combined H X B trial in leaf, Square, Bolls in laboratory condition at Coimbatore

Name of Entry	Leaf % Mortality			
	60DAS	90 DAS	120 DAS	Mean
C 7928 BG II	100	100	100	100
DHB 1071 BG II				
MRC 7918 BG II (ZC)	100	100	100	100
MC 5500 BG II	100	100	100	100
KCH 9494 BG II	100	100	96.67	98.89
BG II Local Check	100	100	100	100
C 7938 BG II	100	100	93.33	97.78
Indam 1634 BG II	100	100	100	100

Name of Entry	Square % Mortality				Bolls % Mortality			
	60DAS	90 DAS	150 DAS	Mean	90DAS	120 DAS	150 DAS	Mean
C 7928 BG II	100	100	93.33	97.78	100	100	100	100
DHB 1071 BG II								
MRC 7918 BG II (ZC)	100	100	86.67	95.56	100	100	96.67	98.89
MC 5500 BG II	100	100	83.33	94.44	100	100	90.00	96.67
KCH 9494 BG II	100	100	93.33	97.78	93.33	100	100	97.78
BG II Local Check	100	100	90.00	96.67	100	100	100	100
C 7938 BG II	100	100	96.67	98.89	103.33	100	100	101.11
Indam 1634 BG II	100	100	96.67	98.89	100	83.33	100	94.44

Table. Pink Bollworm bioassay on Combined H X B trial in Bolls in laboratory condition at Coimbatore

Name of Entry	Bolls % Mortality	
	120 DAS	Mean
C 7928 BG II	96.67	96.67
DHB 1071 BG II		
MRC 7918 BG II (ZC)	100	100
MC 5500 BG II	96.67	96.67
KCH 9494 BG II	96.67	96.67
BG II Local Check	100	100
C 7938 BG II	100	100
Indam 1634 BG II	86.67	86.67

Reaction to Diseases

Table: Combined Evaluation trial of Interspecific H X B Hybrids (New + Promoted Entries)- Irrigated (Unprotected: South Zone)

Entry	Average PDI & Disease Reaction (DR): Unprotected									
	ALB				BLB		GM			
	Coimbatore		Dharwad		Dharwad		Coimbatore		Dharwad	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
C 7928 BG II	33.8	MR	22.0	R	0.0	DF	0.0	DF	0.0	DF
DHB 1071 BG II										
MRC 7918 BG II (ZC)	29.5	MR	21.1	R	0.0	DF	0.0	DF	0.0	DF
MC 5500 BG II	22.9	R	20.1	R	0.0	DF	0.0	DF	0.0	DF
KCH 9494 BG II	24.2	R	23.0	R	0.0	DF	0.0	DF	0.0	DF
BG II (LC)	21.5	R	21.7	R	0.0	DF	0.0	DF	0.0	DF
C 7938 BG II	19.9	R	20.0	R	0.0	DF	0.0	DF	0.0	DF
Indam 1634 BG II	18.5	R	22.4	R	0.0	DF	0.0	DF	0.0	DF

Table: Combined Evaluation trial of Interspecific H X B Hybrids (New + Promoted Entries)- Irrigated (Unprotected: South Zone)

Entry	Average PDI & Disease Reaction (DR): Unprotected											
	TSV				Rust						CoLS	
	Coimbatore		Guntur		Coimbatore		Dharwad		Guntur		Guntur	
	PDI	DR	PDI	R.	PDI	DR	PDI	DR	PDI	DR	PDI	DR
C 7928 BG II	0.0	DF	24.3	R	8.1	R	25.7	MR	17.5	R	0.6	R
DHB 1071 BG II												
MRC 7918 BG II (ZC)	0.0	DF	30.5	MR	7.6	R	27.2	MR	13.7	R	0.5	R
MC 5500 BG II	0.0	DF	16.6	R	9.6	R	24.6	R	11.1	R	0.5	R
KCH 9494 BG II	0.6	R	22.9	R	9.0	R	27.0	MR	27.2	MR	0.8	R
BG II (LC)	0.6	R	18.2	R	5.9	R	24.7	R	10.7	R	0.5	R
C 7938 BG II	0.2	R	11.1	R	7.4	R	27.7	MR	17.5	R	0.5	R
Indam 1634 BG II	0.6	R	27	MR	10.3	R	24.1	R	15.2	R	0.3	R

Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids in South Zone (2020-21) – under Rainfed Condition

Constitution of Trial

The trial was constituted with 15 Bt cotton hybrids containing MON 15985 event sponsored by various Private and public organization along with two different check hybrids as furnished below.

S. No.	Name of the Entry	Sponsored by
1	SP7680 BG II	Bayer Biosciences Pvt Ltd
2	MC 5461 BG II	Rallis India Ltd.
3	SS-246 BG II	Sumathi Seeds Pvt. Ltd
4	US 707 BG II	Seed Works International Pvt Ltd
5	Indam 2092 BG II	Indo-American Hybrid Seeds (I) Pvt Ltd
6	**Jadoo BG II (ZC)**	
7	RCH 996 BG II	Rasi Seeds Pvt Ltd
8	SP7688 BG II	Bayer Biosciences Pvt Ltd
9	ARCH 3079 BG II	Ankur Seeds Pvt Ltd
10	**BG II Local Check**	
11	C 9393 BG II	Mahyco Pvt Ltd
12	ACH 955-2 BG II	Ajeet Seeds
13	ARCH 3181 BG II	Ankur Seeds Pvt Ltd
14	BIO AHH 804 BG II	Shriram Bioseed Genetics
15	60 SS 66 BG II	Sri Sathya Agri Biotech Pvt Ltd
16	RCH 990 BG II	Rasi Seeds Pvt Ltd
17	US 708 BG II	Seed Works International Pvt Ltd

The trial was conducted in five different locations and detail is furnished below.

Name of the trial location	Dharwad	Nandyal	Mudhole	Adilabad	Perambalur
Local check Bt hybrid	NCS 954 BG II	NCS 245 BG II	NCS 854 BG II	NCS 854 BG II	NCS 954 BG II

Spacing: Recommended spacing for the hybrid has been followed.

Number of rows:4 rows of 6 meters per entry with three replications

Data recorded:

Biometric evaluation

Plant height (cm) at harvest in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	SP7680 BG II	122.5	146.8	164.0	111.7	164.9	**142.0**
2	MC 5461 BG II	132.1	176.2	160.8	113.0	161.8	**148.8**
3	SS-246 BG II	145.0	171.3	148.0	118.8	160.4	**148.7**
4	US 707 BG II	138.0	163.1	146.2	100.6	154.8	**140.5**
5	Indam 2092 BG II	123.6	161.7	115.2	107.3	154.5	**132.5**
6	**Jadoo BG II (ZC)**	143.2	180.3	148.0	118.6	171.3	**152.3**
7	RCH 996 BG II	130.9	154.6	136.8	108.1	156.9	**137.5**
8	SP7688 BG II	136.6	166.5	111.4	103.5	153.2	**134.2**
9	ARCH 3079 BG II	123.3	161.5	134.6	105.1	141.1	**133.1**
10	**BG II Local Check**	127.7	162.5	133.0	104.2	165.6	**138.6**
11	C 9393 BG II	105.2	133.7	111.4	91.7	120.1	**112.4**
12	ACH 955-2 BG II	123.7	159.4	135.2	107.8	153.6	**135.9**
13	ARCH 3181 BG II	149.1	181.5	141.0	108.4	147.5	**145.5**
14	BIO AHH 804 BG II	129.8	179.8	149.0	114.5	138.0	**142.2**
15	60 SS 66 BG II	138.8	162.3	137.6	108.5	144.6	**138.4**
16	RCH 990 BG II	139.8	173.7	139.0	95.8	136.4	**136.9**
17	US 708 BG II	135.5	173.8	134.8	108.6	165.0	**143.5**
	CD @ 5%	12.4				10.1	
	CV %	5.6				4.8	

Number of monopodia in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	SP7680 BG II	2.9	1.5	0.6	2.5	3.4	**2.2**
2	MC 5461 BG II	2.7	2.1	0.0	2.3	2.8	**2.0**
3	SS-246 BG II	3.3	1.6	0.4	2.4	3.2	**2.2**
4	US 707 BG II	2.5	1.2	0.4	2.4	2.0	**1.7**
5	Indam 2092 BG II	2.1	1.9	0.2	1.7	1.8	**1.5**
6	**Jadoo BG II (ZC)**	2.6	1.4	0.4	1.9	2.7	**1.8**
7	RCH 996 BG II	3.1	2.1	1.0	2.4	2.3	**2.2**
8	SP7688 BG II	2.7	1.5	0.2	1.7	1.9	**1.6**
9	ARCH 3079 BG II	3.0	1.7	0.4	1.9	2.6	**1.9**
10	**BG II Local Check**	2.6	1.3	0.8	1.5	1.6	**1.6**
11	C 9393 BG II	2.1	1.5	0.2	1.4	1.4	**1.3**
12	ACH 955-2 BG II	2.1	2.0	0.6	2.5	2.2	**1.9**
13	ARCH 3181 BG II	2.9	1.1	0.8	1.8	2.2	**1.8**
14	BIO AHH 804 BG II	2.9	2.1	0.4	2.3	2.2	**2.0**
15	60 SS 66 BG II	2.9	1.4	0.0	2.2	2.1	**1.7**
16	RCH 990 BG II	2.7	1.7	0.8	2.0	2.3	**1.9**
17	US 708 BG II	2.3	1.1	0.4	2.0	1.1	**1.4**
	CD @ 5%	0.6				0.4	
	CV %	13.4				13.5	

Number of sympodia in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	SP7680 BG II	19.7	17.9	26.0	17.6	22.0	**20.6**
2	MC 5461 BG II	15.9	15.7	15.8	17.0	21.2	**17.1**
3	SS-246 BG II	22.0	16.7	19.2	20.9	20.1	**19.8**
4	US 707 BG II	20.7	17.2	18.2	15.1	20.2	**18.3**
5	Indam 2092 BG II	15.7	16.1	20.2	17.5	23.7	**18.6**
6	**Jadoo BG II (ZC)**	20.6	16.2	19.2	19.3	24.1	**19.9**
7	RCH 996 BG II	21.5	14.3	21.0	17.8	22.9	**19.5**
8	SP7688 BG II	20.3	19.1	19.0	16.6	22.4	**19.5**
9	ARCH 3079 BG II	18.3	16.5	30.0	18.1	20.8	**20.7**
10	**BG II Local Check**	18.5	14.2	29.2	17.8	22.4	**20.4**
11	C 9393 BG II	16.1	14.8	16.2	14.8	19.9	**16.4**
12	ACH 955-2 BG II	18.0	16.9	20.6	19.5	21.2	**19.2**
13	ARCH 3181 BG II	22.7	17.7	16.6	18.7	44.3	**24.0**
14	BIO AHH 804 BG II	19.2	18.5	25.4	20.3	24.6	**21.6**
15	60 SS 66 BG II	21.2	16.9	18.5	18.8	19.9	**19.1**
16	RCH 990 BG II	20.0	14.3	18.0	17.1	19.0	**17.7**
17	US 708 BG II	22.3	17.2	26.0	18.8	26.9	**22.2**
	CD @ 5%	3.2				3.9	
	CV %	9.8				12.7	

Number of bolls / plant in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	SP7680 BG II	21.2	23.3	19.1	8.9	20.8	**18.7**
2	MC 5461 BG II	23.0	23.1	14.0	9.1	39.6	**21.8**
3	SS-246 BG II	25.2	26.1	16.3	7.7	28.0	**20.7**
4	US 707 BG II	20.6	23.3	15.7	7.9	28.9	**19.3**
5	Indam 2092 BG II	21.0	29.3	14.0	8.3	32.9	**21.1**
6	**Jadoo BG II (ZC)**	23.5	25.8	13.0	11.1	34.4	**21.6**
7	RCH 996 BG II	20.5	20.6	13.6	8.5	26.4	**17.9**
8	SP7688 BG II	23.0	35.0	15.0	9.7	25.1	**21.6**
9	ARCH 3079 BG II	22.9	26.3	16.0	11.5	33.4	**22.0**
10	**BG II Local Check**	21.9	25.3	14.1	7.7	28.4	**19.5**
11	C 9393 BG II	21.3	26.1	12.8	11.0	24.1	**19.1**
12	ACH 955-2 BG II	18.9	23.5	14.0	7.3	27.4	**18.2**
13	ARCH 3181 BG II	22.9	27.3	14.5	7.6	30.8	**20.6**
14	BIO AHH 804 BG II	21.3	26.5	17.1	10.5	27.0	**20.5**
15	60 SS 66 BG II	21.2	32.3	12.3	7.7	37.2	**22.1**
16	RCH 990 BG II	21.1	23.2	14.0	10.1	25.9	**18.9**
17	US 708 BG II	21.1	18.5	11.8	6.7	23.1	**16.2**
	CD @ 5%	2.1				1.4	
	CV %	5.8				3.5	

Number of bolls / sq. m. in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	SP7680 BG II	87.7	106.3	84.0	103.7	39.2	**84.2**
2	MC 5461 BG II	101.7	108.0	62.0	89.0	72.1	**86.6**
3	SS-246 BG II	111.3	126.3	57.0	93.0	57.7	**89.1**
4	US 707 BG II	90.3	109.7	69.0	90.7	56.2	**83.2**
5	Indam 2092 BG II	88.7	143.7	53.0	88.3	60.6	**86.9**
6	**Jadoo BG II (ZC)**	89.3	125.3	58.0	126.3	65.9	**93.0**
7	RCH 996 BG II	87.7	93.0	55.0	113.3	51.0	**80.0**
8	SP7688 BG II	101.0	179.7	52.0	115.3	44.0	**98.4**
9	ARCH 3079 BG II	106.0	129.3	69.0	106.7	61.1	**94.4**
10	**BG II Local Check**	93.0	122.3	57.0	101.3	54.1	**85.5**
11	C 9393 BG II	92.7	123.3	41.0	108.0	47.3	**82.5**
12	ACH 955-2 BG II	85.7	112.3	77.0	82.3	52.6	**82.0**
13	ARCH 3181 BG II	89.7	129.7	62.0	101.3	59.1	**88.4**
14	BIO AHH 804 BG II	92.3	132.0	60.0	114.0	53.4	**90.3**
15	60 SS 66 BG II	100.3	164.7	55.0	94.0	65.2	**95.8**
16	RCH 990 BG II	94.7	111.0	58.0	116.3	47.9	**85.6**
17	US 708 BG II	85.7	78.7	59.0	84.3	47.6	**71.1**
	CD @ 5%	10.7				3.0	
	CV %	6.8				4.0	

Lint Index (g) in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	SP7680 BG II	5.9	4.9	4.4	7.5	5.3	**5.6**
2	MC 5461 BG II	5.3	4.1	5.0	6.5	5.1	**5.2**
3	SS-246 BG II	6.3	4.5	5.5	7.0	5.2	**5.7**
4	US 707 BG II	6.3	4.9	5.6	6.0	5.7	**5.7**
5	Indam 2092 BG II	5.3	4.9	4.1	6.6	5.4	**5.3**
6	**Jadoo BG II (ZC)**	5.5	4.0	4.3	6.2	5.9	**5.2**
7	RCH 996 BG II	5.6	4.6	5.2	6.1	5.6	**5.4**
8	SP7688 BG II	6.9	5.0	6.0	7.7	5.7	**6.3**
9	ARCH 3079 BG II	5.7	4.8	4.1	6.2	5.4	**5.2**
10	**BG II Local Check**	5.1	4.9	4.3	6.3	5.5	**5.2**
11	C 9393 BG II	5.5	4.2	4.6	5.6	5.1	**5.0**
12	ACH 955-2 BG II	5.5	4.0	4.2	6.1	5.5	**5.1**
13	ARCH 3181 BG II	5.0	5.1	4.5	5.7	5.4	**5.1**
14	BIO AHH 804 BG II	4.6	5.1	4.4	5.7	5.2	**5.0**
15	60 SS 66 BG II	5.8	5.1	5.3	6.7	5.3	**5.6**
16	RCH 990 BG II	6.3	5.1	4.2	6.4	5.5	**5.5**
17	US 708 BG II	6.0	4.8	6.4	6.7	5.2	**5.8**
	CD @ 5%	1.0				0.2	
	CV %	10.9				2.0	

Seed Index (g) in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	SP7680 BG II	9.2	7.5	9.1	11.0	12.7	**9.9**
2	MC 5461 BG II	8.6	7.5	9.7	9.5	12.5	**9.6**
3	SS-246 BG II	9.5	7.2	11.4	10.0	13.0	**10.2**
4	US 707 BG II	10.1	8.0	10.3	10.5	12.5	**10.3**
5	Indam 2092 BG II	8.6	7.8	11.6	10.0	12.7	**10.1**
6	**Jadoo BG II (ZC)**	8.2	6.7	8.9	10.0	13.6	**9.5**
7	RCH 996 BG II	10.1	7.9	13.0	11.0	12.6	**10.9**
8	SP7688 BG II	11.2	8.0	12.4	11.5	13.7	**11.4**
9	ARCH 3079 BG II	8.8	7.7	10.6	10.5	12.8	**10.1**
10	**BG II Local Check**	10.2	8.5	10.2	11.0	13.5	**10.7**
11	C 9393 BG II	11.3	6.9	10.6	10.5	13.3	**10.5**
12	ACH 955-2 BG II	9.0	7.2	9.9	10.5	12.4	**9.8**
13	ARCH 3181 BG II	9.0	8.2	9.5	10.0	13.6	**10.1**
14	BIO AHH 804 BG II	8.4	8.4	10.2	10.0	12.8	**10.0**
15	60 SS 66 BG II	10.1	7.9	11.2	11.0	13.0	**10.6**
16	RCH 990 BG II	11.3	8.1	9.8	11.0	12.8	**10.6**
17	US 708 BG II	10.2	7.6	11.0	10.5	13.1	**10.5**
	CD @ 5%	1.8				0.3	
	CV %	11.2				1.7	

Ginning outturn (%) in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	SP7680 BG II	39.1	39.5	34.2	40.7	31.3	**37.0**
2	MC 5461 BG II	38.4	34.0	32.8	40.5	33.5	**35.8**
3	SS-246 BG II	39.9	38.4	34.7	41.2	31.9	**37.2**
4	US 707 BG II	38.2	38.4	36.5	36.5	34.8	**36.9**
5	Indam 2092 BG II	38.0	38.9	33.9	39.9	32.5	**36.6**
6	**Jadoo BG II (ZC)**	40.3	37.2	32.7	38.4	29.1	**35.5**
7	RCH 996 BG II	35.7	37.3	30.7	35.6	29.2	**33.7**
8	SP7688 BG II	37.9	38.4	34.1	40.1	32.2	**36.5**
9	ARCH 3079 BG II	39.2	38.4	34.5	37.2	30.5	**36.0**
10	**BG II Local Check**	33.5	36.6	31.3	36.4	35.0	**34.6**
11	C 9393 BG II	32.8	37.6	30.9	34.9	32.1	**33.7**
12	ACH 955-2 BG II	38.1	36.1	32.4	36.8	30.1	**34.7**
13	ARCH 3181 BG II	35.8	38.4	33.9	36.5	33.0	**35.5**
14	BIO AHH 804 BG II	35.3	37.7	32.2	36.3	30.8	**34.5**
15	60 SS 66 BG II	36.3	38.9	31.9	37.9	39.9	**37.0**
16	RCH 990 BG II	35.8	38.5	31.4	36.7	30.9	**34.7**
17	US 708 BG II	37.2	38.6	36.2	38.8	34.3	**37.0**
	CD @ 5%	3.4				0.7	
	CV %	5.5				1.5	

Upper Half Mean Length (mm) under HVI Mode in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Nandyal	Dharwad	Perambalur	Mean
1	SP7680 BG II	25.9	27.7	28.4	28.9	**27.7**
2	MC 5461 BG II	26.2	27.4	28.1	29.9	**27.9**
3	SS-246 BG II	27.0	27.3	28.3	29.9	**28.1**
4	US 707 BG II	26.8	26.6	29.1	30.2	**28.2**
5	Indam 2092 BG II	26.3	27.3	29.7	30.0	**28.3**
6	**Jadoo BG II (ZC)**	28.6	27.0	30.7	32.4	**29.7**
7	RCH 996 BG II	25.7	27.0	28.5	28.4	**27.4**
8	SP7688 BG II	28.5	27.4	28.1	30.7	**28.7**
9	ARCH 3079 BG II	26.9	27.5	28.3	29.9	**28.2**
10	**BG II Local Check**	28.5	27.9	30.0	32.4	**29.7**
11	C 9393 BG II	27.3	29.6	29.2	32.2	**29.6**
12	ACH 955-2 BG II	25.4	26.4	27.5	29.7	**27.3**
13	ARCH 3181 BG II	27.2	26.7	28.5	29.6	**28.0**
14	BIO AHH 804 BG II	26.5	27.6	28.5	31.1	**28.4**
15	60 SS 66 BG II	27.6	29.0	30.1	30.0	**29.2**
16	RCH 990 BG II	27.2	27.3	28.4	30.8	**28.4**
17	US 708 BG II	25.2	27.5	28.7	29.8	**27.8**

Uniformity index under HVI Mode in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Nandyal	Dharwad	Perambalur	Mean
1	SP7680 BG II	83.0	83.0	86.0	85.0	**84.3**
2	MC 5461 BG II	83.0	83.0	86.0	85.0	**84.3**
3	SS-246 BG II	84.0	84.0	85.0	87.0	**85.0**
4	US 707 BG II	82.0	84.0	85.0	84.0	**83.8**
5	Indam 2092 BG II	82.0	85.0	85.0	85.0	**84.3**
6	**Jadoo BG II (ZC)**	84.0	83.0	87.0	88.0	**85.5**
7	RCH 996 BG II	83.0	85.0	85.0	85.0	**84.5**
8	SP7688 BG II	83.0	85.0	86.0	85.0	**84.8**
9	ARCH 3079 BG II	83.0	84.0	86.0	86.0	**84.8**
10	**BG II Local Check**	83.0	84.0	85.0	84.0	**84.0**
11	C 9393 BG II	83.0	84.0	84.0	85.0	**84.0**
12	ACH 955-2 BG II	84.0	82.0	85.0	87.0	**84.5**
13	ARCH 3181 BG II	83.0	83.0	83.0	85.0	**83.5**
14	BIO AHH 804 BG II	84.0	85.0	85.0	86.0	**85.0**
15	60 SS 66 BG II	84.0	85.0	86.0	86.0	**85.3**
16	RCH 990 BG II	83.0	83.0	85.0	88.0	**84.8**
17	US 708 BG II	83.0	86.0	85.0	86.0	**85.0**

Micronaire under HVI Mode in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Nandyal	Dharwad	Perambalur	Mean
1	SP7680 BG II	4.5	3.9	4.9	5.0	**4.6**
2	MC 5461 BG II	4.3	4.2	4.4	5.0	**4.5**
3	SS-246 BG II	4.8	4.9	4.2	4.3	**4.6**
4	US 707 BG II	3.8	3.6	4.4	4.0	**4.0**
5	Indam 2092 BG II	4.5	4.3	3.4	4.9	**4.3**
6	**Jadoo BG II (ZC)**	4.6	5.2	4.8	5.3	**5.0**
7	RCH 996 BG II	4.0	3.8	3.9	4.2	**4.0**
8	SP7688 BG II	4.2	4.4	4.1	4.6	**4.3**
9	ARCH 3079 BG II	4.4	4.4	4.3	4.4	**4.4**
10	**BG II Local Check**	3.6	4.9	4.3	4.7	**4.4**
11	C 9393 BG II	4.3	3.9	4.2	4.7	**4.3**
12	ACH 955-2 BG II	4.9	5.3	5.3	5.6	**5.3**
13	ARCH 3181 BG II	4.3	4.1	3.8	4.5	**4.2**
14	BIO AHH 804 BG II	4.8	4.4	4.8	5.0	**4.8**
15	60 SS 66 BG II	5.1	4.7	4.4	5.3	**4.9**
16	RCH 990 BG II	4.1	4.1	4.1	4.6	**4.2**
17	US 708 BG II	4.6	4.2	4.2	4.7	**4.4**

Tenacity under HVI Mode in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Nandyal	Dharwad	Perambalur	Mean
1	SP7680 BG II	24.6	27.4	25.5	27.6	**26.3**
2	MC 5461 BG II	26.4	28.7	27.5	27.2	**27.5**
3	SS-246 BG II	26.2	28.4	25.4	28.7	**27.2**
4	US 707 BG II	23.7	27.4	26.1	25.8	**25.8**
5	Indam 2092 BG II	23.8	26.2	26.6	28.2	**26.2**
6	**Jadoo BG II (ZC)**	28.0	28.7	27.0	29.0	**28.2**
7	RCH 996 BG II	25.7	29.0	27.1	27.0	**27.2**
8	SP7688 BG II	27.6	28.7	26.2	28.4	**27.7**
9	ARCH 3079 BG II	26.9	29.3	27.8	28.1	**28.0**
10	**BG II Local Check**	25.2	27.1	27.0	28.7	**27.0**
11	C 9393 BG II	25.4	29.1	27.0	27.6	**27.3**
12	ACH 955-2 BG II	25.8	28.4	25.5	30.1	**27.5**
13	ARCH 3181 BG II	27.5	26.7	26.0	28.2	**27.1**
14	BIO AHH 804 BG II	26.0	29.2	26.9	28.7	**27.7**
15	60 SS 66 BG II	25.1	28.9	26.6	28.4	**27.3**
16	RCH 990 BG II	26.2	28.2	25.7	29.9	**27.5**
17	US 708 BG II	24.3	28.8	26.2	28.3	**26.9**

Seed Cotton Yield (q/ha) in Initial Evaluation Trial of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean	Rank
1	SP7680 BG II	21.10	17.49	25.05	6.16	14.52	**16.86**	6
2	MC 5461 BG II	23.68	16.49	21.00	5.69	20.68	**17.51**	4
3	SS-246 BG II	27.73	20.21	17.20	5.38	20.67	**18.24**	2
4	US 707 BG II	22.58	18.39	16.49	5.70	16.56	**15.94**	7
5	Indam 2092 BG II	20.97	12.79	15.15	4.35	20.30	**14.71**	14
6	**Jadoo BG II (ZC)**	23.70	14.29	13.50	7.11	17.13	**15.15**	10
7	RCH 996 BG II	20.89	12.11	20.35	5.46	15.86	**14.93**	12
8	SP7688 BG II	25.12	24.60	17.20	8.73	18.47	**18.82**	1
9	ARCH 3079 BG II	24.38	17.54	24.22	5.90	14.10	**17.23**	5
10	**BG II Local Check**	23.08	16.59	15.65	5.93	15.94	**15.44**	8
11	C 9393 BG II	22.31	13.17	10.40	5.93	16.46	**13.65**	16
12	ACH 955-2 BG II	19.31	13.49	12.57	4.92	10.63	**12.18**	17
13	ARCH 3181 BG II	22.41	18.08	15.62	4.84	15.28	**15.25**	9
14	BIO AHH 804 BG II	20.04	13.02	20.27	6.49	15.34	**15.03**	11
15	60 SS 66 BG II	23.85	24.83	15.94	5.86	17.88	**17.67**	3
16	RCH 990 BG II	23.29	18.72	15.80	6.15	10.01	**14.79**	13
17	US 708 BG II	22.25	11.83	16.35	4.50	15.29	**14.04**	15
	CD @ 5%	2.04	4.10		1.54	0.71		
	CV %	5.38	14.71		15.38	3.15		

Qualitative Cry Protein Evaluation

All the above entries were positive for Cry 1Ac Protein in qualitative ELISA Test

All the above entries were positive for Cry 2Ab Protein in qualitative ELISA Test

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect Pests

Table: Initial H X H trial under Protected Conditions in South Zone – Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)				
	Dharwad	Nandyal	Perambalur	Mean	Remarks*
SP7680 BGII	3.60	2.40	0.78	2.26	BETL
MC 5461 BG II	3.30	3.47	0.81	2.53	BETL
SS-246 BG II	4.00	2.93	0.69	2.54	BETL
US 707 BGII	3.40	2.60	0.80	2.27	BETL
Indam 2092 BG II	3.40	2.53	1.12	2.35	BETL
Jadoo BG II (ZC)	3.60	2.33	0.96	2.30	BETL
RCH 996 BG II	3.20	2.07	1.14	2.14	BETL
SP7688 BGII	3.50	2.93	0.82	2.42	BETL
ARCH 3079 BG II	3.50	2.07	1.11	2.22	BETL
BG II Local Check	3.60	2.60	1.21	2.47	BETL
C 9393 BG II	3.60	2.33	0.63	2.19	BETL
ACH 955-2 BG II	3.80	2.60	0.84	2.41	BETL
ARCH 3181 BG II	4.20	2.87	1.22	2.76	BETL
BIO AHH 804 BG II	3.80	2.67	1.06	2.51	BETL
60 SS 66 BG II	3.60	2.33	0.79	2.24	BETL
RCH 990 BG II	3.40	2.80	1.09	2.43	BETL
US 708 BGII	3.70	3.00	0.95	2.55	BETL

Table: Initial H X H trial under Protected Conditions in South Zone – Thrips

Name of Entry	Thrips(Average of 3 leaves/plant)				
	Dharwad	Nandyal	Perambalur	Mean	Remarks*
SP7680 BGII	7.70	0.00	0.48	2.73	BETL
MC 5461 BG II	7.56	0.00	0.85	2.80	BETL
SS-246 BG II	7.69	0.00	0.97	2.89	BETL
US 707 BGII	7.53	0.00	0.62	2.72	BETL
Indam 2092 BG II	7.67	0.60	1.20	3.16	BETL
Jadoo BG II (ZC)	7.61	0.40	0.97	2.99	BETL
RCH 996 BG II	7.19	0.40	1.38	2.99	BETL
SP7688 BGII	7.68	0.00	0.69	2.79	BETL
ARCH 3079 BG II	7.39	1.10	1.00	3.16	BETL
BG II Local Check	7.53	0.60	1.03	3.05	BETL
C 9393 BG II	7.81	0.00	0.88	2.90	BETL
ACH 955-2 BG II	7.71	1.10	1.24	3.35	BETL
ARCH 3181 BG II	7.81	0.00	1.07	2.96	BETL
BIO AHH 804 BG II	8.31	0.00	1.24	3.18	BETL
60 SS 66 BG II	8.08	0.40	1.16	3.21	BETL
RCH 990 BG II	8.19	0.40	1.29	3.29	BETL
US 708 BGII	8.07	0.00	0.85	2.97	BETL

Table: Initial H X H trial under Protected Conditions in South Zone – Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)				
	Dharwad	Nandyal	Perambalur	Mean	Remarks*
SP7680 BGII	1.64	0.27	1.66	1.19	BETL
MC 5461 BG II	1.76	0.13	1.80	1.23	BETL
SS-246 BG II	1.64	0.40	2.07	1.37	BETL
US 707 BGII	1.7	0.20	2.54	1.48	BETL
Indam 2092 BG II	1.77	0.27	1.39	1.14	BETL
Jadoo BG II (ZC)	1.71	0.40	2.51	1.54	BETL
RCH 996 BG II	1.64	0.07	2.11	1.27	BETL
SP7688 BGII	1.61	0.47	1.24	1.10	BETL
ARCH 3079 BG II	1.81	0.13	1.73	1.23	BETL
BG II Local Check	1.29	0.07	2.23	1.20	BETL
C 9393 BG II	1.71	0.47	2.39	1.52	BETL
ACH 955-2 BG II	1.34	0.53	2.21	1.36	BETL
ARCH 3181 BG II	1.71	0.27	2.07	1.35	BETL
BIO AHH 804 BG II	1.52	0.13	1.78	1.14	BETL
60 SS 66 BG II	1.69	0.33	1.89	1.30	BETL
RCH 990 BG II	1.5	0.47	1.77	1.25	BETL
US 708 BGII	1.61	0.40	1.86	1.29	BETL

Table : Initial H X H trial under Protected Conditions in South Zone – Natural Enemies

Name of Entry	Natural enemy (No./plant)		
	Nandyal	Perambalur	Mean
SP7680 BGII	0.00	3.00	1.50
MC 5461 BG II	0.07	2.00	1.03
SS-246 BG II	0.07	4.00	2.03
US 707 BGII	0.07	2.00	1.03
Indam 2092 BG II	0.07	1.00	0.53
Jadoo BG II (ZC)	0.00	5.00	2.50
RCH 996 BG II	0.00	3.00	1.50
SP7688 BGII	0.07	4.00	2.03
ARCH 3079 BG II	0.00	3.00	1.50
BG II Local Check	0.20	6.00	3.10
C 9393 BG II	0.00	5.00	2.50
ACH 955-2 BG II	0.00	4.00	2.00
ARCH 3181 BG II	0.00	2.00	1.00
BIO AHH 804 BG II	0.07	2.00	1.03
60 SS 66 BG II	0.00	3.00	1.50
RCH 990 BG II	0.00	5.00	2.50
US 708 BGII	0.07	1.64	0.85

Table: Initial H X H trial under Protected Conditions in South Zone – Bollworms - *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)			
	Dharwad	Perambalur	Mean	Remarks*
SP7680 BGII	0.00	0	0.00	BETL
MC 5461 BG II	0.00	0	0.00	BETL
SS-246 BG II	0.00	0	0.00	BETL
US 707 BGII	0.00	0	0.00	BETL
Indam 2092 BG II	0.00	0	0.00	BETL
Jadoo BG II (ZC)	0.00	0	0.00	BETL
RCH 996 BG II	0.00	0	0.00	BETL
SP7688 BGII	0.00	0	0.00	BETL
ARCH 3079 BG II	0.00	0	0.00	BETL
BG II Local Check	0.00	0	0.00	BETL
C 9393 BG II	0.00	0	0.00	BETL
ACH 955-2 BG II	0.00	0	0.00	BETL
ARCH 3181 BG II	0.00	0	0.00	BETL
BIO AHH 804 BG II	0.00	0	0.00	BETL
60 SS 66 BG II	0.00	0	0.00	BETL
RCH 990 BG II	0.00	0	0.00	BETL
US 708 BGII	0.00	0	0.00	BETL

Table: Initial H X H trial under Protected Conditions in South Zone – *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)			
	Dharwad	Perambalur	Mean	Remarks*
SP7680 BGII	0.00	0.00	0.00	BETL
MC 5461 BG II	0.00	0.00	0.00	BETL
SS-246 BG II	0.00	0.00	0.00	BETL
US 707 BGII	0.00	0.00	0.00	BETL
Indam 2092 BG II	0.00	0.00	0.00	BETL
Jadoo BG II (ZC)	0.00	0.00	0.00	BETL
RCH 996 BG II	0.00	0.00	0.00	BETL
SP7688 BGII	0.00	0.00	0.00	BETL
ARCH 3079 BG II	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	BETL
C 9393 BG II	0.00	0.00	0.00	BETL
ACH 955-2 BG II	0.00	0.00	0.00	BETL
ARCH 3181 BG II	0.00	0.00	0.00	BETL
BIO AHH 804 BG II	0.00	0.00	0.00	BETL
60 SS 66 BG II	0.00	0.00	0.00	BETL
RCH 990 BG II	0.00	0.00	0.00	BETL
US 708 BGII	0.00	0.00	0.00	BETL

Table: Initial H X H trial under Protected Conditions in South Zone – Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)			
	Dharwad	Perambalur	Mean	Remarks*
SP7680 BGII	0.00	0.00	0.0	BETL
MC 5461 BG II	0.00	0.00	0.0	BETL
SS-246 BG II	0.00	0.00	0.0	BETL
US 707 BGII	0.00	0.00	0.0	BETL
Indam 2092 BG II	0.00	0.00	0.0	BETL
Jadoo BG II (ZC)	0.00	0.00	0.0	BETL
RCH 996 BG II	0.00	0.00	0.0	BETL
SP7688 BGII	0.00	0.00	0.0	BETL
ARCH 3079 BG II	0.00	0.00	0.0	BETL
BG II Local Check	0.00	0.00	0.0	BETL
C 9393 BG II	0.00	0.00	0.0	BETL
ACH 955-2 BG II	0.00	0.00	0.0	BETL
ARCH 3181 BG II	0.00	0.00	0.0	BETL
BIO AHH 804 BG II	0.00	0.00	0.0	BETL
60 SS 66 BG II	0.00	0.00	0.0	BETL
RCH 990 BG II	0.00	0.00	0.0	BETL
US 708 BGII	0.00	0.00	0.0	BETL

Table: Initial H X H trial under Protected Conditions in South Zone – Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)		
	Dharwad	Mean	Remarks*
SP7680 BGII	13.68	13.68	AETL
MC 5461 BG II	13.08	13.08	AETL
SS-246 BG II	13.34	13.34	AETL
US 707 BGII	14.18	14.18	AETL
Indam 2092 BG II	14.41	14.41	AETL
Jadoo BG II (ZC)	15.28	15.28	AETL
RCH 996 BG II	13.44	13.44	AETL
SP7688 BGII	14.14	14.14	AETL
ARCH 3079 BG II	15.92	15.92	AETL
BG II Local Check	16.19	16.19	AETL
C 9393 BG II	16.51	16.51	AETL
ACH 955-2 BG II	14.46	14.46	AETL
ARCH 3181 BG II	14.86	14.86	AETL
BIO AHH 804 BG II	15.34	15.34	AETL
60 SS 66 BG II	14.93	14.93	AETL
RCH 990 BG II	15.19	15.19	AETL
US 708 BGII	14.93	14.93	AETL

Table: Initial H X H trial under Protected Conditions in South Zone – Green Boll damage

Name of Entry	Green Boll damage (%)				
	Dharwad	Nandyal	Perambalur	Mean	Remarks*
SP7680 BGII	0.00	51.67	0.00	17.2	AETL
MC 5461 BG II	0.00	51.67	0.00	17.2	AETL
SS-246 BG II	0.00	43.33	0.00	14.4	AETL
US 707 BGII	0.00	71.67	0.00	23.9	AETL
Indam 2092 BG II	0.00	61.67	0.00	20.6	AETL
Jadoo BG II (ZC)	0.00	51.67	0.00	17.2	AETL
RCH 996 BG II	0.00	55.00	0.00	18.3	AETL
SP7688 BGII	0.00	71.67	0.00	23.9	AETL
ARCH 3079 BG II	0.00	61.67	0.00	20.6	AETL
BG II Local Check	0.00	43.33	0.00	14.4	AETL
C 9393 BG II	0.00	58.33	0.00	19.4	AETL
ACH 955-2 BG II	0.00	51.67	0.00	17.2	AETL
ARCH 3181 BG II	0.00	38.33	0.00	12.8	AETL
BIO AHH 804 BG II	0.00	33.33	0.00	11.1	AETL
60 SS 66 BG II	0.00	41.67	0.00	13.9	AETL
RCH 990 BG II	0.00	48.33	0.00	16.1	AETL
US 708 BGII	0.00	38.33	0.00	12.8	AETL

Table: Initial H X H trial under Protected Conditions in South Zone – Open Boll damage

Name of Entry	Open Boll damage (%)			
	Dharwad	Nandyal	Mean	Remarks*
SP7680 BGII	24.97	57.70	41.33	AETL
MC 5461 BG II	25.38	54.40	39.89	AETL
SS-246 BG II	27.26	35.88	31.57	AETL
US 707 BGII	28.71	57.86	43.28	AETL
Indam 2092 BG II	28.24	57.70	42.97	AETL
Jadoo BG II (ZC)	29.49	54.14	41.82	AETL
RCH 996 BG II	28.28	46.95	37.61	AETL
SP7688 BGII	29.45	58.81	44.13	AETL
ARCH 3079 BG II	27.13	22.92	25.03	AETL
BG II Local Check	26.65	51.46	39.05	AETL
C 9393 BG II	26.69	49.10	37.89	AETL
ACH 955-2 BG II	27.11	57.71	42.41	AETL
ARCH 3181 BG II	27.32	53.26	40.29	AETL
BIO AHH 804 BG II	25.31	42.88	34.09	AETL
60 SS 66 BG II	25.06	45.34	35.20	AETL
RCH 990 BG II	24.52	64.63	44.58	AETL
US 708 BGII	24.27	56.08	40.18	AETL

Table: Initial H X H trial under Protected Conditions in South Zone – Locule damage

Name of Entry	Locule damage (%)			
	Dharwad	Nandyal	Perambalur	Mean
SP7680 BGII	15.30	28.26	0.00	14.52
MC 5461 BG II	15.40	40.26	0.00	18.55
SS-246 BG II	15.30	47.41	0.00	20.90
US 707 BGII	13.30	33.46	0.00	15.59
Indam 2092 BG II	17.50	43.60	0.00	20.37
Jadoo BG II (ZC)	15.20	41.90	0.00	19.03
RCH 996 BG II	16.40	35.93	0.00	17.44
SP7688 BGII	17.40	44.76	0.00	20.72
ARCH 3079 BG II	17.00	44.46	0.00	20.49
BG II Local Check	16.70	40.19	0.00	18.96
C 9393 BG II	16.40	33.46	0.00	16.62
ACH 955-2 BG II	17.20	35.85	0.00	17.68
ARCH 3181 BG II	18.10	39.23	0.00	19.11
BIO AHH 804 BG II	17.70	49.00	0.00	22.23
60 SS 66 BG II	17.80	21.40	0.00	13.07
RCH 990 BG II	16.70	53.56	0.00	23.42
US 708 BGII	17.70	26.79	0.00	14.83

Table: Initial H X H trial under Protected Conditions in South Zone – Number of sprays for sucking pests

Name of Entry	Sprays applied for sap sucking pests (Nos.)	
	Perambalur	Mean
SP7680 BGII	6.00	6.00
MC 5461 BG II	6.00	6.00
SS-246 BG II	6.00	6.00
US 707 BGII	6.00	6.00
Indam 2092 BG II	6.00	6.00
Jadoo BG II (ZC)	6.00	6.00
RCH 996 BG II	6.00	6.00
SP7688 BGII	6.00	6.00
ARCH 3079 BG II	6.00	6.00
BG II Local Check	6.00	6.00
C 9393 BG II	6.00	6.00
ACH 955-2 BG II	6.00	6.00
ARCH 3181 BG II	6.00	6.00
BIO AHH 804 BG II	6.00	6.00
60 SS 66 BG II	6.00	6.00
RCH 990 BG II	6.00	6.00
US 708 BGII	6.00	6.00

Reaction to Diseases

Table: Initial Evaluation Trial of Intra-Hirsutum Hybrids – Rainfed conditions(Protected: South Zone)

Entry	Average PDI & Disease Reaction (DR): Protected									
	Nandyal		Dharwad							
	ALB		ALB		BLB		GM		Rust	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
SP7680 BG II	31.7	MR	9.3	R	0.0	DF	0.0	DF	12.5	R
MC 5461 BG II	30.0	MR	10.8	R	0.0	DF	0.0	DF	12.3	R
SS-246 BG II	38.3	MR	9.4	R	0.0	DF	0.0	DF	12.4	R
US 707 BG II	38.3	MR	10.5	R	0.0	DF	0.0	DF	11.7	R
Indam 2092 BG II	43.3	MR	10.8	R	0.0	DF	0.0	DF	13.1	R
Jadoo BG II (ZC)	48.3	MR	11.9	R	0.0	DF	0.0	DF	12.5	R
RCH 996 BG II	48.3	MR	10.4	R	0.0	DF	0.0	DF	12.1	R
SP7688 BG II	46.7	MR	9.7	R	0.0	DF	0.0	DF	11.6	R
ARCH 3079 BG II	46.7	MR	10.6	R	0.0	DF	0.0	DF	12.6	R
BG II (LC)	38.3	MR	10.9	R	0.0	DF	0.0	DF	11.5	R
C 9393 BG II	38.3	MR	11.0	R	0.0	DF	0.0	DF	11.3	R
ACH 955-2 BG II	45.0	MR	10.5	R	0.0	DF	0.0	DF	12.0	R
ARCH 3181 BG II	45.0	MR	11.3	R	0.0	DF	0.0	DF	11.4	R
BIO AHH 804 BG II	46.7	MR	8.5	R	0.0	DF	0.0	DF	12.2	R
60 SS 66 BG II	18.3	R	10.0	R	0.0	DF	0.0	DF	12.1	R
RCH 990 BG II	45.0	MR	10.8	R	0.0	DF	0.0	DF	11.0	R
US 708 BG II	48.3	MR	11.0	R	0.0	DF	0.0	DF	11.8	R

Evaluation under Unprotected Condition for Insect pests & Diseases incidences

Reaction to Insect Pests

Table: Initial H X H trial under Unprotected Conditions in South Zone – Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)			
	Dharwad	Nandyal	Mean	Remarks*
SP7680 BGII	5.04	2.40	3.72	BETL
MC 5461 BG II	5.03	3.47	4.25	BETL
SS-246 BG II	5.22	2.93	4.08	BETL
US 707 BGII	4.91	2.60	3.76	BETL
Indam 2092 BG II	4.92	2.53	3.73	BETL
Jadoo BG II (ZC)	4.71	2.33	3.52	BETL
RCH 996 BG II	4.84	2.07	3.45	BETL
SP7688 BGII	4.84	2.93	3.89	BETL
ARCH 3079 BG II	4.97	2.07	3.52	BETL
BG II Local Check	5.16	2.60	3.88	BETL
C 9393 BG II	5.08	2.33	3.71	BETL
ACH 955-2 BG II	5.00	2.60	3.80	BETL
ARCH 3181 BG II	5.40	2.87	4.13	BETL
BIO AHH 804 BG II	5.53	2.67	4.10	BETL
60 SS 66 BG II	5.18	2.33	3.76	BETL
RCH 990 BG II	4.75	2.80	3.78	BETL
US 708 BGII	5.40	3.00	4.20	BETL

Table: Initial H X H trial under Unprotected Conditions in South Zone – Thrips

Name of Entry	Thrips(Average of 3 leaves/plant)			
	Dharwad	Nandyal	Mean	Remarks*
SP7680 BGII	16.07	0.00	8.04	BETL
MC 5461 BG II	15.32	0.00	7.66	BETL
SS-246 BG II	18.51	0.00	9.26	BETL
US 707 BGII	20.13	0.00	10.07	BETL
Indam 2092 BG II	18.45	0.60	9.53	BETL
Jadoo BG II (ZC)	17.61	0.40	9.01	BETL
RCH 996 BG II	15.03	0.40	7.72	BETL
SP7688 BGII	15.57	0.00	7.79	BETL
ARCH 3079 BG II	19.06	1.10	10.08	BETL
BG II Local Check	16.37	0.60	8.49	BETL
C 9393 BG II	19.27	0.00	9.64	BETL
ACH 955-2 BG II	17.43	1.10	9.27	BETL
ARCH 3181 BG II	19.06	0.00	9.53	BETL
BIO AHH 804 BG II	18.51	0.00	9.26	BETL
60 SS 66 BG II	18.29	0.40	9.35	BETL
RCH 990 BG II	18.62	0.40	9.51	BETL
US 708 BGII	18.47	0.00	9.24	BETL

Table: Initial H X H trial under Unprotected Conditions in South Zone – Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)			
	Dharwad	Nandyal	Mean	Remarks*
SP7680 BGII	2.55	0.27	1.41	BETL
MC 5461 BG II	2.57	0.13	1.35	BETL
SS-246 BG II	2.46	0.40	1.43	BETL
US 707 BGII	2.42	0.20	1.31	BETL
Indam 2092 BG II	2.44	0.27	1.35	BETL
Jadoo BG II (ZC)	2.19	0.40	1.30	BETL
RCH 996 BG II	2.37	0.07	1.22	BETL
SP7688 BGII	2.28	0.47	1.37	BETL
ARCH 3079 BG II	2.42	0.13	1.28	BETL
BG II Local Check	2.28	0.07	1.17	BETL
C 9393 BG II	2.46	0.47	1.46	BETL
ACH 955-2 BG II	2.29	0.53	1.41	BETL
ARCH 3181 BG II	2.47	0.27	1.37	BETL
BIO AHH 804 BG II	2.37	0.13	1.25	BETL
60 SS 66 BG II	2.37	0.33	1.35	BETL
RCH 990 BG II	2.26	0.47	1.36	BETL
US 708 BGII	2.41	0.40	1.41	BETL

Table: Initial H X H trial under Unprotected Conditions in South Zone – Natural Enemies

Name of Entry	Natural enemy (No./plant)	
	Nandyal	Mean
SP7680 BGII	0.00	0.00
MC 5461 BG II	0.07	0.07
SS-246 BG II	0.07	0.07
US 707 BGII	0.07	0.07
Indam 2092 BG II	0.07	0.07
Jadoo BG II (ZC)	0.00	0.00
RCH 996 BG II	0.00	0.00
SP7688 BGII	0.07	0.07
ARCH 3079 BG II	0.00	0.00
BG II Local Check	0.20	0.20
C 9393 BG II	0.00	0.00
ACH 955-2 BG II	0.00	0.00
ARCH 3181 BG II	0.00	0.00
BIO AHH 804 BG II	0.07	0.07
60 SS 66 BG II	0.00	0.00
RCH 990 BG II	0.00	0.00
US 708 BGII	0.07	0.07

Table: Initial H X H trial under Unprotected Conditions in South Zone – Bollworms - *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)		
	Dharwad	Mean	Remarks*
SP7680 BGII	0.00	0.00	BETL
MC 5461 BG II	0.00	0.00	BETL
SS-246 BG II	0.00	0.00	BETL
US 707 BGII	0.00	0.00	BETL
Indam 2092 BG II	0.00	0.00	BETL
Jadoo BG II (ZC)	0.00	0.00	BETL
RCH 996 BG II	0.00	0.00	BETL
SP7688 BGII	0.00	0.00	BETL
ARCH 3079 BG II	0.00	0.00	BETL
BG II Local Check	0.00	0.00	BETL
C 9393 BG II	0.00	0.00	BETL
ACH 955-2 BG II	0.00	0.00	BETL
ARCH 3181 BG II	0.00	0.00	BETL
BIO AHH 804 BG II	0.00	0.00	BETL
60 SS 66 BG II	0.00	0.00	BETL
RCH 990 BG II	0.00	0.00	BETL
US 708 BGII	0.00	0.00	BETL

Table: Initial H X H trial under Unprotected Conditions in South Zone – *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)		
	Dharwad	Mean	Remarks*
SP7680 BGII	0.00	0.00	BETL
MC 5461 BG II	0.00	0.00	BETL
SS-246 BG II	0.00	0.00	BETL
US 707 BGII	0.00	0.00	BETL
Indam 2092 BG II	0.00	0.00	BETL
Jadoo BG II (ZC)	0.00	0.00	BETL
RCH 996 BG II	0.00	0.00	BETL
SP7688 BGII	0.00	0.00	BETL
ARCH 3079 BG II	0.00	0.00	BETL
BG II Local Check	0.00	0.00	BETL
C 9393 BG II	0.00	0.00	BETL
ACH 955-2 BG II	0.00	0.00	BETL
ARCH 3181 BG II	0.00	0.00	BETL
BIO AHH 804 BG II	0.00	0.00	BETL
60 SS 66 BG II	0.00	0.00	BETL
RCH 990 BG II	0.00	0.00	BETL
US 708 BGII	0.00	0.00	BETL

Table: Initial H X H trial under Unprotected Conditions in South Zone – Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)		
	Dharwad	Mean	Remarks*
SP7680 BGII	0.00	0.00	BETL
MC 5461 BG II	0.00	0.00	BETL
SS-246 BG II	0.00	0.00	BETL
US 707 BGII	0.00	0.00	BETL
Indam 2092 BG II	0.00	0.00	BETL
Jadoo BG II (ZC)	0.00	0.00	BETL
RCH 996 BG II	0.00	0.00	BETL
SP7688 BGII	0.00	0.00	BETL
ARCH 3079 BG II	0.00	0.00	BETL
BG II Local Check	0.00	0.00	BETL
C 9393 BG II	0.00	0.00	BETL
ACH 955-2 BG II	0.00	0.00	BETL
ARCH 3181 BG II	0.00	0.00	BETL
BIO AHH 804 BG II	0.00	0.00	BETL
60 SS 66 BG II	0.00	0.00	BETL
RCH 990 BG II	0.00	0.00	BETL
US 708 BGII	0.00	0.00	BETL

Table20: Initial H X H trial under Unprotected Conditions in South Zone – Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)		
	Dharwad	Mean	Remarks*
SP7680 BGII	18.09	18.09	AETL
MC 5461 BG II	15.38	15.38	AETL
SS-246 BG II	16.77	16.77	AETL
US 707 BGII	17.17	17.17	AETL
Indam 2092 BG II	15.65	15.65	AETL
Jadoo BG II (ZC)	18.87	18.87	AETL
RCH 996 BG II	16.14	16.14	AETL
SP7688 BGII	14.63	14.63	AETL
ARCH 3079 BG II	17.92	17.92	AETL
BG II Local Check	18.30	18.30	AETL
C 9393 BG II	20.22	20.22	AETL
ACH 955-2 BG II	16.30	16.30	AETL
ARCH 3181 BG II	18.94	18.94	AETL
BIO AHH 804 BG II	17.03	17.03	AETL
60 SS 66 BG II	18.83	18.83	AETL
RCH 990 BG II	17.41	17.41	AETL
US 708 BGII	18.14	18.14	AETL

Table: Initial H X H trial under Unprotected Conditions in South Zone – Green Boll damage

Name of Entry	Green Boll damage (%)			
	Dharwad	Nandyal	Mean	Remarks*
SP7680 BGII	0.00	51.67	25.83	AETL
MC 5461 BG II	0.00	51.67	25.83	AETL
SS-246 BG II	0.00	43.33	21.67	AETL
US 707 BGII	0.00	71.67	35.83	AETL
Indam 2092 BG II	0.00	61.67	30.83	AETL
Jadoo BG II (ZC)	0.00	51.67	25.83	AETL
RCH 996 BG II	0.00	55.00	27.50	AETL
SP7688 BGII	0.00	71.67	35.83	AETL
ARCH 3079 BG II	0.00	61.67	30.83	AETL
BG II Local Check	0.00	43.33	21.67	AETL
C 9393 BG II	0.00	58.33	29.17	AETL
ACH 955-2 BG II	0.00	51.67	25.83	AETL
ARCH 3181 BG II	0.00	38.33	19.17	AETL
BIO AHH 804 BG II	0.00	33.33	16.67	AETL
60 SS 66 BG II	0.00	41.67	20.83	AETL
RCH 990 BG II	0.00	48.33	24.17	AETL
US 708 BGII	0.00	38.33	19.17	AETL

Table: Initial H X H trial under Unprotected Conditions in South Zone – Open Boll damage

Name of Entry	Open Boll damage (%)			
	Dharwad	Nandyal	Mean	Remarks*
SP7680 BGII	27.30	57.70	42.50	AETL
MC 5461 BG II	25.89	54.40	40.14	AETL
SS-246 BG II	26.89	35.88	31.38	AETL
US 707 BGII	26.45	57.86	42.15	AETL
Indam 2092 BG II	25.54	57.70	41.62	AETL
Jadoo BG II (ZC)	28.55	54.14	41.35	AETL
RCH 996 BG II	27.43	46.95	37.19	AETL
SP7688 BGII	26.98	58.81	42.89	AETL
ARCH 3079 BG II	26.52	22.92	24.72	AETL
BG II Local Check	25.78	51.46	38.62	AETL
C 9393 BG II	26.15	49.10	37.62	AETL
ACH 955-2 BG II	28.79	57.71	43.25	AETL
ARCH 3181 BG II	28.13	53.26	40.70	AETL
BIO AHH 804 BG II	26.85	42.88	34.86	AETL
60 SS 66 BG II	26.82	45.34	36.08	AETL
RCH 990 BG II	27.26	64.63	45.95	AETL
US 708 BGII	26.97	56.08	41.53	AETL

Table: Initial H X H trial under Unprotected Conditions in South Zone – Locule damage

Name of Entry	Locule damage (%)		
	Dharwad	Nandyal	Mean
SP7680 BGII	16.40	28.26	22.33
MC 5461 BG II	16.40	40.26	28.33
SS-246 BG II	16.10	47.41	31.76
US 707 BGII	14.60	33.46	24.03
Indam 2092 BG II	18.40	43.60	31.00
Jadoo BG II (ZC)	16.80	41.90	29.35
RCH 996 BG II	17.40	35.93	26.67
SP7688 BGII	18.20	44.76	31.48
ARCH 3079 BG II	17.50	44.46	30.98
BG II Local Check	17.60	40.19	28.89
C 9393 BG II	17.30	33.46	25.38
ACH 955-2 BG II	18.30	35.85	27.08
ARCH 3181 BG II	18.20	39.23	28.72
BIO AHH 804 BG II	18.80	49.00	33.90
60 SS 66 BG II	19.10	21.40	20.25
RCH 990 BG II	18.00	53.56	35.78
US 708 BGII	18.90	26.79	22.84

Reaction to Diseases

Table: Initial Evaluation Trial of Intra-Hirsutum Hybrids – Rainfed under unprotected conditions

Entry	Average PDI & Disease Reaction (DR): Unprotected (Dharwad)							
	ALB		BLB		GM		Rust	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR
SP7680 BG II	23.1	R	0.0	DF	0.0	DF	20.6	R
MC 5461 BG II	26.6	MR	0.0	DF	0.0	DF	24.5	R
SS-246 BG II	21.6	R	0.0	DF	0.0	DF	23.4	R
US 707 BG II	19.4	R	0.0	DF	19.3	R	24.1	R
Indam 2092 BG II	24.9	R	0.0	DF	0.0	DF	24.2	R
Jadoo BG II (ZC)	23.1	R	0.0	DF	0.0	DF	24.9	R
RCH 996 BG II	23.0	R	0.0	DF	0.0	DF	24.8	R
SP7688 BG II	23.1	R	0.0	DF	19.3	R	24.0	R
ARCH 3079 BG II	26.0	MR	0.0	DF	0.0	DF	29.5	MR
BG II (LC)	24.9	R	0.0	DF	0.0	DF	25.1	MR
C 9393 BG II	23.9	R	0.0	DF	0.0	DF	27.4	MR
ACH 955-2 BG II	22.0	R	0.0	DF	0.0	DF	25.3	MR
ARCH 3181 BG II	23.2	R	0.0	DF	0.0	DF	25.0	R
BIO AHH 804 BG II	23.9	R	0.0	DF	0.0	DF	25.3	MR
60 SS 66 BG II	23.6	R	0.0	DF	0.0	DF	24.4	R
RCH 990 BG II	22.9	R	0.0	DF	0.0	DF	24.0	R
US 708 BG II	23.1	R	0.0	DF	0.0	DF	22.0	R

Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids in South Zone under Rainfed Condition (2020-21)

Constitution of Trial

The trial was constituted with 10 Bt cotton hybrids containing MON 15985 event sponsored by various organization along with two different check hybrids as furnished below.

S. No.	Name of the Entry	Sponsored by
1	GBCH 1801 BG II	Green Gold Seeds Pvt Ltd
2	RCH 962 BG II	Rasi Seeds Pvt Ltd
3	**Jadoo BG II (ZC)**	
4	ARCH 3001 BG II	Ankur Seeds Pvt Ltd
5	VSCH 234 BG II	Veda Seed Science Pvt Ltd
6	MC 5441 BG II	Metahelix
7	G COT HY 12 BG II*	NAU, Surat
8	US 704 BG II	Seed Works International Pvt Ltd
9	**BG II Local Check**	
10	RCH 969 BG II	Rasi Seeds Pvt Ltd
11	ARCH 3106 BG II	Ankur Seeds Pvt Ltd
12	SP 7686 BG II	Bayer Biosciences Pvt Ltd.

*Recorded very poor germination in all the centres

The trial was conducted in five different locations and detail is furnished below.

Name of the trial location	Dharwad	Nandyal	Mudhole	Adilabad	Perambalur
Local check Bt hybrid	NCS 954 BG II	NCS 245 BG II	NCS 854 BG II	NCS 854 BG II	NCS 954 BG II

Spacing: Recommended spacing for the hybrid has been followed.

Number of rows:4 rows of 6 meters per entry with three replications

Data recorded:

Biometric evaluation

Plant height (cm) at harvest in Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	GBCH 1801 BG II	128.9	173.3	128.0	107.5	143.6	**136.3**
2	RCH 962 BG II	126.4	157.2	108.2	89.6	126.1	**121.5**
3	**Jadoo BG II (ZC)**	147.5	179.3	104.0	118.4	152.7	**140.4**
4	ARCH 3001 BG II	142.2	163.7	84.0	105.1	140.3	**127.1**
5	VSCH 234 BG II	145.1	167.7	89.0	111.9	142.8	**131.3**
6	MC 5441 BG II	136.0	174.3	81.0	113.1	156.3	**132.1**
7	G COT HY 12 BG II	-	-	-	93.1	-	**93.1**
8	US 704 BG II	147.6	173.4	72.6	97.9	155.8	**129.5**
9	**BG II Local Check**	138.7	166.3	58.8	104.5	151.8	**124.0**
10	RCH 969 BG II	148.4	183.3	89.0	111.6	138.1	**134.1**
11	ARCH 3106 BG II	139.5	191.9	78.0	108.0	145.8	**132.6**
12	SP 7686 BG II	117.5	155.6	78.0	105.9	121.1	**115.6**
	CD @ 5%	14.3				16.4	
	CV %	6.0				8.5	

Number of monopodia in Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	GBCH 1801 BG II	1.9	0.9	0.4	1.9	1.6	**1.3**
2	RCH 962 BG II	1.4	1.1	0.8	1.2	1.2	**1.1**
3	**Jadoo BG II (ZC)**	2.5	0.7	0.0	2.0	1.4	**1.3**
4	ARCH 3001 BG II	2.1	0.9	0.4	1.6	1.8	**1.4**
5	VSCH 234 BG II	1.5	0.5	0.4	1.5	1.7	**1.1**
6	MC 5441 BG II	2.7	1.2	0.6	2.3	2.9	**1.9**
7	G COT HY 12 BG II	-	-	-	1.8	-	**1.8**
8	US 704 BG II	1.8	0.7	1.0	1.9	1.7	**1.4**
9	**BG II Local Check**	2.6	1.1	0.6	1.9	1.7	**1.6**
10	RCH 969 BG II	2.3	0.9	0.0	1.5	2.2	**1.4**
11	ARCH 3106 BG II	2.5	1.4	0.4	2.3	2.6	**1.8**
12	SP 7686 BG II	2.7	0.6	1.2	2.3	2.4	**1.8**
	CD @ 5%	0.6				0.3	
	CV %	16.0				11.2	

Number of sympodia in Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	GBCH 1801 BG II	12.7	17.5	18.0	18.6	21.0	**17.6**
2	RCH 962 BG II	7.2	18.9	14.8	16.3	21.4	**15.7**
3	**Jadoo BG II (ZC)**	13.7	19.1	15.4	20.5	25.1	**18.8**
4	ARCH 3001 BG II	10.7	18.7	12.0	18.5	20.8	**16.1**
5	VSCH 234 BG II	12.3	19.4	17.8	19.9	23.4	**18.6**
6	MC 5441 BG II	13.5	19.1	12.6	18.8	26.7	**18.1**
7	G COT HY 12 BG II	-	-	-	18.2	-	**18.2**
8	US 704 BG II	10.7	20.3	10.4	16.6	26.4	**16.9**
9	**BG II Local Check**	13.1	21.2	8.6	18.3	24.6	**17.2**
10	RCH 969 BG II	9.6	18.2	11.8	21.2	21.6	**16.5**
11	ARCH 3106 BG II	16.7	19.9	12.4	19.3	23.2	**18.3**
12	SP 7686 BG II	13.5	14.6	11.8	17.5	19.3	**15.3**
	CD @ 5%	3.3				2.8	
	CV %	15.7				8.9	

Number of bolls / plant in Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	GBCH 1801 BG II	20.1	22.9	14.7	9.3	28.3	**19.1**
2	RCH 962 BG II	16.4	12.0	12.0	7.5	25.4	**14.7**
3	**Jadoo BG II (ZC)**	20.7	17.2	12.1	10.5	30.9	**18.3**
4	ARCH 3001 BG II	21.5	24.4	10.5	8.4	27.9	**18.5**
5	VSCH 234 BG II	23.7	28.2	12.0	5.0	24.4	**18.7**
6	MC 5441 BG II	22.1	21.7	12.1	9.5	40.4	**21.2**
7	G COT HY 12 BG II	-	-	-	9.7	-	**9.7**
8	US 704 BG II	21.5	28.1	11.3	7.5	35.1	**20.7**
9	**BG II Local Check**	19.4	18.1	10.1	8.7	32.8	**17.8**
10	RCH 969 BG II	14.9	17.9	13.0	8.5	32.8	**17.4**
11	ARCH 3106 BG II	17.7	21.5	13.5	8.3	35.1	**19.2**
12	SP 7686 BG II	20.7	13.6	18.0	8.1	28.2	**17.7**
	CD @ 5%	2.3				4.7	
	CV %	6.8				11.2	

Number of bolls / sq.m.in Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	GBCH 1801 BG II	104.3	109.7	62.0	100.3	45.4	**84.3**
2	RCH 962 BG II	83.7	47.0	35.0	92.3	42.0	**60.0**
3	**Jadoo BG II (ZC)**	99.7	78.7	48.0	123.3	48.7	**79.7**
4	ARCH 3001 BG II	100.0	118.0	34.0	95.7	46.7	**78.9**
5	VSCH 234 BG II	112.0	141.0	50.0	66.0	34.4	**80.7**
6	MC 5441 BG II	98.0	104.7	42.0	113.3	61.3	**83.9**
7	G COT HY 12 BG II	-	-	-	101.7	-	**101.7**
8	US 704 BG II	95.3	138.0	43.0	92.0	52.4	**84.1**
9	**BG II Local Check**	82.3	83.0	52.0	96.3	50.1	**72.7**
10	RCH 969 BG II	64.7	82.0	54.0	95.3	49.4	**69.1**
11	ARCH 3106 BG II	83.3	101.3	38.0	83.3	56.2	**72.4**
12	SP 7686 BG II	92.0	57.0	74.0	101.7	42.2	**73.4**
	CD @ 5%	12.7				4.0	
	CV %	8.0				6.3	

Lint Index (g) in Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	GBCH 1801 BG II	5.3	5.3	5.3	6.1	5.3	**5.5**
2	RCH 962 BG II	6.0	5.8	6.2	6.5	5.3	**6.0**
3	**Jadoo BG II (ZC)**	5.5	4.5	5.1	6.7	5.2	**5.4**
4	ARCH 3001 BG II	5.0	4.8	5.4	5.4	5.7	**5.3**
5	VSCH 234 BG II	5.9	4.7	6.3	6.5	5.3	**5.7**
6	MC 5441 BG II	5.1	4.0	5.3	7.0	5.3	**5.3**
7	G COT HY 12 BG II	-	-	-	6.7	-	**6.7**
8	US 704 BG II	5.9	6.0	5.7	6.4	5.2	**5.8**
9	**BG II Local Check**	4.8	4.7	5.2	6.6	5.6	**5.4**
10	RCH 969 BG II	5.8	4.9	6.3	6.8	5.3	**5.8**
11	ARCH 3106 BG II	6.1	5.8	4.6	6.0	5.4	**5.6**
12	SP 7686 BG II	5.2	5.2	5.9	6.6	5.1	**5.6**
	CD @ 5%	0.7				0.2	
	CV %	7.0				2.4	

Seed Index (g) in Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	GBCH 1801 BG II	10.5	8.3	9.5	10.0	12.4	**10.1**
2	RCH 962 BG II	10.6	9.3	11.2	11.5	12.6	**11.0**
3	**Jadoo BG II (ZC)**	9.1	6.9	10.0	10.5	13.5	**10.0**
4	ARCH 3001 BG II	9.8	8.7	8.7	9.0	12.5	**9.7**
5	VSCH 234 BG II	10.3	8.4	11.8	11.0	13.5	**11.0**
6	MC 5441 BG II	10.3	7.0	10.3	11.0	12.8	**10.3**
7	G COT HY 12 BG II	-	-	-	12.0	-	**12.0**
8	US 704 BG II	11.3	9.9	10.3	10.0	13.1	**10.9**
9	**BG II Local Check**	9.9	9.3	9.5	11.0	13.3	**10.6**
10	RCH 969 BG II	10.4	7.7	11.3	12.0	12.6	**10.8**
11	ARCH 3106 BG II	9.7	9.1	9.4	0.5	13.6	**8.5**
12	SP 7686 BG II	8.6	8.1	10.0	9.5	12.9	**9.8**
	CD @ 5%	1.2				0.3	
	CV %	7.1				1.9	

Ginning outturn (%) in Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	GBCH 1801 BG II	33.8	39.0	34.0	37.9	32.6	**35.5**
2	RCH 962 BG II	36.2	38.4	36.1	36.0	35.5	**36.4**
3	**Jadoo BG II (ZC)**	37.7	39.7	33.1	39.0	33.4	**36.6**
4	ARCH 3001 BG II	33.8	35.6	34.8	37.5	34.4	**35.2**
5	VSCH 234 BG II	36.2	36.1	33.8	37.2	35.3	**35.7**
6	MC 5441 BG II	33.3	36.3	33.5	39.0	33.4	**35.1**
7	G COT HY 12 BG II	-	-	-	35.7	-	**35.7**
8	US 704 BG II	34.2	37.9	33.1	39.0	34.5	**35.7**
9	**BG II Local Check**	32.7	33.5	34.9	37.5	33.9	**34.5**
10	RCH 969 BG II	35.9	38.9	33.8	36.2	32.8	**35.5**
11	ARCH 3106 BG II	38.7	39.1	33.4	36.2	36.4	**36.8**
12	SP 7686 BG II	37.7	39.0	37.8	41.1	34.4	**38.0**
	CD @ 5%	2.7				2.2	
	CV %	4.4				4.7	

Upper Half Mean Length (mm) under HVI Mode in Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Nandyal	Dharwad	Perambalur	Mean
1	GBCH 1801 BG II	27.7	27.9	29.2	31.9	**29.2**
2	RCH 962 BG II	28.7	27.9	30.0	31.6	**29.6**
3	**Jadoo BG II (ZC)**	29.0	28.8	29.9	31.9	**29.9**
4	ARCH 3001 BG II	25.7	25.1	28.7	27.8	**26.8**
5	VSCH 234 BG II	28.0	27.2	29.4	31.2	**29.0**
6	MC 5441 BG II	24.9	25.0	26.2	28.6	**26.2**
7	G COT HY 12 BG II	-	-	29.3	-	**29.3**
8	US 704 BG II	29.5	27.6	31.2	32.4	**30.2**
9	**BG II Local Check**	28.4	27.2	29.5	31.8	**29.2**
10	RCH 969 BG II	27.3	28.2	30.1	31.2	**29.2**
11	ARCH 3106 BG II	25.9	26.2	27.8	29.5	**27.4**
12	SP 7686 BG II	26.4	27.0	29.7	31.1	**28.6**

Uniformity index under HVI Mode in Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Nandyal	Dharwad	Perambalur	Mean
1	GBCH 1801 BG II	83.0	83.0	84.0	85.0	**83.8**
2	RCH 962 BG II	85.0	84.0	85.0	87.0	**85.3**
3	**Jadoo BG II (ZC)**	85.0	83.0	86.0	87.0	**85.3**
4	ARCH 3001 BG II	84.0	80.0	85.0	85.0	**83.5**
5	VSCH 234 BG II	83.0	83.0	85.0	85.0	**84.0**
6	MC 5441 BG II	84.0	82.0	85.0	84.0	**83.8**
7	G COT HY 12 BG II	-	-	87.0	-	**87.0**
8	US 704 BG II	83.0	83.0	85.0	86.0	**84.3**
9	**BG II Local Check**	84.0	82.0	85.0	85.0	**84.0**
10	RCH 969 BG II	85.0	83.0	86.0	87.0	**85.3**
11	ARCH 3106 BG II	84.0	84.0	86.0	86.0	**85.0**
12	SP 7686 BG II	82.0	82.0	83.0	86.0	**83.3**

Micronaire under HVI Mode in Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Nandyal	Dharwad	Perambalur	Mean
1	GBCH 1801 BG II	4.2	4.8	4.7	5.2	**4.7**
2	RCH 962 BG II	4.2	4.3	4.2	4.7	**4.4**
3	**Jadoo BG II (ZC)**	5.1	4.8	4.8	5.4	**5.0**
4	ARCH 3001 BG II	5.1	4.9	4.6	5.1	**4.9**
5	VSCH 234 BG II	4.3	4.2	4.3	4.4	**4.3**
6	MC 5441 BG II	5.1	5.4	5.1	5.6	**5.3**
7	G COT HY 12 BG II	-	-	4.2	-	**4.2**
8	US 704 BG II	4.8	4.2	4.1	4.2	**4.3**
9	**BG II Local Check**	4.1	4.5	4.3	5.0	**4.5**
10	RCH 969 BG II	4.2	4.4	3.8	4.4	**4.2**
11	ARCH 3106 BG II	4.5	4.5	4.2	4.5	**4.4**
12	SP 7686 BG II	4.0	4.1	3.7	4.6	**4.1**

Tenacity under HVI Mode in Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Nandyal	Dharwad	Perambalur	Mean
1	GBCH 1801 BG II	29.5	28.5	25.7	31.2	**28.7**
2	RCH 962 BG II	27.5	27.3	26.7	29.8	**27.8**
3	**Jadoo BG II (ZC)**	28.0	30.3	26.6	27.9	**28.2**
4	ARCH 3001 BG II	25.1	25.6	26.5	27.5	**26.2**
5	VSCH 234 BG II	25.9	27.1	26.1	27.7	**26.7**
6	MC 5441 BG II	26.5	26.4	25.7	27.7	**26.6**
7	G COT HY 12 BG II	-	-	27.1	-	**27.1**
8	US 704 BG II	27.0	26.9	27.3	29.2	**27.6**
9	**BG II Local Check**	27.1	27.5	26.0	28.0	**27.2**
10	RCH 969 BG II	27.0	28.3	27.8	31.3	**28.6**
11	ARCH 3106 BG II	26.6	27.4	26.3	30.5	**27.7**
12	SP 7686 BG II	25.7	26.9	26.3	26.1	**26.3**

Seed Cotton Yield (q/ha) in Advanced Evaluation Trial (I) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean	Rank
1	GBCH 1801 BG II	19.56	17.69	15.40	8.78	13.40	**14.97**	3
2	RCH 962 BG II	14.19	10.09	11.37	5.67	19.29	**12.12**	11
3	**Jadoo BG II (ZC)**	17.44	13.79	9.17	8.03	17.89	**13.26**	9
4	ARCH 3001 BG II	18.47	18.49	8.25	7.79	16.73	**13.95**	6
5	VSCH 234 BG II	22.20	21.52	13.75	5.50	16.97	**15.99**	2
6	MC 5441 BG II	16.84	12.60	12.65	9.51	22.36	**14.79**	4
7	G COT HY 12 BG II	-	-	-	1.59	-	**1.59**	12
8	US 704 BG II	18.57	28.70	8.44	6.83	18.81	**16.27**	1
9	**BG II Local Check**	16.78	10.73	10.64	8.53	20.58	**13.45**	8
10	RCH 969 BG II	12.63	10.66	13.94	6.66	16.77	**12.13**	10
11	ARCH 3106 BG II	16.01	16.77	11.92	6.20	17.37	**13.65**	7
12	SP 7686 BG II	17.62	12.83	18.34	7.38	16.93	**14.62**	5
	CD @ 5%	2.58	3.43		1.29	1.85		
	CV %	8.70	12.60		10.90	7.71		

Qualitative Cry Protein Evaluation

All the above entries were positive for Cry 1Ac Protein in qualitative ELISA Test

All the above entries were positive for Cry 2Ab Protein in qualitative ELISA Test

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect Pests

Table: .Advance H X H trial I under Protected Conditions in South Zone – Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)			
	Dharwad	Perambalur	Mean	Remarks*
GBCH 1801 BG II	2.77	0.91	1.84	BETL
RCH 962 BG II	2.86	1.00	1.93	BETL
Jadoo BG II (ZC)	3.25	0.80	2.03	BETL
ARCH 3001 BG II	3.43	1.27	2.35	BETL
VSCH 234 BG II	3.23	0.76	1.99	BETL
MC 5441 BG II	3.11	1.04	2.08	BETL
G COT HY 12 BG II	3.57		3.57	BETL
US 704 BG II	3.27	1.01	2.14	BETL
BG II Local Check	3.57	1.16	2.37	BETL
RCH 969 BG II	2.99	0.98	1.99	BETL
ARCH 3106 BG II	4.76	1.04	2.90	BETL
SP 7686 BG II	3.69	1.06	2.37	BETL

Table: .Advance H X H trial I under Protected Conditions in South Zone – Thrips

Name of Entry	Thrips(Average of 3 leaves/plant)			
	Dharwad	Perambalur	Mean	Remarks*
GBCH 1801 BG II	2.42	1.00	1.71	BETL
RCH 962 BG II	2.12	0.79	1.45	BETL
Jadoo BG II (ZC)	3.10	1.10	2.10	BETL
ARCH 3001 BG II	2.51	1.39	1.95	BETL
VSCH 234 BG II	3.93	1.23	2.58	BETL
MC 5441 BG II	2.45	1.20	1.82	BETL
G COT HY 12 BG II	2.47		2.47	BETL
US 704 BG II	2.57	0.92	1.75	BETL
BG II Local Check	2.44	0.94	1.69	BETL
RCH 969 BG II	2.92	1.19	2.05	BETL
ARCH 3106 BG II	2.89	0.99	1.94	BETL
SP 7686 BG II	2.73	0.90	1.82	BETL

Table: .Advance H X H trial I under Protected Conditions in South Zone – Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)			
	Dharwad	Perambalur	Mean	Remarks*
GBCH 1801 BG II	1.81	1.94	1.87	BETL
RCH 962 BG II	1.47	1.36	1.41	BETL
Jadoo BG II (ZC)	1.44	2.26	1.85	BETL
ARCH 3001 BG II	2.13	2.06	2.09	BETL
VSCH 234 BG II	2.02	1.55	1.79	BETL
MC 5441 BG II	1.93	2.42	2.18	BETL
G COT HY 12 BG II	2.26		2.26	BETL
US 704 BG II	1.99	2.27	2.13	BETL
BG II Local Check	2.00	2.33	2.17	BETL
RCH 969 BG II	2.02	1.63	1.83	BETL
ARCH 3106 BG II	1.87	1.78	1.83	BETL
SP 7686 BG II	1.78	1.73	1.76	BETL

Table: Advance H X H trial I under Protected Conditions in South Zone – Natural Enemies

Name of Entry	Natural enemy (No./plant)	
	Perambalur	Mean
GBCH 1801 BG II	5.00	5.00
RCH 962 BG II	4.00	4.00
Jadoo BG II (ZC)	2.00	2.00
ARCH 3001 BG II	7.00	7.00
VSCH 234 BG II	5.00	5.00
MC 5441 BG II	4.00	4.00
G COT HY 12 BG II		
US 704 BG II	1.00	1.00
BG II Local Check	2.00	2.00
RCH 969 BG II	7.00	7.00
ARCH 3106 BG II	2.00	2.00
SP 7686 BG II	5.00	5.00

Table: Advance H X H trial under Protected Conditions in South Zone – Bollworms - *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)		
	Perambalur	Mean	Remarks*
GBCH 1801 BG II	0.00	0.00	BETL
RCH 962 BG II	0.00	0.00	BETL
Jadoo BG II (ZC)	0.00	0.00	BETL
ARCH 3001 BG II	0.00	0.00	BETL
VSCH 234 BG II	0.00	0.00	BETL
MC 5441 BG II	0.00	0.00	BETL
G COT HY 12 BG II			BETL
US 704 BG II	0.00	0.00	BETL
BG II Local Check	0.00	0.00	BETL
RCH 969 BG II	0.00	0.00	BETL
ARCH 3106 BG II	0.00	0.00	BETL
SP 7686 BG II	0.00	0.00	BETL

Table: Advance H X H trial under Protected Conditions in South Zone – *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)		
	Perambalur	Mean	Remarks*
GBCH 1801 BG II	0.00	0.00	BETL
RCH 962 BG II	0.00	0.00	BETL
Jadoo BG II (ZC)	0.00	0.00	BETL
ARCH 3001 BG II	0.00	0.00	BETL
VSCH 234 BG II	0.00	0.00	BETL
MC 5441 BG II	0.00	0.00	BETL
G COT HY 12 BG II			BETL
US 704 BG II	0.00	0.00	BETL
BG II Local Check	0.00	0.00	BETL
RCH 969 BG II	0.00	0.00	BETL
ARCH 3106 BG II	0.00	0.00	BETL
SP 7686 BG II	0.00	0.00	BETL

Table: .Advance H X H trial under Protected Conditions in South Zone – Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)		
	Perambalur	Mean	Remarks*
GBCH 1801 BG II	0.00	0.00	BETL
RCH 962 BG II	0.00	0.00	BETL
Jadoo BG II (ZC)	0.00	0.00	BETL
ARCH 3001 BG II	0.00	0.00	BETL
VSCH 234 BG II	0.00	0.00	BETL
MC 5441 BG II	0.00	0.00	BETL
G COT HY 12 BG II			BETL
US 704 BG II	0.00	0.00	BETL
BG II Local Check	0.00	0.00	BETL
RCH 969 BG II	0.00	0.00	BETL
ARCH 3106 BG II	0.00	0.00	BETL
SP 7686 BG II	0.00	0.00	BETL

Table: .Advance H X H trial under Protected Conditions in South Zone – Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)		
	Dharwad	Mean	Remarks*
GBCH 1801 BG II	26.30	26.30	AETL
RCH 962 BG II	26.30	26.30	AETL
Jadoo BG II (ZC)	24.00	24.00	AETL
ARCH 3001 BG II	29.00	29.00	AETL
VSCH 234 BG II	26.00	26.00	AETL
MC 5441 BG II	29.60	29.60	AETL
G COT HY 12 BG II	25.60	25.60	AETL
US 704 BG II	26.80	26.80	AETL
BG II Local Check	25.00	25.00	AETL
RCH 969 BG II	25.20	25.20	AETL
ARCH 3106 BG II	24.20	24.20	AETL
SP 7686 BG II	27.70	27.70	AETL

Table: .Advance H X H trial under Protected Conditions in South Zone – Green Boll damage

Name of Entry	Green Boll damage (%)			
	Nandyal	Perambalur	Mean	Remarks*
GBCH 1801 BG II	56.67	0.00	28.33	AETL
RCH 962 BG II	66.67	0.00	33.33	AETL
Jadoo BG II (ZC)	56.67	0.00	28.33	AETL
ARCH 3001 BG II	**38.33**	0.00	19.17	AETL
VSCH 234 BG II	55.00	0.00	27.50	AETL
MC 5441 BG II	45.00	0.00	22.50	AETL
G COT HY 12 BG II	53.33		53.33	AETL
US 704 BG II	50.00	0.00	25.00	AETL
BG II Local Check	50.00	0.00	25.00	AETL
RCH 969 BG II	56.67	0.00	28.33	AETL
ARCH 3106 BG II	50.00	0.00	25.00	AETL
SP 7686 BG II	50.00	0.00	25.00	AETL

Table: .Advance H X H trial under Protected Conditions in South Zone – Open Boll damage

Name of Entry	Open Boll damage (%)		
	Dharwad	Mean	Remarks*
GBCH 1801 BG II	14.30	14.30	AETL
RCH 962 BG II	12.70	12.70	AETL
Jadoo BG II (ZC)	12.70	12.70	AETL
ARCH 3001 BG II	13.70	13.70	AETL
VSCH 234 BG II	15.70	15.70	AETL
MC 5441 BG II	13.30	13.30	AETL
G COT HY 12 BG II	11.70	11.70	AETL
US 704 BG II	11.70	11.70	AETL
BG II Local Check	11.70	11.70	AETL
RCH 969 BG II	11.70	11.70	AETL
ARCH 3106 BG II	12.70	12.70	AETL
SP 7686 BG II	11.70	11.70	AETL

Table: Advance H X H trial under Protected Conditions in South Zone – Locule damage

Name of Entry	Locule damage (%)		
	Dharwad	Perambalur	Mean
GBCH 1801 BG II	13.90	0.00	6.95
RCH 962 BG II	14.90	0.00	7.45
Jadoo BG II (ZC)	16.70	0.00	8.35
ARCH 3001 BG II	14.30	0.00	7.15
VSCH 234 BG II	18.10	0.00	9.05
MC 5441 BG II	16.90	0.00	8.45
G COT HY 12 BG II	14.50		14.50
US 704 BG II	18.30	0.00	9.15
BG II Local Check	15.30	0.00	7.65
RCH 969 BG II	14.50	0.00	7.25
ARCH 3106 BG II	14.90	0.00	7.45
SP 7686 BG II	16.80	0.00	8.40

Table: .Advance H X H trial I under Protected Conditions in South Zone – Number of sprays for sucking pests

Name of Entry	Sprays applied for sap sucking pests (Nos.)	
	Perambalur	Mean
GBCH 1801 BG II	6.00	6.00
RCH 962 BG II	6.00	6.00
Jadoo BG II (ZC)	6.00	6.00
ARCH 3001 BG II	6.00	6.00
VSCH 234 BG II	6.00	6.00
MC 5441 BG II	6.00	6.00
G COT HY 12 BG II	6.00	6.00
US 704 BG II	6.00	6.00
BG II Local Check	6.00	6.00
RCH 969 BG II	6.00	6.00
ARCH 3106 BG II	6.00	6.00
SP 7686 BG II	6.00	6.00

Reaction to Diseases

Table: Advanced Evaluation Trial of Intra-hirsutum Hybrids-I – Rainfed conditions (Protected: South Zone)

Entry	Average PDI & Disease Reaction (DR): Protected									
	Nandyal		Dharwad							
	ALB		ALB		BLB		GM		Rust	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
GBCH 1801 BG II	13.3	R	12.1	R	0.0	DF	0.0	DF	12.0	R
RCH 962 BG II	21.7	R	12.3	R	0.0	DF	0.0	DF	13.0	R
Jadoo BG II (ZC)	25.0	R	10.5	R	0.0	DF	0.0	DF	11.8	R
ARCH 3001 BG II	18.3	R	11.8	R	0.0	DF	0.0	DF	12.9	R
VSCH 234 BG II	23.3	R	12.9	R	0.0	DF	0.0	DF	11.5	R
MC 5441 BG II	13.3	R	11.3	R	0.0	DF	0.0	DF	12.8	R
G COT HY 12 BG II	16.7	R	12.0	R	0.0	DF	0.0	DF	12.0	R
US 704 BG II	16.7	R	12.5	R	0.0	DF	0.0	DF	12.6	R
BG II (LC)	35.0	MR	10.5	R	0.0	DF	0.0	DF	12.8	R
RCH 969 BG II	16.7	R	12.1	R	0.0	DF	0.0	DF	13.0	R
ARCH 3106 BG II	20.0	R	8.5	R	0.0	DF	0.0	DF	27.6	MR
SP 7686 BG II	16.7	R	9.7	R	0.0	DF	0.0	DF	24.8	R

Evaluation under Unprotected Condition for Insect pests & Diseases incidences

Reaction to Insect Pests

Table: .Advance H X H trial I under Unprotected Conditions in South Zone – Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)			
	Dharwad	Nandyal	Mean	Remarks*
GBCH 1801 BG II	3.92	3.60	3.76	BETL
RCH 962 BG II	4.11	2.60	3.36	BETL
Jadoo BG II (ZC)	4.24	2.40	3.32	BETL
ARCH 3001 BG II	4.08	3.13	3.61	BETL
VSCH 234 BG II	4.38	3.33	3.86	BETL
MC 5441 BG II	4.28	2.33	3.31	BETL
G COT HY 12 BG II	4.52	3.53	4.03	BETL
US 704 BG II	4.3	3.20	3.75	BETL
BG II Local Check	4.49	2.67	3.58	BETL
RCH 969 BG II	4.06	2.53	3.30	BETL
ARCH 3106 BG II	4.89	2.33	3.61	BETL
SP 7686 BG II	3.94	**2.07**	3.00	BETL

Table: .Advance H X H trial I under Unprotected Conditions in South Zone – Thrips

Name of Entry	Thrips(Average of 3 leaves/plant)			
	Dharwad	Nandyal	Mean	Remarks*
GBCH 1801 BG II	17.50	0.00	8.75	BETL
RCH 962 BG II	17.10	0.00	8.55	BETL
Jadoo BG II (ZC)	17.50	0.33	8.92	BETL
ARCH 3001 BG II	17.10	0.93	9.02	BETL
VSCH 234 BG II	18.20	0.27	9.23	BETL
MC 5441 BG II	17.00	0.00	8.50	BETL
G COT HY 12 BG II	17.40	0.73	9.07	BETL
US 704 BG II	16.80	0.40	8.60	BETL
BG II Local Check	17.20	0.00	8.60	BETL
RCH 969 BG II	17.20	0.00	8.60	BETL
ARCH 3106 BG II	17.70	0.27	8.98	BETL
SP 7686 BG II	17.30	0.27	8.78	BETL

Table: .Advance H X H trial under Unprotected Conditions in South Zone – Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)			
	Dharwad	Nandyal	Mean	Remarks*
GBCH 1801 BG II	2.27	0.27	1.27	BETL
RCH 962 BG II	1.87	0.20	1.04	BETL
Jadoo BG II (ZC)	1.88	0.13	1.01	BETL
ARCH 3001 BG II	2.30	0.27	1.28	BETL
VSCH 234 BG II	2.20	0.47	1.33	BETL
MC 5441 BG II	2.19	0.07	1.13	BETL
G COT HY 12 BG II	2.38	0.00	1.19	BETL
US 704 BG II	2.23	0.60	1.42	BETL
BG II Local Check	2.22	0.33	1.28	BETL
RCH 969 BG II	2.28	0.20	1.24	BETL
ARCH 3106 BG II	2.14	0.60	1.37	BETL
SP 7686 BG II	2.08	0.27	1.17	BETL

Table: Advance H X H trial I under Unprotected Conditions in South Zone – Natural Enemies

Name of Entry	Natural enemy (No./plant)	
	Nandyal	Mean
GBCH 1801 BG II	0.00	0.00
RCH 962 BG II	0.07	0.07
Jadoo BG II (ZC)	0.07	0.07
ARCH 3001 BG II	0.07	0.07
VSCH 234 BG II	0.07	0.07
MC 5441 BG II	0.00	0.00
G COT HY 12 BG II	0.00	0.00
US 704 BG II	0.07	0.07
BG II Local Check	0.00	0.00
RCH 969 BG II	0.20	0.20
ARCH 3106 BG II	0.00	0.00
SP 7686 BG II	0.00	0.00

Table: Advance H X H trial under Unprotected Conditions in South Zone – Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)		
	Dharwad	Mean	Remarks*
GBCH 1801 BG II	26.33	26.33	AETL
RCH 962 BG II	26.33	26.33	AETL
Jadoo BG II (ZC)	24.00	24.00	AETL
ARCH 3001 BG II	29.00	29.00	AETL
VSCH 234 BG II	26.00	26.00	AETL
MC 5441 BG II	29.56	29.56	AETL
G COT HY 12 BG II	25.56	25.56	AETL
US 704 BG II	26.78	26.78	AETL
BG II Local Check	25.00	25.00	AETL
RCH 969 BG II	25.22	25.22	AETL
ARCH 3106 BG II	24.22	24.22	AETL
SP 7686 BG II	27.67	27.67	AETL

Table: Advance H X H trial under Unprotected Conditions in South Zone – Green Boll damage

Name of Entry	Green Boll damage (%)		
	Nandyal	Mean	Remarks*
GBCH 1801 BG II	56.67	56.67	AETL
RCH 962 BG II	66.67	66.67	AETL
Jadoo BG II (ZC)	56.67	56.67	AETL
ARCH 3001 BG II	**38.33**	38.33	AETL
VSCH 234 BG II	55.00	55.00	AETL
MC 5441 BG II	45.00	45.00	AETL
G COT HY 12 BG II	53.33	53.33	AETL
US 704 BG II	50.00	50.00	AETL
BG II Local Check	50.00	50.00	AETL
RCH 969 BG II	56.67	56.67	AETL
ARCH 3106 BG II	50.00	50.00	AETL
SP 7686 BG II	50.00	50.00	AETL

Table: Advance H X H trial under Unprotected Conditions in South Zone – Open Boll damage

Name of Entry	Open Boll damage (%)			
	Dharwad	Nandyal	Mean	Remarks*
GBCH 1801 BG II	22.48	35.97	29.22	AETL
RCH 962 BG II	16.27	32.92	24.60	AETL
Jadoo BG II (ZC)	16.30	26.66	21.48	AETL
ARCH 3001 BG II	18.06	25.96	22.01	AETL
VSCH 234 BG II	19.56	29.68	24.62	AETL
MC 5441 BG II	18.88	**21.25**	20.07	AETL
G COT HY 12 BG II	14.28	39.87	27.07	AETL
US 704 BG II	14.87	**20.44**	17.66	AETL
BG II Local Check	16.89	28.34	22.62	AETL
RCH 969 BG II	15.54	43.72	29.63	AETL
ARCH 3106 BG II	14.95	27.05	21.00	AETL
SP 7686 BG II	18.60	29.03	23.82	AETL

Table: Advance H X H trial under Unprotected Conditions in South Zone – Locule damage

Name of Entry	Locule damage (%)		
	Dharwad	Nandyal	Mean
GBCH 1801 BG II	21.90	26.60	24.25
RCH 962 BG II	20.60	20.77	20.69
Jadoo BG II (ZC)	21.80	28.23	25.02
ARCH 3001 BG II	21.10	23.28	22.19
VSCH 234 BG II	22.60	28.27	25.44
MC 5441 BG II	24.90	20.30	22.60
G COT HY 12 BG II	22.90	33.23	28.07
US 704 BG II	25.10	**15.53**	20.31
BG II Local Check	24.90	26.02	25.46
RCH 969 BG II	23.70	35.13	29.42
ARCH 3106 BG II	23.40	22.31	22.85
SP 7686 BG II	24.40	23.55	23.98

Reaction to Diseases

Table: Advanced Evaluation Trial of Intra-hirsutum Hybrids-I – Rainfed under unprotected conditions (Dharwad)

Entry	Average PDI & Disease Reaction (DR): Unprotected (Dharwad)							
	ALB		BLB		GM		Rust	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR
GBCH 1801 BG II	23.6	R	0.0	DF	10.0	R	25.8	MR
RCH 962 BG II	22.0	R	0.0	DF	0.0	DF	25.4	MR
Jadoo BG II (ZC)	26.6	MR	0.0	DF	0.0	DF	26.0	MR
ARCH 3001 BG II	27.0	MR	0.0	DF	0.0	DF	28.0	MR
VSCH 234 BG II	26.3	MR	0.0	DF	0.0	DF	28.1	MR
MC 5441 BG II	21.5	R	0.0	DF	0.0	DF	22.8	R
G COT HY 12 BG II	27.0	MR	0.0	DF	0.0	DF	26.0	MR
US 704 BG II	22.5	R	0.0	DF	0.0	DF	25.4	MR
BG II (LC)	18.1	R	0.0	DF	0.0	DF	25.8	MR
RCH 969 BG II	19.1	R	0.0	DF	0.0	DF	27.6	MR
ARCH 3106 BG II	22.9	R	0.0	DF	0.0	DF	26.9	MR
SP 7686 BG II	19.6	R	0.0	DF	0.0	DF	22.8	R

Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids in South Zone under Rainfed Condition (2020-21)

Constitution of Trial

The trial was constituted with four Bt cotton hybrids containing MON 15985 event sponsored by various organization along with two different check hybrids as furnished below.

S. No.	Name of the Entry	Sponsored by
1	NBG 1811 BGII	Nath Biogenes
2	**Jadoo BG II (ZC)**	
3	CCH 333 BG II	Crystal Crop Protection Ltd
4	BIOGHH 102	Shriram Bioseed Genetics
5	**BG II Local Check**	
6	RCH 956 BGII	Rasi Seeds Pvt Ltd

The trial was conducted in five different locations and detail is furnished below.

Name of the trial location	Dharwad	Nandyal	Mudhole	Adilabad	Perambalur
Local check Bt hybrid	NCS 954 BG II	NCS 245 BG II	NCS 854 BG II	NCS 854 BG II	NCS 954 BG II

Spacing: Recommended spacing for the hybrid has been followed.

Number of rows:4 rows of 6 meters per entry with four replications

Data recorded:

Biometric evaluation

Plant height (cm) at harvest in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	NBG 1811 BGII	159.6	201.3	85.0	124.0	170.9	**148.2**
2	**Jadoo BG II (ZC)**	139.0	200.8	93.0	111.6	168.7	**142.6**
3	CCH 333 BG II	136.1	188.1	78.0	109.5	153.3	**133.0**
4	BIOGHH 102	135.1	193.7	76.0	103.5	167.4	**135.1**
5	**BG II Local Check**	127.4	182.9	86.0	122.4	161.3	**136.0**
6	RCH 956 BGII	147.8	183.6	94.0	104.8	169.7	**140.0**
	CD @ 5%	16.7				11.6	
	CV %	7.8				5.7	

Number of monopodia in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	NBG 1811 BGII	2.1	1.5	0.0	2.3	1.9	**1.6**
2	**Jadoo BG II (ZC)**	2.2	1.6	0.8	2.0	1.8	**1.7**
3	CCH 333 BG II	2.6	2.0	0.0	3.0	2.7	**2.1**
4	BIOGHH 102	1.7	1.0	0.8	2.0	1.8	**1.5**
5	**BG II Local Check**	1.8	1.4	0.6	1.7	1.2	**1.3**
6	RCH 956 BGII	1.9	1.4	0.6	1.9	2.3	**1.6**
	CD @ 5%	0.5				0.4	
	CV %	17.8				14.6	

Number of sympodia in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	NBG 1811 BGII	16.9	15.0	7.0	20.1	25.8	**17.0**
2	**Jadoo BG II (ZC)**	15.8	14.1	9.0	19.6	25.9	**16.9**
3	CCH 333 BG II	18.3	14.0	10.0	18.8	20.1	**16.2**
4	BIOGHH 102	14.6	16.6	11.0	18.6	24.5	**17.1**
5	**BG II Local Check**	14.4	13.9	13.0	20.5	25.2	**17.4**
6	RCH 956 BGII	14.5	13.0	8.0	18.5	24.0	**15.6**
	CD @ 5%	2.2				3.0	
	CV %	9.2				10.0	

Number of bolls / plant in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	NBG 1811 BGII	20.2	25.4	8.3	10.9	35.8	**20.1**
2	**Jadoo BG II (ZC)**	17.9	22.7	8.7	6.9	27.9	**16.8**
3	CCH 333 BG II	21.0	30.8	14.0	7.9	31.2	**21.0**
4	BIOGHH 102	18.9	35.5	11.0	6.8	28.9	**20.2**
5	**BG II Local Check**	17.4	20.9	8.0	9.8	27.2	**16.7**
6	RCH 956 BGII	16.7	20.1	16.0	6.5	27.9	**17.4**
	CD @ 5%	1.8				4.5	
	CV %	6.4				12.2	

Number of bolls / sq.m.in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	NBG 1811 BGII	128.0	123.7	48.0	123.0	47.6	**94.1**
2	**Jadoo BG II (ZC)**	107.8	108.7	50.0	90.0	41.7	**79.6**
3	CCH 333 BG II	127.5	155.3	54.0	91.7	50.4	**95.8**
4	BIOGHH 102	114.0	182.0	48.0	79.3	43.2	**93.3**
5	**BG II Local Check**	96.0	97.0	51.0	101.0	41.3	**77.3**
6	RCH 956 BGII	79.5	90.3	60.0	76.3	41.1	**69.4**
	CD @ 5%	8.8				6.5	
	CV %	5.3				11.9	

Lint Index (g) in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	NBG 1811 BGII	5.4	5.0	4.9	6.1	5.7	**5.4**
2	**Jadoo BG II (ZC)**	5.4	5.2	4.6	6.6	5.3	**5.4**
3	CCH 333 BG II	6.1	5.3	6.1	7.5	5.4	**6.1**
4	BIOGHH 102	5.9	6.0	5.6	6.1	5.4	**5.8**
5	**BG II Local Check**	5.0	4.7	4.5	5.9	5.3	**5.1**
6	RCH 956 BGII	5.7	5.8	6.1	6.3	5.4	**5.9**
	CD @ 5%	0.6				0.2	
	CV %	7.3				2.3	

Seed Index (g) in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	NBG 1811 BGII	8.9	7.9	8.9	9.0	12.4	**9.4**
2	**Jadoo BG II (ZC)**	8.7	7.9	9.6	10.5	12.5	**9.8**
3	CCH 333 BG II	9.7	8.4	11.2	11.0	13.2	**10.7**
4	BIOGHH 102	9.6	9.2	11.9	11.0	12.5	**10.8**
5	**BG II Local Check**	9.8	8.6	9.7	10.5	13.6	**10.4**
6	RCH 956 BGII	11.2	10.5	12.2	12.0	12.4	**11.7**
	CD @ 5%	1.0				0.2	
	CV %	6.6				1.2	

Ginning outturn (%) in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	NBG 1811 BGII	37.5	38.5	34.3	40.5	33.7	**36.9**
2	**Jadoo BG II (ZC)**	38.3	39.5	34.5	38.5	35.0	**37.2**
3	CCH 333 BG II	38.5	38.5	36.0	40.5	35.4	**37.8**
4	BIOGHH 102	38.3	39.5	38.9	35.5	33.6	**37.2**
5	**BG II Local Check**	33.5	35.3	37.1	36.0	34.5	**35.3**
6	RCH 956 BGII	33.7	35.5	34.6	34.5	33.6	**34.4**
	CD @ 5%	2.2				2.6	
	CV %	3.9				6.1	

Upper Half Mean Length (mm) under HVI Mode in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Nandyal	Dharwad	Perambalur	Mean
1	NBG 1811 BGII	24.7	26.0	26.5	27.1	**26.1**
2	**Jadoo BG II (ZC)**	29.2	28.2	29.8	32.1	**29.8**
3	CCH 333 BG II	27.1	26.9	28.8	30.5	**28.3**
4	BIOGHH 102	29.0	28.1	29.4	31.2	**29.4**
5	**BG II Local Check**	28.9	28.6	30.4	31.1	**29.8**
6	RCH 956 BGII	29.1	28.8	29.9	31.8	**29.9**

Uniformity index under HVI Mode in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Nandyal	Dharwad	Perambalur	Mean
1	NBG 1811 BGII	85.0	84.0	85.0	87.0	**85.3**
2	**Jadoo BG II (ZC)**	85.0	85.0	86.0	88.0	**86.0**
3	CCH 333 BG II	85.0	83.0	86.0	85.0	**84.8**
4	BIOGHH 102	84.0	85.0	85.0	88.0	**85.5**
5	**BG II Local Check**	83.0	83.0	87.0	85.0	**84.5**
6	RCH 956 BGII	85.0	85.0	85.0	85.0	**85.0**

Micronaire under HVI Mode in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Nandyal	Dharwad	Perambalur	Mean
1	NBG 1811 BGII	5.0	5.6	5.2	5.6	**5.4**
2	**Jadoo BG II (ZC)**	4.9	4.8	5.0	5.3	**5.0**
3	CCH 333 BG II	4.6	4.9	4.7	5.1	**4.8**
4	BIOGHH 102	4.6	4.5	4.5	4.8	**4.6**
5	**BG II Local Check**	3.6	4.9	4.5	5.1	**4.5**
6	RCH 956 BGII	4.1	4.1	3.8	4.5	**4.1**

Tenacity under HVI Mode in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Nandyal	Dharwad	Perambalur	Mean
1	NBG 1811 BGII	25.4	28.0	25.4	26.4	**26.3**
2	**Jadoo BG II (ZC)**	28.1	27.8	27.1	30.1	**28.3**
3	CCH 333 BG II	26.4	26.9	25.7	28.4	**26.9**
4	BIOGHH 102	28.8	28.4	26.9	30.3	**28.6**
5	**BG II Local Check**	26.7	29.0	26.6	28.2	**27.6**
6	RCH 956 BGII	26.9	30.1	26.6	28.2	**28.0**

Seed Cotton Yield (q/ha) in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

S. No.	Name of the Entry	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean	Rank
1	NBG 1811 BGII	20.39	16.24	11.70	9.80	21.09	**15.84**	3
2	**Jadoo BG II (ZC)**	17.89	13.58	10.84	7.14	18.10	**13.51**	6
3	CCH 333 BG II	23.90	19.03	16.69	5.81	19.00	**16.89**	1
4	BIOGHH 102	20.10	24.66	15.06	5.69	16.72	**16.45**	2
5	**BG II Local Check**	18.53	15.62	11.92	7.00	18.35	**14.28**	4
6	RCH 956 BGII	15.51	14.87	17.77	4.65	17.36	**14.03**	5
	CD @ 5%	1.95	1.41		1.30	1.78		
	CV %	6.63	14.11		11.38	7.78		

Quantity of Cry 1Ac Protein (ppm) at UAS, Dharwad in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids (To be generated)

Entry	Leaf				Square			Bolls	
	30D	60D	90D	120D	60D	90D	120D	90D	120D
NBG 1811 BGII	2.71	4.09	4.39	2.20	2.96	4.37	2.15	3.40	1.33
Jadoo BG II (ZC)	3.11	4.57	4.09	1.92	2.90	4.04	3.11	2.95	1.85
CCH 333 BG II	2.50	4.27	4.55	2.12	2.73	4.07	2.10	3.45	2.05
BIOGHH 102	2.21	4.04	4.37	2.15	2.67	4.49	2.25	3.05	1.25
BG II Local Check	2.31	4.55	4.45	2.20	2.88	4.41	2.19	3.37	1.71
RCH 956 BGII	2.80	4.62	4.74	2.35	2.70	4.17	2.13	2.55	1.50

Quantity of Cry 2Ab Protein (ppm) at UAS, Dharwad in Advanced Evaluation Trial (II) of Intra-Hirsutum Bt Hybrids

Entry	Leaf				Square			Bolls	
	30D	60D	90D	120D	60D	90D	120D	90D	120D
NBG 1811 BGII	220.38	286.98	311.75	168.01	205.30	256.78	189.62	192.40	185.22
Jadoo BG II (ZC)	214.26	300.14	306.85	149.61	213.05	283.22	232.43	202.63	196.30
CCH 333 BG II	203.24	286.21	338.46	161.28	221.17	284.22	261.13	173.61	151.11
BIOGHH 102	142.57	289.61	293.16	218.48	281.74	258.97	151.72	230.41	190.30
BG II Local Check	196.75	284.05	298.34	206.61	236.37	286.90	204.13	223.40	160.92
RCH 956 BGII	223.19	294.52	341.58	189.20	210.44	295.96	192.97	191.33	195.98

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect Pests

Table: Advance H X H trial II under Protected Conditions in South Zone – Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)			
	Dharwad	Perambalur	Mean	Remarks*
NBG 1811 BGII	3.46	1.42	2.44	BETL
Jadoo BG II (ZC)	3.53	1.60	2.57	BETL
CCH 333 BG II	3.48	1.70	2.59	BETL
BIOGHH 102	3.48	1.90	2.69	BETL
BG II Local Check	3.85	1.54	2.70	BETL
RCH 956 BGII	3.21	1.66	2.43	BETL

Table: Advance H X H trial II under Protected Conditions in South Zone – Thrips

Name of Entry	Thrips(Average of 3 leaves/plant)			
	Dharwad	Perambalur	Mean	Remarks*
NBG 1811 BGII	9.26	1.29	5.27	BETL
Jadoo BG II (ZC)	9.76	0.83	5.29	BETL
CCH 333 BG II	10.5	0.93	5.72	BETL
BIOGHH 102	9.93	1.10	5.52	BETL
BG II Local Check	10.21	1.38	5.80	BETL
RCH 956 BGII	9.51	1.69	5.60	BETL

Table: Advance H X H trial II under Protected Conditions in South Zone – Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)			
	Dharwad	Perambalur	Mean	Remarks*
NBG 1811 BGII	1.34	2.23	1.79	BETL
Jadoo BG II (ZC)	1.08	2.29	1.69	BETL
CCH 333 BG II	1.41	1.89	1.65	BETL
BIOGHH 102	1.35	2.39	1.87	BETL
BG II Local Check	1.23	2.74	1.99	BETL
RCH 956 BGII	1.33	2.07	1.70	BETL

Table: Advance H X H trial II under Protected Conditions in South Zone – Natural Enemies

Name of Entry	Natural enemy (No./plant)	
	Perambalur	Mean
NBG 1811 BGII	3.00	3.00
Jadoo BG II (ZC)	4.00	4.00
CCH 333 BG II	2.00	2.00
BIOGHH 102	8.00	8.00
BG II Local Check	4.00	4.00
RCH 956 BGII	6.00	6.00

Table: Advance H X H trial II under Protected Conditions in South Zone – Bollworms - *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)			
	Dharwad	Perambalur	Mean	Remarks*
NBG 1811 BGII	0.0	0.0	0.00	BETL
Jadoo BG II (ZC)	0.0	0.0	0.00	BETL
CCH 333 BG II	0.0	0.0	0.00	BETL
BIOGHH 102	0.0	0.0	0.00	BETL
BG II Local Check	0.0	0.0	0.00	BETL
RCH 956 BGII	0.0	0.0	0.00	BETL

Table: Advance H X H trial II under Protected Conditions in South Zone – *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)			
	Dharwad	Perambalur	Mean	Remarks*
NBG 1811 BGII	0.0	0.00	0.00	BETL
Jadoo BG II (ZC)	0.0	0.00	0.00	BETL
CCH 333 BG II	0.0	0.00	0.00	BETL
BIOGHH 102	0.0	0.00	0.00	BETL
BG II Local Check	0.0	0.00	0.00	BETL
RCH 956 BGII	0.0	0.00	0.00	BETL

Table: Advance H X H trial II under Protected Conditions in South Zone – Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)			
	Dharwad	Perambalur	Mean	Remarks*
NBG 1811 BGII	0.0	0	0.00	BETL
Jadoo BG II (ZC)	0.0	0	0.00	BETL
CCH 333 BG II	0.0	0	0.00	BETL
BIOGHH 102	0.0	0	0.00	BETL
BG II Local Check	0.0	0	0.00	BETL
RCH 956 BGII	0.0	0	0.00	BETL

Table: Advance H X H trial II under Protected Conditions in South Zone – Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)		
	Dharwad	Mean	Remarks*
NBG 1811 BGII	11.50	11.50	AETL
Jadoo BG II (ZC)	12.60	12.60	AETL
CCH 333 BG II	12.60	12.60	AETL
BIOGHH 102	12.90	12.90	AETL
BG II Local Check	13.00	13.00	AETL
RCH 956 BGII	12.50	12.50	AETL

Table: Advance H X H trial II under Protected Conditions in South Zone – Green Boll damage

Name of Entry	Green Boll damage (%)			
	Dharwad	Perambalur	Mean	Remarks*
NBG 1811 BGII	0.00	0.00	0.00	BETL
Jadoo BG II (ZC)	0.00	0.00	0.00	BETL
CCH 333 BG II	0.00	0.00	0.00	BETL
BIOGHH 102	0.00	0.00	0.00	BETL
BG II Local Check	0.00	0.00	0.00	BETL
RCH 956 BGII	0.00	0.00	0.00	BETL

Table: Advance H X H trial II under Protected Conditions in South Zone – Open Boll damage

Name of Entry	Open Boll damage (%)		
	Dharwad	Mean	Remarks*
NBG 1811 BGII	22.80	22.80	AETL
Jadoo BG II (ZC)	21.30	21.30	AETL
CCH 333 BG II	23.60	23.60	AETL
BIOGHH 102	22.50	22.50	AETL
BG II Local Check	24.20	24.20	AETL
RCH 956 BGII	26.60	26.60	AETL

Table: Advance H X H trial II under Protected Conditions in South Zone – Locule damage

Name of Entry	Locule damage (%)		
	Dharwad	Perambalur	Mean
NBG 1811 BGII	15.23	0.00	7.62
Jadoo BG II (ZC)	15.08	0.00	7.54
CCH 333 BG II	18.06	0.00	9.03
BIOGHH 102	17.23	0.00	8.62
BG II Local Check	17.48	0.00	8.74
RCH 956 BGII	17.71	0.00	8.86

Table: Advance H X H trial II under Protected Conditions in South Zone – Number of sprays for sucking pests

Name of Entry	Sprays applied for sap sucking pests (Nos.)	
	Perambalur	Mean
NBG 1811 BGII	6.00	6.00
Jadoo BG II (ZC)	6.00	6.00
CCH 333 BG II	6.00	6.00
BIOGHH 102	6.00	6.00
BG II Local Check	6.00	6.00
RCH 956 BGII	6.00	6.00

Reaction to Diseases

Table: Advanced Evaluation Trial of Intra-hirsutum Hybrids- II – Rainfed conditions (Protected: South Zone)

Entry	Average PDI & Disease Reaction (DR): Protected									
	Nandyal		Dharwad							
	ALB		ALB		BLB		GM		Rust	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
NBG 1811 BGII	26.7	MR	12.6	R	0.0	DF	0.0	DF	13.1	R
Jadoo BG II (ZC)	20.0	R	12.3	R	0.0	DF	0.0	DF	11.8	R
CCH 333 BG II	20.0	R	10.8	R	0.0	DF	0.0	DF	12.4	R
BIOGHH 102	16.7	R	11.9	R	0.0	DF	0.0	DF	12.7	R
BG II (LC)	10.0	R	10.6	R	0.0	DF	0.0	DF	12.9	R
RCH 956 BGII	11.7	R	11.2	R	0.0	DF	0.0	DF	12.8	R

Evaluation under Unprotected Condition for Insect pests & Diseases incidences

Reaction to Insect Pests

Table: Advance H X H trial II under Unprotected Conditions in South Zone – Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)			
	Dharwad	Nandyal	Mean	Remarks*
NBG 1811 BGII	5.37	3.07	4.22	BETL
Jadoo BG II (ZC)	5.48	2.80	4.14	BETL
CCH 333 BG II	5.28	4.60	4.94	BETL
BIOGHH 102	5.16	3.93	4.55	BETL
BG II Local Check	5.39	3.07	4.23	BETL
RCH 956 BGII	5.03	3.60	4.32	BETL

Table: Advance H X H trial II under Unprotected Conditions in South Zone – Thrips

Name of Entry	Thrips(Average of 3 leaves/plant)			
	Dharwad	Nandyal	Mean	Remarks*
NBG 1811 BGII	18.64	0.73	9.69	BETL
Jadoo BG II (ZC)	21.35	0.07	10.71	BETL
CCH 333 BG II	19.69	0.80	10.25	BETL
BIOGHH 102	19.53	0.40	9.97	BETL
BG II Local Check	19.57	0.40	9.99	BETL
RCH 956 BGII	19.03	1.33	10.18	BETL

Table: Advance H X H trial II under Unprotected Conditions in South Zone – Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)			
	Dharwad	Nandyal	Mean	Remarks*
NBG 1811 BGII	1.76	0.20	0.98	BETL
Jadoo BG II (ZC)	1.27	0.20	0.74	BETL
CCH 333 BG II	1.85	0.27	1.06	BETL
BIOGHH 102	1.73	0.47	1.10	BETL
BG II Local Check	1.48	0.40	0.94	BETL
RCH 956 BGII	1.53	0.33	0.93	BETL

Table: Advance H X H trial II under Unprotected Conditions in South Zone – Natural Enemies

Name of Entry	Natural enemy (No./plant)	
	Nandyal	Mean
NBG 1811 BGII	0.00	0.00
Jadoo BG II (ZC)	0.20	0.20
CCH 333 BG II	0.00	0.00
BIOGHH 102	0.00	0.00
BG II Local Check	0.07	0.07
RCH 956 BGII	0.07	0.07

Table: Advance H X H trial II under Unprotected Conditions in South Zone – Bollworms - Helicoverpa *armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)		
	Dharwad	Mean	Remarks*
NBG 1811 BGII	0.00	0.00	BETL
Jadoo BG II (ZC)	0.00	0.00	BETL
CCH 333 BG II	0.00	0.00	BETL
BIOGHH 102	0.00	0.00	BETL
BG II Local Check	0.00	0.00	BETL
RCH 956 BGII	0.00	0.00	BETL

Table: Advance H X H trial II under Unprotected Conditions in South Zone – *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)		
	Dharwad	Mean	Remarks*
NBG 1811 BGII	0.0	0.00	BETL
Jadoo BG II (ZC)	0.0	0.00	BETL
CCH 333 BG II	0.0	0.00	BETL
BIOGHH 102	0.0	0.00	BETL
BG II Local Check	0.0	0.00	BETL
RCH 956 BGII	0.0	0.00	BETL

Table: .Advance H X H trial II under Unprotected Conditions in South Zone – Spotted Bollworms

Entry no.	Name of Entry	Spotted Bollworms (No. / 5 plants)		
		Dharwad	Mean	Remarks*
20741	NBG 1811 BGII	0.0	0.0	BETL
20742	**Jadoo BG II (ZC)**	0.0	0.0	BETL
20743	CCH 333 BG II	0.0	0.0	BETL
20744	BIOGHH 102	0.0	0.0	BETL
20745	**BG II Local Check**	0.0	0.0	BETL
20746	RCH 956 BGII	0.0	0.0	BETL

Table: Advance H X H trial II under Unprotected Conditions in South Zone – Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)		
	Dharwad	Mean	Remarks*
NBG 1811 BGII	15.20	15.20	AETL
Jadoo BG II (ZC)	16.30	16.30	AETL
CCH 333 BG II	17.20	17.20	AETL
BIOGHH 102	16.40	16.40	AETL
BG II Local Check	16.90	16.90	AETL
RCH 956 BGII	15.90	15.90	AETL

Table: Advance H X H trial II under Unprotected Conditions in South Zone – Green Boll damage

Name of Entry	Green Boll damage (%)			
	Dharwad	Nandyal	Mean	Remarks*
NBG 1811 BGII	0.00	63.33	31.67	AETL
Jadoo BG II (ZC)	0.00	61.67	30.83	AETL
CCH 333 BG II	0.00	58.33	29.17	AETL
BIOGHH 102	0.00	56.67	28.33	AETL
BG II Local Check	0.00	68.33	34.17	AETL
RCH 956 BGII	0.00	63.33	31.67	AETL

Table: Advance H X H trial II under Unprotected Conditions in South Zone – Open Boll damage

Name of Entry	Open Boll damage (%)			
	Dharwad	Nandyal	Mean	Remarks*
NBG 1811 BGII	27.9	43.17	35.54	AETL
Jadoo BG II (ZC)	26.4	48.06	37.23	AETL
CCH 333 BG II	28.8	**28.72**	28.76	AETL
BIOGHH 102	27.4	52.49	39.95	AETL
BG II Local Check	28.8	37.25	33.03	AETL
RCH 956 BGII	27.7	40.31	34.00	AETL

Table: Advance H X H trial II under Unprotected Conditions in South Zone – Locule damage

Name of Entry	Locule damage (%)		
	Dharwad	Nandyal	Mean
NBG 1811 BGII	17.77	37.80	27.78
Jadoo BG II (ZC)	16.42	34.96	25.69
CCH 333 BG II	18.96	**25.67**	22.32
BIOGHH 102	19.03	**25.50**	22.26
BG II Local Check	18.58	38.76	28.67
RCH 956 BGII	18.83	32.76	25.79

Table. *Helicoverpa armigera* bioassay on Advance HxH hybrid trial in leaf in laboratory condition at ARS, Dharwad

Name of Entry	% Mortality				
	30DAS	60 DAS	90 DAS	120 DAS	Mean
NBG 1811 BGII	96.30	95.00	93.30	90.00	93.65
Jadoo BG II (ZC)	96.70	93.30	96.70	90.00	94.18
CCH 333 BG II	100.00	96.70	95.00	90.00	95.43
BIOGHH 102	20.00	10.00	10.00	15.00	13.75
BG II Local Check	13.30	35.00	40.00	30.00	29.58
RCH 956 BGII	100.00	96.70	93.30	95.00	96.25

Table. Pink bollworm bioassay on Advance HxH hybrid trial in Square, flower and bolls in laboratory condition at ARS, Dharwad

Name of Entry	% Mortality			
	Square (45DAS)	Flower (60DAS)	Bolls(100)	Mean
NBG 1811 BGII	80.67	76.25	53.33	70.08
Jadoo BG II (ZC)	80.67	75.67	40.33	65.56
CCH 333 BG II	81.33	80.00	32.60	64.64
BIOGHH 102	20.00	20.25	16.67	18.97
BG II Local Check	15.33	24.67	13.33	17.78
RCH 956 BGII	81.33	75.67	46.67	67.89

Reaction to Diseases

Table: Advanced Evaluation Trial of Intra-hirsutum Hybrids- II – Rainfed (Unprotected: Dharwad)

Entry	Average PDI & Disease Reaction (DR): Unprotected (Dharwad)							
	ALB		BLB		GM		Rust	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR
NBG 1811 BGII	23.0	R	0.0	DF	0.0	DF	28.4	MR
Jadoo BG II (ZC)	25.3	MR	0.0	DF	0.0	DF	27.9	MR
CCH 333 BG II	27.6	MR	0.0	DF	0.0	DF	28.0	MR
BIOGHH 102	28.9	MR	0.0	DF	0.0	DF	28.4	MR
BG II (LC)	25.9	MR	0.0	DF	0.0	DF	27.1	MR
RCH 956 BGII	26.0	MR	0.0	DF	0.0	DF	26.1	MR

Initial Evaluation Trial of Hirsutum Varieties in South Zone (2020-21) - under Rainfed Condition

Constitution of Trial

The trial was constituted with nine Bt cotton varieties containing deregulated event along with two different check varieties as furnished below.

S. No.	Name of Variety		S. No.	Name of Variety
1	CICR Bt 1141		7	ARCV 55 Bt
2	CICR Bt 20-31		8	CICR Bt 1142
3	**Sahana (Non Bt ZC)**		9	**Local Check**
4	CPDBt 2051		10	ARCV 33 Bt
5	CICR 61 Bt		11	CICR 20 Bt
6	CICR 1002 Bt			

The trial was conducted in five different locations and detail is furnished below.

Name of the trial location	Dharwad	Nandyal	Mudhole	Adilabad	Perambalur
Local check Non Bt Variety	ARBH 813	Sivanandi	Sivanandi	Sivanandi	KC 3

Spacing: Recommended spacing for the variety has been followed.
Number of rows:4 rows of 6 meters per entry with three replications

Data recorded:

Biometric evaluation

Plant height (cm) at harvest in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR Bt 1141	123.5	117.5	57.6	91.7	142.7	**106.6**
2	CICR Bt 20-31	125.5	120.5	57.0	92.3	144.8	**108.0**
3	**Sahana (Non Bt ZC)**	126.5	128.5	50.0	106.5	135.1	**109.3**
4	CPDBt 2051	137.7	120.3	52.0	108.2	154.8	**114.6**
5	CICR 61 Bt	152.4	128.1	75.0	121.5	169.4	**129.3**
6	CICR 1002 Bt	118.1	120.9	84.0	109.3	135.4	**113.5**
7	ARCV 55 Bt	158.2	146.2	100.0	128.6	176.3	**141.9**
8	CICR Bt 1142	133.9	124.8	95.0	100.4	171.3	**125.1**
9	**Local Check**	138.7	127.1	122.0	89.7	135.2	**122.5**
10	ARCV 33 Bt	144.9	136.4	105.0	119.5	183.8	**137.9**
11	CICR 20 Bt	115.3	115.9	80.0	92.8	135.4	**107.9**
	CD @ 5%	13.9				17.8	
	CV %	6.0				8.3	

Number of monopodia in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR Bt 1141	1.7	0.4	0.8	1.6	2.1	**1.3**
2	CICR Bt 20-31	0.8	0.4	0.4	1.5	2.2	**1.1**
3	**Sahana (Non Bt ZC)**	1.8	0.6	0.8	1.8	1.8	**1.4**
4	CPDBt 2051	2.1	0.8	0.0	1.7	1.9	**1.3**
5	CICR 61 Bt	1.4	0.4	0.4	1.5	1.7	**1.1**
6	CICR 1002 Bt	1.7	0.5	0.6	2.2	2.7	**1.5**
7	ARCV 55 Bt	1.2	0.3	0.0	1.1	1.9	**0.9**
8	CICR Bt 1142	1.5	0.4	0.2	1.8	2.2	**1.2**
9	**Local Check**	1.5	0.4	0.0	1.3	1.1	**0.9**
10	ARCV 33 Bt	2.0	0.7	0.8	1.6	1.8	**1.4**
11	CICR 20 Bt	1.5	0.3	1.0	1.4	2.6	**1.4**
	CD @ 5%	0.3				0.2	
	CV %	12.5				7.5	

Number of sympodia in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR Bt 1141	12.0	12.8	8.0	15.5	24.3	**14.5**
2	CICR Bt 20-31	14.9	14.4	10.2	15.4	26.6	**16.3**
3	**Sahana (Non Bt ZC)**	13.3	14.6	10.2	18.1	25.1	**16.3**
4	CPDBt 2051	13.0	14.7	9.2	19.2	27.9	**16.8**
5	CICR 61 Bt	13.5	14.4	8.2	19.2	23.4	**15.7**
6	CICR 1002 Bt	10.5	13.7	11.4	17.2	19.3	**14.4**
7	ARCV 55 Bt	11.7	16.7	12.0	20.6	24.9	**17.2**
8	CICR Bt 1142	12.2	14.5	10.0	16.1	24.8	**15.5**
9	**Local Check**	11.4	15.0	13.6	16.2	22.8	**15.8**
10	ARCV 33 Bt	13.6	14.9	9.4	17.9	25.9	**16.3**
11	CICR 20 Bt	13.4	15.3	8.2	15.2	20.8	**14.6**
	CD @ 5%	2.1				4.7	
	CV %	9.8				13.8	

Number of bolls / plant in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR Bt 1141	16.5	14.8	6.0	3.3	16.6	**11.4**
2	CICR Bt 20-31	21.5	17.6	7.7	4.1	28.2	**15.8**
3	**Sahana (Non Bt ZC)**	13.9	13.5	6.0	4.1	25.2	**12.5**
4	CPDBt 2051	11.7	13.5	6.8	2.9	15.7	**10.1**
5	CICR 61 Bt	12.1	18.6	8.0	2.0	23.9	**12.9**
6	CICR 1002 Bt	13.5	12.9	11.0	3.1	17.2	**11.5**
7	ARCV 55 Bt	11.7	16.9	6.6	2.8	22.0	**12.0**
8	CICR Bt 1142	13.7	15.0	7.2	2.7	19.9	**11.7**
9	**Local Check**	11.7	9.2	13.0	4.1	25.7	**12.7**
10	ARCV 33 Bt	17.1	11.9	7.2	2.9	9.0	**9.6**
11	CICR 20 Bt	14.5	14.6	9.0	3.1	26.2	**13.5**
	CD @ 5%	2.6				3.0	
	CV %	10.4				10.3	

Number of bolls / sq.m. in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR Bt 1141	69.3	89.0	30.0	34.7	26.8	**50.0**
2	CICR Bt 20-31	91.3	105.0	42.0	53.0	32.0	**64.7**
3	**Sahana (Non Bt ZC)**	76.0	76.7	36.0	43.7	39.8	**54.4**
4	CPDBt 2051	56.0	79.0	40.0	35.7	22.9	**46.7**
5	CICR 61 Bt	80.7	120.0	58.0	21.7	30.3	**62.1**
6	CICR 1002 Bt	52.0	74.0	69.0	34.0	28.1	**51.4**
7	ARCV 55 Bt	54.7	106.7	35.0	28.7	35.0	**52.0**
8	CICR Bt 1142	72.3	92.0	48.0	28.7	29.2	**54.0**
9	**Local Check**	50.7	48.3	78.0	48.3	17.4	**48.5**
10	ARCV 33 Bt	86.7	68.3	60.0	31.3	20.9	**53.4**
11	CICR 20 Bt	78.0	87.3	65.0	77.3	33.7	**68.3**
	CD @ 5%	7.5				4.7	
	CV %	6.2				11.6	

Lint Index (g) in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR Bt 1141	4.1	4.1	3.8	5.6	5.2	**4.6**
2	CICR Bt 20-31	5.0	4.0	4.9	6.1	5.3	**5.1**
3	**Sahana (Non Bt ZC)**	4.6	3.6	4.0	5.2	5.4	**4.6**
4	CPDBt 2051	4.6	4.6	4.3	5.8	5.4	**4.9**
5	CICR 61 Bt	4.0	4.0	3.9	5.2	5.3	**4.5**
6	CICR 1002 Bt	4.8	4.8	4.0	6.4	5.5	**5.1**
7	ARCV 55 Bt	3.7	3.3	4.1	5.3	5.2	**4.3**
8	CICR Bt 1142	4.8	3.7	4.3	5.0	5.4	**4.6**
9	**Local Check**	4.7	4.4	4.5	5.6	5.3	**4.9**
10	ARCV 33 Bt	4.6	4.5	4.4	5.4	5.4	**4.9**
11	CICR 20 Bt	3.5	2.6	4.7	5.7	5.5	**4.4**
	CD @ 5%	0.7				0.3	
	CV %	9.6				3.6	

Seed Index (g) in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR Bt 1141	6.2	6.6	7.7	9.0	12.3	**8.4**
2	CICR Bt 20-31	7.7	6.2	8.2	8.5	12.3	**8.6**
3	**Sahana (Non Bt ZC)**	6.6	5.9	8.1	8.0	12.2	**8.2**
4	CPDBt 2051	7.4	7.3	8.2	9.0	12.4	**8.9**
5	CICR 61 Bt	7.2	6.8	8.2	8.5	12.7	**8.7**
6	CICR 1002 Bt	8.2	7.4	9.4	10.5	12.7	**9.6**
7	ARCV 55 Bt	5.9	5.6	8.3	8.5	12.6	**8.2**
8	CICR Bt 1142	6.3	6.7	10.2	8.0	12.5	**8.7**
9	**Local Check**	9.0	7.5	8.8	9.5	12.1	**9.4**
10	ARCV 33 Bt	9.7	7.6	9.9	9.5	12.5	**9.8**
11	CICR 20 Bt	5.9	5.0	8.5	9.5	12.5	**8.3**
	CD @ 5%	1.3				0.4	
	CV %	10.5				2.1	

Ginning outturn (%) in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR Bt 1141	39.9	38.0	33.5	38.3	34.9	**36.9**
2	CICR Bt 20-31	39.6	39.1	37.5	41.8	34.6	**38.5**
3	**Sahana (Non Bt ZC)**	41.0	37.4	35.1	39.3	32.1	**37.0**
4	CPDBt 2051	38.7	38.6	35.5	39.1	34.0	**37.2**
5	CICR 61 Bt	35.8	37.3	33.1	38.1	34.3	**35.7**
6	CICR 1002 Bt	37.3	39.4	32.3	37.8	33.1	**36.0**
7	ARCV 55 Bt	38.8	37.3	32.2	38.6	33.1	**36.0**
8	CICR Bt 1142	43.1	35.4	36.2	38.5	33.8	**37.4**
9	**Local Check**	34.4	37.3	35.0	37.2	32.6	**35.3**
10	ARCV 33 Bt	32.4	37.0	30.2	36.2	32.5	**33.7**
11	CICR 20 Bt	37.2	33.9	34.5	37.5	35.2	**35.7**
	CD @ 5%	3.5				1.8	
	CV %	5.4				3.8	

Upper Half Mean Length (mm) under HVI Mode in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Nandyal	Dharwad	Perambalur	Mean
1	CICR Bt 1141	25.5	24.9	27.0	29.3	**26.7**
2	CICR Bt 20-31	23.7	25.5	25.2	26.3	**25.2**
3	**Sahana (Non Bt ZC)**	24.1	26.2	25.4	28.6	**26.1**
4	CPDBt 2051	27.6	27.1	28.9	26.5	**27.5**
5	CICR 61 Bt	24.6	25.5	25.6	26.7	**25.6**
6	CICR 1002 Bt	26.3	27.7	27.8	29.7	**27.9**
7	ARCV 55 Bt	25.9	25.4	27.3	30.1	**27.2**
8	CICR Bt 1142	23.4	23.1	24.7	26.8	**24.5**
9	**Local Check**	27.0	29.9	25.0	27.6	**27.4**
10	ARCV 33 Bt	25.0	24.8	25.3	27.7	**25.7**
11	CICR 20 Bt	24.4	24.5	26.1	26.9	**25.5**

Uniformity index under HVI Mode in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Nandyal	Dharwad	Perambalur	Mean
1	CICR Bt 1141	82.0	81.0	84.0	83.0	**82.5**
2	CICR Bt 20-31	81.0	80.0	84.0	84.0	**82.3**
3	**Sahana (Non Bt ZC)**	83.0	80.0	83.0	83.0	**82.3**
4	CPDBt 2051	83.0	83.0	85.0	80.0	**82.8**
5	CICR 61 Bt	82.0	82.0	82.0	83.0	**82.3**
6	CICR 1002 Bt	83.0	83.0	83.0	85.0	**83.5**
7	ARCV 55 Bt	83.0	81.0	83.0	85.0	**83.0**
8	CICR Bt 1142	82.0	82.0	81.0	85.0	**82.5**
9	**Local Check**	83.0	84.0	82.0	85.0	**83.5**
10	ARCV 33 Bt	83.0	82.0	82.0	85.0	**83.0**
11	CICR 20 Bt	81.0	82.0	84.0	82.0	**82.3**

Micronaire under HVI Mode in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Nandyal	Dharwad	Perambalur	Mean
1	CICR Bt 1141	4.5	4.7	4.7	4.1	**4.5**
2	CICR Bt 20-31	5.2	5.1	5.3	4.7	**5.1**
3	**Sahana (Non Bt ZC)**	4.2	4.0	4.6	4.4	**4.3**
4	CPDBt 2051	3.7	3.8	4.2	3.4	**3.8**
5	CICR 61 Bt	3.9	4.5	4.0	3.9	**4.1**
6	CICR 1002 Bt	3.8	4.5	4.7	3.8	**4.2**
7	ARCV 55 Bt	3.9	4.7	4.5	4.8	**4.5**
8	CICR Bt 1142	4.3	5.6	5.2	5.6	**5.2**
9	**Local Check**	3.7	4.9	4.1	4.9	**4.4**
10	ARCV 33 Bt	3.7	3.8	3.5	3.8	**3.7**
11	CICR 20 Bt	3.5	3.6	4.0	5.1	**4.1**

Tenacity under HVI Mode in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Nandyal	Dharwad	Perambalur	Mean
1	CICR Bt 1141	25.0	26.5	25.3	28.4	**26.3**
2	CICR Bt 20-31	23.1	24.4	23.8	25.0	**24.1**
3	**Sahana (Non Bt ZC)**	24.0	26.0	23.8	26.8	**25.2**
4	CPDBt 2051	26.5	25.7	25.6	24.5	**25.6**
5	CICR 61 Bt	26.9	26.4	24.8	25.6	**25.9**
6	CICR 1002 Bt	25.9	27.2	25.1	29.8	**27.0**
7	ARCV 55 Bt	26.5	24.5	25.0	26.0	**25.5**
8	CICR Bt 1142	25.4	24.2	25.1	26.8	**25.4**
9	**Local Check**	25.8	30.8	25.3	28.1	**27.5**
10	ARCV 33 Bt	24.0	25.4	24.6	26.6	**25.2**
11	CICR 20 Bt	22.8	23.1	23.2	23.0	**23.0**

Seed Cotton Yield (q/ha) in Initial Evaluation Trial of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean	Rank
1	CICR Bt 1141	16.00	6.39	6.65	1.52	9.34	**7.98**	11
2	CICR Bt 20-31	20.28	8.92	8.99	4.78	11.66	**10.93**	1
3	**Sahana (Non Bt ZC)**	15.85	7.60	7.58	4.03	10.28	**9.07**	5
4	CPDBt 2051	13.94	7.76	7.70	2.02	14.69	**9.22**	3
5	CICR 61 Bt	15.09	8.26	9.10	0.73	9.10	**8.46**	9
6	CICR 1002 Bt	12.60	9.90	10.97	2.25	8.98	**8.94**	6
7	ARCV 55 Bt	13.07	9.22	7.70	1.12	10.78	**8.38**	10
8	CICR Bt 1142	15.22	9.60	8.87	0.85	9.29	**8.77**	7
9	**Local Check**	12.04	4.25	14.00	4.29	11.12	**9.14**	4
10	ARCV 33 Bt	18.10	10.10	9.10	1.87	9.30	**9.69**	2
11	CICR 20 Bt	15.69	7.37	9.22	1.73	9.44	**8.69**	8
	CD @ 5%	2.64	2.37		0.69	1.06		
	CV %	10.09	17.00		17.64	7.29		

Qualitative Cry Protein Evaluation

All the above entries were positive for Cry 1Ac Protein in qualitative ELISA Test

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect pests

Table: Initial Variety trial under Protected Conditions in South Zone – Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)			
	Dharwad	Perambalur	Mean	Remarks*
CICR Bt 1141	3.13	1.11	2.12	BETL
CICR Bt 20-31	3.73	1.28	2.51	BETL
Sahana (Non Bt ZC)	3.18	1.33	2.26	BETL
CPDBt 2051	3.53	1.09	2.31	BETL
CICR 61 Bt	3.77	0.84	2.31	BETL
CICR 1002 Bt	2.87	0.79	1.83	BETL
ARCV 55 Bt	3.91	1.11	2.51	BETL
CICR Bt 1142	3.36	1.42	2.39	BETL
Local Check	3.69	1.08	2.39	BETL
ARCV 33 Bt	3.79	1.24	2.51	BETL
CICR 20 Bt	3.69	1.79	2.74	BETL

Table: Initial Variety trial under Protected Conditions in South Zone – Thrips

Name of Entry	Thrips(Average of 3 leaves/plant)			
	Dharwad	Perambalur	Mean	Remarks*
CICR Bt 1141	4.46	0.59	2.53	BETL
CICR Bt 20-31	4.74	1.29	3.01	BETL
Sahana (Non Bt ZC)	5.26	0.75	3.01	BETL
CPDBt 2051	5.21	0.76	2.99	BETL
CICR 61 Bt	3.7	1.12	2.41	BETL
CICR 1002 Bt	3.99	1.33	2.66	BETL
ARCV 55 Bt	3.74	1.18	2.46	BETL
CICR Bt 1142	5.57	1.01	3.29	BETL
Local Check	5.13	1.31	3.22	BETL
ARCV 33 Bt	5.88	1.09	3.49	BETL
CICR 20 Bt	5.52	1.28	3.40	BETL

Table: Initial Variety trial under Protected Conditions in South Zone – Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)			
	Dharwad	Perambalur	Mean	Remarks*
CICR Bt 1141	1.29	2.01	1.65	BETL
CICR Bt 20-31	1.94	2.39	2.17	BETL
Sahana (Non Bt ZC)	1.84	2.52	2.18	BETL
CPDBt 2051	1.58	2.70	2.14	BETL
CICR 61 Bt	1.27	2.66	1.97	BETL
CICR 1002 Bt	1.31	2.68	2.00	BETL
ARCV 55 Bt	1.73	2.20	1.96	BETL
CICR Bt 1142	1.24	2.28	1.76	BETL
Local Check	1.31	2.06	1.68	BETL
ARCV 33 Bt	1.36	2.33	1.85	BETL
CICR 20 Bt	1.51	2.30	1.91	BETL

Table: Initial Variety trial under Protected Conditions in South Zone – Natural Enemies

Name of Entry	Natural enemy (No./plant)	
	Perambalur	Mean
CICR Bt 1141	6.00	6.00
CICR Bt 20-31	4.00	4.00
Sahana (Non Bt ZC)	2.00	2.00
CPDBt 2051	7.00	7.00
CICR 61 Bt	5.00	5.00
CICR 1002 Bt	1.00	1.00
ARCV 55 Bt	3.00	3.00
CICR Bt 1142	6.00	6.00
Local Check	8.00	8.00
ARCV 33 Bt	7.00	7.00
CICR 20 Bt	2.00	2.00

Table: Initial Variety trial under Protected Conditions in South Zone – Bollworms - *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)			
	Dharwad	Perambalur	Mean	Remarks*
CICR Bt 1141	0.00	0	0.00	BETL
CICR Bt 20-31	0.00	0	0.00	BETL
Sahana (Non Bt ZC)	0.00	0	0.00	BETL
CPDBt 2051	0.00	0	0.00	BETL
CICR 61 Bt	0.00	0	0.00	BETL
CICR 1002 Bt	0.00	0	0.00	BETL
ARCV 55 Bt	0.00	0	0.00	BETL
CICR Bt 1142	0.00	0	0.00	BETL
Local Check	0.00	0	0.00	BETL
ARCV 33 Bt	0.00	0	0.00	BETL
CICR 20 Bt	0.00	0	0.00	BETL

Table: Initial Variety trial under Protected Conditions in South Zone – *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)			
	Dharwad	Perambalur	Mean	Remarks*
CICR Bt 1141	0.00	0.00	0.00	BETL
CICR Bt 20-31	0.00	0.00	0.00	BETL
Sahana (Non Bt ZC)	0.00	0.00	0.00	BETL
CPDBt 2051	0.00	0.00	0.00	BETL
CICR 61 Bt	0.00	0.00	0.00	BETL
CICR 1002 Bt	0.00	0.00	0.00	BETL
ARCV 55 Bt	0.00	0.00	0.00	BETL
CICR Bt 1142	0.00	0.00	0.00	BETL
Local Check	0.00	0.00	0.00	BETL
ARCV 33 Bt	0.00	0.00	0.00	BETL
CICR 20 Bt	0.00	0.00	0.00	BETL

Table: Initial Variety trial under Protected Conditions in South Zone – Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)			
	Dharwad	Perambalur	Mean	Remarks*
CICR Bt 1141	0.00	0	0.00	BETL
CICR Bt 20-31	0.00	0	0.00	BETL
Sahana (Non Bt ZC)	0.00	0	0.00	BETL
CPDBt 2051	0.00	0	0.00	BETL
CICR 61 Bt	0.00	0	0.00	BETL
CICR 1002 Bt	0.00	0	0.00	BETL
ARCV 55 Bt	0.00	0	0.00	BETL
CICR Bt 1142	0.00	0	0.00	BETL
Local Check	0.00	0	0.00	BETL
ARCV 33 Bt	0.00	0	0.00	BETL
CICR 20 Bt	0.00	0	0.00	BETL

Table: Initial Variety trial under Protected Conditions in South Zone – Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)		
	Dharwad	Mean	Remarks*
CICR Bt 1141	10.78	10.78	AETL
CICR Bt 20-31	10.67	10.67	AETL
Sahana (Non Bt ZC)	10.89	10.89	AETL
CPDBt 2051	9.89	9.89	AETL
CICR 61 Bt	10.11	10.11	AETL
CICR 1002 Bt	10.22	10.22	AETL
ARCV 55 Bt	10.56	10.56	AETL
CICR Bt 1142	10.78	10.78	AETL
Local Check	11.67	11.67	AETL
ARCV 33 Bt	12.89	12.89	AETL
CICR 20 Bt	12.11	12.11	AETL

Table: Initial Variety trial under Protected Conditions in South Zone – Green Boll damage

Name of Entry	Green Boll damage (%)			
	Dharwad	Perambalur	Mean	Remarks*
CICR Bt 1141	0.0	0.00	0.00	BETL
CICR Bt 20-31	0.0	0.00	0.00	BETL
Sahana (Non Bt ZC)	0.0	0.00	0.00	BETL
CPDBt 2051	0.0	0.00	0.00	BETL
CICR 61 Bt	0.0	0.00	0.00	BETL
CICR 1002 Bt	0.0	0.00	0.00	BETL
ARCV 55 Bt	0.0	0.00	0.00	BETL
CICR Bt 1142	0.0	0.00	0.00	BETL
Local Check	0.0	0.00	0.00	BETL
ARCV 33 Bt	0.0	0.00	0.00	BETL
CICR 20 Bt	0.0	0.00	0.00	BETL

Table: Initial Variety trial under Protected Conditions in South Zone – Open Boll damage

Name of Entry	Open Boll damage (%)		
	Dharwad	Mean	Remarks*
CICR Bt 1141	13.33	13.33	AETL
CICR Bt 20-31	14.67	14.67	AETL
Sahana (Non Bt ZC)	16.00	16.00	AETL
CPDBt 2051	16.33	16.33	AETL
CICR 61 Bt	17.33	17.33	AETL
CICR 1002 Bt	16.33	16.33	AETL
ARCV 55 Bt	14.67	14.67	AETL
CICR Bt 1142	17.33	17.33	AETL
Local Check	18.67	18.67	AETL
ARCV 33 Bt	17.00	17.00	AETL
CICR 20 Bt	19.67	19.67	AETL

Table: Initial Variety trial under Protected Conditions in South Zone – Locule damage

Name of Entry	Locule damage (%)		
	Dharwad	Perambalur	Mean
CICR Bt 1141	16.70	0.00	8.35
CICR Bt 20-31	18.00	0.00	9.00
Sahana (Non Bt ZC)	20.70	0.00	10.35
CPDBt 2051	19.30	0.00	9.65
CICR 61 Bt	18.70	0.00	9.35
CICR 1002 Bt	19.30	0.00	9.65
ARCV 55 Bt	16.30	0.00	8.15
CICR Bt 1142	18.30	0.00	9.15
Local Check	19.30	0.00	9.65
ARCV 33 Bt	18.00	0.00	9.00
CICR 20 Bt	19.00	0.00	9.50

Table: Initial Variety trial under Protected Conditions in South Zone – Number of sprays for sucking pests

Name of Entry	Sprays applied for sap sucking pests (Nos.)	
	Perambalur	Mean
CICR Bt 1141	6.00	6.00
CICR Bt 20-31	6.00	6.00
Sahana (Non Bt ZC)	6.00	6.00
CPDBt 2051	6.00	6.00
CICR 61 Bt	6.00	6.00
CICR 1002 Bt	6.00	6.00
ARCV 55 Bt	6.00	6.00
CICR Bt 1142	6.00	6.00
Local Check	6.00	6.00
ARCV 33 Bt	6.00	6.00
CICR 20 Bt	6.00	6.00

Reaction to Diseases

Table: Initial Evaluation Trial of Hirsutum Varieties – Rainfed conditions (Protected: South Zone)

Entry	Average PDI & Disease Reaction (DR): Protected									
	Nandyal		Dharwad							
	ALB		ALB		BLB		GM		Rust	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
CICR Bt 1141	33.3	MR	7.8	R	0.0	DF	0.0	DF	12.8	R
CICR Bt 20-31	48.3	MR	10.9	R	0.0	DF	0.0	DF	13.2	R
Sahana (Non Bt ZC)	33.3	MR	11.9	R	0.0	DF	0.0	DF	11.3	R
CPDBt 2051	30.0	MR	7.8	R	0.0	DF	0.0	DF	12.3	R
CICR 61 Bt	38.3	MR	8.2	R	0.0	DF	0.0	DF	12.7	R
CICR 1002 Bt	33.3	MR	11.2	R	0.0	DF	0.0	DF	11.8	R
ARCV 55 Bt	33.3	MR	8.8	R	0.0	DF	0.0	DF	13.4	R
CICR Bt 1142	36.7	MR	10.4	R	0.0	DF	0.0	DF	11.8	R
(LC)	20.0	R	12.3	R	0.0	DF	0.0	DF	12.2	R
ARCV 33 Bt	40.0	MR	8.0	R	0.0	DF	0.0	DF	12.1	R
CICR 20 Bt	31.7	MR	11.8	R	0.0	DF	0.0	DF	12.9	R

Evaluation under Unprotected Condition for Insect pests & Diseases incidences

Reaction to Insect pests

Table: Initial Variety trial under Unprotected Conditions in South Zone – Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)			
	Dharwad	Nandyal	Mean	Remarks*
CICR Bt 1141	4.90	1.20	3.05	BETL
CICR Bt 20-31	4.50	2.00	3.25	BETL
Sahana (Non Bt ZC)	4.40	4.13	4.27	BETL
CPDBt 2051	4.60	4.60	4.60	BETL
CICR 61 Bt	6.00	2.60	4.30	BETL
CICR 1002 Bt	4.60	2.00	3.30	BETL
ARCV 55 Bt	5.20	2.40	3.80	BETL
CICR Bt 1142	4.80	2.40	3.60	BETL
Local Check	4.90	3.73	4.32	BETL
ARCV 33 Bt	5.00	4.07	4.53	BETL
CICR 20 Bt	4.60	3.13	3.87	BETL

Table: Initial Variety trial under Unprotected Conditions in South Zone – Thrips

Name of Entry	Thrips(Average of 3 leaves/plant)			
	Dharwad	Nandyal	Mean	Remarks*
CICR Bt 1141	23.37	0.20	11.79	BETL
CICR Bt 20-31	25.17	0.00	12.59	BETL
Sahana (Non Bt ZC)	24.46	0.00	12.23	BETL
CPDBt 2051	23.84	0.73	12.29	BETL
CICR 61 Bt	23.4	0.00	11.70	BETL
CICR 1002 Bt	23.44	0.00	11.72	BETL
ARCV 55 Bt	23.73	0.00	11.87	BETL
CICR Bt 1142	24.77	0.27	12.52	BETL
Local Check	24.89	0.00	12.45	BETL
ARCV 33 Bt	26.6	0.00	13.30	BETL
CICR 20 Bt	26.11	0.00	13.06	BETL

Table: Initial Variety trial under Unprotected Conditions in South Zone – Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)			
	Dharwad	Nandyal	Mean	Remarks*
CICR Bt 1141	1.70	0.47	1.08	BETL
CICR Bt 20-31	2.40	0.47	1.43	BETL
Sahana (Non Bt ZC)	2.30	0.13	1.22	BETL
CPDBt 2051	2.20	0.13	1.17	BETL
CICR 61 Bt	1.70	0.53	1.12	BETL
CICR 1002 Bt	1.80	0.20	1.00	BETL
ARCV 55 Bt	2.10	0.33	1.22	BETL
CICR Bt 1142	1.60	0.33	0.97	BETL
Local Check	1.70	0.33	1.02	BETL
ARCV 33 Bt	1.90	0.27	1.08	BETL
CICR 20 Bt	2.00	0.40	1.20	BETL

Table: Initial Variety trial under Unprotected Conditions in South Zone – Natural Enemies

Name of Entry	Natural enemy (No./plant)	
	Nandyal	Mean
CICR Bt 1141	0.13	0.13
CICR Bt 20-31	0.07	0.07
Sahana (Non Bt ZC)	0.13	0.13
CPDBt 2051	0.07	0.07
CICR 61 Bt	0.00	0.00
CICR 1002 Bt	0.07	0.07
ARCV 55 Bt	0.13	0.13
CICR Bt 1142	0.27	0.27
Local Check	0.00	0.00
ARCV 33 Bt	0.20	0.20
CICR 20 Bt	0.07	0.07

Table: Initial Variety trial under Unprotected Conditions in South Zone – Bollworms - *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)		
	Dharwad	Mean	Remarks*
CICR Bt 1141	0.00	0.00	BETL
CICR Bt 20-31	0.00	0.00	BETL
Sahana (Non Bt ZC)	0.00	0.00	BETL
CPDBt 2051	0.00	0.00	BETL
CICR 61 Bt	0.00	0.00	BETL
CICR 1002 Bt	0.00	0.00	BETL
ARCV 55 Bt	0.00	0.00	BETL
CICR Bt 1142	0.00	0.00	BETL
Local Check	0.00	0.00	BETL
ARCV 33 Bt	0.00	0.00	BETL
CICR 20 Bt	0.00	0.00	BETL

Table: Initial Variety trial under Unprotected Conditions in South Zone – *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)		
	Dharwad	Mean	Remarks*
CICR Bt 1141	0.00	0.00	BETL
CICR Bt 20-31	0.00	0.00	BETL
Sahana (Non Bt ZC)	0.00	0.00	BETL
CPDBt 2051	0.00	0.00	BETL
CICR 61 Bt	0.00	0.00	BETL
CICR 1002 Bt	0.00	0.00	BETL
ARCV 55 Bt	0.00	0.00	BETL
CICR Bt 1142	0.00	0.00	BETL
Local Check	0.00	0.00	BETL
ARCV 33 Bt	0.00	0.00	BETL
CICR 20 Bt	0.00	0.00	BETL

Table: Initial Variety trial under Unprotected Conditions in South Zone – Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)		
	Dharwad	Mean	Remarks*
CICR Bt 1141	0.00	0.00	BETL
CICR Bt 20-31	0.00	0.00	BETL
Sahana (Non Bt ZC)	0.00	0.00	BETL
CPDBt 2051	0.00	0.00	BETL
CICR 61 Bt	0.00	0.00	BETL
CICR 1002 Bt	0.00	0.00	BETL
ARCV 55 Bt	0.00	0.00	BETL
CICR Bt 1142	0.00	0.00	BETL
Local Check	0.00	0.00	BETL
ARCV 33 Bt	0.00	0.00	BETL
CICR 20 Bt	0.00	0.00	BETL

Table: Initial Variety trial under Unprotected Conditions in South Zone – Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)		
	Dharwad	Mean	Remarks*
CICR Bt 1141	13.56	13.56	AETL
CICR Bt 20-31	13.33	13.33	AETL
Sahana (Non Bt ZC)	13.89	13.89	AETL
CPDBt 2051	13.00	13.00	AETL
CICR 61 Bt	13.00	13.00	AETL
CICR 1002 Bt	13.22	13.22	AETL
ARCV 55 Bt	14.11	14.11	AETL
CICR Bt 1142	14.00	14.00	AETL
Local Check	14.22	14.22	AETL
ARCV 33 Bt	15.89	15.89	AETL
CICR 20 Bt	15.33	15.33	AETL

Table: Initial Variety trial under Unprotected Conditions in South Zone – Green Boll damage

Name of Entry	Green Boll damage (%)			
	Dharwad	Nandyal	Mean	Remarks*
CICR Bt 1141	0.00	41.67	20.83	AETL
CICR Bt 20-31	0.00	53.33	26.67	AETL
Sahana (Non Bt ZC)	0.00	60.00	30.00	AETL
CPDBt 2051	0.00	43.33	21.67	AETL
CICR 61 Bt	0.00	58.33	29.17	AETL
CICR 1002 Bt	0.00	65.00	32.50	AETL
ARCV 55 Bt	0.00	56.67	28.33	AETL
CICR Bt 1142	0.00	70.00	35.00	AETL
Local Check	0.00	60.00	30.00	AETL
ARCV 33 Bt	0.00	55.00	27.50	AETL
CICR 20 Bt	0.00	60.00	30.00	AETL

Table: Initial Variety trial under Unprotected Conditions in South Zone – Open Boll damage

Name of Entry	Open Boll damage (%)			
	Dharwad	Nandyal	Mean	Remarks*
CICR Bt 1141	20.00	43.85	31.92	AETL
CICR Bt 20-31	18.67	33.77	26.22	AETL
Sahana (Non Bt ZC)	20.67	50.58	35.62	AETL
CPDBt 2051	20.67	36.67	28.67	AETL
CICR 61 Bt	23.67	30.90	27.29	AETL
CICR 1002 Bt	20.33	36.92	28.63	AETL
ARCV 55 Bt	20.00	45.28	32.64	AETL
CICR Bt 1142	19.33	37.58	28.45	AETL
Local Check	23.33	35.46	29.40	AETL
ARCV 33 Bt	22.67	33.48	28.07	AETL
CICR 20 Bt	24.33	41.95	33.14	AETL

Table: Initial Variety trial under Unprotected Conditions in South Zone – Locule damage

Name of Entry	Locule damage (%)		
	Dharwad	Nandyal	Mean
CICR Bt 1141	19.30	23.27	21.29
CICR Bt 20-31	22.30	23.60	22.95
Sahana (Non Bt ZC)	23.30	31.25	27.27
CPDBt 2051	24.30	18.81	21.55
CICR 61 Bt	22.70	19.43	21.07
CICR 1002 Bt	23.70	35.00	29.35
ARCV 55 Bt	24.00	29.17	26.58
CICR Bt 1142	23.70	22.74	23.22
Local Check	22.00	29.86	25.93
ARCV 33 Bt	20.70	18.29	19.50
CICR 20 Bt	23.30	29.51	26.41

Reaction to Diseases

Table: Initial Evaluation Trial of Hirsutum Varieties – Rainfed (Unprotected: Dharwad)

Entry	Average PDI & Disease Reaction (DR): un-Protected (Dharwad)							
	ALB		BLB		GM		Rust	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR
CICR Bt 1141	19.4	R	0.0	DF	0.0	DF	25.3	MR
CICR Bt 20-31	25.4	MR	0.0	DF	0.0	DF	25.3	MR
Sahana (Non Bt ZC)	21.5	R	0.0	DF	0.0	DF	26.6	MR
CPDBt 2051	23.5	R	12.1	R	0.0	DF	26.0	MR
CICR 61 Bt	26.0	MR	0.0	DF	0.0	DF	24.4	R
CICR 1002 Bt	21.8	R	0.0	DF	0.0	DF	21.6	R
ARCV 55 Bt	21.8	R	0.0	DF	0.0	DF	25.6	MR
CICR Bt 1142	25.1	MR	12.5	R	0.0	DF	24.4	R
(LC)	19.3	R	12.9	R	0.0	DF	25.5	MR
ARCV 33 Bt	25.4	MR	9.8	R	0.0	DF	24.4	R
CICR 20 Bt	26.8	MR	0.0	DF	0.0	DF	25.1	MR

Advanced Evaluation Trial (I) of Hirsutum Varieties in South Zone (2020-21) - under Rainfed Condition

Constitution of Trial

The trial was constituted with four Bt cotton varieties containing deregulated event along with two different check varieties as furnished below.

S. No.	Name of Variety
1	CICR Bt 19-31
2	**Sahana (Non Bt ZC)**
3	CPD Bt 1952
4	Rasi 66 Bt
5	CPD Bt 1951
6	**Local Check**
7	Rasi 99 Bt
8	Bt 183059-2

The trial was conducted in five different locations and detail is furnished below.

Name of the trial location	Dharwad	Nandyal	Mudhole	Adilabad	Perambalur
Local check Non Bt Variety	ARBH 813	Sivanandi	Sivanandi	Sivanandi	KC 3

Spacing: Two separate trials viz., one with recommended spacing for the variety and another with half the spacing between plants have been followed.

Number of rows:4 rows of 6 meters per entry with five replications

Data recorded:

Biometric evaluation

Plant height (cm) at harvest in Advanced Evaluation Trial (I) of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR Bt 19-31	123.1	126.3	87.0	88.2	126.0	**110.1**
2	**Sahana (Non Bt ZC)**	137.1	136.0	66.0	98.8	139.8	**115.5**
3	CPD Bt 1952	106.5	129.7	84.0	88.7	127.8	**107.3**
4	Rasi 66 Bt	119.7	119.2	69.0	90.5	112.4	**102.2**
5	CPD Bt 1951	134.3	136.4	56.0	89.1	113.4	**105.8**
6	**Local Check**	148.1	127.4	71.0	92.8	118.4	**111.5**
7	Rasi 99 Bt	114.3	107.3	69.0	71.4	116.2	**95.6**
8	Bt 183059-2	129.3	122.6	52.0	94.1	130.4	**105.7**
	CD @ 5%	16.3				14.0	
	CV %	7.3				7.9	

Number of monopodia in Advanced Evaluation Trial (I) of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR Bt 19-31	0.5	0.3	0.0	0.5	1.3	**0.5**
2	**Sahana (Non Bt ZC)**	1.3	1.1	0.0	1.9	1.8	**1.2**
3	CPD Bt 1952	1.8	0.9	0.2	2.1	1.9	**1.4**
4	Rasi 66 Bt	1.1	0.7	0.0	1.4	1.0	**0.8**
5	CPD Bt 1951	1.8	0.8	0.8	1.6	1.8	**1.4**
6	**Local Check**	1.5	1.1	1.0	2.1	1.4	**1.4**
7	Rasi 99 Bt	1.1	0.3	1.0	1.1	1.4	**1.0**
8	Bt 183059-2	1.5	0.1	0.4	1.2	2.1	**1.1**
	CD @ 5%	0.6				0.3	
	CV %	23.9				14.1	

Number of sympodia in Advanced Evaluation Trial (I) of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR Bt 19-31	13.2	19.4	8.2	14.9	19.1	**15.0**
2	**Sahana (Non Bt ZC)**	13.4	18.1	7.2	14.6	21.7	**15.0**
3	CPD Bt 1952	9.7	16.8	6.8	14.2	19.5	**13.4**
4	Rasi 66 Bt	13.9	16.3	9.8	13.8	20.0	**14.8**
5	CPD Bt 1951	15.3	17.5	9.0	13.8	14.7	**14.1**
6	**Local Check**	15.3	18.8	12.2	15.2	16.4	**15.6**
7	Rasi 99 Bt	12.5	14.7	9.4	11.9	21.1	**13.9**
8	Bt 183059-2	13.9	16.3	7.6	15.4	19.3	**14.5**
	CD @ 5%	2.5				3.5	
	CV %	10.7				12.7	

Number of bolls / plant in Advanced Evaluation Trial (I) of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR Bt 19-31	14.0	18.6	13.0	8.9	20.0	**14.9**
2	**Sahana (Non Bt ZC)**	15.3	13.7	10.0	5.2	22.3	**13.3**
3	CPD Bt 1952	11.3	13.6	4.7	5.1	18.7	**10.7**
4	Rasi 66 Bt	18.5	12.5	8.0	8.6	17.5	**13.0**
5	CPD Bt 1951	12.9	11.4	5.9	5.3	20.7	**11.2**
6	**Local Check**	12.4	10.6	6.9	6.5	21.6	**11.6**
7	Rasi 99 Bt	12.9	10.1	6.0	4.3	20.7	**10.8**
8	Bt 183059-2	16.7	15.7	6.7	7.3	20.0	**13.3**
	CD @ 5%	2.4				4.0	
	CV %	9.6				13.9	

Number of bolls / sq.m. in Advanced Evaluation Trial (I) of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR Bt 19-31	66.0	108.3	67.0	96.0	36.0	**74.7**
2	**Sahana (Non Bt ZC)**	82.0	83.0	54.0	63.3	30.7	**62.6**
3	CPD Bt 1952	58.7	82.0	28.0	64.7	21.3	**50.9**
4	Rasi 66 Bt	98.7	77.3	40.0	103.3	33.6	**70.6**
5	CPD Bt 1951	73.7	66.3	44.0	62.0	32.0	**55.6**
6	**Local Check**	65.3	60.7	47.0	83.7	29.3	**57.2**
7	Rasi 99 Bt	85.7	57.0	45.0	55.0	28.1	**54.2**
8	Bt 183059-2	85.3	100.7	42.0	80.3	29.9	**67.6**
	CD @ 5%	9.6				5.4	
	CV %	7.0				12.4	

Lint Index (g) in Advanced Evaluation Trial (I) of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR Bt 19-31	4.7	3.4	4.9	5.7	5.3	**4.8**
2	**Sahana (Non Bt ZC)**	4.1	4.0	4.8	5.8	5.2	**4.8**
3	CPD Bt 1952	4.7	4.3	5.2	6.7	5.3	**5.2**
4	Rasi 66 Bt	4.2	4.0	4.4	5.6	5.4	**4.7**
5	CPD Bt 1951	4.8	4.2	5.2	6.4	5.2	**5.2**
6	**Local Check**	4.6	4.5	4.5	5.2	5.4	**4.8**
7	Rasi 99 Bt	4.8	3.9	5.0	5.6	5.3	**4.9**
8	Bt 183059-2	4.0	3.5	5.0	5.7	5.2	**4.7**
	CD @ 5%	0.5				0.2	
	CV %	6.3				3.2	

Seed Index (g) in Advanced Evaluation Trial (I) of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR Bt 19-31	6.7	5.8	7.7	6.5	12.2	**7.8**
2	**Sahana (Non Bt ZC)**	6.8	6.1	7.7	8.5	12.5	**8.3**
3	CPD Bt 1952	7.5	6.9	8.8	10.0	12.5	**9.1**
4	Rasi 66 Bt	7.4	7.1	9.0	9.5	12.4	**9.1**
5	CPD Bt 1951	7.3	6.6	8.6	9.0	12.1	**8.7**
6	**Local Check**	9.1	6.9	9.1	8.5	12.6	**9.2**
7	Rasi 99 Bt	7.2	6.7	11.1	9.5	12.5	**9.4**
8	Bt 183059-2	7.3	5.8	8.5	8.5	12.5	**8.5**
	CD @ 5%	1.0				0.3	
	CV %	7.3				1.8	

Ginning outturn (%) in Advanced Evaluation Trial (I) of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR Bt 19-31	41.4	36.4	40.0	46.8	36.5	**40.2**
2	**Sahana (Non Bt ZC)**	37.6	39.7	37.4	40.4	35.5	**38.1**
3	CPD Bt 1952	38.4	38.7	36.7	40.3	33.9	**37.6**
4	Rasi 66 Bt	36.3	36.7	33.0	37.0	34.7	**35.5**
5	CPD Bt 1951	39.8	39.1	36.4	41.7	35.0	**38.4**
6	**Local Check**	33.6	39.3	31.6	38.0	34.6	**35.4**
7	Rasi 99 Bt	40.1	36.6	34.4	36.9	36.2	**36.8**
8	Bt 183059-2	35.5	38.0	35.4	40.3	33.6	**36.6**
	CD @ 5%	3.6				2.4	
	CV %	5.4				4.8	

Upper Half Mean Length (mm) under HVI Mode in Advanced Evaluation Trial (I) of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Nandyal	Dharwad	Perambalur	Mean
1	CICR Bt 19-31	22.0	23.5	23.2	23.5	**23.1**
2	**Sahana (Non Bt ZC)**	25.1	23.7	25.7	25.0	**24.9**
3	CPD Bt 1952	23.8	25.7	25.2	25.3	**25.0**
4	Rasi 66 Bt	28.1	27.1	28.3	30.8	**28.6**
5	CPD Bt 1951	25.5	24.8	27.3	28.2	**26.5**
6	**Local Check**	27.9	27.2	26.4	28.6	**27.5**
7	Rasi 99 Bt	27.1	27.5	27.8	26.9	**27.3**
8	Bt 183059-2	23.2	26.8	24.8	26.5	**25.3**

Uniformity index under HVI Mode in Advanced Evaluation Trial (I) of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Nandyal	Dharwad	Perambalur	Mean
1	CICR Bt 19-31	82.0	79.0	83.0	83.0	**81.8**
2	**Sahana (Non Bt ZC)**	83.0	80.0	84.0	82.0	**82.3**
3	CPD Bt 1952	83.0	81.0	82.0	81.0	**81.8**
4	Rasi 66 Bt	83.0	82.0	85.0	80.0	**82.5**
5	CPD Bt 1951	81.0	81.0	86.0	83.0	**82.8**
6	**Local Check**	82.0	82.0	85.0	84.0	**83.3**
7	Rasi 99 Bt	82.0	84.0	85.0	82.0	**83.3**
8	Bt 183059-2	81.0	79.0	82.0	86.0	**82.0**

Micronaire under HVI Mode in Advanced Evaluation Trial (I) of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Nandyal	Dharwad	Perambalur	Mean
1	CICR Bt 19-31	4.6	4.9	5.0	5.5	**5.0**
2	**Sahana (Non Bt ZC)**	4.1	4.3	4.6	3.3	**4.1**
3	CPD Bt 1952	4.4	4.2	4.5	3.3	**4.1**
4	Rasi 66 Bt	3.4	3.8	3.8	4.1	**3.8**
5	CPD Bt 1951	5.1	4.8	5.1	5.5	**5.1**
6	**Local Check**	3.9	4.6	4.4	5.4	**4.6**
7	Rasi 99 Bt	4.0	4.2	3.8	3.1	**3.8**
8	Bt 183059-2	3.6	4.3	4.7	5.5	**4.5**

Tenacity under HVI Mode in Advanced Evaluation Trial (I) of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Nandyal	Dharwad	Perambalur	Mean
1	CICR Bt 19-31	21.8	24.0	21.8	23.3	**22.7**
2	**Sahana (Non Bt ZC)**	25.1	23.8	25.0	24.0	**24.5**
3	CPD Bt 1952	23.3	25.9	24.6	25.3	**24.8**
4	Rasi 66 Bt	25.3	27.6	25.6	29.1	**26.9**
5	CPD Bt 1951	23.8	24.1	26.0	26.5	**25.1**
6	**Local Check**	25.9	27.4	26.1	26.0	**26.4**
7	Rasi 99 Bt	26.3	26.6	25.3	25.2	**25.9**
8	Bt 183059-2	23.4	27.3	24.7	26.7	**25.5**

Seed Cotton Yield (q/ha) in Advanced Evaluation Trial (I) of Hirsutum Varieties in normal spacing

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean	Rank
1	CICR Bt 19-31	16.62	10.81	13.25	4.40	11.08	**11.2**	2
2	**Sahana (Non Bt ZC)**	19.37	10.17	8.23	5.60	11.35	**10.9**	3
3	CPD Bt 1952	13.73	7.36	6.50	4.36	11.07	**8.6**	8
4	Rasi 66 Bt	23.98	7.80	8.13	7.17	14.69	**12.4**	1
5	CPD Bt 1951	19.07	10.60	6.72	6.02	9.10	**10.3**	6
6	**Local Check**	14.55	6.89	7.80	7.24	8.98	**9.1**	7
7	Rasi 99 Bt	18.82	9.59	6.83	6.13	10.78	**10.4**	5
8	Bt 183059-2	19.94	10.23	8.13	5.48	9.29	**10.6**	4
	CD @ 5%	2.60	2.14		1.17	1.38		
	CV %	8.06	13.18		11.75	8.91		

Number of bolls / sq.m. in Advanced Evaluation Trial (I) of Hirsutum Varieties in closer spacing

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR Bt 19-31	88.7	117.3	57.0	56.0	31.2	**70.0**
2	**Sahana (Non Bt ZC)**	104.0	107.3	66.0	58.7	33.3	**73.9**
3	CPD Bt 1952	71.0	92.0	49.0	43.7	20.6	**55.3**
4	Rasi 66 Bt	94.3	82.7	71.0	58.7	36.3	**68.6**
5	CPD Bt 1951	106.0	92.0	59.0	56.7	35.4	**69.8**
6	**Local Check**	88.7	77.7	52.0	69.7	32.7	**64.2**
7	Rasi 99 Bt	88.3	82.7	49.0	43.0	23.6	**57.3**
8	Bt 183059-2	94.7	103.0	50.0	48.0	31.7	**65.5**
	CD @ 5%	10.2				3.2	
	CV %	6.3				7.3	

Seed Cotton Yield (q/ha) in Advanced Evaluation Trial (I) of Hirsutum Varieties in closer spacing

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean	Rank
1	CICR Bt 19-31	15.94	15.11	10.75	4.15	12.88	**11.8**	4
2	**Sahana (Non Bt ZC)**	17.76	15.87	11.84	3.05	12.70	**12.2**	3
3	CPD Bt 1952	11.10	11.23	6.53	3.14	12.53	**8.9**	8
4	Rasi 66 Bt	17.61	13.17	13.34	6.72	16.69	**13.5**	1
5	CPD Bt 1951	17.69	15.40	10.84	3.50	16.29	**12.7**	2
6	**Local Check**	10.59	10.77	7.33	5.99	12.66	**9.5**	7
7	Rasi 99 Bt	13.98	13.47	10.34	4.72	11.50	**10.8**	6
8	Bt 183059-2	16.16	15.05	10.17	3.22	13.07	**11.5**	5
	CD @ 5%	3.27	3.19		0.84	1.34		
	CV %	12.23	13.12		11.08	6.90		

Qualitative Cry Protein Evaluation

All the above entries were positive for Cry 1Ac Protein in qualitative ELISA Test

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect pests

Table: Advance Variety trial under Protected Conditions in South Zone – Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)			
	Dharwad	Perambalur	Mean	Remarks*
CICR Bt 19-31	1.80	1.02	1.41	BETL
Sahana (Non Bt ZC)	1.90	0.84	1.37	BETL
CPD Bt 1952	2.40	0.87	1.64	BETL
Rasi 66 Bt	2.20	0.72	1.46	BETL
CPD Bt 1951	1.90	0.95	1.42	BETL
Local Check	2.60	0.92	1.76	BETL
Rasi 99 Bt	2.70	0.64	1.67	BETL
Bt 183059-2	2.80	1.41	2.11	BETL

Table: Advance Variety trial under Protected Conditions in South Zone – Thrips

Name of Entry	Thrips(Average of 3 leaves/plant)			
	Dharwad	Perambalur	Mean	Remarks*
CICR Bt 19-31	1.70	1.49	1.59	BETL
Sahana (Non Bt ZC)	2.10	1.57	1.84	BETL
CPD Bt 1952	2.30	1.24	1.77	BETL
Rasi 66 Bt	2.20	1.64	1.92	BETL
CPD Bt 1951	2.00	1.90	1.95	BETL
Local Check	2.30	1.95	2.13	BETL
Rasi 99 Bt	2.10	1.55	1.83	BETL
Bt 183059-2	1.50	1.42	1.46	BETL

Table: Advance Variety trial under Protected Conditions in South Zone – Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)			
	Dharwad	Perambalur	Mean	Remarks*
CICR Bt 19-31	1.10	2.24	1.67	BETL
Sahana (Non Bt ZC)	1.10	2.40	1.75	BETL
CPD Bt 1952	1.20	2.27	1.74	BETL
Rasi 66 Bt	1.20	1.17	1.18	BETL
CPD Bt 1951	1.00	2.06	1.53	BETL
Local Check	1.40	2.45	1.93	BETL
Rasi 99 Bt	1.40	1.45	1.43	BETL
Bt 183059-2	1.30	2.54	1.92	BETL

Table: Advance Variety trial under Protected Conditions in South Zone – Natural Enemies

Name of Entry	Natural enemy (No./plant)	
	Perambalur	Mean
CICR Bt 19-31	4.00	4.00
Sahana (Non Bt ZC)	6.00	6.00
CPD Bt 1952	2.00	2.00
Rasi 66 Bt	4.00	4.00
CPD Bt 1951	7.00	7.00
Local Check	9.00	9.00
Rasi 99 Bt	8.00	8.00
Bt 183059-2	3.00	3.00

Table:Advance Variety trial under Protected Conditions in South Zone – Bollworms - *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)			
	Dharwad	Perambalur	Mean	Remarks*
CICR Bt 19-31	0.00	0	0.00	BETL
Sahana (Non Bt ZC)	0.00	0	0.00	BETL
CPD Bt 1952	0.00	0	0.00	BETL
Rasi 66 Bt	0.00	0	0.00	BETL
CPD Bt 1951	0.00	0	0.00	BETL
Local Check	0.00	0	0.00	BETL
Rasi 99 Bt	0.00	0	0.00	BETL
Bt 183059-2	0.00	0	0.00	BETL

Table: Advance Variety trial under Protected Conditions in South Zone – *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)			
	Dharwad	Perambalur	Mean	Remarks*
CICR Bt 19-31	0.00	0.00	0.00	BETL
Sahana (Non Bt ZC)	0.00	0.00	0.00	BETL
CPD Bt 1952	0.00	0.00	0.00	BETL
Rasi 66 Bt	0.00	0.00	0.00	BETL
CPD Bt 1951	0.00	0.00	0.00	BETL
Local Check	0.00	0.00	0.00	BETL
Rasi 99 Bt	0.00	0.00	0.00	BETL
Bt 183059-2	0.00	0.00	0.00	BETL

Table: Advance Variety trial under Protected Conditions in South Zone – Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)			
	Dharwad	Perambalur	Mean	Remarks*
CICR Bt 19-31	0.00	0	0.00	BETL
Sahana (Non Bt ZC)	0.00	0	0.00	BETL
CPD Bt 1952	0.00	0	0.00	BETL
Rasi 66 Bt	0.00	0	0.00	BETL
CPD Bt 1951	0.00	0	0.00	BETL
Local Check	0.00	0	0.00	BETL
Rasi 99 Bt	0.00	0	0.00	BETL
Bt 183059-2	0.00	0	0.00	BETL

Table: Advance Variety trial I under Protected Conditions in South Zone – Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)		
	Dharwad	Mean	Remarks*
CICR Bt 19-31	10.90	10.90	AETL
Sahana (Non Bt ZC)	9.90	9.90	AETL
CPD Bt 1952	8.90	8.90	AETL
Rasi 66 Bt	8.50	8.50	AETL
CPD Bt 1951	10.50	10.50	AETL
Local Check	9.20	9.20	AETL
Rasi 99 Bt	10.30	10.30	AETL
Bt 183059-2	10.40	10.40	AETL

Table: Advance Variety trial I under Protected Conditions in South Zone – Green Boll damage

Name of Entry	Green Boll damage (%)			
	Dharwad	Perambalur	Mean	Remarks*
CICR Bt 19-31	0.00	0.00	0.00	BETL
Sahana (Non Bt ZC)	0.00	0.00	0.00	BETL
CPD Bt 1952	0.00	0.00	0.00	BETL
Rasi 66 Bt	0.00	0.00	0.00	BETL
CPD Bt 1951	0.00	0.00	0.00	BETL
Local Check	0.00	0.00	0.00	BETL
Rasi 99 Bt	0.00	0.00	0.00	BETL
Bt 183059-2	0.00	0.00	0.00	BETL

Table: Advance Variety trial I under Protected Conditions in South Zone – Open Boll damage

Name of Entry	Open Boll damage (%)		
	Dharwad	Mean	Remarks*
CICR Bt 19-31	14.70	14.70	AETL
Sahana (Non Bt ZC)	16.40	16.40	AETL
CPD Bt 1952	18.10	18.10	AETL
Rasi 66 Bt	17.10	17.10	AETL
CPD Bt 1951	17.40	17.40	AETL
Local Check	15.30	15.30	AETL
Rasi 99 Bt	13.30	13.30	AETL
Bt 183059-2	13.40	13.40	AETL

Table: Advance Variety trial I under Protected Conditions in South Zone – Locule damage

Name of Entry	Locule damage (%)		
	Dharwad	Perambalur	Mean
CICR Bt 19-31	17.10	0.00	8.55
Sahana (Non Bt ZC)	18.40	0.00	9.20
CPD Bt 1952	20.80	0.00	10.40
Rasi 66 Bt	19.90	0.00	9.95
CPD Bt 1951	19.50	0.00	9.75
Local Check	17.60	0.00	8.80
Rasi 99 Bt	15.60	0.00	7.80
Bt 183059-2	16.00	0.00	8.00

Table: Advance Variety trial I under Protected Conditions in South Zone – Number of sprays for sucking pests

Name of Entry	Sprays applied for sap sucking pests (Nos.)	
	Perambalur	Mean
CICR Bt 19-31	6.00	6.00
Sahana (Non Bt ZC)	6.00	6.00
CPD Bt 1952	6.00	6.00
Rasi 66 Bt	6.00	6.00
CPD Bt 1951	6.00	6.00
Local Check	6.00	6.00
Rasi 99 Bt	6.00	6.00
Bt 183059-2	6.00	6.00

Reaction to Diseases

Table: Advanced Evaluation Trial of Hirsutum Varieties - I – Rainfed conditions (Protected: South Zone)

Entry	Average PDI & Disease Reaction (DR): Protected									
	Nandyal		Dharwad							
	ALB		ALB		BLB		GM		Rust	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
CICR Bt 19-31	10.0	R	12.8	R	0.0	DF	0.0	DF	12.5	R
Sahana (Non Bt ZC)	18.3	R	12.5	R	0.0	DF	0.0	DF	12.5	R
CPD Bt 1952	25.0	R	12.9	R	0.0	DF	0.0	DF	12.6	R
Rasi 66 Bt	30.0	MR	11.3	R	0.0	DF	0.0	DF	13.5	R
CPD Bt 1951	13.3	R	10.5	R	0.0	DF	0.0	DF	12.5	R
(LC)	26.7	MR	10.6	R	0.0	DF	0.0	DF	12.1	R
Rasi 99 Bt	15.0	R	11.1	R	0.0	DF	0.0	DF	12.2	R
Bt 183059-2	16.7	R	11.7	R	0.0	DF	0.0	DF	12.1	R

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Reaction to Insect pests

Table: Advance Variety trial under Unprotected Conditions in South Zone – Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)			
	Dharwad	Nandyal	Mean	Remarks*
CICR Bt 19-31	3.90	2.93	3.42	BETL
Sahana (Non Bt ZC)	4.00	5.00	4.50	BETL
CPD Bt 1952	4.00	4.20	4.10	BETL
Rasi 66 Bt	4.00	1.53	2.77	BETL
CPD Bt 1951	4.20	3.93	4.07	BETL
Local Check	4.90	2.40	3.65	BETL
Rasi 99 Bt	4.40	2.00	3.20	BETL
Bt 183059-2	4.50	2.67	3.58	BETL

Table: Advance Variety trial under Unprotected Conditions in South Zone – Thrips

Name of Entry	Thrips(Average of 3 leaves/plant)			
	Dharwad	Nandyal	Mean	Remarks*
CICR Bt 19-31	9.40	0.33	4.87	BETL
Sahana (Non Bt ZC)	9.80	0.93	5.37	BETL
CPD Bt 1952	9.40	0.27	4.83	BETL
Rasi 66 Bt	10.00	0.00	5.00	BETL
CPD Bt 1951	9.70	0.73	5.22	BETL
Local Check	9.20	0.40	4.80	BETL
Rasi 99 Bt	9.80	0.00	4.90	BETL
Bt 183059-2	9.80	0.00	4.90	BETL

Table: Advance Variety trial I under Unprotected Conditions in South Zone – Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)			
	Dharwad	Nandyal	Mean	Remarks*
CICR Bt 19-31	1.40	0.13	0.77	BETL
Sahana (Non Bt ZC)	1.40	0.20	0.80	BETL
CPD Bt 1952	1.20	0.47	0.83	BETL
Rasi 66 Bt	1.40	0.13	0.77	BETL
CPD Bt 1951	1.60	0.13	0.87	BETL
Local Check	1.70	0.07	0.88	BETL
Rasi 99 Bt	1.50	0.40	0.95	BETL
Bt 183059-2	1.50	0.27	0.88	BETL

Table: Advance Variety trial I under Unprotected Conditions in South Zone – Natural Enemies

Name of Entry	Natural enemy (No./plant)	
	Nandyal	Mean
CICR Bt 19-31	0.07	0.07
Sahana (Non Bt ZC)	0.07	0.07
CPD Bt 1952	0.13	0.13
Rasi 66 Bt	0.00	0.00
CPD Bt 1951	0.00	0.00
Local Check	0.00	0.00
Rasi 99 Bt	0.00	0.00
Bt 183059-2	0.07	0.07

Table: Advance Variety trial under Unprotected Conditions in South Zone – Bollworms - *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)		
	Dharwad	Mean	Remarks*
CICR Bt 19-31	0.00	0.00	BETL
Sahana (Non Bt ZC)	0.00	0.00	BETL
CPD Bt 1952	0.00	0.00	BETL
Rasi 66 Bt	0.00	0.00	BETL
CPD Bt 1951	0.00	0.00	BETL
Local Check	0.00	0.00	BETL
Rasi 99 Bt	0.00	0.00	BETL
Bt 183059-2	0.00	0.00	BETL

Table: Advance Variety trial under Unprotected Conditions in South Zone – *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)		
	Dharwad	Mean	Remarks*
CICR Bt 19-31	0.00	0.00	BETL
Sahana (Non Bt ZC)	0.00	0.00	BETL
CPD Bt 1952	0.00	0.00	BETL
Rasi 66 Bt	0.00	0.00	BETL
CPD Bt 1951	0.00	0.00	BETL
Local Check	0.00	0.00	BETL
Rasi 99 Bt	0.00	0.00	BETL
Bt 183059-2	0.00	0.00	BETL

Table: Advance Variety trial under Unprotected Conditions in South Zone – Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)		
	Dharwad	Mean	Remarks*
CICR Bt 19-31	0.00	0.00	BETL
Sahana (Non Bt ZC)	0.00	0.00	BETL
CPD Bt 1952	0.00	0.00	BETL
Rasi 66 Bt	0.00	0.00	BETL
CPD Bt 1951	0.00	0.00	BETL
Local Check	0.00	0.00	BETL
Rasi 99 Bt	0.00	0.00	BETL
Bt 183059-2	0.00	0.00	BETL

Table: Advance Variety trial under Unprotected Conditions in South Zone – Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)		
	Dharwad	Mean	Remarks*
CICR Bt 19-31	4.50	4.50	AETL
Sahana (Non Bt ZC)	6.90	6.90	AETL
CPD Bt 1952	3.20	3.20	AETL
Rasi 66 Bt	15.30	15.30	AETL
CPD Bt 1951	6.20	6.20	AETL
Local Check	11.00	11.00	AETL
Rasi 99 Bt	9.50	9.50	AETL
Bt 183059-2	7.60	7.60	AETL

Table: Advance Variety trial I under Unprotected Conditions in South Zone – Green Boll damage

Name of Entry	Green Boll damage (%)			
	Dharwad	Nandyal	Mean	Remarks*
CICR Bt 19-31	0.00	60.00	30.00	AETL
Sahana (Non Bt ZC)	0.00	46.67	23.33	AETL
CPD Bt 1952	0.00	58.33	29.17	AETL
Rasi 66 Bt	0.00	48.33	24.17	AETL
CPD Bt 1951	0.00	51.67	25.83	AETL
Local Check	0.00	48.33	24.17	AETL
Rasi 99 Bt	0.00	75.00	37.50	AETL
Bt 183059-2	0.00	55.00	27.50	AETL

Table: Advance Variety trial I under Unprotected Conditions in South Zone – Open Boll damage

Name of Entry	Open Boll damage (%)			
	Dharwad	Nandyal	Mean	Remarks*
CICR Bt 19-31	17.10	53.26	35.18	AETL
Sahana (Non Bt ZC)	19.00	57.71	38.36	AETL
CPD Bt 1952	21.10	54.14	37.62	AETL
Rasi 66 Bt	19.10	35.88	27.49	AETL
CPD Bt 1951	19.00	49.10	34.05	AETL
Local Check	17.30	45.34	31.32	AETL
Rasi 99 Bt	14.30	22.92	18.61	AETL
Bt 183059-2	15.10	64.63	39.87	AETL

Table: Advance Variety trial I under Unprotected Conditions in South Zone – Locule damage

Name of Entry	Locule damage (%)		
	Dharwad	Nandyal	Mean
CICR Bt 19-31	18.40	33.46	25.93
Sahana (Non Bt ZC)	19.40	43.60	31.50
CPD Bt 1952	21.80	41.90	31.85
Rasi 66 Bt	21.40	28.26	24.83
CPD Bt 1951	20.70	40.26	30.48
Local Check	18.30	35.85	27.08
Rasi 99 Bt	16.30	21.40	18.85
Bt 183059-2	16.80	53.56	35.18

Table: Advance Variety trial I under Unprotected Conditions in South Zone (HDPS) – Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)		
	Nandyal	Mean	Remarks*
CICR Bt 19-31	2.13	2.13	BETL
Sahana (Non Bt ZC)	2.47	2.47	BETL
CPD Bt 1952	3.80	3.80	BETL
Rasi 66 Bt	2.53	2.53	BETL
CPD Bt 1951	2.80	2.80	BETL
Local Check	3.00	3.00	BETL
Rasi 99 Bt	2.47	2.47	BETL
Bt 183059-2	1.73	1.73	BETL

Table: Advance Variety trial I under Unprotected Conditions in South Zone (HDPS) – Thrips

Name of Entry	Thrips(Average of 3 leaves/plant)		
	Nandyal	Mean	Remarks*
CICR Bt 19-31	0.60	0.60	BETL
Sahana (Non Bt ZC)	0.20	0.20	BETL
CPD Bt 1952	0.53	0.53	BETL
Rasi 66 Bt	0.27	0.27	BETL
CPD Bt 1951	0.40	0.40	BETL
Local Check	0.27	0.27	BETL
Rasi 99 Bt	0.00	0.00	BETL
Bt 183059-2	0.40	0.40	BETL

Table: Advance Variety trial I under Unprotected Conditions in South Zone (HDPS) – Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)		
	Nandyal	Mean	Remarks*
CICR Bt 19-31	0.20	0.20	BETL
Sahana (Non Bt ZC)	0.20	0.20	BETL
CPD Bt 1952	0.40	0.40	BETL
Rasi 66 Bt	0.00	0.00	BETL
CPD Bt 1951	0.00	0.00	BETL
Local Check	0.20	0.20	BETL
Rasi 99 Bt	0.00	0.00	BETL
Bt 183059-2	0.20	0.20	BETL

Table: Advance Variety trial I under Unprotected Conditions in South Zone (HDPS) – Natural Enemies

Name of Entry	Natural enemy (No./plant)	
	Nandyal	Mean
CICR Bt 19-31	0.00	0.00
Sahana (Non Bt ZC)	0.07	0.07
CPD Bt 1952	0.07	0.07
Rasi 66 Bt	0.00	0.00
CPD Bt 1951	0.00	0.00
Local Check	0.07	0.07
Rasi 99 Bt	0.00	0.00
Bt 183059-2	0.07	0.07

Table: Advance Variety trial I under Unprotected Conditions in South Zone (HDPS) – Green Boll damage

Name of Entry	Green Boll damage (%)		
	Nandyal	Mean	Remarks*
CICR Bt 19-31	51.67	51.67	AETL
Sahana (Non Bt ZC)	63.33	63.33	AETL
CPD Bt 1952	60.00	60.00	AETL
Rasi 66 Bt	48.33	48.33	AETL
CPD Bt 1951	58.33	58.33	AETL
Local Check	53.33	53.33	AETL
Rasi 99 Bt	76.67	76.67	AETL
Bt 183059-2	55.00	55.00	AETL

Table: Advance Variety trial I under Unprotected Conditions in South Zone (HDPS) – Open Boll damage

Name of Entry	Open Boll damage (%)		
	Nandyal	Mean	Remarks*
CICR Bt 19-31	40.41	40.41	AETL
Sahana (Non Bt ZC)	48.20	48.20	AETL
CPD Bt 1952	47.99	47.99	AETL
Rasi 66 Bt	31.34	31.34	AETL
CPD Bt 1951	39.80	39.80	AETL
Local Check	44.14	44.14	AETL
Rasi 99 Bt	47.32	47.32	AETL
Bt 183059-2	52.19	52.19	AETL

Table: Advance Variety trial I under Unprotected Conditions in South Zone (HDPS) –Locule damage

Name of Entry	Locule damage (%)	
	Nandyal	Mean
CICR Bt 19-31	32.23	32.23
Sahana (Non Bt ZC)	32.75	32.75
CPD Bt 1952	46.48	46.48
Rasi 66 Bt	36.64	36.64
CPD Bt 1951	41.43	41.43
Local Check	29.47	29.47
Rasi 99 Bt	27.86	27.86
Bt 183059-2	45.74	45.74

Table: Advance Variety trial I under Unprotected Conditions in South Zone (HDPS)– Jassid Injury Grade

Name of Entry	JIG
	Nandyal
CICR Bt 19-31	I
Sahana (Non Bt ZC)	I
CPD Bt 1952	II
Rasi 66 Bt	I
CPD Bt 1951	II
Local Check	II
Rasi 99 Bt	I
Bt 183059-2	I

Reaction to Diseases

Table: Advanced Evaluation Trial of Hirsutum Varieties - I – Rainfed (Unprotected: Dharwad)

Entry	Average PDI & Disease Reaction (DR): Unprotected (Dharwad)							
	ALB		BLB		GM		Rust	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR
CICR Bt 19-31	25.6	MR	0.0	DF	0.0	DF	25.9	MR
Sahana (Non Bt ZC)	21.3	R	0.0	DF	0.0	DF	28.8	MR
CPD Bt 1952	25.1	MR	0.0	DF	0.0	DF	27.6	MR
Rasi 66 Bt	21.4	R	0.0	DF	0.0	DF	26.4	MR
CPD Bt 1951	19.1	R	0.0	DF	0.0	DF	25.4	MR
(LC)	21.5	R	0.0	DF	0.0	DF	27.3	MR
Rasi 99 Bt	27.4	MR	0.0	DF	19.4	R	27.1	MR
Bt 183059-2	26.1	MR	0.0	DF	0.0	DF	17.0	R

Advanced Evaluation Trial (II) of Hirsutum Varieties in South Zone (2020-21) - under Rainfed Condition

Constitution of Trial

The trial was constituted with three Bt cotton varieties containing deregulated event viz., CICR 24 Bt, CICR 25 Bt and CICR 26 Bt along with Sahana as non-Bt zonal check variety and a local check variety.

The trial was conducted in five different locations and detail is furnished below.

Name of the trial location	Dharwad	Nandyal	Mudhole	Adilabad	Perambalur
Local check Non Bt Variety	ARBH 813	Sivanandi	Sivanandi	Sivanandi	KC 3

Spacing: Two separate trials viz., one with recommended spacing for the variety and another with half the spacing between plants have been followed.

Number of rows:4 rows of 6 meters per entry with four replications

Data recorded:

Biometric evaluation

Plant height (cm) at harvest in Advanced Evaluation Trial (II) of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR 26 Bt	130.8	136.7	74.0	102.3	125.9	**113.9**
2	**Sahana (Non Bt ZC)**	142.7	137.9	49.0	99.2	140.2	**113.8**
3	CICR 25 Bt	133.1	103.7	63.0	97.9	130.5	**105.6**
4	**Local Check**	138.8	133.0	78.0	91.0	114.9	**111.1**
5	CICR 24 Bt	149.6	119.0	72.0	118.1	112.6	**114.3**
	CD @ 5%	11.8				11.5	
	CV %	5.4				7.3	

Number of monopodia in Advanced Evaluation Trial (II) of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR 26 Bt	2.1	1.6	0.6	1.6	1.1	**1.4**
2	**Sahana (Non Bt ZC)**	1.9	1.7	0.4	1.5	2.7	**1.6**
3	CICR 25 Bt	0.7	1.6	0.0	0.2	2.0	**0.9**
4	**Local Check**	1.4	1.2	1.0	1.4	1.3	**1.3**
5	CICR 24 Bt	1.2	0.6	0.0	0.9	1.9	**0.9**
	CD @ 5%	0.3				0.3	
	CV %	14.5				12.6	

Number of sympodia in Advanced Evaluation Trial (II) of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR 26 Bt	11.9	17.3	10.2	19.1	18.9	**15.5**
2	**Sahana (Non Bt ZC)**	14.0	17.5	8.4	16.4	22.0	**15.7**
3	CICR 25 Bt	18.0	16.4	9.4	15.8	20.0	**15.9**
4	**Local Check**	10.9	17.7	9.4	15.6	20.3	**14.8**
5	CICR 24 Bt	13.0	15.9	10.4	20.3	15.7	**15.1**
	CD @ 5%	2.1				2.7	
	CV %	10.0				10.9	

Number of bolls / plant in Advanced Evaluation Trial (II) of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR 26 Bt	14.7	17.0	8.1	4.0	19.1	**12.6**
2	**Sahana (Non Bt ZC)**	22.8	18.7	6.8	4.2	22.2	**14.9**
3	CICR 25 Bt	24.5	21.1	10.0	4.7	20.0	**16.1**
4	**Local Check**	15.2	12.4	14.0	5.8	19.3	**13.3**
5	CICR 24 Bt	15.1	13.5	8.0	4.0	20.6	**12.2**
	CD @ 5%	1.8				3.5	
	CV %	6.2				13.9	

Number of bolls / sq.m. in Advanced Evaluation Trial (II) of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR 26 Bt	75.3	91.8	45.0	52.8	31.4	**59.3**
2	**Sahana (Non Bt ZC)**	97.5	80.0	41.0	52.3	30.2	**60.2**
3	CICR 25 Bt	118.0	95.0	50.0	57.8	22.4	**68.6**
4	**Local Check**	86.8	60.3	57.0	59.8	33.0	**59.4**
5	CICR 24 Bt	82.0	82.0	42.0	41.3	32.5	**56.0**
	CD @ 5%	6.1				4.4	
	CV %	4.3				11.5	

Lint Index (g) in Advanced Evaluation Trial (II) of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR 26 Bt	3.6	4.0	3.9	4.8	5.3	**4.3**
2	**Sahana (Non Bt ZC)**	4.1	4.0	5.1	5.3	5.2	**4.7**
3	CICR 25 Bt	4.0	2.8	4.8	4.8	5.3	**4.3**
4	**Local Check**	4.7	4.5	4.9	5.2	5.4	**4.9**
5	CICR 24 Bt	3.7	2.9	3.6	4.2	5.2	**3.9**
	CD @ 5%	0.5				0.2	
	CV %	8.4				3.2	

Seed Index (g) in Advanced Evaluation Trial (II) of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR 26 Bt	6.5	7.0	7.6	8.5	12.2	**8.4**
2	**Sahana (Non Bt ZC)**	6.3	6.5	9.1	8.0	12.5	**8.5**
3	CICR 25 Bt	7.4	5.1	8.6	8.5	12.5	**8.4**
4	**Local Check**	7.5	7.4	10.4	8.5	12.4	**9.2**
5	CICR 24 Bt	6.3	5.8	8.8	8.0	12.1	**8.2**
	CD @ 5%	0.6				0.3	
	CV %	5.3				1.9	

Ginning outturn (%) in Advanced Evaluation Trial (II) of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR 26 Bt	35.8	36.9	33.5	35.9	36.3	**35.7**
2	**Sahana (Non Bt ZC)**	39.4	38.3	35.9	39.7	35.3	**37.7**
3	CICR 25 Bt	35.1	35.8	34.3	36.1	33.6	**35.0**
4	**Local Check**	38.8	37.8	34.5	38.0	34.4	**36.7**
5	CICR 24 Bt	36.9	33.0	30.6	34.6	34.1	**33.8**
	CD @ 5%	2.6				2.1	
	CV %	4.4				4.9	

Upper Half Mean Length (mm) under HVI Mode in Advanced Evaluation Trial (II) of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Nandyal	Dharwad	Perambalur	Mean
1	CICR 26 Bt	26.7	26.0	27.4	26.4	**26.6**
2	**Sahana (Non Bt Zonal Check)**	25.3	24.6	25.9	27.2	**25.8**
3	CICR 25 Bt	26.5	26.4	27.9	27.2	**27.0**
4	**Local Check**	28.6	27.4	26.4	26.7	**27.3**
5	CICR 24 Bt	26.4	26.4	27.7	28.0	**27.1**

Uniformity index under HVI Mode in Advanced Evaluation Trial (II) of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Nandyal	Dharwad	Perambalur	Mean
1	CICR 26 Bt	84.0	80.0	84.0	82.0	**82.5**
2	**Sahana (Non Bt Zonal Check)**	82.0	81.0	84.0	83.0	**82.5**
3	CICR 25 Bt	83.0	80.0	83.0	81.0	**81.8**
4	**Local Check**	83.0	83.0	83.0	81.0	**82.5**
5	CICR 24 Bt	83.0	84.0	85.0	84.0	**84.0**

Micronaire under HVI Mode in Advanced Evaluation Trial (II) of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Nandyal	Dharwad	Perambalur	Mean
1	CICR 26 Bt	3.7	4.0	5.1	3.6	**4.1**
2	**Sahana (Non Bt Zonal Check)**	4.3	4.5	4.5	4.2	**4.4**
3	CICR 25 Bt	3.7	4.2	4.1	3.9	**4.0**
4	**Local Check**	4.1	4.9	4.6	4.1	**4.4**
5	CICR 24 Bt	3.9	3.8	4.4	3.3	**3.9**

Tenacity under HVI Mode in Advanced Evaluation Trial (II) of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Nandyal	Dharwad	Perambalur	Mean
1	CICR 26 Bt	26.1	27.3	25.3	26.6	**26.3**
2	**Sahana (Non Bt Zonal Check)**	25.6	24.6	25.6	26.1	**25.5**
3	CICR 25 Bt	24.3	24.3	25.1	24.3	**24.5**
4	**Local Check**	25.6	29.7	26.7	23.1	**26.3**
5	CICR 24 Bt	27.0	28.1	28.2	27.4	**27.7**

Seed Cotton Yield (q/ha) in Advanced Evaluation Trial (II) of Hirsutum Varieties

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean	Rank
1	CICR 26 Bt	11.00	11.26	8.30	2.54	12.03	**9.0**	4
2	**Sahana (Non Bt ZC)**	17.25	9.86	6.52	4.99	11.91	**10.1**	3
3	CICR 25 Bt	23.25	10.30	10.00	2.90	11.40	**11.6**	1
4	**Local Check**	12.75	8.39	12.00	5.64	14.48	**10.7**	2
5	CICR 24 Bt	14.75	8.18	6.60	0.84	9.59	**8.0**	5
	CD @ 5%	2.71	1.99		0.41	1.61		
	CV %	10.99	13.28		8.39	10.73		

Number of bolls / sq.m. in Advanced Evaluation Trial (II) of Hirsutum Varieties in closer spacing

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean
1	CICR 26 Bt	60.5	103.8	46.0	63.5	29.8	**60.7**
2	**Sahana (Non Bt ZC)**	84.8	109.8	40.0	51.8	32.3	**63.7**
3	CICR 25 Bt	92.0	119.0	57.0	58.5	31.5	**71.6**
4	**Local Check**	61.0	82.0	70.0	57.5	31.5	**60.4**
5	CICR 24 Bt	76.5	91.8	53.0	75.0	34.0	**66.1**
	CD @ 5%	6.8				2.8	
	CV %	5.8				7.0	

Seed Cotton Yield (q/ha) in Advanced Evaluation Trial (II) of Hirsutum Varieties in closer spacing

S. No.	Name of Variety	Mudhole	Adilabad	Nandyal	Dharwad	Perambalur	Mean	Rank
1	CICR 26 Bt	12.46	12.66	8.64	3.45	12.62	**9.97**	5
2	**Sahana (Non Bt ZC)**	17.13	15.31	6.53	4.54	14.82	**11.67**	2
3	CICR 25 Bt	17.01	16.01	9.57	2.45	13.74	**11.76**	1
4	**Local Check**	12.23	9.50	13.77	4.49	15.71	**11.14**	3
5	CICR 24 Bt	15.30	11.00	9.57	2.01	16.46	**10.87**	4
	CD @ 5%	2.26	2.20		0.75	0.67		
	CV %	9.79	10.95		14.35	3.65		

Quantity of Cry 1Ac Protein (ppm) at UAS, Dharwad in Advanced Evaluation Trial (II) of Hirsutum Varieties

Entry	Leaf				Square			Bolls	
	30D	**60D**	**90D**	**120D**	**60D**	**90D**	**120D**	**90D**	**120D**
CICR 26 Bt	2.36	4.07	4.39	2.20	2.98	4.20	2.15	2.48	1.88
Sahana (Non Bt ZC)	0	0	0	0	0	0	0	0	0
CICR 25 Bt	2.32	4.14	4.31	2.15	2.74	4.22	2.15	2.56	1.66
Local Check	2.51	3.08	4.38	2.20	2.73	4.08	2.11	2.00	1.24
CICR 24 Bt	2.27	4.05	4.11	2.05	2.28	4.21	2.10	2.44	1.29

None of the above entries showed Cry 2Ab protein in any of the tissue, however the local check showed presence of Cry 1 Ac

Evaluation under Protected Condition for Insect pests & Diseases incidences

Reaction to Insect pests

Table: Advance Variety trial II under Protected Conditions in South Zone – Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)			
	Dharwad	Perambalur	Mean	Remarks*
CICR 26 Bt	3.39	0.92	2.16	BETL
Sahana (Non Bt Zonal Check)	3.91	0.94	2.43	BETL
CICR 25 Bt	4.38	1.13	2.76	BETL
Local Check	3.75	1.42	2.59	BETL
CICR 24 Bt	4.04	1.43	2.74	BETL

Table: Advance Variety trial II under Protected Conditions in South Zone – Thrips

Name of Entry	Thrips(Average of 3 leaves/plant)			
	Dharwad	Perambalur	Mean	Remarks*
CICR 26 Bt	5.99	1.11	3.55	BETL
Sahana (Non Bt Zonal Check)	6.11	0.96	3.53	BETL
CICR 25 Bt	7.48	0.91	4.20	BETL
Local Check	6.41	1.12	3.76	BETL
CICR 24 Bt	7.02	1.06	4.04	BETL

Table: Advance Variety trial II under Protected Conditions in South Zone – Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)			
	Dharwad	Perambalur	Mean	Remarks*
CICR 26 Bt	1.33	2.74	2.04	BETL
Sahana (Non Bt Zonal Check)	1.24	2.30	1.77	BETL
CICR 25 Bt	1.18	2.07	1.63	BETL
Local Check	1.35	2.18	1.77	BETL
CICR 24 Bt	1.51	2.46	1.99	BETL

Table: Advance Variety trial II under Protected Conditions in South Zone – Natural Enemies

Name of Entry	Natural enemy (No./plant)		
	Perambalur	Mean	Remarks*
CICR 26 Bt	6.00	6.00	
Sahana (Non Bt Zonal Check)	4.00	4.00	
CICR 25 Bt	2.00	2.00	
Local Check	5.00	5.00	
CICR 24 Bt	3.00	3.00	

Table: Advance Variety trial II under Protected Conditions in South Zone – Bollworms - *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)			
	Dharwad	Perambalur	Mean	Remarks*
CICR 26 Bt	0.00	0	0.00	BETL
Sahana (Non Bt Zonal Check)	0.00	0	0.00	BETL
CICR 25 Bt	0.00	0	0.00	BETL
Local Check	0.00	0	0.00	BETL
CICR 24 Bt	0.00	0	0.00	BETL

Table: Advance Variety trial II under Protected Conditions in South Zone – *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)			
	Dharwad	Perambalur	Mean	Remarks*
CICR 26 Bt	0.00	0.00	0.00	BETL
Sahana (Non Bt Zonal Check)	0.00	0.00	0.00	BETL
CICR 25 Bt	0.00	0.00	0.00	BETL
Local Check	0.00	0.00	0.00	BETL
CICR 24 Bt	0.00	0.00	0.00	BETL

Table: Advance Variety trial II under Protected Conditions in South Zone – Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)			
	Dharwad	Perambalur	Mean	Remarks*
CICR 26 Bt	0.00	0	0.00	BETL
Sahana (Non Bt Zonal Check)	0.00	0	0.00	BETL
CICR 25 Bt	0.00	0	0.00	BETL
Local Check	0.00	0	0.00	BETL
CICR 24 Bt	0.00	0	0.00	BETL

Table: Advance Variety trial II under Protected Conditions in South Zone – Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)		
	Dharwad	Mean	Remarks*
CICR 26 Bt	4.47	4.47	AETL
Sahana (Non Bt Zonal Check)	6.94	6.94	AETL
CICR 25 Bt	5.94	5.94	AETL
Local Check	6.30	6.30	AETL
CICR 24 Bt	7.10	7.10	AETL

Table: Advance Variety trial II under Protected Conditions in South Zone – Green Boll damage

Name of Entry	Green Boll damage (%)			
	Dharwad	Perambalur	Mean	Remarks*
CICR 26 Bt	0.00	0.00	0.00	BETL
Sahana (Non Bt Zonal Check)	0.00	0.00	0.00	BETL
CICR 25 Bt	0.00	0.00	0.00	BETL
Local Check	0.00	0.00	0.00	BETL
CICR 24 Bt	0.00	0.00	0.00	BETL

Table: Advance Variety trial II under Protected Conditions in South Zone – Open Boll damage

Name of Entry	Open Boll damage (%)		
	Dharwad	Mean	Remarks*
CICR 26 Bt	10.94	10.94	AETL
Sahana (Non Bt Zonal Check)	10.11	10.11	AETL
CICR 25 Bt	9.34	9.34	BETL
Local Check	8.32	8.32	BETL
CICR 24 Bt	11.32	11.32	AETL

Table: Advance Variety trial II under Protected Conditions in South Zone – Locule damage

Name of Entry	Locule damage (%)		
	Dharwad	Perambalur	Mean
CICR 26 Bt	12.24	0.00	6.12
Sahana (Non Bt Zonal Check)	11.42	0.00	5.71
CICR 25 Bt	12.81	0.00	6.41
Local Check	11.89	0.00	5.95
CICR 24 Bt	11.75	0.00	5.88

Table: Advance Variety trial II under Protected Conditions in South Zone – Number of sprays for sucking pests

Name of Entry	Sprays applied for sap sucking pests (Nos.)	
	Perambalur	Mean
CICR 26 Bt	6.00	6.00
Sahana (Non Bt Zonal Check)	6.00	6.00
CICR 25 Bt	6.00	6.00
Local Check	6.00	6.00
CICR 24 Bt	6.00	6.00

Reaction to Diseases

Table: Advanced Evaluation Trial of Hirsutum Varieties - II – Rainfed conditions (Protected: South Zone)

Entry	Average PDI & Disease Reaction (DR): Protected									
	Nandyal		Dharwad							
	ALB		ALB		BLB		GM		Rust	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR	PDI	DR
CICR 26 Bt	35.0	MR	8.7	R	0.0	DF	0.0	DF	12.3	R
Sahana (Non Bt ZC)	13.0	R	8.1	R	0.0	DF	0.0	DF	12.0	R
CICR 25 Bt	25.0	R	11.3	R	0.0	DF	0.0	DF	13.2	R
(LC)	38.3	MR	10.9	R	0.0	DF	0.0	DF	12.6	R
CICR 24 Bt	8.3	R	11.0	R	0.0	DF	0.0	DF	11.8	R

Evaluation under Unprotected Condition for Insect pests & Diseases incidences

Reaction to Insect pests

Table: Advance Variety trial II under Unprotected Conditions in South Zone – Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)			
	Dharwad	Nandyal	Mean	Remarks*
CICR 26 Bt	4.24	3.67	3.95	BETL
Sahana (Non Bt Zonal Check)	4.62	2.47	3.54	BETL
CICR 25 Bt	4.61	4.00	4.31	BETL
Local Check	4.33	3.33	3.83	BETL
CICR 24 Bt	4.47	2.67	3.57	BETL

Table: Advance Variety trial II under Unprotected Conditions in South Zone – Thrips

Name of Entry	Thrips(Average of 3 leaves/plant)			
	Dharwad	Nandyal	Mean	Remarks*
CICR 26 Bt	17.05	1.10	9.08	BETL
Sahana (Non Bt Zonal Check)	17.37	0.60	8.99	BETL
CICR 25 Bt	17.86	0.00	8.93	BETL
Local Check	16.98	1.10	9.04	BETL
CICR 24 Bt	18.09	0.00	9.05	BETL

Table: Advance Variety trial II under Unprotected Conditions in South Zone – Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)			
	Dharwad	Nandyal	Mean	Remarks*
CICR 26 Bt	2.45	0.53	1.49	BETL
Sahana (Non Bt Zonal Check)	2.51	0.73	1.62	BETL
CICR 25 Bt	2.44	0.47	1.45	BETL
Local Check	2.48	0.40	1.44	BETL
CICR 24 Bt	2.53	0.27	1.40	BETL

Table: Advance Variety trial II under Unprotected Conditions in South Zone – Natural Enemies

Name of Entry	Natural enemy (No./plant)	
	Nandyal	Mean
CICR 26 Bt	0.00	0.00
Sahana (Non Bt Zonal Check)	0.13	0.13
CICR 25 Bt	0.13	0.13
Local Check	0.13	0.13
CICR 24 Bt	0.13	0.13

Table: Advance Variety trial II under Unprotected Conditions in South Zone – Bollworms - *Helicoverpa armigera*

Name of Entry	*Helicoverpa armigera* (No. / 5 plants)		
	Dharwad	Mean	Remarks*
CICR 26 Bt	0.00	0.00	BETL
Sahana (Non Bt Zonal Check)	0.00	0.00	BETL
CICR 25 Bt	0.00	0.00	BETL
Local Check	0.00	0.00	BETL
CICR 24 Bt	0.00	0.00	BETL

Table: Advance Variety trial II under Unprotected Conditions in South Zone – *Spodoptera litura*

Name of Entry	*Spodoptera litura* (No. / 5 plants)		
	Dharwad	Mean	Remarks*
CICR 26 Bt	0.00	0.00	BETL
Sahana (Non Bt Zonal Check)	0.00	0.00	BETL
CICR 25 Bt	0.00	0.00	BETL
Local Check	0.00	0.00	BETL
CICR 24 Bt	0.00	0.00	BETL

Table: Advance Variety trial II under Unprotected Conditions in South Zone – Spotted Bollworms

Name of Entry	Spotted Bollworms (No. / 5 plants)		
	Dharwad	Mean	Remarks*
CICR 26 Bt	0.00	0.00	BETL
Sahana (Non Bt Zonal Check)	0.00	0.00	BETL
CICR 25 Bt	0.00	0.00	BETL
Local Check	0.00	0.00	BETL
CICR 24 Bt	0.00	0.00	BETL

Table: Advance Variety trial II under Unprotected Conditions in South Zone – Pink bollworm

Name of Entry	Pink bollworm (No./10 bolls destructive sampling)		
	Dharwad	Mean	Remarks*
CICR 26 Bt	4.75	4.75	AETL
Sahana (Non Bt Zonal Check)	7.46	7.46	AETL
CICR 25 Bt	6.50	6.50	AETL
Local Check	6.68	6.68	AETL
CICR 24 Bt	7.15	7.15	AETL

Table: Advance Variety trial II under Unprotected Conditions in South Zone – Green Boll damage

Name of Entry	Green Boll damage (%)			
	Dharwad	Nandyal	Mean	Remarks*
CICR 26 Bt	0.00	51.67	25.83	AETL
Sahana (Non Bt Zonal Check)	0.00	58.33	29.17	AETL
CICR 25 Bt	0.00	61.67	30.83	AETL
Local Check	0.00	46.67	23.33	AETL
CICR 24 Bt	0.00	48.33	24.17	AETL

Table: Advance Variety trial II under Unprotected Conditions in South Zone – Open Boll damage

Name of Entry	Open Boll damage (%)			
	Dharwad	Nandyal	Mean	Remarks*
CICR 26 Bt	13.44	28.97	21.20	AETL
Sahana (Non Bt Zonal Check)	12.61	29.48	21.04	AETL
CICR 25 Bt	10.49	27.35	18.92	AETL
Local Check	10.82	28.33	19.58	AETL
CICR 24 Bt	11.43	18.59	15.01	AETL

Table: Advance Variety trial II under Unprotected Conditions in South Zone – Locule damage

Name of Entry	Locule damage (%)		
	Dharwad	Nandyal	Mean
CICR 26 Bt	12.99	30.00	21.50
Sahana (Non Bt Zonal Check)	12.17	30.77	21.47
CICR 25 Bt	15.51	29.43	22.47
Local Check	14.34	26.12	20.23
CICR 24 Bt	13.35	26.37	19.86

Table: Advance Variety trial II under Unprotected Conditions in South Zone (HDPS) – Jassid

Name of Entry	Jassid (Average of 3 leaves/plant)		
	Nandyal	Mean	Remarks*
CICR 26 Bt	3.80	3.80	BETL
Sahana (Non Bt Zonal Check)	4.80	4.80	BETL
CICR 25 Bt	4.40	4.40	BETL
Local Check	6.00	6.00	ETL
CICR 24 Bt	4.27	4.27	BETL

Table: Advance Variety trial II under Unprotected Conditions in South Zone (HDPS) – Thrips

Name of Entry	Thrips(Average of 3 leaves/plant)		
	Nandyal	Mean	Remarks*
CICR 26 Bt	1.27	1.27	BETL
Sahana (Non Bt Zonal Check)	0.93	0.93	BETL
CICR 25 Bt	0.53	0.53	BETL
Local Check	1.00	1.00	BETL
CICR 24 Bt	1.00	1.00	BETL

Table: Advance Variety trial II under Unprotected Conditions in South Zone (HDPS) – Whitefly

Name of Entry	Whitefly (Average of 3 leaves/plant)		
	Nandyal	Mean	Remarks*
CICR 26 Bt	0.13	0.13	BETL
Sahana (Non Bt Zonal Check)	0.07	0.07	BETL
CICR 25 Bt	0.20	0.20	BETL
Local Check	0.33	0.33	BETL
CICR 24 Bt	0.07	0.07	BETL

Table: Advance Variety trial II under Unprotected Conditions in South Zone (HDPS) – Natural Enemies

Name of Entry	Natural enemy (No./plant)	
	Nandyal	Mean
CICR 26 Bt	0.13	0.13
Sahana (Non Bt Zonal Check)	0.07	0.07
CICR 25 Bt	0.07	0.07
Local Check	0.00	0.00
CICR 24 Bt	0.07	0.07

Table: Advance Variety trial II under Unprotected Conditions in South Zone (HDPS) – Green Boll damage

Name of Entry	Green Boll damage (%)		
	Nandyal	Mean	Remarks*
CICR 26 Bt	51.67	51.67	AETL
Sahana (Non Bt Zonal Check)	46.67	46.67	AETL
CICR 25 Bt	55.00	55.00	AETL
Local Check	53.33	53.33	AETL
CICR 24 Bt	56.67	56.67	AETL

Table: Advance Variety trial II under Unprotected Conditions in South Zone (HDPS) – Open Boll damage

Name of Entry	Open Boll damage (%)		
	Nandyal	Mean	Remarks*
CICR 26 Bt	38.66	38.66	AETL
Sahana (Non Bt Zonal Check)	35.46	35.46	AETL
CICR 25 Bt	50.58	50.58	AETL
Local Check	43.85	43.85	AETL
CICR 24 Bt	25.44	25.44	AETL

Table: Advance Variety trial II under Unprotected Conditions in South Zone (HDPS) –Locule damage

Name of Entry	Locule damage (%)	
	Nandyal	Mean
CICR 26 Bt	31.25	31.25
Sahana (Non Bt Zonal Check)	18.81	18.81
CICR 25 Bt	19.43	19.43
Local Check	35.00	35.00
CICR 24 Bt	29.17	29.17

Table: Advance Variety trial II under Unprotected Conditions in South Zone (HDPS) – Jassid Injury Grade

Name of Entry	JIG
	Nandyal
CICR 26 Bt	II
Sahana (Non Bt Zonal Check)	II
CICR 25 Bt	II
Local Check	III
CICR 24 Bt	II

Table. *Helicoverpa armigera* bioassay on Advance Variety trial II H X H trial in leaf, Square, Bolls in laboratory condition at Coimbatore

Entry	Mortality on leaves (%)				
	30 DAS	60 DAS	90 DAS	120 DAS	Mean
CICR 26 Bt	100.0	96.70	93.30	90.0	95.0
Sahana (Non Bt Zonal Check)	0.00	5.00	0.00	5.00	2.5
CICR 25 Bt	95.00	95.00	95.00	95.0	95.0
Local Check	100.0	100.0	95.00	96.7	97.9
CICR 24 Bt	95.00	100.0	95.00	100.	97.5

Entry	Mortality (%) on Square and Flowers		Mortality(%)on Bolls
	45 DAS (Square)	60 DAS (Flowers)	100 DAS (Bolls)
CICR 26 Bt	95.00	95.00	100.00
Sahana (Non Bt Zonal Check)	5.00	10.00	5.00
CICR 25 Bt	95.00	95.00	90.00
Local Check	95.00	95.00	96.70
CICR 24 Bt	95.00	95.00	95.00

Table. Pink Bollworm bioassay on Advance Variety trial II H X H trial in Bolls in laboratory condition

Entry	45 DAS (Square)	60 DAS (Flowers)	100 DAS (Bolls)
	Average Mortality (%)		
CICR 26 Bt	73.00	68.25	37.50
Sahana (Non Bt Zonal Check)	32.56	15.57	25.47
CICR 25 Bt	75.50	61.25	31.25
Local Check	75.75	72.25	41.70
CICR 24 Bt	60.25	75.25	45.21

Reaction to Diseases

Table: Advanced Evaluation Trial of Hirsutum Varieties - II – Rainfed (Unprotected: Dharwad)

Entry	Average PDI & Disease Reaction (DR): Unprotected (Dharwad)							
	ALB		BLB		GM		Rust	
	PDI	DR	PDI	DR	PDI	DR	PDI	DR
CICR 26 Bt	22.0	R	0.0	DF	0.0	DF	26.6	MR
Sahana (Non Bt ZC)	21.1	R	0.0	DF	0.0	DF	24.8	R
CICR 25 Bt	27.1	MR	0.0	DF	0.0	DF	27.1	MR
(LC)	25.9	MR	0.0	DF	0.0	DF	26.4	MR
CICR 24 Bt	24.3	R	0.0	DF	0.0	DF	26.8	MR

*****

FRONT LINE DEMONSTRATIONS IN COTTON
National Food Security Mission (Commercial Crops)
2020-21







Project Coordinator (Cotton Improvement) & Head
ICAR - All India Coordinated Research Project on Cotton
ICAR - Central Institute for Cotton Research
Regional Station, Coimbatore – 641 003

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COMPILED AND EDITED BY
S. USHA RANI
A. H. PRAKASH
KAMARAJUGADDA VEDAVYAS
M. SATHISHKUMAR
KOPPULA SURESH

Note:

- The FLD Annual Report 2020 – 21 is the outcome of joint contribution by various participating centres of the ICAR-AICRP on Cotton, ICAR-CICR, and the Project Coordinator's unit at ICAR-CICR, Regional Station, Coimbatore
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Introduction

Front Line Demonstration is a proven extension mechanism with the objectives of demonstrating the usefulness of the latest improved crop production and protection technologies to the farmers as well as extension workers with a view to reduce the time gap between technology generation and its adoption. It also enables the scientists to obtain direct feedback from cotton farmers and suitably reorient their research programs, develop appropriate technology packages and to create effective linkage among scientists, extension personnel and farmers. This novel programme was implemented in 1996 for cotton crop to demonstrate cotton production technologies through the networking centres of All India Coordinated Research Project (AICRP) on Cotton. Since then AICRP on cotton has been conducting FLD on cotton through its network centres and by the ICAR- Central Institute for Cotton Research, Nagpur and its regional stations in Coimbatore and Sirsa. Until 2013, these demonstrations were conducted on Production Technology, Integrated Pest Management and on Farm implements under Technology Mission on Cotton, Mini Mission II. From 2014-15 onwards, these demonstrations are being conducted under National Food Security Mission on Cotton (NFSM) – Commercial Crops by Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare, Government of India.

Objectives

- To demonstrate the usefulness of the latest improved crop production and protection technologies to the farmers as well as extension workers with a view to reduce the time gap between technology generation and its adoption.

- To enable scientists to obtain direct feedback from cotton farmers and suitably reorient their research programs and develop appropriate technology packages.

- To create effective linkage among scientists, extension personnel and farmers.

Implementing Agencies and Fund Flow Mechanism

In 12th Five Year Plan under the National Food Security Mission (NFSM), cropping system approach is being adopted by including commercial crops like cotton to meet the demand of both food and cash crops. In general, cotton is cultivated under different cropping system i.e., mono-cropping, mixed cropping, relay cropping, intercropping and rotation or sequence cropping in India (Table 1). The common traditional practice adopted in cultivation of cotton in central and south India is strip cropping i.e., one or two rows of pigeon pea, three to five rows of finger millet after every eight to ten rows of cotton. Hence to increase the production of cotton without affecting the production of food crops, FLDs were planned to conduct in three different ways viz., FLDs on Integrated Crop Management on Cotton (ICM), FLDs on Desi cotton / Extra Long Staple (ELS) cotton / seed production of ELS or Desi and FLDs on intercropping in cotton. NFSM - FLDs on cotton was implemented by Department of Agriculture, Cooperation and Farmers Welfare (DAC & FW) through Directorate of Cotton Development (DCD), Mumbai through ICAR-AICRP on cotton. All the components of NFSM-Cotton FLD were 100% funded. The funds were released by Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare with the approval of NFSMEC. Submission of action plan, physical and financial progress reports to the DAC & FW through DCD facilitated the release of fund.

Table 1
Cotton Crop Based Cropping System linked with food crops

State	Cropping System
Punjab, Haryana and Rajasthan	Cotton – Wheat, Cotton – Mustard
Madhya Pradesh, Maharashtra and Gujarat	Mono-cropped cotton, Cotton – Jowar (two year rotation), intercropping with Blackgram, Greengram, Soybean, Groundnut and Pigeon pea
Andhra Pradesh	Mono-cropped cotton, Cotton – Rice (sequence), Cotton – Jowar
Tamil Nadu	Mono-cropped cotton, Rice-Cotton, Rice – Rice – Cotton, Cotton- Jowar, Cotton – Pulses – Jowar, Intercropping with Onion, Groundnut and Black gram
Karnataka	Mono-cropped cotton, Cotton – Wheat, Intercropping with Chilli, Groundnut, Black gram and Green gram

(Source: NFSM – Commercial Crops Operational guidelines, 2014)

The number of demonstrations allocated during the year 2020-21 for conduct of NFSM-FLDs by ICAR-AICRP on cotton and its networking centres and the centre-wise budgetary outlay are given in Table 2. A total of **500** FLDs on Integrated Crop Management (ICM), **296** Front Line Demonstrations on Desi / ELS cotton / ELS cotton seed production and **130** Front Line Demonstrations on intercropping with cotton were allotted to ICAR-AICRP on Cotton with a budget outlay of INR 77.00 lakh for the year 2020-21.

Table 2

Approved Physical and Financial Targets of Cotton Front Line Demonstrations under NFSM-Commercial Crops for the centres of ICAR- AICRP on cotton during 2020 – 21

S.No	Centres	FLDs on M		FLDs on Desi / ELS Cotton / ELS Cotton Seed Production		FLDs on Intercropping in Cotton		Total in Lakh (Rs.)
		No	Budget (Rs.)	No	Budget (Rs.)	No	Budget (Rs.)	
1	PAU, Faridkot	20	1.60	20	1.80	-	-	3.40
2	CCSHAU, Hisar	30	2.40	30	2.70	-	-	5.10
3	SKRAU, Sriganganagar	30	2.40	30	2.70	-	-	5.10
4	ICAR – CICR, Sirsa	5	0.40	0.4	0.036	-	-	0.436
-	NAU, Surat	20	1.60	10	0.90	-	-	2.54
6	JAU, Junagadh	40	3.20	-	-	10	0.80	4.00
7	PDKV, Akola	20	1.60	40	3.60	-	-	5.20
8	MAU, Nanded	40	3.20	30	2.70	20	1.60	7.50
9	MPKV, Rahuri	30	2.40	-	-	10	0.80	3.20
10	ICAR-CICR, Nagpur	20	1.60	20	1.80	20	1.60	5.00
11	RVSKVV, Khandwa	20	1.60	-	-	20	1.60	3.20
12	ANGRAU, Guntur	60	4.80	-	-	-	-	4.80
13	RARS, Nandhyal	30	2.40	-	-	-	-	2.40
14	PJTSAU, Adilabhad	25	2.00	-	-	10	0.80	2.80
15	UAS, Dharwad	30	2.40	20	1.80	20	1.60	5.80
16	UAS, Raichur	30	2.40	15	1.35	-	-	3.75
17	UAS, Chamrajnagar	30	2.40	20	1.80	-	-	4.20
18	TNAU, Coimbatore	20	1.60	20	1.80	20	1.60	5.00
19	ICAR- CICR, Coimbatore	-	-	40	3.60	-	-	3.60
	Total	**500**	**40.00**	**295.4**	**26.586**	**130**	**10.40**	**76.986**
	Grand Total							**76.986**

(One Number of Demonstration is conducted in One hectare)

Implementation of FLDs

Out of the allotted FLDs, a total of **514** Front Line Demonstrations on Integrated Crop Management on cotton, **271** Front Line Demonstrations on Desi / ELS cotton / ELS cotton seed production and **128** Front Line Demonstrations on intercropping with cotton were conducted by **nineteen** centres of All India Coordinated Research Project (Table 3) on Cotton. Out of the allotted budget **INR 77.00 lakh**, an amount of **INR 66.74 lakh** was released during the year 2020-21 in two instalments and the unspent balance **INR 8.95 lakh** was revalidated. The amount received as first Instalment was **INR 31.74 lakh** and second instalment was **INR 35.00 lakh**. Out of the total amount **INR 75.69 lakh** received during 2020-21, an amount of **INR 71.29 lakh** was released to the centres.

Table 3

Achieved Physical and Financial Targets of Cotton Front Line Demonstrations under NFSM - Commercial Crops by the centres of ICAR- AICRP on Cotton during 2020 – 21

S. No	Centres	FLDs on ICM		FLDs on Desi / ELS cotton / ELS cotton seed production		FLDs on Intercropping in cotton	
		A	C	A	C	A	C
1	PAU, Faridkot	20	30	20	10	-	-
2	CCSHAU, Hisar	30	30	30	30	-	-
3	SKRAU, Sriganganagar	30	30	30	30	-	-
4	ICAR – CICR, Sirsa	5	5	0.4	0.4	-	-
5	NAU, Surat	20	20	10	10	-	-
6	JAU, Junagadh	40	40	-	-	10	10
7	PDKV, Akola	20	20	40	40	-	-
8	MAU, Nanded	40	40	30	15	20	20
9	MPKV, Rahuri	30	30	-	-	10	10
10	ICAR-CICR, Nagpur	20	24	20	20	20	18
11	RVSKVV, Khandwa	20	20	-	-	20	20
12	ANGRAU, Guntur	60	60	-	-	-	--
13	RARS, Nandhyal	30	30	-	-	-	
14	PJTSAU, ARS, Adilabad	25	25	-	-	10	10
15	UAS, Dharwad	30	30	20	20	20	20
16	UAS, Raichur	30	30	15	15	-	-
17	UAS, Chamrajnagar	30	30	20	20	-	-
18	TNAU, Coimbatore	20	20	20	20	20	20
19	ICAR- CICR, Coimbatore	-	-	40*	40*	-	-
Grand Total		**500**	**514**	**295.4**	**270.4**	**130**	**128**

(A – No. of FLDs allotted in hectare; C – No. of FLDs conducted actually in hectares)
(* - under summer irrigated)

Main emphasis was given to the demonstrations for enhancing the production of cotton in low productivity areas / problematic areas. A baseline survey was conducted by the participating centres to know the resource endowments of the farmers and the level of cotton productivity.

For selecting the beneficiaries and identifying the priority areas, Panchayat Raj Institutions were actively utilized. A list of beneficiaries and their plot numbers were notified in the local Block Development / Panchayat Office. Farmers were selected in consultation with local Agricultural Officers and Panchayat Samiti. These officials formed part of the FLD team. Bench mark survey was conducted before taking up the demonstration which included information on the crops and cropping system of the area, inter cropping, the average yields of cotton and the local practices adopted in terms of irrigation, use of fertilizer, plant protection, etc., Information on the cost of cultivation was also collected for the area as a whole. An impact analysis after the harvest was carried out in the light of reduction in insecticide use, reduction in cost of cultivation, awareness of modern technology etc., Further in accordance with the decision of Government of India (GOI) regarding implementation of

Special Component Plan (SCP) for Scheduled Caste and Tribal Sub Plan (TSP) for Scheduled Tribes and Gender Budgeting, the beneficiaries were selected for the year's front line demonstration programme.

FLDs on Integrated Crop Management on Cotton

Under FLDs on ICM on cotton, a total of **514** demonstrations were conducted during the year 2020-21. Each demonstration was conducted in one hectare plot. High yielding varieties and hybrids suited for various agro-climatic conditions, Integrated Nutrient Management (INM), Integrated Pest Management (IPM), use of bio-fertilizers, bio-pesticides, water management etc., were the production technologies demonstrated through this component. An amount of Rs.8000/- was allocated per hectare of demonstration. Out of this, Rs.7000/- was used for essential inputs for demonstration and the remaining Rs.1000/- was earmarked as contingencies for field day, publicity material, POL, visit of Scientists etc., The critical inputs for FLD included the cost of seed (non-Bt), bio-fertilizer, micronutrients, bio-pesticides, seeds of intercrops, pheromone traps / light traps etc.,

FLDs on Desi / ELS cotton / seed production of Desi / ELS cotton

In order to popularize the cultivation of Desi / ELS cotton and produce the seeds of Desi / ELS cotton, this component was implemented in **271** hectares. An amount of Rs.9000/- was allocated per hectare of demonstration. Out of this, Rs.8000/- was used for essential inputs for demonstration and the remaining Rs.1000/- was earmarked as contingencies for field day, publicity material, POL, visit of Scientists etc., The critical inputs for FLD included the cost of seed (non-Bt), bio-fertilizer, micronutrients, bio-pesticides, pheromone traps/light traps etc.,

FLDs on intercropping with cotton

To increase the production of food crops along with cash crops, this component was introduced. In this component along with cotton crop, various intercrops like cowpea, black gram, green gram, groundnut, soybean, onion etc., were demonstrated. An amount of Rs.8000/- was allocated per hectare of demonstration. Out of this, Rs.7000/- was used for essential inputs for demonstration and the remaining Rs.1000/- was earmarked as contingencies for field day, publicity material, POL, visit of Scientists etc., The critical inputs for FLD included the cost of seed (non-Bt), bio-fertilizer, micronutrients, bio-pesticides, seeds of intercrops, pheromone traps/light traps etc., During the year 2020-21, a total of **128** hectares demonstrations were conducted under this component.

Summary of the demonstrations conducted under FLD cotton during 2020-21

FLD Farmers' Profile

During the year 2020-21, Front Line Demonstrations were conducted ten states in three cotton growing zones by 19 centers of ICAR - AICRP on cotton. These demonstrations were conducted on ICM in cotton, Desi / ELS cotton and seed production of ELS cotton and intercropping in cotton. In accordance with the decision of Government of India (GOI) regarding implementation of Special Component Plan (SCP) for Scheduled Caste and Tribal Sub Plan (TSP) for Scheduled Tribes and Gender Budgeting, the beneficiaries were selected for the year's front line demonstration programme. The details of farmers benefited out of the SCP, TSP and gender budgeting are given in table 4.

Table 4
Details of farmers benefited out of SCP, TSP and Gender budgeting of Cotton FLDs conducted by ICAR - AICRP on Cotton under NFSM / FLD during 2020 – 21

S. No	Name of the centre	FLDs on ICM					FLDs on Desi / ELS cotton					FLDs on Intercropping				
		SC/ ST	OBC	Gen	W	TOT	SC/ ST	OBC	Gen	W	TOT	SC/ ST	OBC	Gen	W	TOT
1	PAU, Faridkot	6	13	52	3	74	4	10	7	-	21	-	-	-	-	-
2	CCSHAU, Hisar	3	13	59	-	75	4	17	54	-	75	-	-	-	-	-
3	SKRAU, Sriganganagar	5	70	-	-	75	22	53	-	-	75	-	-	-	-	-
4	ICAR-CICR, Sirsa	3	2	7	1	13	1	-	3	1	5	-	-	-	-	-
5	NAU, Surat	44	-	-	6	50	1	24	-	-	25	-	-		-	-
6	JAU, Junagadh	-	17	73	5	95	-	-	-	-	-	-	-	20	-	20
7	PDKV, Akola	6	11	-	3	20	9	23	-	8	40	-	-	-	-	-
8	MAU, Nanded	18	33	41	8	100	5	8	20	3	36	9	13	23	5	50
9	MPKV, Rahuri	11	10	54	-	75	-	-	-	-	-	10	3	12	-	25
10	ICAR - CICR, Nagpur	37	19	-	4	60	7	39	4	-	50	21	18	5	-	44
11	RVSKVV, Khandwa	13	7	-	-	20	-	-	-	-	-	-	20	-	-	20
12	ANGRAU, Guntur	17	15	25	3	60	-	-	-	-	-	-	-	-	-	-
13	RARS, Nandhyal	7	14	8	1	30	-	-	-	-	-	-	-	-	-	-
14	PJTSAU, ARS, Adilabad	38	23	-	1	62	11	10	-	4	25	-	-	-	-	-
15	UAS, Dharwad	7	9	9	5	30		18	2		20	3	12	3	2	20
16	UAS, Raichur	9	20		1	30	5	10			15					
17	UAS, Chamrajnagar	-	75	-	-	75	-	-	50	-	50	-	-	-	-	-
18	TNAU, Coimbatore	3	-	20	7	30	-	11	-	3	14	7	10	-	3	20
19	ICAR-CICR, Coimbatore**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	**227**	**351**	**348**	**48**	**974**	**69**	**223**	**140**	**19**	**451**	**50**	**76**	**63**	**10**	**199**

(** under summer irrigated condition)

Altogether, 1624 farmers participated in demonstrations conducted in an area of 913hectares. In the demonstrations on ICM on cotton 974 farmers were directly benefited as

demonstrators in an area of 514 hectares, whereas in demonstrations on Desi/ELS cotton 451 farmers were benefited as demonstrators in an area of 271 hectares and 199 farmers were benefited by demonstrations on intercropping in cotton in an area of 128 hectares. A total of 346 SC/ST farmers, 650 OBC farmers and 77 farmwomen were benefited out of this program during the year 2020-21.

Technologies Demonstrated under FLD

During the reported year, under National Food Security Mission (Commercial Crops), 514 Front Line Demonstrations on Integrated Crop Management on cotton, 271 Front Line Demonstrations on Desi / ELS cotton / ELS cotton seed production and 128 Front Line Demonstrations on intercropping with cotton were conducted. The various technologies demonstrated were high yielding varieties and hybrids suitable for various agro-climatic conditions, Integrated Nutrient Management, Integrated Pest Management, use of Bio-fertilizers, Bio-pesticides, water management practices, improved agronomic practices and intercropping.

Table 5

Details on the Technologies Demonstrated by the centers of ICAR - AICRP on Cotton under NFSM / FLD during 2020 – 21

North Zone

PAU, Faridkot	:	**ICM (29.6 ha):** F2228, F1378, Anmol, RCH773, RCH776, CH653, SP7172, Simsim - Improved cultivars, optimum time of sowing , ideal plant population, weed management & balanced nutrition **Desi / ELS cotton/ Seed production (10.4 ha) :** Popularization of Desi cotton varieties LD 949, LD 694 and FDK 124 **Districts / Taluks / Villages Covered:** Fazilka, Bathinda , Faridkot, Mukatsar (67 villages)
CCSHAU, Hisar	:	**ICM (30 ha):** Yield maximization of Bt cotton hybrids with improved technology i.e. INM, IPM, Soil and water management and Improved Agronomic practices **Desi / ELS cotton/ ha Seed production (30):** Popularization of high yielding and non-shedding Desi cotton varieties, minimization of the infestation of whitefly, insecticidal sprays and inoculums of CLCuD and popularization of suitable varieties for cotton- wheat cropping system. **Districts / Taluks / Villages Covered:** Fatehabad, Hisar, Sirsa Jind, Bhiwani, and Palwal
SKRAU, Sriganganagar	:	**ICM (30 ha) :** Integrated Crop Management technologies RCH 773 BG II, RCH 776 BG II, Sim-Sim BG II, Bayer 7272 **Desi / ELS cotton/ Seed production (30 ha):** Crop management practices for *G. arboretum* varieties RG 8 and KR 64 especially management of Insects and diseases.

		Districts / Taluks / Villages Covered: Hanumangarh and Sriganganagar
ICAR-CICR, Sirsa	:	**ICM (5 ha) :** ICM on CSH-3129 (67.5 x 30 cm normal spacing) and ICM on CSH 3075 (67.5 x 10 cm HDPS) Integrated Crop Management (ICM) on CICR Bt-6 (67.5 x 30 cm normal spacing) in 4 ha of farmers' field area, CSH-3075 (67.5 x 10 cm HDPS) in 0.8 ha of farmers' field area and CSH-3129 (67.5 x 30 cm normal spacing) in 0.4 ha of farmers' field area **Desi / ELS cotton/ ha Seed production (0.4 ha) :** Seed production of Hybrid Desi cotton (CICR-2) in 0.4 ha of farmers' field area **Districts / Taluks / Villages Covered:** Sirsa (10 villages)

Central Zone

NAU, Surat	:	**ICM (20 ha):** ICM in approved Bt cotton hybrids (G. Cot. Hy. 10 (BG II) and G. Cot. Hy. 8 (BG II)) comprising promotion of nutrient management through bio-fertilizers (Azotobacter, PSB, KMB) & foliar supplement through organic novel banana pseudo stem sap, PBW monitoring through pheromone trap and insect management through safer sucking pest *viz*; Azadirachtin (1500 ppm), Flonicamid and Cypermethrin-5% + Chloropyriphos - 50% EC. **Desi / ELS cotton/ Seed production (20 ha):** Seed production of desi cotton varieties *viz;* GN. Cot. 25 (*G. herbaceum*) allotted in rainfed saline pockets of Amod Taluka of Bharuch district with nutrient management through bio fertilizers (Azotobacter, KMB and PSB), novel organic liquid fertilizer (Banana pseudo stem sap), PBW monitoring through pheromone trap and bollworm management through safer insecticides *viz*., Buprofezin 25 SC and Quinalphos 25 EC. **Districts / Taluks / Villages Covered:** Bharuch and Narmada
JAU, Junagadh	:	**ICM (40 ha):** IPM / IDM / INM / Canopy management / High-density planting. In IPM technology, bio agent, pheromone trap, and pesticides were used. In INM technology, chemical fertilizer, bio fertilizer (PSB, KSB and Azotobacter) was used. Canopy management, detoping and High Density Planting (90x30cm) were used. **Intercropping in Cotton (10 ha):** Intercrops Til, Groundnut and Blackgram with cotton (1:1) **Districts / Taluks / Villages Covered:** Junagadh, Rajkot and Amreli
PDKV, Akola	:	**ICM (20 ha):** Cotton Improved Variety AKH-09-5 + Foliar Spray & Moisture Conservation Practices **Desi / ELS cotton/ ha Seed production (40 ha) :** PDKV-JKAL-116 Bt BG-II Hybrid with complete Package of Practices of Dr.PDKV, Akola

		Districts / Taluks / Villages Covered: Akola, Buldhana and Amravati
MAU, Nanded	:	**ICM (40 ha):** NHH 44 (BG II) Integrated Pest Management, Optimum population (18,518 plants /ha), recommended dose of fertilizer (120:60:60 NPK kg/ha) and IPM (Pink Boll Worm in particular) as against farmers' practice of Lower plant population (9260 to 11,111 plants/ha), Excess use of N, low use of K2O, use of insecticides only for management of PBW. **Desi / ELS cotton/ Seed production (14.4 ha):** Newly released variety PA 812 as against Old varieties (PA 402 and PA 255), local varieties and hybrids **Intercropping in Cotton (20 ha) :** Cotton + green gram (1:1 or 1:2) as against sole cotton **Districts / Taluks / Villages Covered:** Parbhani, Hingoli, Beed, Jalna , Aurangabad and Nanded district
MPKV, Rahuri	**:**	**ICM (30 ha) :** Optimum plant population (12345 plant ha^{-1}), Recommended Dose of Fertilizer (125:65:65 NPK kg ha^{-1}) and Foliar spray of MPKVs liquid Phule Micro Grade II (Micronutrient) in Rahuri released varieties / hybrids Phule Shwetambari, Phule Suman, Phule Chetana, Phule Mahi and other ruling Bt cotton hybrids. **Intercropping in Cotton (10 ha):** Optimum plant population of cotton (12345 plant ha^{-1}), Recommended Dose of Fertilizer (125:65:65 NPK kg ha^{-1}), Foliar spray of MPKVs liquid Phule Micro Grade II (Micronutrient) and Intercrop - As per farmers' choice (Mung, Soybean, Maize, Watermelon, Pigenpea) **Districts / Taluks / Villages Covered:** Ahmednagar and Buldana
ICAR- CICR, Nagpur	**:**	**ICM (24 ha):** ICM on ICAR-CICR Rajat Bt, ICAR-CICR PKV081Bt - ICM in approved Bt cotton hybrids, Balanced nutrition (100:50:50 NPK kg/ha), Split application of N & K i.e, 25% as basal and 25% each at 30, 60, 90 Days after sowing (DAS), Foliar spray of 2% DAP, or 1% $MgSO_4$ or 2% Urea, 0.5 % $ZnSO_4$ and 0.2 % Boron in 15 days interval at crop 90 DAS, DAP(200gm/10 liter of water), Need based PP measures for sucking pests (IPM practices) and Pink bollworm management strategy. **Desi / ELS cotton/ Seed production (20 ha):** ICAR-CICR-CNA 1028 & ICAR-CICR-CNA1032 **Intercropping in Cotton (18 ha):** ICAR-CICR Rajat Bt, ICAR-CICR GJHV374 Bt, ICAR-CICR PKV 081 Greengram (Utkarsha), Blackgram (TAU 1), Soyabean(MAUS158) and Tur (PKV TARA) **Districts / Taluks / Villages Covered:** Yavatmal, Wardha and Nagpur

RVSKVV, Khandwa	**:**	**ICM (10 ha) :** Integrated Crop Management techniques with special reference to INM in popular Bt cotton hybrids INM Rasi 659 BG II, Rasi Neo, Ajeet 155and Rasi Megna **Intercropping in Cotton (10 ha) :** Intercropping cotton with Arhar **Districts / Taluks / Villages Covered:** Mandla, Injaiwada, Pipalkota Pokharpeer, Bhuiphal and Haraswada

South Zone

ANGRAU, Guntur	:	**ICM (60 ha) :** Best management practices are Seed treatment with imidacloprid 70 WS @ 5 g / kg followed by, treatment with *Trichoderma viride* @ 10 g / kg. The recommended 150:60:60 NPK kg/ha. N and K given in 3-4 splits at 20 days interval starting from 20 DAS (as the soils are low in available nitrogen status, suggested to apply 25% excess nitrogen to the crop). Foliar sprays of 19:19: 19 and Speedfol (mixture of both macro and micro nutrients) to supplement micro nutrients and plant hormones. Neem oil, yellow (10 Nos/acre) and blue sticky traps for sucking pest control. Erection of pheromone traps @ 4/acre for monitoring pink boll worm. For control of pink boll worm spraying of persistent insecticides like thiodicarb 75 WP @ 1.5 g/l or profenophos @ 2 ml/l or quinalphos 25 EC @ 2.5 ml/l or chlorpyriphos 20 EC @ 2.5 ml/l at 15 days interval. At the crop final stage, spray synthetic pyrethriods such as cypermethrin 10 EC @ 1.25 ml/l or lambda cyhalothrin 5 EC @ 1.0 ml/l. Usage of Planofix to reduce boll drop. Tank mixure (Quizalofop ethyl 50 g a.i/ha+ PyrithiobacSodium@62.5ga.i/ha) at 2-4weedleafstage **Districts / Taluks / Villages Covered:** Lam, Jonnalagadda, Tatireddypalem, Yanamadala, Tadikonda,Damarapalli and Bejathpuram villages of Guntur district
RARS, Nandhyal	:	**ICM (30 ha) :** Foliar sprays of 19:19: 19 and Speedfol (mixture of both macro and micro nutrients) to supplement micro nutrients and plant hormones, Neem oil, yellow and blue sticky traps for sucking pest control, Thiodicarb, Profenophos, Lamdacyhalothrin and Pheromone traps against pink boll, warm control, Maize grown as barrier crop in the border to prevents the spread of the sucking pest, Usage of Planofix to reduce boll drop, Pendimethalin@5g/lit as pre emergence herbicide and Tank mixure (Quizalofop ethyl 50 g a.i/ha+ Pyrithiobac Sodium @62.5 g a.i / ha at 2-4 weed leaf stage. **Districts / Taluks / Villages Covered:** Kurnool
PJTSAU, Adilabad		**ICM (25 ha) :** Best management practices on Cotton BG-II Hybrid (RCH-659) with Seed treatment, pheromone traps, yellow sticky traps, foliar nutrition, Flonicamid and need based pesticides **Intercropping in Cotton (10 ha) :** Cotton inter cropping with redgram (6:1, 8:1)

		Districts / Taluks / Villages Covered: Adilabad/Gudihathnoor/Seethagondi Village and Adilabad/ Vyzapur Village
UAS, Dharwad	:	**ICM (30 ha):** Potential ruling Bt cotton Hybrids viz., Lotus, Super cot, MRC 7383, Vega, DCH-32 Bt, Bindaas, Jingi, Diamond, Jalwa, ATM, Yuva, Kuber, Dynamo, Firstclass, Yuva, Miracle, Ajeet-155, Balanced nutrition (100:50:50 NPK kg/ha), Split application of N & K i.e, 25% as basal and 25% each at 30, 60, 90 DAS, foliar nutrition (1% All 19 + 1% $MgSO_4$) after 70, 90 &110 DAS and need based IPM practices. **Desi / ELS cotton/ Seed production (20 ha):** DCH-32 BG-II Bt v/s DCH-32 Non Bt, Non Bt DHB-1071 v/s DCH-32 Non Bt and Non Bt *Hirsutum* variety ARBH-813 v/s Sahana **Intercropping in Cotton (20 ha):** Bt cotton + Beans (1:1), Bt cotton + Green gram(1:1), Bt cotton + Groundnut (1:1) **Districts / Taluks / Villages Covered:** Dharwad, Belagavi and Gadag
UAS, Raichur	:	**ICM (30 ha)** : Sucking pest management, Leaf reddening management, PBW management in Jaadoo, Ach-155, Siribhagya-55, RCH-639, Laxmi Gold, Bhakti, Superb and Intercropping with Peas, Green gram, Groundnut **Desi / ELS cotton/ Seed production (15 ha):** Boll worm management, PBW management and Leaf reddening management in BGDS-1063 **Districts / Taluks / Villages Covered:** Raichur, Yadgir and Ballari
UAS, Chamrajnagar	:	**ICM (30 ha):** Integrated Crop management practices for major cotton cultivars Minerva, Bahubali, Puli, Mahadeva and Rasi, Proper spacing management of leaf reddening and flower drop, Management of sucking pest and Boll worms and Foliar nutrient application **Desi / ELS cotton/ Seed production (20ha):** Best Management practices for ELS cotton hybrids **Districts / Taluks / Villages Covered** : Chamrajnagar
TNAU, Coimbatore	:	**ICM (20 ha):** INM, IWM, IPM and IDM on CO 17 **Desi / ELS cotton/ Seed production (20 ha):** INM, IWM, IPM and IDM ELS cotton variety MCU 5 and Desi cotton variety K 12. **Intercropping in Cotton (20 ha) :** Cotton - SVPR 6 and SVPR 4 intercropped with Black gram (Vamban8) **Districts / Taluks / Villages Covered:** Coimbatore, Tiruppur, Madurai, Virudunagar, Tenkasi and Tuticorin

ICAR-CICR, Coimbatore	:	**Desi / ELS cotton/ Seed production (40 ha) :** Best management practices for ElS Bt cotton hybrids and Cotton variety Surabhi will be conducted under summer irrigated condition **Districts / Taluks / Villages Covered:** Coimbatore and Salem

Yield Details of the FLDs Demonstrated

In all the centers, the FLDs could obtain more yield than the farmers' practices of their respective areas (Table 6). At Punjab, the FLDs on ICM could obtain an average seed cotton yield of 2300 kg/ha as against the farmers' practices (1970 kg/ha). Similarly in the demonstrations on Desi cotton, an average seed cotton yield of 2080 kg/ha as against the farmers' practices (1774 kg/ha) was obtained. In Haryana, the average seed cotton yield obtained in FLDs on ICM was 2351 kg/ha as against 2090 kg/ha (farmers' practice) at CCSHAU, Hisar centre and 2087 kg /ha as against 1727 kg/ha (Farmers' practices) in Sirsa. In Rajasthan, the average seed cotton yield in FLDs was 2351 kg/ha under ICM demonstrations as against the average yield of the farmers' regular practices (2093 kg/ha) and 2560 kg/ha under Desi cotton in FLDs as against the farmers' practice (2390 kg/ha). In Gujarat, the FLDs conducted by the NAU centre yielded an average seed cotton yield of 1363 kg/ha in ICM and 1159 kg/ha in Desi cotton demonstrations. The FLDs conducted by Junagadh centre yielded an average seed cotton yield of 2199 kg/ha in ICM and 1856 kg/ha in intercropping with an addition of 453 kg/ha intercrop yield. An average seed cotton yield of 1481 kg/ha in FLDs on ICM at Akola in Maharashtra from cotton improved variety AKH-09-5 with foliar Spray and moisture conservation practices. The demonstrations on PDKV-JKAL-116 Bt BG-II Hybrid with complete Package of Practices of Dr. PDKV, Akola gave an average of 1919 kg/ha as against the farmers practices (1654 kg/ha). The average seed cotton yield obtained in ICM demonstrations conducted by MPKV, Rahuri was 2228 kg/ha as against 2073 in farmers' practices. In the demonstrations on intercropping, the average seed cotton yield was 2307 and the average intercrops yields were 7500, 16000, 12345, 880 and 1180 kg respectively in Cabbage, Watermelon, Maize, Mung dal and Soybean. The average sole cotton yield obtained in farmers' practice was 2197 kg/ha. The FLDs conducted by ANGRAU, Guntur on ICM yielded an average seed cotton yield of 1226 kg/ha. The FLDs on seed cotton production of ELS cotton conducted by RARS, Nandyal gave an average seed cotton yield of 840 kg/ha. The FLDs conducted at Telangana by ARS, Adilabad yielded an average seed cotton yield of 1871 kg/ha as against the farmers' practice 1572 kg/ha. Average seed cotton yield of 1604 kg/ha was realized against 1264 kg/ha of farmers' practices in the FLDs on ICM conducted by UAS, Dharwad. In the demonstrations of Desi cotton, an average seed cotton yield of 1416 was obtained (Farmers' practice 1271 kg/ha).

Table 6
Centre wise Average yield of NFSM - FLDs conducted by ICAR - AICRP on Cotton during 2020 – 21in Comparison to Farmer's practices

S. No	State / Name of the Centre	ICM Average Yield (kg/ha)		Desi / ELS Cotton Average Yield (kg/ha)		Intercropping in Cotton Average Yield (kg/ha)		
		FLD Practice	Farmer's Practice	FLD Practice	Farmer's Practice	FLD Cotton	FLD Intercrop	Farmer's Practice
Punjab								
1	PAU, Faridkot	2300	1970	2080	1774	-	-	-
Haryana								
2	CCSHAU, Hisar	2463	2191	1721	1537	-	-	-
3	SKRAU, Sriganganagar	2351	2093	2560	2390	-	-	-
Rajasthan								
4	ICAR - CICR, Sirsa	2,087	1,727	687.5	-	-	-	-
Gujarat								
5	NAU, Surat	1363	1159	882	787	-	-	-
6	JAU, Junagadh	2199	2079	-	-	1856	453	1711
Maharashtra								
7	PDKV, Akola	1481	1516	1919	1654	-	-	-
8	MAU, Nanded	1634	1453	1665	1474	1558	538	1720
9	MPKV, Rahuri	2228	2073	-	-	2307	Cabbage – 7500 Watermelon -16000 Maize-12345 Mung dal – 880 Soybean - 1180	2197
10	ICAR - CICR, Nagpur	1495	1372	1440	1310	1377	418	1422
11	RVSKVV, Khandwa	1656	1468	-	-	1418	-	1270
Andhra Pradesh								
12	ANGRAU, Guntur	1226	1107	-	-	-	-	-
13	RARS, Nandhyal	840	720	-	-	-	-	-
Telangana								
14	PJTSAU, ARS, Adilabad	1871	1572	-	-	1929	-	1639
Karnataka								
15	UAS, Dharwad	1604	1264	1416	1271	1501	505	1543
16	UAS, Raichur	2999	2710	2473	2265	-	-	-
17	UAS Chamrajnagar	1547	1368	1481	1324	-	-	-
Tamil Nadu								
18	TNAU, Coimbatore	2430	1560	2100 (ELS)	1560	1703	144	1510
19	CICR, Coimbatore**	-	-	-	-	-	-	-

** Under summer irrigated condition – yet to get yield data

In the demonstrations of intercropping in cotton an average seed cotton yield of 1501 kg/ha with 505 kg/ha of intercrop yield was obtained as against sole cotton yield of 1543 kg/ha in Dharwad. The FLDs conducted by USA, Raichur on ICM yielded 2999 kg/ha and on Desi / ELS cotton yielded 2473 kg/ha as average yield. The average seed cotton yield obtained in the demonstrations conducted on ICM and the farmers' practices were 1547 and 1368 kg/ha respectively. The average seed cotton yield obtained in demonstrations on ELS was 1481 kg/ha. In Tamil Nadu, the FLDs conducted by TNAU on ICM yielded an average seed cotton yield of 2430 kg/ha as against 1560 kg/ha in farmers' practice. Similarly the demonstrations conducted on ELS cotton gave an average yield of 2100 kg/ha. The demonstrations on intercropping could obtain an average seed cotton yield of 1703 kg/ ha in FLD, average intercrop yield of 144 kg/ha and 1510 kg/ha in farmers' own practices.

Extension Activities

The centers had conducted various extension activities to popularize the cotton production technologies among the cotton growers (Table 7). A total of **176** visits by the Scientists, **101** farmers' meetings, **15** field days and **50** awareness programs were conducted by the centres during the year 2020-21. In addition, some centres disseminated the cotton technological information through radio talks, TV talks, newspaper clippings and voice SMS.

Table 7
Details of Extension Activities Conducted by the Centers of ICAR - AICRP on cotton under NFSM / FLD during 2020 – 21

S. No	Name of the Centre	Extension Programme				
		Scientist's Visit	Farmers Meeting	Field Days	Awareness Program / Kisan Mela	News Paper / Radio / Video Coverage
1	PAU, Faridkot	14	-	-	2	13
2	CCSHAU, Hisar	12	12	2	3	6
3	SKRAU, Sriganganagar	3	4	-	2	1
4	ICAR - CICR, Sirsa	9	5	1	3	-
5	NAU, Surat	6	-	-	-	-
6	JAU, Junagadh	12	12	0	1	2
7	PDKV, Akola	8	6	2	4	4
8	MAU, Nanded	24	11	1	7	2
9	MPKV, Rahuri	4	-	-	-	-
10	ICAR - CICR, Nagpur	3	4	2	3	-
11	RVSKVV, Khandwa	1	1	-	1	-
12	ANGRAU, Guntur	4	2	1	-	-
13	RARS, Nandhyal	4	3	1	-	-
14	PJTSAU, ARS, Adilabad	18	8	2	1	10
15	UAS, Dharwad	15	10	1	15	-
16	UAS, Raichur	6	6	1	1	1
17	UAS, Chamrajnagar	2	-	1	1	2
18	TNAU, Coimbatore	31	17	-	6	-
	TOTAL	**176**	**101**	**15**	**50**	**41**

Impact of FLD – Centre wise details on Cost Benefit Ratio

During the year, to analyse the impact of FLDs on ICM, ELS /Desi / Seed production and intercropping, data were collected on parameters viz., cost of cultivation, gross income, net profit, additional profit due to FLD and Benefit Cost ratio for both FLD and farmers' practice per hectare.

Table 8
Impact of FLD on ICM in terms of B: C ratio by the Centers of ICAR - AICRP on cotton under NFSM / FLD during 2020 – 21

S. No.	Centre	Cost of Cultivation (Rs/ha)		Gross Income (Rs/ha)		Net Profit (Rs/ha)		Additional Profit due to FLD (Rs/ha)	Benefit cost ratio	
		FLD	FP	FLD	FP	FLD	FP	FLD	FLD	FP
1	PAU, Faridkot	40190	42500	124403	106025	84213	63525	20689	2.10	1.49
2	CCSHAU, Hisar	-	-	-	-	-	-	-	-	-
3	SKRAU, Sriganganagar	-	-	-	-	-	-	-	-	-
4	ICAR - CICR, Sirsa	60790	65200	115073	95240	54283	30040	19833	0.89	0.46
5	NAU, Surat	41588	37850	74938	63726	33350	25876	7474	0.8	-
6	JAU, Junagadh	21334	22442	55552	56325	67349	59862	7486	1.79	1.53
7	PDKV, Akola	26927	31854	81663	83621	54736	51767		3.04	2.63
8	MAU, Nanded	66427	64805	89315	79386	22888	14580	8307	1.34	
9	MPKV, Rahuri	68559	67372	111611	103846	43053	36474	6579	1.6	-
10	ICAR- CICR, Nagpur	-	-	-	-	-	-	-	-	-
11	RVSKVV, Khandwa	40200	41000	91080	80767	50880	39767	11112	2.26	1.96
12	ANGRAU,Guntur	51980	52592	64986	58651	13006	6058	6947	1.25	1.11
13	RARS, Nandhyal	34109	33153	41166	34961	7057	1807	5249	1.20	1.05
14	PJTSAU, ARS, Adilabad	56843	56468	108071	90872	51228	34404	16824	1.90	1.61
15	UAS, Dharwad	26928	29898	-	-	62836	53205	9631	2.32	-
16	UAS, Raichur	62950	65900	161928	146340	98978	60740	38238	2.57	-
17	UAS, Chamrajnagar	41915	39337	85085	75240	43170	35903	9845	2.03	1.91
18	TNAU, Coimbatore	-	-	-	-	-	-	-	-	-

The details on impact of FLD on ICM (Table 8) reveal that the average cost of cultivation in FLD ranged from Rs.21334 to Rs.68559/- per hectare where as in farmers' practice it was ranged from Rs. 22442 to Rs.67672/-. The average gross income in FLD and Farmers' practice ranged from Rs.41116 to Rs.161928/- and Rs. 34961 to Rs.146340/- respectively. The average net profit obtained in FLD ranged from Rs.7057 to Rs. 84213/-.and in farmers' practice ranged from Rs. 1807 to Rs.63525/- . The additional profit due to FLD was ranged from Rs.5249 to Rs.38238/-. The benefit cost ratio of FLD was ranged from 0.80 to 3.04.

Table 9
Impact of FLD on Desi / ELS / Seed production in cotton in terms of B:C ratio by the Centers of ICAR - AICRP on cotton under NFSM / FLD during 2020 – 21

S. No.	Centre	Cost of Cultivation (Rs/ha)		Gross Income (Rs/ha)		Net Profit (Rs/ha)		Additional Profit due to FLD (Rs/ha)	Benefit cost ratio	
		FLD	FP	FLD	FP	FLD	FP	FLD	FLD	FP
1	PAU, Faridkot	38500	40000	114379	97575	75879	57575	18304	1.97	1.44
2	CCSHAU, Hisar	-	-	-	-	-	-	-	-	-
3	SKRAU, Sriganganagar	-	-	-	-	-	-	-	-	-
4	ICAR - CICR, Sirsa	266408	-	667750	-	401342	-	-		-
5	NAU, Surat	39674	32210	61717	39333	22043	7123	14920	0.6	-
6	JAU, Junagadh	-	-	-	-	-	-	-	-	-
7	PDKV, Akola	39420	38141	105849	91232	66430	53091	13339	2.68	2.39
8	MAU, Nanded	51220	50261	90493	80077	39273	29816	9457	1.78	
9	MPKV, Rahuri	-	-	-	-	-	-	-	-	-
10	ICAR - CICR, Nagpur	-	-	-	-	-	-	-	-	-
11	RVSKVV, Khandwa	-	-	-	-	-	-	-	-	-
12	ANGRAU,Guntur	-	-	-	-	-	-	-	-	-
13	RARS, Nandhyal									
14	PJTSAU, ARS, Adilabad	-	-	-	-	-	-	-	-	-
15	UAS, Dharwad	21187	20965	-	-	5706	5177	534	1.1	-
16	UAS, Raichur	62393	64567	133524	122292	71131	57725	11232	2.14	-
17	UAS, Chamrajnagar	42184	39930	81455	72820	39271	32890	8635	1.93	1.82
18	TNAU, Coimbatore (ELS)	-	-	-	-	-	-	-	-	-
19	ICAR - CICR, Coimbatore	-	-	-	-	-	-	-	-	-

The details on impact of FLD on intercropping (Table 9) reveal that the average cost of cultivation in FLD ranged from Rs.38500 (Desi) to Rs.266408 (Seed production) per hectare where as in farmers' practice it was ranged from Rs. 20965 to Rs.64567/-. The additional profit due to FLD was ranged from Rs. 534 to Rs.18304/-. The benefit cost ratio of FLD was ranged from 0.60to 2.68. The seed production FLDs conducted by ICAR-CICR, Sirsa gave net profit of Rs. 401342.

Table 10
Impact of FLD on Intercropping in terms of B: C ratio by the Centers of ICAR - AICRP on cotton under NFSM / FLD during 2020 – 21

S. No.	Centre	Cost of Cultivation (Rs/ha)		Gross Income (Rs/ha)		Net Profit (Rs/ha)		Additional Profit due to FLD (Rs/ha)	Benefit cost ratio	
		FLD	FP	FLD	FP	FLD	FP	FLD	FLD	FP
1	PAU, Faridkot	-	-	-	-	-	-	-	-	-
2	CCSHAU, Hisar	-	-	-	-	-	-	-	-	-
3	SKRAU, Sriganganagar	-	-	-	-	-	-	-	-	-
4	ICAR - CICR, Sirsa	-	-	-	-	-	-	-	-	-
5	NAU, Surat	-	-	-	-	-	-	-	-	-
6	JAU, Junagadh	22142	20257	60390	54741	57425	39326	18098	1.77	1.32
7	PDKV, Akola	-	-	-	-	-	-	-	-	-
8	MAU, Nanded	72578	60504	111141	93697	38563	33193	5369	1.53	-
9	MPKV, Rahuri	88347	72749	159779	112065	71432	38761		1.7	-
10	ICAR - CICR, Nagpur	-	-	-	-	-	-	-	-	-
11	RVSKVV, Khandwa	39000	41760	77880	69877.5	38880	28117.5	10762	1.99	1.66
12	ANGRAU, Guntur	-	-	-	-	-	-	-	-	-
13	RARS, Nandhyal	-	-	-	-	-	-	-	-	-
14	PJTSAU, ARS, Adilabad	57680	58634	111329	94812	53649	36179	17470	1.93	1.62
15	UAS, Dharwad	32310	28500			23893	11485	12408	1.8	-
16	UAS, Raichur	-	-	-	-	-	-	-	-	-
17	UAS, Chamrajnagar	-	-	-	-	-	-	-	-	-
18	TNAU, Coimbatore	59000	56000	100890	81540	41890	25540	16350	1.71	1.46
19	ICAR - CICR, Coimbatore	-	-	-	-	-	-	-	-	-

The details on impact of FLD on intercropping (Table 10) reveal that the average cost of cultivation in FLD ranged from Rs.22142 to Rs.88347/- per hectare where as in farmers' practice it was ranged from Rs. 20257 to Rs.72749/-. The additional profit due to FLD was ranged from Rs.5369 to Rs.18098/-. The benefit cost ratio of FLD was ranged from 1.53 to 1.99.

Highlights of FLDs Conducted by the Centres during the Year 2020 – 21

North Zone

1. Punjab Agricultural University, Faridkot

Climate and its Effects on Cotton Crop

The weather during the report period was initially dry and mostly humid during monsoon period. Light to medium rainfall in isolated patches throughout the cotton growing area during sowing period resulted in crust formation and hence forced some of the farmers to re-sow or plough the cotton fields. During 2020, a total of 568.0 mm rainfall was received in 25 rainy days at Regional Research Station, Faridkot. The maximum rainfall of 225.9 mm was recorded during July where crucial flowering and fruiting period started. During, boll opening and picking period (Oct-Nov.), little rainfall (4.6 mm) helped picking at most places and resulted in better quality seed cotton.

Scenario of Insect Pests and Diseases

Unlike in Haryana state, whitefly was not a serious issue for cotton crop in any of cotton growing districts in Punjab. Dry periods during early season also affected crop in salt affected areas to a little extent. However, the incidence of CLCuD was low. The current season also witnessed some incidence of Thrips in some cotton growing areas of the state. However, overall, all insects-pests were well managed with just 2-3 sprays only which helped in realizing a good crop yield except few isolated fields. There were few issues of sudden drying and leaf burning during end of season mainly in Fazilka district. The FLDs at three places which were located near ginning factory in villages Jodhpur Romana, Bathinda witnessed high incidence of PBW.

Front Line Demonstrations on ICM

During the year, for cotton growing region of the state, Punjab Agricultural University has demonstrated the FLDs on time of sowing, optimal plant population, balanced nutrition and weed management. Among ICM, a total of 30 FLDs in 29.6 hectares in 74 farmers' fields with eight cultivars (F 2228, RCH650, RCH773, RCH776, RCH653, OM3, Simsim, and SP7172) were demonstrated. Among all the demonstrations under ICM component, an average seed cotton yield of 2300 kg/ha was recorded over the average yield of farmers's own practices i.e., 1970 kg/ha. So an average increase of 16.7 % higher seed cotton yield was recorded in demonstration plots over the farmers' own practices. It was also observed that majority of cotton growers were able to harvest bumper produce with only 2-3 sprays for pests. As a result of better yields, farmers got good net profit from cotton cultivation. Under ICM, the average B: C ratio remained higher (2.10) than farmers' practices (1.49).

The specific impact of agronomic practices demonstrated under ICM was worked out and the results of those demonstrations are

Improved agronomic practices	No. of trials	Seed cotton Yield (kg/ha)		% Increase over FP
		FLD	FP	
Optimal plant population	15	2133	1836	16.2
Ideal time of sowing	21	2447	2025	20.8
Weed management	20	2259	1950	15.8
Balanced nutrition	16	2362	2072	14.0

Similarly the specific impact created by the varieties and hybrids was also worked out and the details of are

No. of FLDs	Variety /Hybrid	Seed cotton Yield (Kg/ha)		% Increase over FP
		FLD's	FP	
3	LD 949	2033.0	1766.0	**15.1**
17	FDK 124	2098.0	1776.0	**18.1**
1	LD694	1900.0	1750.0	**8.6**
3	F 2228	1935.0	1569.0	**23.3**

Front Line Demonstrations on Desi / ELS/ Seed Production of ELS cotton

Apart from ICM, 10 FLDs in 10.4 ha in 21 farmers' fields were also conducted on *desi* cotton / FLD on seed production wherein three varieties (LD 949, LD 1019 and FDK 124) have been demonstrated. Under the component of FLD on desi cotton, an average seed cotton yield of 2010 kg/ha was recorded over average of farmers' practice (1764 kg/ha). Here an average increase of 13.9% higher seed cotton yield was recorded in demonstration plots over farmers' practice. Similar to ICM, under the component FLDs on desi cotton also, the average B: C ratio remained higher (1.97) than farmers' (1.44) which is an indicative of better net returns.

Extension Activities

State / District	Extension Programme					
	Scientist Visit	Farmers Meeting	Field Days	Awareness Programme / KisanMela	News / Paper / Radio / Video Coverage	Others
Punjab	14	-	-	2	13	Mobile phone and WhatsApp communications

2. Chaudary Charan Singh Haryana Agricultural University, Hisar

Climate and its Effects on Cotton Crop

During the *Kharif*, 2020 crop season, monsoon onset was in time and few heavy rain events were recorded in the month of June, July, August and September. In the month of May maximum temperature 39.4**ºC** was recorded whereas in the month of June it was 38.2 ºC. During flowering and fruiting stage (July to September) total rainfall 91.5 mm was received as compare to normal 102.7 mm.

Scenario of Insect Pests and Diseases

During *Kharif* 2020, monsoon onset was in time and few heavy rain events were recorded. The crop growth was excellent during entire crop season. The season was favorable for cotton crop and there was very less incidence of Cotton leaf curl disease as well as sucking pests. The rainfall distribution was also very good and ultimately good seed cotton yield was harvested.

Front Line Demonstrations on ICM in Cotton

A total of thirty demonstrations in 30 ha at seventy five farmers' fields were carried out in different villages with the objectives *i.e.* Yield maximization of *Bt* cotton hybrids with improved technology *i.e.* INM, IPM, Soil and water management Improved Agronomic practices. The highest seed cotton yield of *Bt*. cotton was picked by Shri. Gansa s/o Shri. Tika Ram, village Aurnagabad (3350 Kg/ha). In these demonstrations, 11.04 per cent higher seed cotton yield was recorded than the local farmer's practices.

Front Line Demonstrations on Desi / ELS/ Seed production of ELS cotton

Thirty demonstrations in 30 hectares of Desi cotton at seventy five farmers' fields were carried in different villages with the objectives *i.e.* to popularize high yielding and non-shedding *Desi* cotton varieties, minimize the infestation of whitefly, minimize the insecticidal sprays, minimize the inoculums of CLCuD and to identify the suitable varieties for the cotton- wheat cropping system. The highest seed cotton yield of desi cotton was picked by Shri. Vinod, village Khairampur , (2600 kg/ha). In these demonstrations 10.70 per cent high seed cotton yield was recorded as compared to the local farmer's practices.

Extension Activities

State/District	Extension Programme				
	Scientist visit	Farmers meeting	Field days	Awareness programme	News/ Paper/Radio/ Video coverage
CCS HAU, Hisar	12	12	2	3	6

3. ICAR - Central Institute for Cotton Research, Sirsa

Front Line Demonstrations on ICM in Cotton

Front Line Demonstrations of Integrated Crop Management on CICR Bt-6 (67.5 x 30 cm normal spacing) in 4 ha of farmers' field area, CSH-3075 (67.5 x 10 cm HDPS) in 0.8 ha of farmers' field area and CSH-3129 (67.5 x 30 cm normal spacing) in 0.4 ha of farmers' field area were conducted by ICAR-CICR, Regional Station, Sirsa during the 2020-21 cropping season. The highest seed cotton yield of the varieties CICR Bt-6, CSH-3129 and CSH-3075 was obtained as 2,550, 2,462 and 2,180 kg/hectare. The varieties under FLD practices i.e. CICR Bt-6, CSH-3129 and CSH-3075 out yielded the ruling Bt hybrids by 16.08 %, 15.14 % and 22.75 % respectively. Good yields were obtained by the FLD farmers with pre-sowing irrigation only and with the application of 1-3 irrigations afterwards. The average cost benefit ratios of cotton varieties under FLD practices i.e. CICR Bt-6, CSH-3129 and CSH-3075 were 0.82, 0.98 and 1.23 but average cost benefit ratios of Farmer's practice were 0.42, 0.56 and 0.61, respectively.

Front Line Demonstrations on Desi / ELS/ Seed production of ELS cotton

Front Line Demonstrations (FLDs) of seed production of Hybrid *Desi* cotton (CICR-2) in 0.4 ha of farmers' field area were conducted by ICAR-CICR, Regional Station, Sirsa during the 2020-21 cropping season. The average seed yield under Seed production of Hybrid *Desi* cotton of CICR-2 was 687.5 kg/ha with the average cost benefit ratio of 1.51.

Extension Activities

State / District	Extension Programme				
	Scientist Visit	Farmers Meeting	Field Days	Awareness Programme / KisanMela	News / Paper / Radio / Video Coverage
Sirsa, Haryana	9	5	1	3	-

4. S.K. Rajasthan Agricultural University, Sriganganagar

Front Line Demonstrations on ICM in Cotton

Thirty FLDs on full package of practices of *G. hirsutum* Bt cotton hybrids Rasi 773 BG II, Rasi -776 BG II, Bayer- 7172 BG II and Sim-Sim BG II were conducted in 30 hectares of 75 farmers fields in the districts Sriganganagar and Hanumangarh. The average seed cotton yield obtained under FLDs was 2351 kg/ha which 10.76 % increase than the farmers' practice (2093 kg/ha).

Front Line Demonstrations on Desi / ELS/ Seed production of ELS cotton

A total of thirty FLDs on Insects and diseases management technologies of arboretum varieties RG 8, KR 64 were conducted in the districts Sriganganagar and Hanumangarh. An average seed cotton yield of 2560 kg/ha was received in FLDs as against the average yield of farmers' practices (2390 kg/ha), which is an average increase of 7.08%.

Extension Activities

State / District	Extension Programme				
	Scientist Visit	Farmers Meeting	Field Days	Awareness Programme / KisanMela	News / Paper / Radio / Video Coverage
Sriganganagar	3	4	2	1	-

Central Zone

5. Navsari Agricultural University, Surat

Climate and its Effects on FLD

FLDs on ICM were organized in Netrang talukas of Bharuch district and Dediyapada talukas of Narmada district. In Netrangtaluka, 2079mm of total rainfall was received during the season as compared to 755 mm of last ten years average (175% higher than average rainfall). Total 2095 mm rainfall was received in Dediyapada taluka as against 1136mm of average rainfall which was 84.4% higher than average rainfall of taluka. FLDs on Desi Cotton Seed Production were arranged in Jambusar talukas of Bharuch district. Total rainfall received during the season was 617mm which was slightly higher (7.1%) than average of last10years. However, due to heavy and continuous rainfall during the month of August-2020 created water stagnation in low lying areas of FLDs on Desi Cotton Seed Production resulted in failure of 19 FLDs out of 25plots.

Scenario of Insect Pests and Diseases

No serious attack of pests and diseases were noticed in FLDs on ICM during the season. Very high rainfall during the season caused adverse effect on crop growth and production in both the taluks. Similarly, No serious attack of pests and diseases were noticed in FLD on Seed production. Lower seed cotton yield was received in remaining FLD plots of Desi Cotton Seed Production.

Front Line Demonstrations on ICM in Cotton

Twenty demonstrations on ICM conducted in twenty hectares of 50 farmers' fields on approved *Bt* cotton hybrids G. Cot. Hy. 10 (BG II) and G. Cot. Hy. 8 (BG II). Approved Bt cotton hybrids comprising promotion of nutrient management through bio-fertilizers (Azotobacter, PSB, KMB) & foliar supplement through organic novel banana pseudo stem sap, PBW monitoring through pheromone trap and insect management through safer sucking pest were the technologies demonstrated under this component. The average seed cotton yield obtained in the FLD fields was 1363 kg /ha as against the farmers' practice (1159 kg/ha).

Front Line Demonstrations on Seed production of Desi cotton

Twenty demonstrations on seed production of desi cotton variety GN. Cot. 25 (*G. herbaceum*) allotted in JambusarTaluka of Bharuch district with nutrient management through biofertilizers (Azotobacter, KMB and PSB), Novel organic liquid fertilizer (Banana pseudo stem sap), PBW monitoring through pheromone trap and bollworm management through safer insecticides *viz*., Buprofezin 25 SC and Quinalphos 25 EC. The average seed cotton yield obtained in desi cotton was 882 kg/ha as against the average seed cotton yield of farmers' practice 787 kg/ha.

Extension Activities

State / District	Extension Programme				
	Scientist Visit	Farmers Meeting	Field Days	Awareness Programme / KisanMela	News / Paper / Radio / Video Coverage
Gujarat / Bharuch	6	-	-	-	-

6. Junagadh Agricultural University, Junagadh

Climate and its Effects on Cotton Crop

The regular monsoon was started from 1st week of June with a precipitation of 107.1 mm. All the FLD fields were sown on up to 3rd week of June, 2020. The maximum rain (267.6 mm) was received during 27th Standard Meteorological Week (SMW) in the season. Total 1808.1 mm rain was received during the entire season with 63 rainy days. Germination in all the experiments was an excellent and satisfactory. However, necessary gap filling was done to maintain proper plant stand. Initial crop condition was very good and satisfactory but due to continuous rain during the mid kharif season affected the plant growth. All the necessary cultural operations *viz*., weeding, interculturing, top dressings of fertilizers and plant protection measures were applied timely. During the 32nd to 35th SMW, there is a continuous rainfall (812.2 mm with 22 rainy days) was received with a cloudy weather. And due to continuous rainfall, the crop growth was observed more vegetative than the reproductive. Hence, there is a first flush was affected and dropped the most of the squares and flowers in cotton crop. The crop duration/life span was increased for reaching up to a final maturity. Intercrop *viz*; Sesame and black gram yield was reduced and some FLDs were failed due to continue rainfall. In general weather condition was remained moderately favourable to the cotton crop.

Scenario of Insect Pests and Diseases

Aphid incidence was started from 33rd SMW and continued up to end of the season. The maximum aphid population (33.0 aphids/ 3 leaves) was recorded during 51st SMW of 2020. The incidence of jassid was observed throughout the season but it was severe from in 34th, 35th, 36th 43rd, 44th, 45th and 50th SMW. The highest population of jassid (13.9 jassid nymphs/ 3 leaves) was noted during 36th SMW. Thrips population was started from 30th SMW, and continued up end of the season but it was more and less incidence. The highest population was recorded during 34rd SMW (12.0 thrips / 3 leaves). Whitefly population was found throughout the season but it was below ETL. The highest population was noted during 41st SMW (7.5 whitefly/3 leaves). The incidence of mite, mirid bugs and mealy bugs were very low throughout the season. In case of natural enemies, the population of *Coccinellids*, *Chrysoperla* and Spiders was noted throughout the season.

Maximum fungal foliar and bacterial blight diseases intensity were recorded due long rainy season at cotton research station, JAU, Junagadh. Bacterial blight disease was started from 27th MSW and continues up to 47th MSW. In case of fungal diseases, Phoma leaf spot, Corynespora, Anthracnose, Boll rot and Alterneria leaf spot high disease incidence and intensity were recorded at Research farm as well as farmers field. Phoma leaf spot disease was stated from 28th MSW and Corynespora and external boll rot diseases started from 35th MSW while alternerial leaf spot was started from 41th MSW and continue up to 52nd MSW.

Grey mildew was started from 44th MSW minimum incidence on Research farm and high incidence was recorded at farmer's field. Soil born diseases and Para wilt were recorded minimum (0 to 5% incidences).

Front Line Demonstrations on ICM in Cotton

Forty front line demonstrations were conducted in 95 farmers' fields to demonstrate integrated cotton crop management practices on different Bt cotton hybrids. The results revealed that the average seed cotton yield was recorded (2199 kg/ha) at different taluks of Junagadh, Rajkot and Amreli districts under the ICM practices. The average seed cotton yield of farmers practices was 2079 kg/ha.

On overall basis, the average net realization was obtained of Rs. 67,349/ha as compared to Rs. 59,862/ha in farmers' practices. Additional profit due to FLD was Rs. 7486/ha as compare to farmer's practices. The cost benefit ratio was observed 1.79 and 1.53 in FLDs on ICM and farmers practices, respectively.

Front Line Demonstrations on Intercropping in cotton

Ten front line demonstrations were conducted to demonstrate intercropping with cotton crop in different taluks of Junagadh and Rajkot districts on different Bt cotton hybrids. The average seed cotton yield was recorded (1856 kg/ha), with different intercrops seed yield was (453 kg/ha) as per the FLDs on intercropping by recommended package of practices, while average seed cotton yield (1711 kg/ha) was obtained by farmers practices with only a single cotton crop. On overall basis, the average net realization obtained Rs. 57,425/ha as compared Rs. 39,326 /- in farmers practices. Additional profit due to FLD was Rs. 18,098/ha as compare to farmers practices. The cost benefit ratio 1.77 and 1.32 was observed in FLDs on inter-cropping and farmers practices, respectively.

Extension Activities

State/ District/	Extension Programme				
	Scientist visit	Farmers meeting	Field days	Awareness programme	News/ Paper/Radio/ Video coverage
Gujarat/Junagadh	12	12	0	1	2

7. Dr.Panjabrao Deshmukh Krishi Vidyapeeth, Akola

Climate and its Effects on Cotton Crop

The onset of monsoon was right time during the *kharif* season of 2020. Total rainfall received during this season was 771.6 mm (June to Dec 2020) against normal rainfall of 755.65 mm. This year overall rainfall was accounted near about equals to normal. The rainfall was started on 9^{h} June 2020 and it was 11.4 mm. There was a sufficient rainfall of 125.4 mm in 24th MW i.e., during 11-17 June which helps in land preparation and sowing operation. The germination of cotton was satisfactory due to sufficient and well distributed rainfall of 165.2 mm received in the month of June well distributed in 10 rainy days. However after sowing of cotton, there was a rainfall gap of about 8 days i.e. upto 24/06/2020 due to which germination of cotton demonstrations sown during 17.06.2020 to 20.06.2020 was affected to some extent. The seasonal rainfall was 771.6 mm mm in 53 rainy days (1st June to 31th Dec. 2020). There was sufficient rainfall of 264.9 mm in 16 rainy days during the month of July which helps in growth and development of cotton crop. There was a continuous and well distributed rainfall from 25th MW to 38th MW which helps in vegetative development of cotton crop. Due to heavy rainfall in this period (13 Aug to 16 Sept.) inter-culture operations like hoeing and weeding were hampered and crop was infested with weeds. There was very less sunshine hours during the month of August month due to this cloudy weather morphological and physiological growth of cotton was remained stunted. There was sufficient rainfall during Square to flower initiation (Peak Flowering) stage which results in satisfactory growth and development of cotton. The sufficient rainfall of 32 mm in 41 and 42 MW helps in boll development of cotton. During the *kharif* season of 2020 there was a continuous and scattered rainfall upto November due to which some square and boll shedding was observed and cotton quality was hampered due to rainfall at first picking stage of cotton.

Scenario of Insect Pests and Diseases

Incidence of sucking pest (Aphids, Leaf hoppers, Thrips and whitefly) was noticed from 34th MW continued throughout the crop season. However, pink bollworm was noticed from 41st met week (8-14 Oct.) and continued at increasing trend till the end of crop season. The boll rot infestation coincides with the pink boll worm attack affected the opening of bolls and ultimately quality of cotton.

Front Line Demonstrations on ICM in Cotton

A total of twenty demonstrations on ICM were conducted on newly released hirsutum variety (AKH-9-5) with opening of furrow in cotton at 40 days after sowing and foliar spraying of nutrients in Akola, Buldana and Amravati Dist. The average seed cotton yield obtained was 1481 kg/ha as against the farmers' practice (1516 kg/ha). Cotton improved variety AKH 09-5 with integrated crop management practices improved the overall net profits over farmers practice. Additional profit was recorded due to FLD compared to farmers practice with B:C ratio of 3.04 in improved practice and 2.63 in farmers practice.

Front Line Demonstrations on Seed production of Desi cotton

This centre has also selected 40 FLDs to commercialize the PDKV- JKAL Bt (BG-II) through FLDs on farmer's field with complete package of practices of Dr.PDKV, Akola as one component of FLD. The average seed cotton yield obtained was 1919 kg/ha as against the farmers' practice (1654 kg/ha). Additional profit was recorded due to FLD compared to farmers practice with B:C ratio of 2.68 in improved practice and 2.39 in farmers practice.

Extension Activities

State / District	Extension Programme				
	Scientist Visit	Farmers Meeting	Field Days	Awareness Programme / KisanMela	News / Paper / Radio / Video Coverage
Akola and Amravati	8	6	2	4	4

8. Marathwada Agricultural Univeristy, Nanded

Climate and its Effects on Cotton Crop

The total rainfall received during *kharif*, 2020 season at Cotton Research Station, Nanded was 1150.3 mm (June - December, 2020) as against average rainfall of 910.87 mm. Thus, 66.03 mm (7.25%) rainfall was excess over average of the station. The total rainfall was distributed with 54 rainy days during the season which was 10 additional rainy days over average. Onset of monsoon was evident in second week of June. However, scattered rains in June followed by dry spell during 18-30 June (25-26 MW) resulted to delay in sowing of few trials. Sowing of the experiments was completed in second fortnight of June and first week of July. Sufficient rains thereafter favoured satisfactory germination. Deficit rains in the month of June and July were received. Heavy and continuous rains in August to October hampered intercultural operations, crop protection operations and lead to shedding of reproductive parts. This has resulted to reduction in number of bolls per plant / unit area. Rainfall was received till 42nd MW (15th Oct.) which has influenced in increased moisture availability for second flush and its boll development. However, it had resulted in delayed bursting of bolls. The *kharif* 2020 season was marked with excess of rains during reproductive period.

Scenario of Insect Pests and Diseases

During the crop season, the overall incidence of sucking pests was moderate and pink bollworm incidence was moderate to severe at the end of crop season. Occurrence of diseases *viz.*, Grey mildew was moderate and mild infestation of boll rot was observed.

Front Line Demonstrations on ICM in Cotton

Forty demonstrations on ICM in cotton were conducted in one hundred farmers' fields by MAU, Nanded. The technologies demonstrated were Optimum plant population (18518 plants / ha – spacing 120 x 45 cm under rainfed), Recommended dose of fertilizer (120:60:60 NPK kg / ha), Integrated Pest Management (for pink bollworm in particular) as against farmers' practice of Lower plant population (9260 to 11,111 plants/ha), Excess use of N, low use of K2O, use of insecticides only for management of PBW. The average seed cotton yield obtained in FLD was 1634 kg/ha as against the farmers' practice (1453 kg/ha). The average additional benefit of FLDs on ICM was Rs.8307 / ha with the B: C ratio of 1.34.

Front Line Demonstrations on Desi cotton

Fifteen demonstrations on ICM in cotton were conducted in 36 farmers' fields on newly released varieties PA 812 as against Old varieties (PA 402 and PA 255), local varieties and hybrids. The average seed cotton yield obtained in FLD was 1665 kg/ha as against the farmers' practice (1474 kg/ha). The average additional benefit of FLDs on ICM was Rs.9457 / ha with the B: C ratio of 1.78.

Front Line Demonstrations on Intercropping in cotton

Twenty demonstrations on Cotton + Green gram (1:1) were conducted in the fifty farmers' fields. The average seed cotton yield obtained in FLD was 1558 kg / ha plus intercrop yield of 538 kg/ha as against the farmers' practice of solo cotton (1720 kg/ha). The average additional benefit of FLDs on intercropping in cotton was Rs.5369 / ha with the B:C ratio of 1.53.

Extension Activities

State/ District	Extension Programme				
	Scientist visit	Farmers meeting	Field days	Awareness programme/ KisanMelas	News/ Paper/Radio/ Video coverage
Aurangabad	2	1	0	1	-
Jalna	4	2	0	2	-
Beed	1	1	0	1	-
Parbhani	1	1	0	0	-
Nanded	15	6	1	3	2
Hingoli	1	-	-	-	-
Total	**24**	**11**	**1**	**7**	**2**

9. MahthamaPhule Krisi Vidyapeeth, Rahuri

Front Line Demonstrations on ICM in Cotton

Thirty demonstrations on ICM in cotton were conducted in seventy five farmers' fields in Ahmednagar and Buldhana districts. The technologies demonstrated were Optimum plant population (12345 plant ha^{-1}), Recommended Dose of Fertilizer (125:65:65 NPK kg

ha^{-1}) and Foliar spray of MPKVs liquid Phule Micro Grade II (Micronutrient) in Rahuri released varieties / hybrids Phule Shwetambari, Phule Suman, Phule Chetana, Phule Mahi and other ruling Bt cotton hybrids. The average seed cotton yield obtained in FLD was 2228 kg/ha as against the farmers' practice (2073 kg / ha).

Front Line Demonstrations on Intercropping in cotton

Ten demonstrations on cotton intercropping in twenty five farmers' fields at Ahmednagar district with Cabbage, Watermelon, Maize, Mung dal and Soybean were conducted. In the demonstrations on intercropping, the average seed cotton yield was 2307 and the average intercrops yields were 7500, 16000, 12345, 880 and 1180 kg respectively in Cabbage, Watermelon, Maize, Mung dal and Soybean. The average sole cotton yield obtained in farmers' practice was 2197 kg/ha.

Extension Activities

State/ District	Extension Programme				
	Scientist visit	Farmers meeting	Field days	Awareness programme/ KisanMelas	News/ Paper/Radio/ Video coverage
Rahuri	4	-	-	-	-

10.ICAR – Central Institute for Cotton Research, Nagpur

Climate and its Effects on Cotton Crop

The mean annual rainfall of the district ranges between 1000 mm to 1300 mm, of which about 80% is received from south-west monsoon during June to September. The average number of rainy days is spread around four months over 51 rainy days. The annual temperature ranges from 25^0C to 28^0C. The region experience hot summer and mild winter with mean summer temperature of 33.4^0C and mean winter temperature of 22.4^0C.Total amount of rainfall received during June to November 2020 was 1371 mm in 69 rainy days in the crop growing period. Sowing was done in 4^{th} week of June 2020. Total rainfall received in the month of July, August and September was quite high i.e. above normal (318mm, 515.2mm and 201mm) in 51 rainy days which affected the crop growth initially and it was moderately damages due to weeds.

Front Line Demonstrations on ICM in Cotton

Twenty four demonstrations on ICM in cotton were conducted in sixty farmers' fields in Wardha and Nagpur districts. The technologies demonstrated were ICM on ICAR-CICR Rajat Bt, ICAR-CICR PKV081Bt - ICM in approved Bt cotton hybrids, Balanced nutrition (100:50:50 NPK kg/ha), Split application of N & K i.e, 25% as basal and 25% each at 30, 60, 90 Days after sowing (DAS), Foliar spray of 2% DAP, or 1% $MgSO_4$ or 2% Urea, 0.5 % $ZnSO_4$ and 0.2 % Boron in 15 days interval at crop 90 DAS, DAP(200gm/10 liter of water), Need based PP measures for sucking pests (IPM practices) and Pink bollworm management strategy. The average seed cotton yield obtained in FLD was 1015 kg/ha as against the farmers' practice (890kg / ha).

Front Line Demonstrations on Desi Cotton

Twenty demonstrations on Desi cotton varieties on ICAR-CICR-CNA 1028 & ICAR-CICR-CNA1032 were conducted in Nagpur district in fifty farmers' fields.

Front Line Demonstrations on Intercropping in cotton

Eighteen demonstrations on cotton hybrids ICAR-CICR Rajat Bt, ICAR-CICR GJHV374 Bt, ICAR-CICR PKV 081 intercropping with Greengram (Utkarsha), Blackgram (TAU 1), Soyabean(MAUS158) and Tur (PKV TARA) were conducted in forty four farmers' fields at Wardha and Nagpur districts. In the demonstrations on intercropping, the average seed cotton yield was 2307 and the average intercrops yields were 7500, 16000, 12345, 880 and 1180 kg respectively in Cabbage, Watermelon, Maize, Mung dal and Soybean. The average sole cotton yield obtained in farmers' practice was 2197 kg/ha.

Extension Activities

State/ District	Extension Programme				
	Scientist visit	**Farmers meeting**	**Field days**	**Awareness programme/ KisanMelas**	**News/ Paper/Radio/ Video coverage**
Maharashtra Nagpur, Yavtmal, Wardha	3	4	2	3	-

11. Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Khandwa

Front Line Demonstrations on ICM in Cotton

Twenty demonstrations on ICM in cotton were conducted in twenty farmers' fields in Mandla, Injaiwada, Pipalkota and Pokharpeer of Khandwa district. The technology demonstrated were Integrated Crop Management techniques with special reference to INM in popular Bt cotton hybrids INM Rasi 659 BG II, Rasi Neo, Ajeet 155and Rasi Megna. The average seed cotton yield obtained in FLD was 1656 kg/ha as against the farmers' practice (1468 kg / ha).

Front Line Demonstrations on Intercropping in cotton

Twenty demonstrations on cotton intercropping with Arhar were conducted in twenty farmers' fields at Bhuiphal and Haraswada in Khandwa district. The average seed cotton yield obtained in FLD was 1418 kg / ha as against the sole cotton farmers' practice 1270 kg/ha.

State / District	Extension Programme				
	Scientist Visit	**Farmers meeting**	**Field days**	**Awareness Programme**	**Newspaper/ Radio/ Video coverage**
Khandwa (M.P.)	1	1	-	1	-

South Zone

12.Acharya N.G. Ranga Agricultural University, Guntur

Climate and its Effects on Cotton Crop in Guntur

The onset of southwest monsoon was normal and facilitated for taking up sowings during the month of July. A total rainfall of 1140.0 mm was received in 57 rainy days from June to December, 2020 as against the decennial rainfall of 767.4 mm in 48.6 rainy days with 48.7 % excess rainfall during the crop growth period. The rains received during the months of August helped for good vegetative growth. The continuous rains with humid weather coupled with high temperature during the months of September and October, 2020 resulted in luxuriant to lanky vegetative growth and square and flower drop. Due to excess moisture stress field operations could not be taken up, boll rotting and boll drop was observed. Cotton crop experienced heavy moisture during the crop growth period from August to October. Continuous rains received during the months of September and October months, 2020 resulted in crop damage in most of the areas and crop failure in some areas of Krishna zone of Andhra Pradesh. Performance of the crop was observed below normal.

Scenario of Insect Pests and Diseases in Guntur

Leafhopper population was low to moderate. Thrips and whiteflies population was also low to moderate. Pink bollworm incidence in terms of trap catches crossed ETL from 43rd standard week and reached its peak during 50th to 52rd standard weeks. Alternaria leaf spot and boll rot was the major diseases during the season. Other fungal leaf spots, bacterial blight, and tobacco streak virus disease were negligible. Rust was also observed in some plots during December month.

Front Line Demonstrations on ICM in Cotton

A total of sixty (1hectare each) front line demonstrations were conducted in cotton with integrated crop management practices as improved technology and farmers practice as control in Lam, Jonnalagadda, Tatireddypalem, Yanamadala, Tadikonda,Damarapalli and Bejathpuram villages of Guntur district in sixty farmers' fields. The technologies demonstrated were

- Seed treatment with imidacloprid 70 WS @ 5 g / kg followed by,treatment with *Trichoderma viride* @ 10 g / kg
- The recommended 150:60:60 NPK kg/ha. N and K given in 3-4 splits at 20 days interval starting from 20 DAS (as the soils are low in available nitrogen status, suggested to apply 25% excess nitrogen to the crop).
- Foliar sprays of 19:19: 19 and Speedfol (mixture of both macro and micro nutrients) to supplement micro nutrients and plant hormones.
- Neem oil, yellow (10 No.s/acre) and blue sticky traps for sucking pest control.
- Erection of pheromone traps @ 4/acre for monitoring pink boll worm.
- For control of pink boll worm spraying of persistent insecticides like thiodicarb 75 WP @ 1.5 g/l or profenophos @ 2 ml/l or quinalphos 25 EC @ 2.5 ml/l or chlorpyriphos 20 EC @ 2.5 ml/l at 15 days interval.
- At the crop final stage, spray synthetic pyrethriods such as cypermethrin 10 EC @ 1.25 ml/l or lambda cyhalothrin 5 EC @ 1.0 ml/l
- Usage of Planofix to reduce boll drop.

- Tank mixure (Quizalofop ethyl 50 g a.i/ha+ Pyrithiobacsodium @62.5 g a.i/ha at 2-4 weed leaf stage

The average seed cotton yield obtained in ICM demonstrations was 1226 kg/ha as against 1107 kg/ha in farmers' practices.
The cost of cultivation incurred was Rs.51980 per ha in integrated crop management as against Rs. 52592 per ha in farmers practice. The B:C ratio obtained in FLD was 1.25 as against 1.11 in farmers' practices.

Extension activities

State/ District	Extension programme				
	Scientist Visit	**Farmers meeting**	**Field days**	**Awareness programme**	**News/ Paper/ Radio/ Video/ Coverage**
Guntur (Dt.) of Andhra Pradesh	4	2	1	Integrated nutrient management and Integrated pest management.	Covered in local print and electronic media.

13.Acharya N.G. Ranga Agricultural University, RARS, Nandyal

Climate and its Effects on Cotton Crop in Guntur

A total amount of 1435 mm rainfall was received in 55 rainy days from May to December, 2020 as against the decennial rainfall of 778 mm in 44 rainy days with 84 % excess rainfall. During the crop growth period (July, 29th to December) 858 mm rainfalls was received in 32 rainy days. Cotton crop experienced heavy moisture during the crop growth period from August to September. Control measures were taken up to overcome the excess water stress. Heavy flower and square drop was observed. Pest and disease control measures were taken up timely. During this year the performance of the crop was observed below normal.

Scenario of Insect Pests and Diseases in Guntur

Leafhopper population was moderate. Thrips and whiteflies population was low to moderate. Mealy bug incidence was low and confined to grade II injury stage. Pink bollworm incidence in terms of trap catches crossed ETL from 45th std week and reached its peak during 50th to 53rd std weeks.

Front Line Demonstration on Integrated Crop Management

Thirty demonstrations on ICM were conducted in 30 farmers' fields in Kurnool district. The technologies demonstrated were Foliar sprays of 19:19: 19 and Speedfol (mixture of both macro and micro nutrients) to supplement micro nutrients and plant hormones, Neem oil, yellow and blue sticky traps for sucking pest control, Thiodicarb, Profenophos, Lamdacyhalothrin and Pheromone traps against pink boll , warm control, Maize grown as barrier crop in the border to prevents the spread of the sucking pest, Usage of Planofix to reduce boll drop, Pendimethalin@5g/lit as pre emergence herbicide and Tank mixure (Quizalofop ethyl 50 g a.i/ha+ PyrithiobacSodium@62.5ga.i/ha) at 2-4 weed leaf stage. The mean seed cotton yield of 840 kg/ha was realized in integrated crop management FLDs as against 720 kg/ha in farmers practice. The cost of cultivation incurred was Rs.34109

per ha in integrated crop management as against Rs. 33153 per ha in farmers practice. The benefit cost ratio in integrated crop management was 1.20 as against 1.05 in farmers practice.

Extension activities

State/ District	Extension Programme				
	Scientist visit	**Farmers meeting**	**Field days**	**Awareness programme/ Kisan Melas**	**News/ Paper/Radio/ Video coverage**
Kurnool dist of Andhra Pradesh	4	3	1	ICM,INM and IPM	Covered in local print and electronic media.
Total	**4**	**3**	**1**	-	-

14.Prof. Jayashankar Telangana State Agricultural University, Hyderabad Agricultural Research Station, Adilabad

Climate and its Effects on Cotton Crop in Guntur

Cotton sowings were taken up soon after receipt of the monsoon rains (1st week of June). But, in the 2nd and 3rd week of June, there was continuous dry spell for 2 weeks. Due to this, farmers have gone for re-sowing of Cotton seed. Again in the month of July, due to even distribution of rainfall, crop attained normal growth. Afterwards, due to deficit rainfall in the 1st and 2nd weeks of August and 1st and 2nd weeks of September, stunted growth or abnormal growth; flower and square drop; incidence of Thrips, Tobacco caterpillar, *Alternaria* leaf spot, Bacterial leaf blight, external boll rot was noticed. In contrast to this, pink bollworm and internal boll rot was noticed during 2nd & 3rd weeks of September.

Scenario of Insect Pests and Diseases in Guntur

Due to high temperatures received in *kharif* months, the sucking pests like Thrips followed by whiteflies were observed. Due to rainfall coupled with humidity in the month of October, the Boll rot, Bacterial leaf blight and *Alternaria* leaf spot was observed.

Front Line Demonstration on Integrated Crop Management

Twenty five demonstrations on ICM in 25 hectares were conducted in 62 farmers' fields in Adilabad district. The technologies demonstrated were best management practices on RCH-659 (Seed treatment, pheromone traps, yellow sticky traps, foliar nutrition and need based pesticides). Among all the demonstrations comprising of ICM, average seed cotton yield of 1871 kg/ha was recorded over the farmers' practice average of 1572 kg/ha with (an average increase of 19%).

Front Line Demonstrations on Intercropping in Cotton

A total of ten front line demonstrations in 10 hectares of 25 farmers' fields were conducted on Cotton + Redgram intercropping (8:1) as improved technology and sole cotton as farmers practice in Adilabad district. In theses demonstrations, an average seed cotton yield of 1929 kg/ha was recorded over the farmers' practice average of 1639 kg/ha (an average increase of 17.69%) .

Extension activities

State/ District	Extension Programme				
	Scientist visit	**Farmers meeting**	**Field days**	**Awareness programme/ KisanMelas**	**News/ Paper/Radio/ Video coverage**
Telangana/ Adilabad	18	8	2	1	10

15. University of Agricultural Sciences, Dharwad

Front Line Demonstrations on ICM in Cotton

Thirty FLDs were conducted on ICM in cotton in thirty farmers' fields. The components demonstrated under ICM were potential ruling Bt cotton hybrid, balanced nutrition (100:50:50 NPK kg/ha + 10 kg $MgSO_4$) , split application of N &K i.e, 25% as basal and 25% each at 30, 60, 90 DAS, foliar nutrition (1% All 19 + 1% $MgSO_4$ + Planofix) and need based PP measures for sucking pests. The details of the seed cotton yield (SCY) was in the range of 750 kg/ha to 2000 kg/ha under ICM plots as against the SCY of 550 kg/ha to 1500 kg/ha under Farmers Practice. The average Net profit under ICM was Rs. 62836.67/ha obtained with Farmers Practice (Rs.53205.07/ha) with a B:C ratio of 2.32 and an additional profit of Rs.9631.57/ha over Farmers Practice.

Front Line Demonstrations on Desi / ELS/ Seed production of ELS cotton

Yield and economics of FLDs on recently released Intra-Hirsutum Bt cotton hybrid DCH-32 BG-II Vs DCH-32 NBt

Fifteen FLDs were taken up in villages of Dharwad, Belgaum and Gadag districts on interspecfic hybrid DCH-32 BG II. The seed cotton yield (SCY) of DCH-32 BG II hybrid ranged from of 360 kg/ha to 680 kg/ha and the yield of check hybrid, DCH-32 Non Bt ranged from 355 to 672 kg/ha. The average SCY of DCH-32 BG II across the fifteen FLDs was 501 kg/ha while DCH-32 Non Bt had an average SCY of 488 kg/ha. Due to more than average rainfall adversely affecting the cotton yields there was no difference between the DCH-32 BG II and DCH-32 Non Bt during this season. The average B:C ratio of DCH-32 BG II was 1.28.

Yield and economics of FLDs on recently released *Hirsutum X Barbadence* cotton hybrid (Non Bt) DHB 1071 v/s DCH-32 N Bt

Four FLDs were taken up in villages of Dharwad and Gadag districts on DHB 1071. The seed cotton yield (SCY) of Non Bt DHB 1071 hybrid ranged from of 430 kg/ha to 480 kg/ha and the yield of check hybrid, DCH-32 Non Bt ranged from 420 to 470 kg/ha. The average SCY of **Non Bt DHB 1071** across the four FLDs was 481 kg/ha while DCH-32 Non Bt had an average SCY of 466 kg/ha. Due to more than average rainfall adversely affecting the cotton yields there was no difference between the DCH-32 BG II and DCH-32 Non Bt during this season. The average B:C ratio of DCH-32 BG II was 0.15.

FLD on recently released *hirsutum* cotton variety (Non Bt) ARBH-813 v/s Sahana

One FLD was undertaken in Gadag district. The seed cotton yield (SCY) of ARBH-813 variety was 360 kg/ha while the yield of check variety Sahana was 340 kg/ha. The BC ratio of ARBH-813 variety was 1.15.

Front Line Demonstrations on Intercropping in cotton

There are twenty demonstrations conducted on the intercropping systems in Bt cotton compared with the farmers practice of sole cotton. There are sixteen Cotton + Beans (vegetable purpose), three Cotton+Green gram (1:1) (grain purpose) and one Cotton+Groundnut (1:1) (grain purpose) were undertaken during 2020-21. These were taken in Dharwad and Gadag districts of five villages. The sowing of Bt cotton and the component intercrops were sown simultaneously on the same day with corresponding row ratios of different intercrops as specified. Sole Bt cotton under the same set of production practices were taken as check to compare the yield and economics Bt cotton + intercropping systems. In the demonstrations of intercropping in cotton an average seed cotton yield of 1501 kg/ha with 505 kg/ha of intercrop yield was obtained as against sole cotton yield of 1543 kg/ha.

Extension Activities

State/ District	Extension Programme				
	Scientist visit	**Farmers meeting**	**Field days**	**Awareness programme/ KisanMelas**	**News/ Paper/Radio/ Video coverage**
Karnataka					Newspaper coverage: 04
Dist: Dharwad	7	4	1	6	
Dist: Belagavi	4	2	--	4	On station training - 1
Dist: Gadag	4	4	--	4	
Total	**15**	**10**	**1**	**15**	

16. University of Agricultural Science, Raichur

Climate and its Effects on Cotton Crop

The region experienced with drought for entire *Kharif* seasonin many parts of the region. So the sowings were taken during first week of August and extended up to first week of September. The rainfed cotton grown in the region suffered from moisture stress in few pockets and uprooted the crop two to three times. In the irrigated parts, the crop was normal and gave normal yields.

Scenario of Insect Pests and Diseases

The major outbreak of insect pest was Jassids in cotton. As per our study, about 15-20 percent loss due to Jassids in rainfed areas and about 20-25 per cent loss was noticed in irrigated. The other major pest outbreak was pink boll worm in some areas major damage through boll drop.

Front Line Demonstrations on ICM in Cotton

Thirty demonstrations on ICM were conducted in 30 hectares of farmers' fields in Raichur, Yadgir and Ballari Districts of Karnataka State. Technologies on foliar sprays of 19:19:19, $MgSO_4$, and Bio-20 (Mixture of both macro and micro nutrients) and spraying of

Fipronil against Jassids and Lamda Cyalothrin and Preofenohos against pink boll worm were demonstrated to the farmers during different crop growth stages. Usage of Planofix were also demonstrated to the farmers to reduce the boll drop. The average seed cotton yield obtained in FLD was 2999 kg/ha as against the farmers' practice (2710 kg/ha). The average additional profit obtained due to FLD technology was Rs.38238 with the B:C ratio of 2.57.

Front Line Demonstrations on Desi / ELS/ Seed production of ELS cotton

Fifteen demonstrations on Desi / ELS cotton were conducted by the centre in Kuntanal village of Ballari taluk and Ballari District in fifteen farmers' fields. The FLDs on Desi / ELS cotton yielded 2473 kg/ha as average yield as against the farmers' practice 2265kg/ha.

Extension Activities

State/ District	Extension Programme				
	Scientist visit	Farmers meeting	Field days	Awareness programme/ Kisan Melas	News/ Paper/Radio/ Video coverage
Raichur, Kalaburagi, Yadgir and Ballari Districts of Karnataka State	6 visits	6 Meetings	1	Awareness programmes on ICM, leaf reddening management, nutrient management, water management and crop protection	The Training programmes on leaf reddening management in Bt cotton were covered in local newspapers. The leaf reddening management in Bt cotton was also broadcasted in All India Radio (AIR), Raichur in local language (Kannada)

17.University of Agricultural Sciences, Chamrajnagar

Front Line Demonstrations on ICM in Cotton

Thirty demonstrations on ICM in cotton were conducted in 75 farmers' fields at villages viz., Kalanahundi, Tagaluru, Raghavapura, Bettadamadahalli, Nenekatte, Hasaguli, Kallahalli and Nitre in Chamrajnagar district on popular cultivars. The average seed cotton yield obtained in FLD was 1547 kg/ha as against the farmers' practice (1368 kg/ha).

Front Line Demonstrations on Desi / ELS/ Seed production of ELS cotton

Twenty demonstrations were conducted on ELS cotton hybrids in 50 farmers' fields at villages viz., Kalanahundi, Tagaluru, Raghavapura, Bettadamadahalli, Nenekatte, Hasaguli, Kallahalli and Nitre in Chamrajnagar district. The average seed cotton yield obtained in FLD was 1481 kg/ha as against the farmers' practice (1324 kg/ha).

Extension Activities

State/ District	Extension Programme				
	Scientist visit	Farmers meeting	Field days	Awareness programme/ Kisan Melas	News/ Paper/Radio/ Video coverage
Chamrajnagar	2	-	1	1	2

18. Tamil Nadu Agricultural University, Coimbatore

Climate and its Effects on Cotton Crop
Agricultural Research Station, Kovilpatti

The initial germination, plant population is optimum and normal crop growth is observed. But due to the continuous and excess rainfall received during the cropping period (October 2020 to February 2021) 617.1 mm the vegetative growth is prolonged and the crop does not turn up in to reproductive phase. The vegetative phase was extended even nipping and other prophylactic measures were taken up to induce flowering.

Scenario of Insect Pests and Diseases
Agricultural Research Station, Kovilpatti

Incidence of stem weevil was noticed. However the crop was kept under control through timely intervention of plant protection measures.

Front Line Demonstrations on ICM in Cotton

A total of twenty demonstrations on best management practices of CO 17 and MCU 5 were conducted in 20 hectares in 20 farmers' fields at Coimbatore district by the Department of Cotton, Centre for Plant Breeding and Genetics, Tamil Nadu Agricultural University, Coimbatore. The average seed cotton yield obtained in FLD was 2430 kg/ha as against the average yield of farmers' practice 1560 kg/ha.

Front Line Demonstrations on Desi / ELS/ Seed production of ELS cotton

A total of ten demonstrations on ELS cotton variety MCU 5 were conducted in ten hectares of seven farmers' fields Coimbatore district by Department of Cotton, CPBG, Coimbatore. The average seed cotton yield obtained in FLDs on ELS was 2100 kg/ha as against the farmers' practice (1560 kg/ha). The average additional profit obtained due to FLD technology was Rs.38480/ha with the B:C ratio of 1.80.

A total of ten FLDs on Desi cotton variety K 12 were conducted by Agricultural Research Station, Kovilpatti in Tuticorin district. Due to the continuous and excess rainfall received during the cropping period, the vegetative growth is prolonged and the crop does not turn up in to reproductive phase. The vegetative phase was extended hence nipping and other prophylactic measures were taken up to induce flowering.

Front Line Demonstrations on Intercropping in cotton

Twenty FLDs were conducted on cotton varieties SVPR 6 and SVPR 4 intercropped with black gram (VBN 6) in 20 hectares of farmers' fields in Madurai, Tenkasi and Virudhunagar districts. The average seed cotton yield obtained from the FLDs was 1703 kg/ha with 144 kg of intercrop yield as against farmers' practice of solo cotton (1510 kg/ha). FLDs registered higher seed cotton yield by 12.78 per cent than farmers' practice. The demonstration of good varieties, technologies and intercropping resulted additional income of

Rs. 16350 per ha than farmers' practice. The average additional profit obtained due to FLD technology was Rs.16350 / ha with the B:C ratio of 1.46.

Extension Activities

State/ District	Extension Programme				
	Scientist visit	**Farmers meeting**	**Field days**	**Awareness programme**	**News/ Paper/Radio/ Video coverage**
Tamil Nadu / Coimbatore	5	3	-	3	-
Tamil Nadu / Tiruppur	7	2	-	2	-
Tamil Nadu / Virudhunagar	7	3	1	1	1
Tamil Nadu /Tenkasi	6	5	-	1	-
Tamil Nadu /Madurai	6	4	-	-	-
Total	**31**	**17**	**1**	**7**	**1**

19.ICAR - Central Institute for Cotton Research, Coimbatore

A total of 40 demonstrations are planned to be conducted in the ELS cotton growing areas of Coimbatore and Salem districts during the year 2020-21 on inter specific Bt cotton hybrids and Surabhi.

Centre wise list of Farmers Participated in the FLD Program during 2020-21

1. Punjab Agricultural University, Faridkot

1.1. FLDs on Integrated Crop Management in Cotton

S. No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	Amarjit Singh s/o Diwan Singh, Seed Farm Pucca, Dist. Fazilka, 94637-22679	RCH773	2680	1930
2	Ram Singh s/o Sundar Singh, Seed Farm Pucca, Dist. Fazilka,94643-10820	RCH776	2060	1810
3	Manju w/o Sita Ram, Churi wala Dhanna, Dist. Fazilka,94176-63654	RCH773	2580	2040
4	Ravi Kant, Nihal khera, Dist. Fazilka,94174-52153	RCH773	2520	2050
5	Ramesh Kumar s/o Nathu Ram, Dangarkhera, Dist. Fazilka, 94630-41530	RCH776	2450	2200
6	Kashmir Chand s/o Munshi Ram, Jhottianwali, Dist. Fazilka, 62398-98685	RCH776	2640	2090
7	Ram Kishan s/o Ram Partap, Azimgarh, Dist. Fazilka, 99154-74666	RCH653	2430	2260
8	Atma Ram s/o Bhagwan Das, Diwankhera, Dist. Fazilka,9464309818	RCH776	2550	2050
9	Pawan Kumar s/o Ranjha Ram, Diwankhera, Dist. Fazilka,94177-81658	SP7172	2270	1850
10	Rajesh Kumar, Raipura, Dist. Fazilka,94653-69472	RCH776	2220	1900
11	Bhola Singh S/o Khajan Singh, Village Wara Daraka, Distt. Faridkot, 98884-21995	RCH 773	2450	1790
12	Jagdev Singh S/o Narotam Singh, Village Bishnandi, Distt. Faridkot, 98550-38350	RCH 773	2280	1986
13	Charanjit Singh S/o Darshan Singh, Village Jhakarwala, Distt. Faridkot, 94644-13515	Om 3	Failed as plant stand affected due to high temperature	
14	Kulwant Singh S/o Amar Singh, Village Wara Daraka, Distt. Faridkot, 94638-30718	Simsim	2446	2112
15	Rajdeep Singh S/o Jaswinder Singh, Village Rameana, Faridkot, 96536-00094	RCH 773	2350	1879
16	Shamsher Singh S/o Balwinder Singh, Village WaraBhaiKa, Distt. Faridkot, 99153-05074	RCH 650	2456	2089
17	Gurcharan Singh S/o Sunder Singh, Village WaraBhaiKa, Distt. Faridkot, 98152-93320	RCH 773	2356	2100
18	Jagsir Singh S/o Partap Singh, Village Khara, Distt. Faridkot, 98525-70077	RCH 773	Failed as plant stand affected due to crust	
19	Kuljit Singh S/o Baltej Singh, Village Khara, Distt. Faridkot, 98145-37021	RCH 773	2478	2119
20	Gursewak Singh S/o Darshan Singh, Village Khara, Distt. Faridkot, 95306-24503	RCH 776	2189	1897
21	Manmohan Singh S/o Bakhtor Singh, Village Khara, Distt. Faridkot, 97798-68920	RCH 776	2458	2056

22	Prabkaranjit Singh S/o Buta Singh, Village Khara, Distt. Faridkot, 94647-97827	RCH 776	2569	2315
23	Sandeep Singh S/o Malkit Singh, Village Wander Jatana, Distt. Faridkot, 95011-50204	RCH 773	2498	2111
24	Gurcharan Singh S/o Joginder Singh, Kotkapura, Distt. Faridkot, 94654-10067	RCH 773	2569	2186
25	Jagtar Singh S/o Kartar Singh, Village WaraDaraka, Distt. Faridkot, 94640-92733	RCH 650	2057	1890
26	Jaswant Singh S/o Joginder Singh, Village Dhab Sher Singh Wala, Distt. Faridkot, 95925-08280	RCH 773	2689	2485
27	Ronki Singh S/o Joginder Singh, Village Dhab Sher Singh Wala, Distt. Faridkot, 88722-88969	RCH 776	Failed as plant stand affected due to high temperature	
28.	Pinda Singh S/o Dev Singh, Village Chet Singh Wala, Distt. Faridkot, 98158-00682	RCH 776	2571	2239
29	Dilshad Singh S/o Lakhwinder Singh, Village Chet Singh Wala, Distt. Faridkot, 98724-64336	RCH 776	2369	1986
30	Baljeet Singh S/o Karam Singh, Village Dhab Sher Singh Wala, Distt. Faridkot, 9464959276	RCH 776	2029	1789
31	Karam Singh S/o Balwinder Singh, Village Naraingarg, Distt. Faridkot, 9878951516	RCH 773	2459	2116
32	Surinder Singh S/o Beant Singh, Village Sukhanwala, Distt. Faridkot, 9781203666	RCH 776	2598	2156
33	Gurvinder Singh S/o Paramjeet Singh, Village Sukhanwala, Distt. Faridkot, 9914677368	RCH 776	Failed as plant stand affected due to high temperature	
34	Manpreet Singh S/o Jagmeet Singh, Village Kingra, Distt. Faridkot, 9877741110	RCH-776	2698	2467
35	Babbu Singh S/o Mukhtiar Singh, Village Behlewala, Distt. Faridkot, 7814520078	RCH-773	2789	2555
36	Shivraj Singh S/o Ranjit Singh, Village Kingra, Distt. Faridkot, 9463857386	RCH-776	2444	1965
37	Jarman Singh S/o Suba Singh, Village Behlewala, Distt. Faridkot, 6280354492	RCH-776	Failed as plant stand affected due to crust	
38	Jagdish Singh S/o Ginder Singh, Village Sukhanwala, Distt. Faridkot, 97796-52667	RCH-776	2350	2100
39	Ranjodh Singh S/o Suba Singh, Village Tehna, Distt. Faridkot, 99156-28671	RCH-776	2687	2289
40	Gurpreet Singh S/o Narinder Singh, Village Tehna, Distt. Faridkot, 95842-00013	RCH-776	2148	1909
41	Sarabjit Kaur W/o Kuldeep Singh, Village Nathewala, Distt. Faridkot,9915956569	RCH-773	Failed as plant stand affected due to crust	
42	Amandeep Kaur W/o Lakhwinder Singh, Village Machaki Mal Singh, Distt. Faridkot,8872539002	RCH-650	2478	2164
43	Baldev Singh S/o Roop Singh, Village Machaki Mal Singh, Distt. Faridkot,9876939002	RCH-773	Failed as plant stand affected due to high temperature	
44	Sukhwinder Kaur W/o Gurcharan Singh, village Dabrikhana, Dist. Faridkot,9465558592	F2228	1987	1689
45	Harjot Singh S/o Ravinder Singh, 94647-87050 V.P.O Chhateana, Muktsar	RCH-776	2050	1800
46	Harpreet Singh S/o Lakhveer Singh V.P.O Jodhpur Romana, Bathinda,98720-84231	RCH-773	850	720
47	Ginder Singh S/o Gurcharan Singh V.P.O Chandbhan, Bathinda, 94649-78914	RCH-650	1120	1050

48	Kuldeep Singh S/o Gurjant Singh V.P.O Bir Talab, Bathinda, 94177-28581	RCH-773	2260	1940
49	Iqbal Singh S/o Chand Singh V.P.O Karmgarh Satran, 98775-24495	RCH-776	2730	2140
50	Manjeet Singh S/o Gurmail Singh V.P.O Bhagwangarh, 94644-84461	RCH-773	2480	2020
51	Harpreet Singh S/o Major Singh V.P.O Jodhpur Romana, Bathinda,79736-58547	RCH-650	1350	1150
52	Guranditta Singh S/o Bhag Singh Patti Jhutti Ka, Bathinda, 94643-54002	RCH-773	1790	1540
53	Balwinder Singh S/o Maggar Singh V.P.O Nehianwala, Bathinda, 75089-10287	RCH-776	2380	2050
54	Raja Singh S/o Kulwant Singh V.P.O Sukhladhi, Bathinda, 99154-65329	RCH-773	2240	1930
55	Didar Singh S/o Gurmail Singh V.P.O. Gheri Devi Nagar, Bathinda, 94650-21690	RCH-650	2540	2180
56	Surinder Kaur W/o Balwinder Singh V.P.O Nehianwala, Bathinda, 9460-23986	RCH-773	2150	1860
57	Hartej Singh S/o Gulab Singh, V.P.O Mehta, Bathinda,94175-07771	F2228	1970	1560
58	Baljeet Singh S/o Major Singh V.P.O Bhagwangarh, Bathinda, 94656-90695	RCH-776	2240	1900
59	Harmandeep Singh S/o Jagseer Singh V.P.O Kaile Bander, Bathinda,81469-00978	RCH-773	2540	2230
60	Baljeet Singh S/o Jinder Singh V.P.O Jodhpur Romana, Bathinda,75089-52308	RCH-650	2020	1800
61	Navjot Kaur W/o Harjot Singh, V.P.O Chhateana, Muktsar, 94647-87050	RCH-773	2140	1730
62	Surjit Singh S/o Shotta Singh V.P.O Barkandi, Bathinda, 97795-85302	RCH-776	2340	1950
63	Dilpreet Singh S/o Gurmail Singh V.P.O. Kotguru, Bathinda, 94786-83158	RCH-773	2340	2250
64	Jagseer Singh S/o Chhota Singh, V.P.O Kalebander, Naseebpura, Distt. Bathinda,99881-81028	RCH-650	2640	2190
65	Jaswinder Singh S/o Mohinder Singh V.P.O Karmgarh Satran, 98767-70001	RCH-773	2170	1800
66	Gurcharan Singh S/o Nachhatar Singh Gehri Bhagi, Bathinda, 94157-50958	RCH-776	2390	1980
67	Gurmeet Singh S/o Ajaib Singh V.P.O Bharu, Mukatsar, 94175-44556	RCH-773	1860	1650
68	Balvir Singh S/o Jeet Singh, V.P.O sukhladhi, Bathinda, 97795-72991	RCH-650	2550	2200
69	Harnek singh S/o Hazoora Singh, V.P.O Dhunike, Bathinda, 94178-18993	RCH-773	2400	2150
70	Jasvir Kaur W/o Ravinder Singh, V.P.O Chhateana, Muktsar, 94175-45085	RCH-776	2000	1750
71	Rajinder Singh S/o Gurjant Singh V.P.O Jodhpur Romana, Bathinda, 62831-39229	RCH-773	2370	2050
72	Shinderpal Singh S/o Roshan Lal, V.P.O Jodhpur pakhar, Bathinda, 98768-97075	RCH-650	2400	1900

73	Surinder Kumar S/o Gurdev Singh V.P.O Talwandi Sabi, Bathinda, 97805-78618	RCH-773	2340	2000
74	Amandeep Singh S/o Bhupinder Singh, Muktsar, 98724-20002	F2228	1850	1460
	Average		**2304**	**1963**

1.2. FLDs on Desi / ELS / ELS Cotton Seed Production

S. No.	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	Sardara Singh s/o Amrik Singh, Bakainwala, Dist. Fazilka,62802-31949	FDK124	2250	1760
2	Om Parkash s/o Baggu Ram, Bakainwala, Dist. Fazilka,94784-21117	FDK124	2180	1820
3	Balram s/o Kanshi Ram, Bakainwala, Dist. Fazilka,94788-11375	FDK124	2120	1750
4	Surjit Singh s/o Raja Singh, Bakainwala Dist. Fazilka,	FDK124	2050	1680
5	Fauja Singh s/o Jagtar Singh, Toota, Dist. Fazilka, 76260-81925	FDK124	2220	1850
6	Abhinav Kumar s/o Ravi Raj, Sappanwali, Dist. Fazilka,92617-00001	FDK124	2070	1650
7	Krishan Kumar s/o Puran Ram, Bakainwala, Dist. Fazilka, 94643-26762	FDK124	2150	1780
8	Sandeep Kumar s/o Hajara Ram, Diwankhera, Dist. Fazilka, 94643-44454	FDK124	2110	1800
9	Paramjit Singh, Khippanwali, Dist. Fazilka,9463111076	FDK124	1980	1690
10	Ravi Kumar s/o Dhanna Ram, Kundal Dist. Fazilka	FDK124	2080	1700
11	Jaswinder Singh, Dhani Kadaka Singh, Dist. Fazilka,9878638916	FDK124	2100	1860
12	Mohinder Ram S/o Modi Ram, Kandhwala Amarkot Dist. Fazilka,	FDK124	2150	1900
13	Vinod Kumar S/o Inder Sain, Muradwala Bhamgardh Dist. Fazilka,	FDK124	1950	1750
14	Raj Kumar, Azimgarh, 85533-43828 Dist. Fazilka,	FDK124	2060	1800
15	Jaskaran Singh, Killianwali, Dist.Fazilka,9915997497	FDK124	2090	1730
16	Gurcharan Singh S/o Gurdev Singh, village Dabrikhana, Dist. Faridkot,9465558592	FDK124	2287	1986
17	Bhupinder Singh S/o Amarjeet Singh V.P.O. Chat Bakhtu, Bathinda,9517600027	LD 494	1900	1750
18	Bharamchate Singh S/o Bikkar Singh V.P.O. Chat Bakhtu, Dharm Singh Dhani, Bathinda, 9463606339	LD 949	2050	1800
19.	Hartej Singh S/o Gulab Singh, V.P.O Mehta, Bathinda, 9417507771	FDK 124	1825	1700
20	Suresh Kumar S/o Harbans Lal,V.P.O Sivian, Bulada road, Bathinda, 9988495511	LD 949	2100	1850
21	Rajinder Singh S/o Bhag Singh V.P.O Khemuana, Bathinda, 9814618207	LD949	1950	1650
	Average		**2079**	**1774**

2. CCS Haryana Agricultural University, Hisar

2.1. FLDs on Integrated Crop Management in Cotton

S. No.	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	Ajmer Devi, W/ o Jagdish, Nadhari; 9466615300	Bt. Hybrid	1800	2100
2	Pushpa Rani W/o Satbir Singh, Nadhari; 9466615300	Bt. Hybrid	1850	2000
3	Rajinder S/o RaiSahab, Jhalnia; 9255515300	Bt. Hybrid	1800	2200
4	Virender S/o Hans Raj, M.P. Rohilla; 9467015300	Bt. Hybrid	2050	2250
5	Jagdish S/o SohanLal, KhajuriJati.	Bt. Hybrid	2150	2350
6	Ram Kumar S/o Bija Ram, BayanaKhera	Bt. Hybrid	1650	1850
7	Ramesh S/o Surjeet Singh,BayanaKhera; 9467600078	Bt. Hybrid	1900	2050
8	Krishan S/oKalia, BayanaKhera	Bt. Hybrid	1850	2150
9	Balbir, S/o Bhartha Ram, BayanaKhera	Bt. Hybrid	1750	1950
10	Tejbir, S/o Chhaju Ram, BayanaKhera	Bt. Hybrid	1950	2150
11	Ram Mehar, S/o Sube Singh, Kharak	Bt. Hybrid	1900	2250
12	Santosh, S/o Rajesh, BayanaKhera; 9813151917	Bt. Hybrid	1750	2150
13	Meena, S/o Ramdiya, BayanaKhera; 9467242388	Bt. Hybrid	1800	2050
14	Hari Ram, S/o Chokram Panihari; 9813191527	Bt. Hybrid	2000	2350
15	Bir Singh, S/o Ramjus, Panihari; 9813191527	Bt. Hybrid	2150	2550
16	Narender, S/o Rajpal, Kheri Boora; 9416480432	Bt. Hybrid	2000	2250
17	DharampalPhool SinghKheri Boora9416480432	Bt. Hybrid	2200	2450
18	Anil Kumar, S/o Chanderbhan, Hasangarh	Bt. Hybrid	2100	2350
19	Ravinder, S/o Pirthi, BayanaKhera	Bt. Hybrid	1950	2250
20	Sunil Kumar, S/oKala Ram, Meham	Bt. Hybrid	2250	2550
21	Mahesh, S/o HeeraLal, Aluka; 8901324532	Bt. Hybrid	2250	2750
22	Renu, S/o Krishan, Aluka; 9991006445	Bt. Hybrid	2000	2450
23	Rajesh, S/o Mahipal, Badha	Bt. Hybrid	2700	3050
24	Yad Ram, S/o Net Ram, Aluka; 9990881436	Bt. Hybrid	2050	2350
25	Raj Kumar, S/o Indraj, Aluka; 9050330244	Bt. Hybrid	2450	2650
26	Rati RamRam SinghAluka9467938642	Bt. Hybrid	2200	2350
27	Vijay S/o Raghuvir, Aluka; 8816006038	Bt. Hybrid	2250	2400
28	Naresh, S/o Harchandi, Aluka; 7988540831	Bt. Hybrid	2000	2600
29	Manish, S/o Rajender, Badha.	Bt. Hybrid	2250	2300
30	Dheeraj S/o RadheLal, Kasipur.	Bt. Hybrid	2250	2450
31	Bhim Singh, S/o Khemchand, Aluka.	Bt. Hybrid	2400	2650
32	Bhim, S/o Ramdhan, Aluka; 8930041464	Bt. Hybrid	2300	2550
33	Uday, S/o Harichand, Aluka; 9991607716	Bt. Hybrid	2100	2350
34	Jitu, S/o Jagdish, Aluka; 9050884800	Bt. Hybrid	2000	2500
35	Ashok, S/o Hukam, Aluka; 9991007117	Bt. Hybrid	2150	2350
36	Bir Singh, S/oKhemchand, Aluka; 7419233152	Bt. Hybrid	2250	2650
37	Karamvir, S/o Rohtash, Aluka; 9671213639	Bt. Hybrid	2250	2400
38	Attri, S/o Rajvir, Aluka; 9050543390	Bt. Hybrid	2000	2200
39	Mahavir, S/o Gordhan, Aluka; 8639964480	Bt. Hybrid	1950	2250
40	Manish S/o ManoharLal, Aluka; 8168013078	Bt. Hybrid	1850	2050
41	Neeraj, S/o Ghanshayam, Aluka; 9671668030	Bt. Hybrid	1850	2100
42	Babli, S/o Bijender, Aluka; 9416924642	Bt. Hybrid	2150	2550
43	Ranjeet, S/o JeevanLal, Aluka; 9050503531	Bt. Hybrid	2400	2650

44	Tulsi, S/o Netram, Aluka; 905037097	Bt. Hybrid	2300	2300
45	Kartar, S/o Amerpal, Aurangabad; 9050821501	Bt. Hybrid	1800	1950
46	Inder,S/o KishoriLal, Aurangabad; 9466470110	Bt. Hybrid	2050	2200
47	Chandan, S/o Mangal, Aurangabad;8053237765	Bt. Hybrid	2150	2350
48	Gansa, S/o Tika Ram, Aurangabad; 8307137714	Bt. Hybrid	3100	3350
49	Ajay Pal, S/o Jagdish, Aurangabad; 7015551724	Bt. Hybrid	2300	2600
50	Prakash, S/o Rattan Singh, Aurangabad; 9991215294	Bt. Hybrid	1750	1950
51	Narvir, S/o Hariya, Aurangabad; 9991850442	Bt. Hybrid	1950	2150
52	Kumar, S/o Jagdish, Aurangabad; 7988780418	Bt. Hybrid	2500	2700
53	Satveer, S/o Tej Pal, Aurangabad; 9991769648	Bt. Hybrid	2550	2750
54	Yadram,S/o Premraj, Aurangabad; 9813457896	Bt. Hybrid	2450	2950
55	Prakash, S/oMangal Singh, Aurangabad; 8930386600	Bt. Hybrid	2550	2850
56	Naresh, S/o Ranjeet, Aurangabad; 9050360024	Bt. Hybrid	2250	2700
57	Gyan Singh, S/o Premraj, Aurangabad; 9813369590	Bt. Hybrid	2250	2450
58	Satender, S/o Satveer, Aurangabad; 9050094009	Bt. Hybrid	2150	2350
59	Sukhdev, S/o Bramjeet, Aurangabad; 9813833307	Bt. Hybrid	2150	2450
60	Lal Singh, S/o Besan, Mitrol; 7988318792	Bt. Hybrid	2850	3050
61	Krishan, S/o Duni, Umra; 9416040047	Bt. Hybrid	3000	3300
62	Om Parkash, S/o Sube, Umra; 9813277821	Bt. Hybrid	2250	2650
63	Baseshar, S/o Amar Singh, Umra; 9467706705	Bt. Hybrid	2550	2950
64	Kailash, S/o Bharthu, Umra; 9813435920	Bt. Hybrid	2800	3050
65	Teluram, S/o Laze Ram, Umra; 9992266071	Bt. Hybrid	2750	3050
66	Dinesh, S/o Telu, Umra; 9992010420	Bt. Hybrid	2550	2850
67	Sachin, S/o Rajesh, Umra; 8685836213	Bt. Hybrid	2750	2950
68	Deepak, S/o Ram Niwas, Umra; 9671163433	Bt. Hybrid	2150	2450
69	Bhagha, S/o Ramkaran, Badawar; 8068088160	Bt. Hybrid	2250	2550
70	Satya, S/o Tekram, Umra; 8059799907	Bt. Hybrid	2250	2450
71	Kala, W/o Gugan, Umra; 9992527852	Bt. Hybrid	2350	2650
72	Dayanand, S/o Ram Chander, Umra; 9728918920	Bt. Hybrid	2150	2450
73	Sunil, S/o Ramdiya, Umra; 9518806336	Bt. Hybrid	2300	2550
74	Telu Ram, S/o Karpa, Umra; 9813112483	Bt. Hybrid	2300	2650
75	Sheelu, w/o Manga, Umra; 8059918506	Bt. Hybrid	1900	2250
	Average		**2191**	**2463**

2.2. FLDs on Desi / ELS / ELS Cotton Seed Production

S. No.	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	Satish, S/o Satyanarayan, Kukarthana; 9416313038	Desi	1600	1850
2	Hanumaan, S/o Nandram, Kukarthana; 9416156110	Desi	1300	1400
3	Prahlad, S/o Hanumaan, Kukarthana; 9466915019	Desi	1250	1500
4	Ramesh, S/o Randhir, Kukarthana; 9468054120	Desi	1450	1750
5	Rajpal, S/o Banwarilal, Kukarthana; 9466088699	Desi	1500	1700
6	Rajesh, S/o Madooram, Kukarthana; 9728793527	Desi	1400	1500
7	Ramswaroop, S/o Dhanpat, Ding; 9466546198	Desi	1800	2000
8	Sahibram, S/o Dhanpat, Ding; 9315532289	Desi	1700	1950
9	Balwant, S/o Dhanpat, Ding; 9466457539	Desi	1850	1950
10	Krishan, S/o Ramkumar, Kukarthana; 9812946445	Desi	1800	2050

11	Raghubir, S/o Malukaram, Kukarthana; 9416073576	Desi	1650	1700
12	Rajender, S/o Chabbildas, Kukarthana; 9051212509	Desi	1500	1700
13	Mahipal, S/o Amichand, Kukarthana; 9306415789	Desi	1650	1950
14	Subhash, S/o Omparkash, Kukarthana; 9728888305	Desi	1450	1600
15	Darshan Singh, S/o Tejasingh, Kukarthana; 8053368848	Desi	1200	1300
16	Ranbir, S/o Hawa Singh, Umra; 9053180896	Desi	1300	1550
17	Daya, S/o NandInder, Umra; 9467968134	Desi	1250	1350
18	Rajbir, S/o Inder, Umra; 9992846512	Desi	1100	1350
19	Anup, S/o Balwan, Umra; 8901296229	Desi	1050	1100
20	Rambhagat, S/o Basanta, Umra; 9812930707	Desi	1200	1370
21	Sultan, S/o Duli Chand, Ludas; 9991833503	Desi	1200	1350
22	Prem, S/o SantLal, Ludas; 9729695263	Desi	1050	1100
23	Rajender, S/o Om Parkash, Durjanpur; 9812816564	Desi	1150	1300
24	Sunil Kumar, S/o Ram Kumar, NayaliKalan; 8814810547	Desi	1250	1300
25	Pirthi Singh, S/o Ram Chander, 7015363372	Desi	950	1100
26	Sonu, S/o Satpal, Kirmara; 9896822307	Desi	1100	1250
27	Rohit, S/o Attar Singh, Hisar; 8199999043	Desi	1000	1200
28	Karmdeep, S/o Rajmal, Bherian; 9466320150	Desi	1050	1200
29	Dilbag, S/o Mohinder Singh, Budara; 9812098672	Desi	1150	1300
30	Dharambir, S/o Phool Singh, Bherian; 9416487193	Desi	1100	1300
31	Rajender, S/o Sanju, Frainkalan; 9466320150	Desi	1000	1000
32	Balwan, S/o Shiv Chand, Nayali Kurd; 7015363372	Desi	1100	1300
33	Parbhat, S/o Fateh Singh, Julhra; 9466088702	Desi	1500	1700
34	Kajal, S/o Sunil, Mamanpur; 8708588296	Desi	1650	1700
35	Ranglal, S/o Gopi, Seoli; 9813671540	Desi	1300	1550
36	Nirmal Malik, S/o, Naresh, Barwala; 9467381021	Desi	1500	1600
37	Subhash, S/o Duli Chand, Ludas; 9416605424	Desi	1300	1400
38	Pehja Sardar, S/o Beer Singh, Ludas; 8569920025	Desi	1750	2000
39	Iqbal Singh, S/o Kohar Singh, Ludas; 9467691276	Desi	1100	1325
40	Inder Singh, S/o Sheo Narayan, 9468235123	Desi	1150	1475
41	Sube Singh, S/o Inder Singh, Bugana; 9813327815	Desi	800	900
42	Balwant Singh, S/o Hans Raj, Hisar; 9467299020	Desi	950	1000
43	Ashok, S/o Balbir Singh, Bharolawali; 9416343199	Desi	1300	1475
44	Pankaj, S/o ChanderBhan, LuhariRagho; 9812727853	Desi	1500	1700
45	Sanjay, S/o Ramesh, Hisar; 9992434906	Desi	1450	1750
46	Bhup Singh, S/o Hukam Chand, Kaimari, Hisar; 9466372131	Desi	1400	1625
47	Rameshwar, S/o Bhagirath Godara, Kaimari; 9255214848	Desi	1300	1475
48	Dalbir Godara, S/o Mahabir Godara, Kaimari; 8168115492	Desi	1700	1950
49	Vinay Kumar, S/o Sube Singh, Kaimari; 8059155554	Desi	1700	2050
50	Mandeep, S/o Jagbir Singh, Siwani; 8708518949	Desi	2200	2500
51	Jagbir Singh, S/o Baru Ram, Bolan; 9416970800	Desi	2000	2150
52	Renu, S/o Jagbir Singh, Bolan; 9466504236	Desi	2100	2300
53	Radheyshyam, S/o Dalbir Singh, Kaliraman; 9991574573	Desi	1750	1950
54	Jagdeesh, S/o Moman Ram, Kaliraman; 9812504426	Desi	1550	1900
55	Ram Chander, S/o Moman Ram, Kaliraman; 9466288687	Desi	2300	2200
56	Satyaprakash, S/o Bhag Singh, Kaliraman; 9812683345	Desi	1750	1900
57	Prem, S/o Kaniram, Kaliraman; 9729235149	Desi	1900	2000
58	Hawa Singh, S/o Jagdish Chander, 7015765207	Desi	1700	1900
59	Satpal, S/o Jagdish Chander, Khairampur; 9466402466	Desi	1300	1600
60	Subhash, S/o Ramrakh, Khairampur; 9896984229	Desi	2100	2300

61	Subhash, S/o Patram, Khairampur; 9812071030	Desi	2100	2350
62	Sukhdev, S/o Amilal, Khairampur; 9992485324	Desi	2150	2450
63	Jagannath, S/o Rampraksh, Khairampur; 8607476106	Desi	1700	1900
64	Satpal, S/o Jagaram, Khairampur; 8222823161	Desi	1800	2100
65	Ramesh, S/o Kashiram, Khairampur; 8059577309	Desi	1700	1850
66	Vinod, S/o Dalip, Khairampur; 9992151873	Desi	2300	2600
67	Jagdish, S/o Ranjit, Khairampur; 9416403555	Desi	1800	1950
68	Maan Singh, S/o Hari Singh, Alipur Barota; 9812519360	Desi	2100	2300
69	Vinod Kumar, S/o Rameshwar Dash, 9306878540	Desi	2250	2450
70	Suraj Bhan, S/o Megh Ram, Hananga; 9729151109	Desi	1700	1900
71	Sandeep, S/o Ishwar, Jhamola; 8168554462	Desi	1650	2100
72	Pawan, S/o Basant, Jhamola; 9416613946	Desi	2100	2300
73	Rajesh, S/o Rajveer, Jhamola; 8059275295	Desi	2050	2200
74	Kuldeep, S/o Sher Singh, Jhamola; 9991415158	Desi	1900	2000
75	Rakesh, S/o Rajender, Jhamola; 9812875436	Desi	1850	1900
	Average		**1537**	**1721**

3. S.K. Rajasthan Agricultural University, Sriganganagar

3.1. FLDs on Integrated Crop Management

S. No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	Suresh Kumar S/o Sh. Dula Ram Kumhar Vill-Bhagsar, P.O.-Prempura, Teh- Pilibanga, Distt.-Hanumangarh	RCH-773	2000	2000
2	Satya Prakash S/o Sh. Munshi Ram Kumhar, Vill-6 SDS, P.O.-Takhthazara Bawarian, Teh- Sadulsahar, Distt.-Sriganganagar	RCH-773	2800	2600
3	Vijay Kumar S/o Sh. Munshi Ram Kumhar, Vill-6 SDS, P.O.-Takhthazara Bawarian, Teh- Sadulsahar, Distt.-Sriganganagar	RCH-776	2600	2200
4	Bhupendra Singh S/o Sh. Bakhtawar Singh Vill+P.O. - 1 N, Teh- Srikaranpur, Distt.-Sriganganagar	RCH-773	2700	2500
5	Dildaar Singh S/o Sh. Mohar Singh, Vill+P.O. - 25 F, Teh- Srikaranpur, Distt.-Sriganganagar	RCH-773	2700	2500
6	Gurjeet Singh S/o Sh. Jaspal Singh, Vill+P.O. - 25 F, Teh- Srikaranpur, Distt.-Sriganganagar	RCH-776	2800	2600
7	Jagveer Singh S/o Sh. Balraaj Singh, Vill+P.O. - 25 F, Teh- Srikaranpur, Distt.-Sriganganagar	RCH-773	2800	2400
8	Harshpreet Singh S/o Sh. Gurmeet Singh, Vill+P.O. - 25 F, Teh- Srikaranpur, Distt.-Sriganganagar	RCH-776	1600	1200
9	Angrej Singh S/o Sh. Jagga Singh, Vill+P.O. - 25 F, Teh- Srikaranpur, Distt.-Sriganganagar	RCH-773	2200	2000
10	Sanampreet Singh S/o Sh. Hargovind Singh, Vill+P.O. - 25 F, Teh- Srikaranpur, Distt.-Sriganganagar	RCH-773	2000	2000
11	Gulab Singh S/o Sh. Major Singh, Vill+P.O. - 25 F, Teh- Srikaranpur, Distt.-Sriganganagar	RCH-773	2400	2400
12	Jeet Singh S/o Sh. Mandar Singh, Vill+P.O. - 25 F, Teh- Srikaranpur, Distt.-Sriganganagar	RCH-773	2800	2300

13	Amrit Pal Singh S/o Sh. Dal Singh, Vill+P.O. - 25 F, Teh- Srikaranpur, Distt.-Sriganganagar	RCH-776	2400	2500
14	Gursharan Singh S/o Sh. Karnail Singh, Vill+P.O. - 25 F, Teh- Srikaranpur, Distt.-Sriganganagar	RCH-773	1800	1600
15	Gurvindra Singh S/o Sh. Bohar Singh, Vill+P.O. - 25 F, Teh- Srikaranpur, Distt.-Sriganganagar	Sim-Sim	2400	2100
16	Darshan Singh S/o Sh. Jagjeet Singh, Vill+P.O. - 25 F, Teh- Srikaranpur, Distt.-Sriganganagar	RCH-776	2400	2000
17	Hardev Singh S/o Sh. Gurnek Singh, Vill+P.O. - 25 F, Teh- Srikaranpur, Distt.-Sriganganagar	Sim-Sim	2200	2200
18	Mandar Singh S/o Sh. Tota Singh, Vill+P.O. - 25 F, Teh- Srikaranpur, Distt.-Sriganganagar	RCH-773	2100	2000
19	Ravindra Singh S/o Sh. Gurpal Singh, Vill+P.O. - 25 F, Teh- Srikaranpur, Distt.-Sriganganagar	RCH-773	2400	2100
20	Jagjeet Singh S/o Sh. Bachhindra Singh, Vill+P.O. - 25 F, Teh- Srikaranpur, Distt.-Sriganganagar	RCH-773	2300	2000
21	Amar Singh S/o Sh. Sher Singh, Vill+P.O. - 25 F, Teh- Srikaranpur, Distt.-Sriganganagar	RCH-776	3000	2900
22	Maghar Singh S/o Sh. Dashonda Singh, Vill+P.O. - 25 F, Teh- Srikaranpur, Distt.-Sriganganagar	RCH-773	2400	2100
23	Sushil Kumar S/o Sh. Munshi Ram Kumhar, Vill-6 SDS, P.O.-Takhthazara Bawarian, Teh- Sadulsahar, Distt.-Sriganganagar	RCH-776	2400	2100
24	Subhash Chandra S/o Sh. Banwari Lal, Vill+P.O. - 32 F, Teh- Srikaranpur, Distt.-Sriganganagar	RCH-773	2800	2500
25	Bhag Singh S/o Sh. Jagdev Singh, Vill- 2 D Badi, P.O. - Odaki, Teh. & Distt.-Sriganganagar	RCH-773	2400	2200
26	Sukhvindra Singh S/o Sh. Iqbal Singh, Vill- 2 D Badi, P.O. - Odaki, Teh. & Distt.-Sriganganagar	RCH-773	2400	2400
27	Bhoop Ram S/o Sh. Gurdayal Ram, Vill- 2 D Badi, P.O. - Odaki, Teh. & Distt.-Sriganganagar	RCH-776	2200	2000
28	Jetha Singh S/o Sh. Kakka Singh, Vill- 2 D Badi, P.O. - Odaki, Teh. & Distt.-Sriganganagar	RCH-776	2400	2100
29	Major Singh S/o Sh. Bachhan Singh, Vill- 2 D Badi, P.O. - Odaki, Teh. & Distt.-Sriganganagar	RCH-773	3000	2300
30	Harjindra Singh S/o Sh. Pola Singh, Vill- 2 D Badi, P.O. - Odaki, Teh. & Distt.-Sriganganagar	RCH-773	2600	2100
31	Sonu S/o Sh. Krishan Lal, Vill- 2 D Badi, P.O. - Odaki, Teh. & Distt.-Sriganganagar	RCH-776	2300	2100
32	Mahendra Singh S/o Sh. Gurbaksh Singh, Vill- 2 D Badi, P.O. - Odaki, Teh. & Distt.-Sriganganagar	RCH-776	1600	1300
33	Shankar Lal S/o Sh. Balu Ram, Vill- 2 D Badi, P.O. - Odaki, Teh. & Distt.-Sriganganagar	RCH-776	2400	2000
34	Kartar Singh S/o Sh. Gurdayal Singh, Vill- 1 ML, P.O. - Kaluwala, Teh. & Distt.-Sriganganagar	RCH-773	1600	1600
35	Middu Singh S/o Sh. Bakhtawar Singh, Vill- 1 ML, P.O. - Kaluwala, Teh. & Distt.-Sriganganagar	RCH-773	1600	1200
36	Suresh Singh S/o Sh. Ram Kishan, Vill- 1 ML, P.O. - Kaluwala, Teh. & Distt.-Sriganganagar	RCH-773	1600	1100
37	Mandeep Singh S/o Sh. Devi Lal, Vill- Ganeshewala, P.O. – Chak Maharajka, Teh. & Distt.-Sriganganagar	RCH-776	1800	1400
38	Vakil Singh S/o Sh. Bhagwan Singh, Vill- 1 ML, P.O. - Kaluwala, Teh. & Distt.-Sriganganagar	RCH-773	1800	1200

39	Sohan Lal S/o Sh. Bega Ram, Vill- 56 LNP, P.O. - Ridmalsar, Teh.-Padampur, Distt.-Sriganganagar	RCH-773	2400	2000
40	Prithvi Raj S/o Sh. Heera Ram, Vill + P.O. - Kalwasia, Teh.-Sadulsahar, Distt.-Sriganganagar	RCH-773	2000	2000
41	Dharmpal S/o Sh. Magha Ram, Vill + P.O. - Lalgarh, Teh.-Sadulsahar, Distt.-Sriganganagar	RCH-773	2200	2100
42	Rajesh Kumar S/o Sh. Sahab Ram, Vill- 4 C Chhoti, P.O. – 3 C Chhoti, Teh. & Distt.- Sriganganagar	RCH-773	2400	2100
43	Subhash Chandra S/o Sh. Ram Swaroop Dharnia, Vill-Dulpura, P.O. – Dharamsinghwala, Teh.- Sadulsahar, Distt.- Sriganganagar	RCH-773	2800	2400
44	Raju S/o Sh. Heera Ram, Vill + P.O. - Kalwasia, Teh.-Sadulsahar, Distt.-Sriganganagar	RCH-773	2200	2000
45	Deepak Kumar S/o Sh. Om Prakash, Vill + P.O. - Kalwasia, Teh.-Sadulsahar, Distt.-Sriganganagar	RCH-773	2000	2000
46	Bansi Lal S/o Sh. Ram Swaroop, Vill- Dulpura, P.O. – Dharamsinghwala, Teh.- Sadulsahar, Distt.- Sriganganagar	RCH-773	3800	3200
47	Rajendra Kumar S/o Sh. Nand Ram, Vill- 45 LLW, P.O. – Narsinghpura, Teh.- Padampur, Distt.- Sriganganagar	RCH-773	3000	2400
48	Bhupendra Kumar S/o Sh. Ram Narayan, Vill- 5 ML, P.O. - Kaluwala, Teh. & Distt.-Sriganganagar	RCH-773	2100	2100
49	Lokesh Dutt S/o Sh. Ram Narayan, Vill- 2 D Chhoti, P.O. - Sadhuwali, Teh. & Distt.-Sriganganagar	Sim-Sim	2000	2000
50	Sushil Kumar S/o Sh. Ram Narayan, Vill- 3 LNP, P.O. - Kaluwala, Teh. & Distt.-Sriganganagar	RCH-773	1800	1500
51	Bhagwati Devi S/o Sh. Ram Narayan, Vill- 1 ML, P.O. - Kaluwala, Teh. & Distt.-Sriganganagar	Sim-Sim	1600	1400
52	Ravi Kumar S/o Sh. Indraaj Saharan, Vill- 2 D Chhoti, P.O. - Sadhuwali, Teh. & Distt.-Sriganganagar	RCH-776	2400	2100
53	Sant Kumar S/o Sh. Nikku Ram, Vill- 3 LNP, P.O. - Kaluwala, Teh. & Distt.-Sriganganagar	RCH-773	2800	2200
54	Gurcharan Singh S/o Sh. Gurdayal Singh, Vill-ShyamSinghwala, P.O. – Dharamsinghwala, Teh.- Sadulsahar, Distt.- Sriganganagar	RCH-776	3000	2900
55	Vishnu Kumar S/o Sh. Ram Karan Godara, Vill- 57 LNP, P.O. – 54 LNP, Teh.- Padampur, Distt.- Sriganganagar	RCH-773	2400	2400
56	Sheshkaran S/o Sh. Hanuman Ram Godara, Vill- 57 LNP, P.O. – 54 LNP, Teh.- Padampur, Distt.- Sriganganagar	RCH-773	2600	2600
57	Lal Chand S/o Sh. Sahi Ram Daas, Vill- 4 E Chhoti, P.O. - Nathawala, Teh. & Distt.-Sriganganagar	RCH-773	1600	1600
58	Kailash S/o Sh. Banwari Lal, Vill- 4 E Chhoti, P.O. - Nathawala, Teh. & Distt.-Sriganganagar	RCH-773	1800	1500
59	Manesh Kumar S/o Sh. Shankar Lal, Vill- Dulpura, P.O. – Dharamsinghwala, Teh.- Sadulsahar, Distt.- Sriganganagar	RCH-773	2000	2000
60	Vijay Pal S/o Sh. Ami Chand, Vill- Dulpura, P.O. – Dharamsinghwala, Teh.- Sadulsahar, Distt.- Sriganganagar	RCH-773	2200	1800

61	Bansi Lal S/o Sh. Ram Lal, Vill+ P.O.- 5 P Koni, Teh.- Sadulsahar, Distt.- Sriganganagar	RCH-773	1600	1400
62	Mahaveer Prasad S/o Sh. Luna Ram, Vill+ P.O.- Veermana, Teh.- Suratgarh, Distt.- Sriganganagar	RCH-773	2800	2100
63	Lal Chand S/o Sh. Raja Ram, Vill- 53 LNP, P.O. – Ridmalsar, Teh.- Padampur, Distt.- Sriganganagar	RCH-773	2800	2200
64	Raj Vansh S/o Sh. Ram Narayan, Vill- 1 ML, P.O. – 6 LNP, Teh.& Distt.- Sriganganagar	RCH-773	3100	2900
65	Banta Singh S/o Sh. Daleep Singh, Vill- 27 LNP, P.O. – Ganeshgarh, Teh.& Distt.- Sriganganagar	RCH-776	2400	2000
66	Vikram S/o Sh. Hanuman Prasad, Vill- 1 D chhoti, P.O. – Sadhuwali, Teh.& Distt.- Sriganganagar	RCH-773	2200	2100
67	Surender Kumar S/o Sh. Patram Jakhar, Vill + P.O. – Binjhbayla, Teh.- Padampur, Distt.- Sriganganagar	RCH-776	2800	2400
68	Sahab Ram S/o Sh. Hal Lal, Vill- 23 LNP, P.O. – Ladhuwala, Teh.& Distt.- Sriganganagar	RCH-776	2800	2200
69	Subhash Bissu S/o Sh. Devi Lal, Vill + P.O. – 32 PS Sawantsar, Teh.- Raisinghnagar, Distt.- Sriganganagar	RCH-773	2200	2300
70	Mahendra Kumar S/o Sh. Patram, Vill + P.O. – Binjhbayla, Teh.- Padampur, Distt.- Sriganganagar	RCH-773	2400	2200
71	Janendra Kumar S/o Sh. Daleep Singh, Vill + P.O. – Keharwala, Teh.- Tibbi, Distt.- Hanumangarh	RCH-773	2400	2400
72	Rajendra Kumar S/o Sh. Mani Ram, Vill + P.O. – 3 Q Daulatpura, Teh. & Distt.- Sriganganagar	Bayer-7272	2200	2000
73	Kashmir Singh S/o Sh. Jagir Singh, Vill – 28 LNP II, P.O. – Ganeshgarh, Teh. & Distt.- Sriganganagar	RCH-650	2400	2400
74	Sahil Kumar S/o Sh. Subhash Chander, Vill – Dulpura, P.O. – Dharam Singh wala, Teh. – Sadulsahar, Distt.- Sriganganagar	Sim-Sim	2800	2200
75	Ramesh Kumar S/o Sh. Sohan Lal, Vill- 56 LNP, P.O. – Ridmalsar, Teh. Padampur, Distt.- Sriganganagar	RCH-773	2600	2100
	Average		**2351**	**2090**

3.2. FLDs on Desi / ELS / Seed Production in Cotton

S. No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD*	Farmer's Practice*
1	Raja Ram S/o Sh. Jodha Ram, Vill + P.O. – 10 Z, Teh. & Distt.- Sriganganagar	RG-8	2100	2000
2	Jagdish Chandra S/o Sh. Surja Ram, Vill – 15 BNW, P.O. – Lalgarh, Teh.-Sadulsahar, Distt.- Sriganganagar	KR-64	2200	2200
3	Santosh Kumar S/o Sh. Daleep Kumar Meghwal, Vill – 15 BNW, P.O. – Lalgarh, Teh.-Sadulsahar, Distt.- Sriganganagar	KR-64	3000	2800
4	Surjeet Singh S/o Sh. Gurbachan Singh, Vill – 9 BNW, P.O. – Lalgarh, Teh.-Sadulsahar, Distt.- Sriganganagar	KR-64	3600	3100
5	Karamjeet Singh S/o Sh. Kartar Singh, Vill – 9 BNW, P.O. – Dharamsinghwala, Teh.-Sadulsahar, Distt.- Sriganganagar	KR-64	3200	2900
6	Lovepreet Singh S/o Sh. Major Singh, Vill – 10 BNW, P.O. – Dharamsinghwala, Teh.-Sadulsahar, Distt.- Sriganganagar	KR-64	2600	2600

7	Mukesh Kumar S/o Sh. Banwari Lal Kumhar, Vill + P.O. – 15 Z, Teh.& Distt.- Sriganganagar	RG-8	2800	2800
8	Subhash Chandra S/o Sh. Banwari Lal, Vill – 32 F, P.O. – Arayan, Teh.& Distt.- Sriganganagar	RG-8	2800	2600
9	Dashan Singh S/o Sh. Jagjeet Singh, Vill – 25 F, P.O. – Arayan, Teh.& Distt.- Sriganganagar	KR-64	2800	2500
10	Jagveer Singh S/o Sh. Balraaj Singh, Vill – 25 F, P.O. – Arayan, Teh.& Distt.- Sriganganagar	KR-64	3200	2900
11	Jagdish Singh S/o Sh. Vachint Singh, Vill – 25 F, P.O. – Arayan, Teh.& Distt.- Sriganganagar	RG-8	3000	2800
12	Om Prakash S/o Sh. Guljara Ram, Vill – 1 ML, P.O. – Kundlawala, Teh.& Distt.- Sriganganagar	RG-8	2400	2500
13	Krishan Lal S/o Sh. Daulat Ram, Vill – 9 BNW, P.O. – Lalgarh, Teh.-Sadulsahar, Distt.- Sriganganagar	RG-8	2800	2700
14	Kuldeep Kumar S/o Sh. Mani Ram, Vill – 8 BNW, P.O. – Lalgarh, Teh.-Sadulsahar, Distt.- Sriganganagar	RG-8	2600	2600
15	Daleep Singh S/o Sh. Sadhu Singh, Vill – 1 ML, P.O. – 6 LNP, Teh. & Distt.- Sriganganagar	RG-8	3000	2400
16	Sukhpreet S/o Sh. Kuldeep Singh, Vill – 9 BNW, P.O. – Lalgarh, Teh.-Sadulsahar, Distt.- Sriganganagar	RG-8	2600	2400
17	Ved Prakash S/o Sh. Mallu Ram, Vill – 56 LNP, P.O. – Ridmalsar, Teh.- Padampur, Distt.- Sriganganagar	RG-8	3600	3000
18	Ram Pratap S/o Sh. Dulichand, Vill – 56 LNP, P.O. – Ridmalsar, Teh.- Padampur, Distt.- Sriganganagar	RG-8	2400	3200
19	Ram Swaroop S/o Sh. Ram Lal, Vill – 56 LNP, P.O. – Ridmalsar, Teh.- Padampur, Distt.- Sriganganagar	RG-8	2600	2400
20	Jot Ram S/o Sh. Kheta Ram, Vill – 56 LNP, P.O. – Ridmalsar, Teh.- Padampur, Distt.- Sriganganagar	RG-8	2800	2700
21	Sahab Ram S/o Sh. Thakar Ram, Vill – 56 LNP, P.O. – Ridmalsar, Teh.- Padampur, Distt.- Sriganganagar	RG-8	2400	2300
22	Hukma Ram S/o Sh. Dharmpal, Vill – 56 LNP, P.O. – Ridmalsar, Teh.- Padampur, Distt.- Sriganganagar	RG-8	2400	2300
23	Bhura Ram S/o Sh. Bhadar Ram, Vill – 56 LNP, P.O. – Ridmalsar, Teh.- Padampur, Distt.- Sriganganagar	RG-8	2400	2200
24	Sahab Ram S/o Sh. Brij Lal, Vill – 56 LNP, P.O. – Ridmalsar, Teh.- Padampur, Distt.- Sriganganagar	RG-8	2800	2400
25	Om Prakash S/o Sh. Birbal Ram, Vill – 8 DLP, P.O. – Dholipal, Teh. & Distt.- Hanumangarh	RG-8	2200	2100
26	Dewanand S/o Sh. Dharmapal, Vill + P.O. – Lalgarh, Teh. & Distt.- Sriganganagar	RG-8	2800	2600
27	Daleep Kumar S/o Sh. Hanuman, Vill – Dulpura, P.O. – Dharmsinghwala, Teh.- Sadulsahar, Distt.- Sriganganagar	KR-64	3000	2900
28	Rajesh Kumar S/o Sh. Krishan Lal, Vill – Dulpura, P.O. – Dharmsinghwala, Teh.- Sadulsahar, Distt.- Sriganganagar	KR-64	3200	3100
29	Daleep Kumar S/o Sh. Om Prakash, Vill – Dulpura, P.O. – Dharmsinghwala, Teh.- Sadulsahar, Distt.- Sriganganagar	KR-64	2600	2600
30	Khetpal S/o Sh. Bhadar Ram, Vill – Dulpura, P.O. – Dharmsinghwala, Teh.- Sadulsahar, Distt.- Sriganganagar	KR-64	2400	2500

31	Harpreet Singh S/o Sh. Jetha Singh, Vill – 2 D Badi, P.O. – Odaki, Teh. & Distt.- Sriganganagar	KR-64	1600	1200
32	Jagsir Singh S/o Sh. Pala Singh, Vill – 2 D Badi, P.O. – Odaki, Teh. & Distt.- Sriganganagar	KR-64	1400	1100
33	Puran Ram S/o Sh. Sultan Ram, Vill + P.O. – harmsinghwala, Teh.- Sadulsahar, Distt.- Sriganganagar	KR-64	2000	1800
34	Rakesh Kumar S/o Sh. Prithvi Raj, Vill + P.O. – Dharmsinghwala, Teh.- Sadulsahar, Distt.- Sriganganagar	KR-64	2400	2200
35	Bhup Singh S/o Sh. Om Prakash, Vill + P.O. – Dharmsinghwala, Teh.- Sadulsahar, Distt.- Sriganganagar	KR-64	2400	2100
36	Ram Lal S/o Sh. Kalu Ram, Vill + P.O. – Dharmsinghwala, Teh.- Sadulsahar, Distt.- Sriganganagar	KR-64	2400	2100
37	Madan Lal S/o Sh. Indraaj, Vill – 14 BNW, P.O. – Dharmsinghwala, Teh.- Sadulsahar, Distt.- Sriganganagar	KR-64	2200	2000
38	Pawan Kumar S/o Sh. Richhpal, Vill – 9-10 BNW, P.O. – Dharmsinghwala, Teh.- Sadulsahar, Distt.- Sriganganagar	RG-8	3000	2900
39	Rajendra Prasad S/o Sh. Kashi Ram, Vill + P.O.– Lalgarh Jatan, Teh.- Sadulsahar, Distt.- Sriganganagar	RG-8	2400	2400
40	Pramod Kumar S/o Sh. Mahendra Singh, Vill – 21 SDS, P.O.– Lalgarh Jatan, Teh.- Sadulsahar, Distt.- Sriganganagar	RG-8	2600	2200
41	Sandeep Kumar S/o Sh. Sharvan Ram, Vill – 21 SDS, P.O.– Lalgarh Jatan, Teh.- Sadulsahar, Distt.- Sriganganagar	RG-8	2800	2600
42	Sachin S/o Sh. Inderjeet, Vill – 21 SDS, P.O.– Lalgarh Jatan, Teh.- Sadulsahar, Distt.- Sriganganagar	RG-8	2800	2500
43	Vikesh S/o Sh. Daleep Kumar, Vill – 2 D Chhoti, P.O.– Sadhuwali, Teh.& Distt.- Sriganganagar	RG-8	2800	2400
44	Rajendra Kumar S/o Sh. Banwari Lal, Vill + P.O.– Lalgarh Jatan, Teh.- Sadulsahar, Distt.- Sriganganagar	KR-64	3000	2200
45	Ram Pal S/o Sh. Kalu Ram Nayak, Vill + P.O.– Lalgarh Jatan, Teh.- Sadulsahar, Distt.- Sriganganagar	KR-64	2800	2600
46	Bhagirath S/o Sh. Surja Ram, Vill – 56 LNP, P.O. – Ridmalsar, Teh.- Padampur, Distt.- Sriganganagar	RG-8	1800	1800
47	Jasveer S/o Sh. Mohan Lal, Vill + P.O. – Dullapurkeri, Teh.& Distt.- Sriganganagar	RG-8	3600	3200
48	Hukma Ram S/o Sh. Hari Ram, Vill + P.O. – Dullapurkeri, Teh.& Distt.- Sriganganagar	KR-64	2800	2400
49	Khem Raj S/o Sh. Bisna Ram, Vill + P.O. – Dullapurkeri, Teh.& Distt.- Sriganganagar	KR-64	2800	2600
50	Kehar Singh S/o Sh. Amar Singh, Vill + P.O. – Dullapurkeri, Teh.& Distt.- Sriganganagar	KR-64	2000	2000
51	Vishal S/o Sh. Mohan Lal, Vill – 4 D Badi, P.O. – Dullapurkeri, Teh.& Distt.- Sriganganagar	KR-64	2000	1900
52	Kuldeep S/o Sh. Veer Bhan, Vill – 5 D Badi, P.O. – Dullapurkeri, Teh.& Distt.- Sriganganagar	KR-64	3400	3100

53	Rajesh Kumar S/o Sh. Prithvi Raj, Vill + P.O. – Dullapurkeri, Teh.& Distt.- Sriganganagar	KR-64	2800	2500
54	Sohan Singh S/o Sh. Buta Ram, Vill + P.O. – Dullapurkeri, Teh.& Distt.- Sriganganagar	RG-8	2000	2000
55	Kalu Ram S/o Sh. Luna Ram, Vill + P.O. – Dullapurkeri, Teh.& Distt.- Sriganganagar	KR-64	2600	2400
56	Neeraj Singh S/o Sh. Resham Singh, Vill + P.O. – Dullapurkeri, Teh.& Distt.- Sriganganagar	KR-64	2100	2000
57	Shyam Lal S/o Sh. Nathu Ram, Vill + P.O. – Dullapurkeri, Teh.& Distt.- Sriganganagar	KR-64	2000	2000
58	Sukhdev Singh S/o Sh. Chetan Ram, Vill + P.O. – Dullapurkeri, Teh.& Distt.- Sriganganagar	KR-64	2500	2200
59	Lal Chand S/o Sh. Shankar Ram, Vill + P.O. – Dullapurkeri, Teh.& Distt.- Sriganganagar	RG-8	2000	1900
60	Sohan Lal S/o Sh. Kundan Lal, Vill + P.O. – Dullapurkeri, Teh.& Distt.- Sriganganagar	KR-64	1600	1400
61	Veeru Ram S/o Sh. Megha Ram, Vill + P.O. – Dullapurkeri, Teh.& Distt.- Sriganganagar	RG-8	1300	1100
62	Dharmpal S/o Sh. Jai Lal, Vill + P.O. – Dullapurkeri, Teh.& Distt.- Sriganganagar	KR-64	2400	2200
63	Beyant Singh S/o Sh. Chhinda Singh, Vill - 3 D Badi, P.O. – Dullapurkeri, Teh.& Distt.- Sriganganagar	KR-64	1600	1500
64	Gurtej Singh S/o Sh. Jagroop Singh, Vill - 2 D Badi, P.O. – Odaki, Teh.& Distt.- Sriganganagar	Superseed-175	2400	2200
65	Girdhari S/o Sh. Methu Ram, Vill - 5 D Badi, P.O. – Dullapurkeri, Teh.& Distt.- Sriganganagar	RG-8	2800	2400
66	Khetpal S/o Sh. Bhoma Ram, Vill - 5 D Badi, P.O. – Dullapurkeri, Teh.& Distt.- Sriganganagar	RG-8	3000	2700
67	Baldev Singh S/o Sh. Ranjeet Singh, Vill + P.O. – Koni, Teh.& Distt.- Sriganganagar	RG-8	2800	2200
68	Subhash S/o Sh. Raja Ram, Vill - + P.O. – Panditawali, Teh.& Distt.- Hanumangarh	RG-8	2400	2300
69	Gurdayal Singh S/o Sh. Vajeer Singh, Vill + P.O. – Uddampura, Teh.& Distt.- Sriganganagar	KR-64	2800	2600
70	Sawal Ram S/o Sh. Tikoo Ram, Vill - 4 AP, P.O. – Birmana, Teh.Suratgarh, Distt.- Sriganganagar	RKR-64	3000	2900
71	Madan Lal S/o Sh. MaduRam, Vill - 4 AP, P.O. – Birmana, Teh.-Suratgarh, Distt.- Sriganganagar	RG-8	3200	2800
72	Mangi LalS/o Sh. Madan Lal, Vill - + P.O. – Rohidawali, Teh.& Distt.- Sriganganagar	RG-8	3000	2900
73	Manish Bhadu S/o Sh. Ranveer Bhadu, Vill - 1 D Chhoti, P.O. – Sadhuwali, Teh.& Distt.- Sriganganagar	KR-121	2800	2700
74	Makhan SinghS/o Sh. Methu Singh, Vill - 1 ML, P.O. – 6 LNP, Teh.& Distt.- Sriganganagar	RG-8	3200	3000
75	Hansh Raj S/o Sh. Brij Lal, Vill - 56 LNP, P.O. – Ridmalsar, Teh.- Padampur, Distt.- Sriganganagar	KR-111	3200	3000
	Average		**2560**	**2390**

4. ICAR – Central Institute for Cotton Research, Sirsa

4.1. FLDs on Integrated Crop Management

S. No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	Balwan Singh, S/o Sh. Ranjeet Singh, Village:- Kussar District:- Sirsa,State:-Haryana, 8059046600	CICR BT-6	1750	1450 (RCH 773)
2	Lakhbeer Singh S/o Sh. Sadhu Singh Village:-Kussar District:- Sirsa State:-Haryana 9813162104	CICR BT-6	1500	1300 (RCH 776)
3	Ajay Singh S/o Sh. Devi Lal Village:- Gigorani District:- Sirsa State:-Haryana 8059670262	CICR BT-6	2550	1875 (RCH 776)
4	Ratan Lal S/o Sh. Om Parkash Village:- Khairenkan District:- Sirsa State:-Haryana 9996773594	CICR BT-6	1925	1625 (US -51)
5	Rohtash S/o Sh. Jagdish Village:- Khariya District:- Sirsa State:-Haryana 9416623006	CICR BT-6	2275	1650 (RCH 773)
6	Jarnail Singh S/o Sh. Darshan Singh Village:- Abutgarh District:- Sirsa State:-Haryana 9728100092	CICR BT-6	1850	1725 (RCH 776)
7	Ashok Sharma S/o Sh. Hans Raj Village:- Meerpur District:- Sirsa State:-Haryana 9615828028	CICR BT-6	2475	2100 (US -51)
8	Manju Rani W/o Sh. Vikram Village:- Begu District:- Sirsa State:-Haryana 9812579185	CICR BT-6	2320	2050 (Simsim 495)
9	Krishan Kumar S/o Sh. Suraj Ram Village:- Banwala District:- Sirsa State:-Haryana 9466613987	CICR BT-6	1625	1450 (RCH-776)
10	Jagraj Singh S/o Sh. Singara Singh Village:- Moriwala District:- Sirsa State:-Haryana 9996338321	CICR BT-6	1750	1575 (RCH-776)
11	Karan Singh S/o Sh. Ram Narayan Village:- Jandwala Bishnoiyan District: Sirsa State:Haryana 9729135729	CSH 3129	2180	1850 (RCH-773)
12	Rakesh Kumar S/o Sh. Ram Swaroop Village: Jandwala Bishnoiyan District:- Sirsa State:Haryana 708396433	CSH 3075	2550	1925 (RCH-773)
13	Vikram S/o Sh. Bharat Singh Village:- Khariya District:- Sirsa State:-Haryana8708431592	CSH-3075	2375	1875 (RCH-773)
	Average seed cotton yield (kg/ha) Average of CICR Bt-6		**2002**	**1680**
	Average seed cotton yield (kg/ha) Average of CSH-3129		**2180**	**1850**
	Average seed cotton yield (kg/ha) Average of CSH-3075		**2462**	**1900**
	Average		**2087**	**1727**

4.2 FLDs on Desi / ELS / ELS Cotton Seed Production

S. No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	Satpal Singh S/o Sh. Dhuni Ram Village:- Roopana Khurd District:- Sirsa State:- Haryana 9992070826	Hybrid Seed Production of CICR-2 (*Desi* cotton hybrid)		
2	Ram Singh S/o Sh. Hunta Ram Village:- Nejiya District:- Sirsa State:-Haryana 8901374642	Hybrid Seed Production of CICR-2 (*Desi* cotton hybrid)		
3	Manju Rani W/o Sh. Vikram Village:- Begu District:- Sirsa State:-Haryana 9812579185	Hybrid Seed Production of CICR-2 (*Desi* cotton hybrid)	687.5	
4	Rampal Village:- Bakriyanwali District:- Sirsa State:-Haryana 9416435606	Hybrid Seed Production of CICR-2 (*Desi* cotton hybrid)		
5	Muktyar Singh S/o Sh. Kalu Ram Village: Foolkan District:Sirsa State:Haryana 8059435998	Hybrid Seed Production of CICR-2 (*Desi* cotton hybrid)		
	Average		**687.5**	

5. Navsari Agricultural University, Surat

5.1. FLDs on Integrated Crop Management in Cotton

S. No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	Rajendrabhai S/o Surakiyabhai Vasava Kakadkui Netrang Bharuch; 7567027008	G. Cot. Hy. 10 (BGII)	1400	1220
2	Mukeshbhai S/o Maganbhai Vasava Kakadkui Netrang Bharuch; 8980926137	G. Cot. Hy. 10 (BGII)	1900	1580
3	Gambhirbhai S/o Surkiyabhai Vasava Kakadkui Netrang Bharuch; 9880926137	G. Cot. Hy. 10 (BGII)	1400	1204
4	Sureshbhai S/o Dashariyabhai Vasava Kakadkui Netrang Bharuch; 9099061985	G. Cot. Hy. 10 (BGII)	1200	1050
5	Chandrasingbhai S/o Varsiyabhai Vasava Kakadkui Netrang Bharuch; 8980826137	G. Cot. Hy. 10 (BGII)	1150	1040
6	Ashwinbhai S/o Fulsingbhai Vasava Kakadkui Netrang Bharuch; 8980926137	G. Cot. Hy. 10 (BGII)	1500	1300
7	Mangabhai S/o Hirabhai Vasava Kakadkui Netrang Bharuch; 75758276	G. Cot. Hy. 10 (BGII)	1250	1100
8	Jitendrabhai S/o Somabhai Vasava Kakadkui Netrang Bharuch; 8980826137	G. Cot. Hy. 10 (BGII)	1500	1180
9	Sharadhbhai S/o Narsinhbhai Vasava Kakadkui Netrang Bharuch; 8980826137	G. Cot. Hy. 10 (BGII)	1650	1470
10	Raysingbhai S/o RupjibhaiVasava Kakadkui Netrang Bharuch; 9586812283	G. Cot. Hy. 10 (BGII)	1250	1110
11	Amarsingbhai S/o Maniyabhai Vasava Kakadkui Netrang Bharuch; 8980826137	G. Cot. Hy. 10 (BGII)	1500	1370

12	Pohaniyabhai S/o Damaniyabhai Vasava Mota Jambuda Netrang Bharuch.	G. Cot. Hy. 10 (BGII)	1350	1160
13	Chandubhai S/o Manilalbhai Vasava Mota Jambuda Netrang Bharuch; 7574932781	G. Cot. Hy. 10 (BGII)	1500	1185
14	Rasikbhai S/o Bhanubhai Vasava Mota Jambuda Netrang Bharuch; 9727821960	G. Cot. Hy. 10 (BGII)	1100	1010
15	Dharmendrabhai S/o Amarsingbhai Vasava Mota Jambuda Netrang Bharuch; 9537824952	G. Cot. Hy. 10 (BGII)	1250	1075
16	Amarsingbhai S/o Gambhirbhai Vasava Mota Jambuda Netrang Bharuch; 9099061985	G. Cot. Hy. 10 (BGII)	1650	1320
17	Rupjibhai S/o Gulabbhai Vasava Bilothi Netrang Bharuch; 6354286154	G. Cot. Hy. 10 (BGII)	1500	1185
18	Jethiyabhai S/oUkhadiyabhai Vasava Bilothi Netrang Bharuch; 6354286154	G. Cot. Hy. 10 (BGII)	1500	1170
19	Vikrambhai S/oDamjibhai Vasava Bilothi Netrang Bharuch 6354286154	G. Cot. Hy. 10 (BGII)	1500	1290
20	Sukanbhai S/o Nanabhai Vasava Bilothi Netrang Bharuch; 6354286154	G. Cot. Hy. 10 (BGII)	1750	1420
21	Rakeshbhai S/oBachubhai Vasava Bilothi Netrang Bharuch; 6354286154	G. Cot. Hy. 10 (BGII)	1750	1505
22	Madhusingbhai S/o Babalabhai Vasava Motia Netrang Bharuch; 898021382	G. Cot. Hy. 10 (BGII)	1400	1106
23	Chaitriyabhai S/o Dugariyabhai Vasava Motia Netrang Bharuch.	G. Cot. Hy. 10 (BGII)	1600	1328
24	Manilalbhai S/o HirabhaiVasava Motia Netrang Bharuch; 898021342	G. Cot. Hy. 10 (BGII)	1500	1140
25	Devidbhai S/o Kaliyabhai Vasava Motia Netrang Bharuch; 898021342	G. Cot. Hy. 10 (BGII)	1500	1185
26	Chhanabhai S/o Maylabhai Vasava Pomlapada Dediyapada Narmada; 8238620059	G. Cot. Hy. 8 (BGII)	1000	830
27	Reshamabhai S/o Maylabhai Vasava Pomlapada Dediyapada Narmada; 9726836266	G. Cot. Hy. 8 (BGII)	1150	950
28	Jesingbhai S/o Hirabhai Vasava Pomlapada Dediyapada Narmada; 9408690064	G. Cot. Hy. 8 (BGII)	1400	1140
29	Pravinbhai S/o Vestabhai Vasava Pomlapada Dediyapada Narmada; 6353896820	G. Cot. Hy. 8 (BGII)	1500	1320
30	Chunilalbhai S/o Kalidasbhai Vasava Pomlapada Dediyapada Narmada; 9429035217	G. Cot. Hy. 8 (BGII)	1200	1060
31	Surendrabhai S/o Amarsingbhai Vasava Pomlapada Dediyapada Narmada; 9429427418	G. Cot. Hy. 8 (BGII)	1100	840
32	Sonjibhai S/o Navajibhai Vasava Pomlapada Dediyapada Narmada; 9427441659	G. Cot. Hy. 8 (BGII)	700	680
33	Maniben S/o Harisingbhai Vasava Pomlapada Dediyapada Narmada; 6353896820	G. Cot. Hy. 8 (BGII)	500	420
34	Kuvarjibhai S/o Rupjibhai Vasava Pomlapada Dediyapada Narmada; 6353197514	G. Cot. Hy. 8 (BGII)	1000	830
35	Ratilal S/o Navajibhai Vasava Pomlapada Dediyapada Narmada; 9825900522	G. Cot. Hy. 8 (BGII)	1250	1180
36	Miraben S/o Devjibhai Vasava Pomlapada Dediyapada Narmada; 7990684793	G. Cot. Hy. 8 (BGII)	1500	1360
37	Surjibhai S/o Ramsingbhai Vasava Pomlapada Dediyapada Narmada; 9408027422	G. Cot. Hy. 8 (BGII)	1625	1460

38	Tulsibhai S/o Ramsingbhai Vasava Pomlapada Dediyapada Narmada; 9913624592	G. Cot. Hy. 8 (BGII)	1375	1150
39	Jayeshbhai S/o Zinabhai Vasava Sejpur Dediyapada Narmada; 9427935402	G. Cot. Hy. 8 (BGII)	700	620
40	Gangaben S/o Zinabhai Vasava Sejpur Dediyapada Narmada; 9427935402	G. Cot. Hy. 8 (BGII)	925	750
41	Madhuben S/o Zinabhai Vasava Sejpur Dediyapada Narmada; 9427935402	G. Cot. Hy. 8 (BGII)	1000	840
42	Maganbhai S/o Chhotiyabhai Vasava Sejpur Dediyapada Narmada 963845506	G. Cot. Hy. 8 (BGII)	2000	1650
43	Jaswantbhai S/o Maganbhai Vasava Sejpur Dediyapada Narmada; 9712250306	G. Cot. Hy. 8 (BGII)	1875	1540
44	Laxmanbhai S/o Jiriyabhai Vasava Sejpur Dediyapada Narmada; 9512134257	G. Cot. Hy. 8 (BGII)	1150	980
45	Bijaliben S/o Somabhai Vasava Sejpur Dediyapada Narmada; 9512134257	G. Cot. Hy. 8 (BGII)	800	630
46	Nileshbhai S/o Laxmanbhai Vasava Sejpur Dediyapada Narmada; 9574030840	G. Cot. Hy. 8 (BGII)	975	760
47	Chaturbhai S/o Hirabhai Vasava Almavadi Dediyapada Narmada; 9638448446	G. Cot. Hy. 8 (BGII)	2500	2240
48	Natvarbhai S/o Bhulabhai Vasava Almavadi Dediyapada Narmada; 9638279595	G. Cot. Hy. 8 (BGII)	1500	1330
49	Gambhirbhai S/o Hiriyabhai Vasava Almavadi Dediyapada Narmada; 7069133416	G. Cot. Hy. 8 (BGII)	1250	1190
50	Vasantaben S/o Chaturbhai Vasava Almavadi Dediyapada Narmada; 9574030840	G. Cot. Hy. 8 (BGII)	1600	1480
	Average		**1363**	**1159**

5.2. FLDs on Desi / ELS / ELS Cotton Seed Production

S. No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	Shaileshbhai S/o Bharatbhai Padhiyar Singharna Jambusar Bharuch; 6356215837	GN Cot.25 vs Gheti (Local variety)	950	830
2	Amarsangbhai S/o Veribhai Padhiyar Singharna Jambusar Bharuch.	GN Cot.25 vs Gheti	F	F
3	Ramanbhai S/o Ashabhai Padhiyar Singharna Jambusar Bharuch; 9603169408	GN Cot.25 vs Gheti	F	F
4	Sureshbhai S/o Andesangbhai Padhiyar Singharna Jambusar Bharuch; 9328376958	GN Cot.25 vs Gheti	F	F
5	Maheshpuri S/o Ganpatpuri Goswami Singharna Jambusar Bharuch; 963856944	GN Cot.25 vs Gheti	F	F
6	Pratapsang S/o Somabhai Padhiyar SingharnaJambusar Bharuch; 9081642284	GN Cot.25 vs Gheti	F	F
7	Gordhanbhai S/o Karshanbhai Padhiyar SingharnaJambusar Bharuch; 9925132607	GN Cot.25 vs Gheti	820	780
8	Pravinbhai S/o Ramsangbhai Padhiyar Singharna Jambusar Bharuch; 8128561572	GN Cot.25 vs Gheti	F	F
9	Hiteshbhai S/o Bhailalbhai Padhiyar Singharna Jambusar Bharuch; 9978357433	GN Cot.25 vs Gheti	F	F

10	Punjabhai S/o Ishwarbhai Padhiyar Singharna Jambusar Bharuch; 9712549739	GN Cot.25 vs Gheti	740	690
11	Mahendrabhai S/o Ashabhai Padhiyar Singharna Jambusar Bharuch; 8758881210	GN Cot.25 vs Gheti	F	F
12	Maheshbhai S/o Raisangbhai Padhiyar Singharna Jambusar Bharuch; 9909270811	GN Cot.25 vs Gheti	F	F
13	Khumansang S/o Raisang Padhiyar Singharna Jambusar Bharuch; 9586453030	GN Cot.25 vs Gheti	890	780
14	Dalpatbhai S/o Karshanbhai Padhiyar Singharna Jambusar Bharuch; 7874966077	GN Cot.25 vs Gheti	F	F
15	Mafatbhai S/o Prabhatbhai Padhiyar Singharna Jambusar Bharuch; 7359121261	GN Cot.25 vs Gheti	F	F
16	Kanjibhai S/o Dhurabhai Padhiyar Singharna Jambusar Bharuch; 7874188540	GN Cot.25 vs Gheti	F	F
17	Ramsangbhai S/o Lallubhai Padhiyar Singharna Jambusar Bharuch; 7576998194	GN Cot.25 vs Gheti	740	660
18	Budhesangbhai S/o Veribhai Padhiyar Asanvad Jambusar Bharuch; 9909270808	GN Cot.25 vs Gheti	F	F
19	Ishwarbhai S/o Dahyabhai Padhiyar Asanvad Jambusar Bharuch; 9724292558	GN Cot.25 vs Gheti	F	F
20	Jivanbhai S/o Chhaganbhai Rathod Asanvad Jambusar Bharuch; 6356215816	GN Cot.25 vs Gheti	F	F
21.	Akshaybhai S/o Laxmanbhai Padhiyar Asanvad Jambusar Bharuch; 9737373497	GN Cot.25 vs Gheti	F	F
22	Rameshbhai S/o Dhirambhai Padhiyar Asanvad Jambusar Bharuch; 9099258643	GN Cot.25 vs Gheti	F	F
23	Narsinhbhai S/o Ranchhodbhai Padhiyar Asanvad JambusarBharuch; 9099878426	GN Cot.25 vs Gheti	F	F
24	Ramanbhai S/o Narottambhai Padhiyar Asanvad Jambusar Bharuch; 9978370011	GN Cot.25 vs Gheti	1150	980
25	Maganbhai S/o Raijibhai Padhiyar Asanvad Jambusar Bharuch; 9913582153	GN Cot.25 vs Gheti	F	F
	Average		**882**	**787**

6. Junagadh Agricultural University, Junagadh

6.1. FLDs on Integrated Crop Management in Cotton

S. No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	Laxam Anad Vaddoria Bagasara Bagasara/Amreli 9428469748	Super Gold	2500	2400
2	Babu Velji Pathar Bagasara Bagasara/Amreli 9586695567	Prabhat	1875	1756
3	Jesukh Ranchhod Vaddoria Bagasara Bagasara/Amreli 9913520955	Buyer First Class	2250	2120
4	Ramesh Ghadiya Bagasara Bagasara/Amreli 8469140887	Buyer First Class	2250	2159
5	Vimalaben Naranbhai Desai Bagasara/Amreli 9924513180	ATM	2000	1889

6	Pravinbhai Ranchhod Vaddoria Bagasara/Amreli 9913520955	Navab	2125	2040
7	Haresh Vallabhbhai Ghadiya Bagasara/Amreli 8469140887	RCH-659	1500	1456
8	Mansukhbhai N Korat Bagasara/Amreli 9428469748	Ajuba	2375	2200
9	Kanubhai V.Pathar Bagasara/Amreli 9586695567	ATM	2125	2002
10	Manjibhai Vashrambhai Lalakiya Bandhiya Rajkot 9979065283	ATM	3375	3150
11	Avasar Vinodbhai Ghadiya Bandhiya Rajkot 9424096682	RCH-659	3125	2900
12	Hardikbhai Popatbhai Lalakiya Bandhiya Rajkot 8320622539	Navab	3875	3710
13	Mahesh Babubhai Lalakiya Bandhiya Rajkot 9624149927	ATM	3125	2800
14	Nilesh Keshubhai Lalakiya Bandhiya Rajkot 9723975636	Navab	2750	2600
15	Jaman Narsihbhai Ghadiya Bandhiya Rajkot 9429015329	Navab	3125	2877
16	Pravin Vithal Sakariya Ujala Rajkot 6351966211	Navab	3125	3080
17	Narendra Khimji Pansuriya Ujala Rajkot 9904728283	Navab	3375	3290
18	Dilip Valji Kotadiya Ujala Rajkot 9737866173	Muniraj	2750	2624
19	Nilesh Gordhan Kotadiya Ujala Rajkot 9824484572	Navab	2500	2433
20	Ramanik Keshav Dobariya Valasimdi Junagadh 9909229918	Bhakti	1750	1600
21	Kishor Magan Sojitra Valasimdi Junagadh 9426962756	Super Gold	2000	1840
22	Vallabh Arajan Savaliya Valasimdi Junagadh 9427789466	Super Gold	2375	2223
23	Babu Gangdas Savaliya Valasimdi Junagadh 9909502828	Buyer 7576	2500	2389
24	Jyotsana Chandu Dobariya Valasimdi Junagadh 7567983501	Buyer 7576	2000	1904
25	Radha Bhovan Goladhar Junagadh 9974991412	Faster	2375	2145
26	Labhu Ramji Paghadar Goladhar Junagadh9106313873	Super Gold	2000	1950
27	Mansukh Tapu Savaliya Goladhar Junagadh 9974545528	Ankur Suvarna	2250	2160
28	Ramji Jetha Malaviya Goladhar Junagadh 9428776438	Raja	1625	1500
29	Jagdish Gobar Malaviya Goladhar Junagadh 9974674498	ATM	2250	2150
30	Ranjit Sivaram Vaghamshi Goladhar Junagadh 9909295862	US4708	2000	1956
31	Pravin Manji Savaliya Goladhar Junagadh 9725805358	Buyer 7576	2250	2189
32	Ramesh Valji Sukhadiya Goladhar Junagadh 9979288061	Wondarcod	1750	1680
33	Kanti Mohan Paghadar Goladhar Junagadh 9725979149	Buyer 7576	2500	2338
34	Suresh Ranchhod Savaliya Goladhar Junagadh 9725805491	Jay Ankur	1875	1702
35	Kishor Nagaji Baladaniya Goladhar Junagadh 9979584530	Buyer 7576	1250	1150
36	Pravin Bhovan Paghadar Goladhar Junagadh 6356437241	Buyer 7576	2125	2059
37	Parsottam NaranJuni Gudali Junagadh 9426876551	Buyer First Class	1375	1250

38	Dhanji Mohan Ribadiya Juni Gudali Junagadh 9924513180	Buyer First Class	1750	1680
39	Bhikha Mohan Ambaliya Juni Gudali Junagadh 9998558747	Buyer First Class	1500	1450
40	Suresh Mohan Ambaliya Juni Gudali Junagadh 9725049629	Buyer First Class	1250	1180
41	Haresh Bhikha Ribadiya Juni Gudali Junagadh 9924510013	Buyer First Class	1750	1655
42	Gordhan Raibhai Sakariya Parabvavadi Junagadh 9913903823	Rajat Bt	1625	1557
43	Rohit Kamlesh Malaviya Mendapra Junagadh 9978760061	Navab	2375	2236
44	Babubhai Khichadiya Mendapra Junagadh 9978760061	Navab	2000	1900
45	Dharmendra Gobar Malaviya Mendapra Junagadh 9925973237	Ajit-5	1875	1780
46	Bhavesh Bavanji Malaviya Mendapra Junagadh 9624182287	ATM	2500	2389
47	Mansukh Manjibhai Malaviya Mendapra Junagadh 9978455057	ATM	1625	1428
48	Dharmesh Laji Malaviya Mendapra Junagadh 9712138981	Sanjivani	2875	2659
49	Ramanik Ganda Vora Mendapra Junagadh 6351320825	ATM	1250	1189
50	Dhiru Arajan Talaviya Mendapra Junagadh 9725369164	ATM	1250	1123
51	Chandu Dharmshi Khichadiya Mendapra Junagadh 9979024047	Ajit-5	1500	1459
52	Jenti Devraj Malaviya Mendapra Junagadh 9427922728	Navab	2250	2100
53	Babu Narshi Malaviya Mendapra Junagadh 9979535834	Jayho	1250	1123
54	Kishor Bavanji Suvagiya Lilakha Rajkot 9825911501	Navab	1000	900
55	Pravin Parshotam Dhameliya Lilakha Rajkot 9727227977	ATM	1120	1000
56	Lalji Popat HarkhaniLilakha Rajkot9714447561	Navab	2500	2369
57	Pravin Ravaji SuvagiyaLilakha Rajkot9825858672	Navab	2250	2180
58	Arjanbha Bachubhai DhameliyaLilakha Rajkot8238707722	ATM	2625	2560
59	Ashok Kesa Dholariya Lilakha Rajkot 9925424571	Navab	1130	1040
60	Chiman Bachu Dhameliya Lilakha Rajkot 9624861081	Navab	1875	1700
61	Kishor Chhagan Vasoya Lilakha Rajkot 9723254533	Navab	1375	1250
62	Mohan Gangdas Ribadiya Lilakha Rajkot 9909230160	RCH-659	1500	1400
63	Dhiraj Bavanji Hadiya Lilakha Rajkot 8980031533	Navab	1875	1780
64	Navnitbhai Chhaganbhai Parshaniya Sardargadh Junagadh 9426136679	Ankur-3028	1250	1150
65	Popatbhai Babubhai Garala Sardargadh Junagadh 9429779284	ATM	1875	1770
66	Dineshbhai karshanbhai Gunjariya Sardargadh Junagadh 9909184724	Solar-77	1250	1190
67	Mahendbhai Mohanbhai Kundaria Sardargadh Junagadh 9979439991	Bhakti	3750	3600
68	Pravinbhai Haribhai Savsani Sardargadh Junagadh 9429160093	ATM	2500	2420
69	Varjangbhai Abhabhai Ravliya Thapla Junagadh 9904895044	Ajeet-155	3125	3050

70	Devabhai Ngabhai Pithiya Thapla Junagadh 9978391882	Navab	2750	2625
71	Ukabhai Jivrajbhai Dadhaniya Thapla Junagadh 9726711905	Solar-76	2750	2640
72	Ukabhai Keshavbhai Thapliya Thapla Junagadh 9925992632	Navab	2250	2170
73	Hardashbhai Vakmatbhai Karangiya Thapla Junagadh 9426325642	Ganesh+	1875	1800
74	Kanbhai Jethabhai Ravaliya Thapla Junagadh 9724036737	Ajeet-155	3250	3120
75	Piyush Manji Shingala Gudala Rajkot 9601552900	Navab	2000	1924
76	Bhupat Vallabh Shingala Gudala Rajkot 9726512707	Navab	3125	2890
77	Kishan Bhikha Kotadiya Gudala Rajkot 9574831858	ATM	2000	1910
78	Gopal Gandu Hirpara Gudala Rajkot 9724661389	Navab	2500	2400
79	Mandan Karamshi Shingala Gudala Rajkot 9913225452	ATM	2625	2560
80	Kishor Tulshi Kotadiya Gudala Rajkot 9725829433	ATM	2500	2400
81	Bhagavanji Bhikha Polara Gudala Rajkot 9099888118	Navab	3000	2890
82	Purdar Kanu Antala Gudala Rajkot 9898334404	Navab	2125	2000
83	Bhavesh Vallabh Khokhar Gudala Rajkot 9724490681	Navab	2750	2610
84	Parashottam Premji Khokhar Gudala Rajkot 9898346335	Navab	2500	2350
85	Ratibhai B Viradiya Fareni Rajkot 9974949709	Navab	2430	2145
86	Ratanben Gangdas Bechara Ghantiya Junagadh 9714035310	Ankur 3028	2125	2010
87	Ashok Valji Kalaria Ghantiya Junagadh 9913496368	Navab	1875	1800
88	Vipul Kanji Gothi Ghantiya Junagadh 9726227472	Bhakti	2500	2350
89	Aruna Harshukh Kalaria Ghantiya Junagadh 9824266368	ATM	1750	1650
90	Premji Ravaji Kalaria Ghantiya Junagadh 6355942269	RCH-Neo	1500	1420
91	Vinu Karshan Savaliya Juni Chavand Junagadh 9913255037	Ankur-3028	2125	2056
92	Natu Karshan Savaliya Juni Chavand Junagadh 9909184107	Buyer 7576	2000	1850
93	Harsukh Karshan Savaliya Juni Chavand Junagadh 9727378253	RCH-Neo	1500	1400
94	Ramesh Bhovan Savaliya Juni Chavand Junagadh 9978033754	Ajit-155	1875	1690
95	Harsukh Fula Savaliya Juni Chavand Junagadh 9879365943	Bhakti	1750	1600
	Average		**2199**	**2079**

6.2. FLDs on Intercropping in Cotton

S. No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton / Intercrop Yield (kg/ha)		
			FLD	Intercrop	Farmer's Practice
1	Popat Kala Hirpara Valasimdi Tal. & Dist. Junagadh 6352321696	Super Gold + Groundnut	1750	500	1700
2	Kantilal Karmsi SidaparaValasimdi & Dist. Junagadh 9824892217	Super Gold + Groundnut	2375	437.5	2100
3	Chandu Gobar Savaliya Valasimdi Tal. & Dist. Junagadh 9428840252	Super Gold + Groundnut	2125	750	2050

4	Bavanji Bachu Sidhapara Valasimdi Tal. & Dist. Junagadh 9726749741	Super Gold + Groundnut	2500	625	2450
5	Praful Parbat Virdiya Valasimdi Tal. & Dist. Junagadh 9638101212	Super Gold + Groundnut	2250	562.5	2200
6	Ratilal Vashrambhai Rabadiya Bhader Tal. Dhoraji Dist. Rajkot 9925134894	Navab + Black Gram	1750	Fail	1500
7	Nikunjbhai Babubhai Rabadiya Bhader Tal. Dhoraji Dist. Rajkot 9429761395	Navab + Black Gram	2000	Fail	1720
8	Jayantibhai Nanjibhai Rabadiya Bhader Tal. Dhoraji Dist. Rajkot 9905934884	Navab + Black Gram	1550	Fail	1410
9	Nikunjbhai Babubhai Sangani Bhader Tal. Dhoraji Dist. Rajkot 7622031704	Solar-76 + Black Gram	1250	400	1125
10	Nanjibhai Thobhanbhai Rabadiya Bhader Tal. Dhoraji Dist. Rajkot 9714496808	Navab + Black Gram	1750	Fail	1650
11	Kalpeshbhai Gokalbhai Vekariya NaniParbdi Tal. Dhoraji Dist. Rajkot 9909312177	Buyer 7576 + Sesamum	1875	Fail	1700
12	Hiteshbhai Mansukhbhai Pokiya Tal. Dhoraji Dist Rajkot 9426839317	Buyer 7576 + Sesamum	1875	Fail	1720
13	Nikunjbhai Harsukhbhai Gajera Tal. Dhoraji Dist Rajkot 9429351475	Buyer 7576 + Sesamum	1250	Fail	1125
14	Hiteshbhai Gokalbhai Vekariya Tal. Dhoraji Dist Rajkot 9724279405	Buyer 7576 + Sesamum	875	Fail	625
15	Mansukh Govind Kapadiya Tal. Dhoraji Dist Rajkot 9426318439	Buyer 7576 + Sesamum	2500	Fail	2345
16	Vipulbhai Vallabhbhai Dobariya Choki Tal. & Dist. Junagadh 9067133952	Navab + Sesamum	1250	250	1100
17	Deepakbhai Laljibhai Vaghasiya Choki Tal. & Dist. Junagadh 9428950544	Navab + Sesamum	1750	400	1660
18	Navneetbhai Babubhai Kachhadiya Choki Tal. & Dist. Junagadh 9898258253	Buyer 7576 + Sesamum	1900	500	1806
19	Gordhanbhai Limbabhai Dobariya Choki Tal. & Dist. Junagadh 9429764591	Navab + Sesamum	1550	Fail	1320
20	Mansukhbhai Jamanbhai Akbari Choki Tal. & Dist. Junagadh 9725033588	ATM + Sesamum	2250	Fail	2110
	Average		**1856**	**453**	**1711**

7. Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola

7.1. FLDs on Integrated Crop Management in Cotton

S. No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	Shri Shankar Ganeshrao Deshmukh At Post-GanojaTq.Chandurbazar Dist.Amravati	AKH-09-5	1452	1503
2	Sau Kusumlata Kamalkumar Daga At Post-MalakapurTq.Malakpur Dist.Buldhana	AKH-09-5	1530	1612
3	Shri Vikesh Kamalkumar Daga At Post-MalakapurTq.Malakpur Dist.Buldhana	AKH-09-5	1455	1465
4	Shri Gajanan Haribhau Aher At Post- Dhamangaon-BadheTq.Malakpur Dist.Buldhana	AKH-09-5	1590	1560
5	Sau Savita Madhukar Ingale At Post- Dhamangaon-BadheTq.Malakpur Dist.Buldhana	AKH-09-5	1490	1540
6	Shri Vijay Namdev Kinge At Post-MadegaonTq.Malakpur Dist.Buldhana	AKH-09-5	1455	1520
7	Shri Girish Vishnupant Nanote At Post-KurankhedTq.Akola Dist.Buldhana	AKH-09-5	1340	1405
8	Sau. Lina Girish Nanoti At Post- KurankhedTq.Akola Dist.Buldhana	AKH-09-5	1410	1420
9	Shri Dilip Vitthal Khare At Post- Sunderkhed Tq.Buldhana Dist.Buldhana	AKH-09-5	1480	1540
10	Shri Tulshiram Kisan Mandalkar At Post-KanarkhedTq.Shegaon Dist.Buldhana	AKH-09-5	1510	1495
11	Shri Kisan Maroti Mandalkar At Post-KanarkhedTq.Shegaon Dist.Buldhana	AKH-09-5	1580	1525
12	Shri Baban Zabaji Wakode At Post-KanarkhedTq.Shegaon Dist.Buldhana	AKH-09-5	1475	1560
13	Shri Ashok Ramkrishna Kale At Post-KanarkhedTq.Shegaon Dist.Buldhana	AKH-09-5	1390	1475
14	Shri Vitthal Kisan Nile At Post-KanarkhedTq.Shegaon Dist.Buldhana	AKH-09-5	1380	1420
15	Shri Ganesh Kisan Pundekar At Post-KanarkhedTq.Shegaon Dist.Buldhana	AKH-09-5	1285	1345
16	Shri Shrikrushna Lakshman Makode At Post- Sangwi BazarTq.AkolaDist.Akola	AKH-09-5	1520	1585
17	Shri Madhavrao Ambadas Bawner At Post-KapustalniTq.Anjangaon-Surji Dist.Amravati	AKH-09-5	1578	1480
18	Shri Jagannath Ganpat Michke At Post-KanarkhedTq.Shegaon Dist.Buldhana	AKH-09-5	1720	1775
19	Shri Shriram Purushottam Kate At Post-HasanapurTq.Murtizapur Dist.Akola	AKH-09-5	1400	1480
20	Shri Sahebrao Ganpat Wankhade At Post-AnduarTq.Balapur Dist.Akola	AKH-09-5	1575	1620
	Average		**1481**	**1516**

7.2. FLDs on Desi/ELS/ Seed production

S. No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	Shri.Pandurang Digambar Gayki At Post.-Kaloshi Tq.Balapur Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	1940	1565
2	Shri.Digambar Tukaram Gayki At Post.-Kaloshi Tq.Balapur Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	1860	1510
3	Shri.Suresh Digambar Gayki At Post.-Kaloshi Tq.Balapur Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	1765	1495
4	Shri.Ganesh Wasudev Raut At Post.-Kaloshi Tq.Balapur Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	2055	1680
5	Shri Vaibhav Gopal Wadatkar At Post.-Kaloshi Tq.Balapur Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	2040	1710
6	Shri Mohan Pundlikrao Nibandhe At Post.-Jogalkhed Tq.Balapur Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	1735	1510
7	Shri Shudhodhan Dewrao Nilkanth At Post.-Aloshi Tq.Balapur Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	2080	1760
8	Shri Sahebrao Kisan Nilkanth At Post.-Aloshi Tq.Balapur Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	1885	1625
9	Shri Manik Kisan Nilkanth At Post.-Aloshi Tq.Balapur Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	1865	1540
10	Sau.Jayashree Vitthal Mule At Post.-Aloshi Tq.Balapur Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	1945	1685
11	Shri Eknath Haribhau Sarap At Post-Kasali Tq.Akola Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	2140	1820
12	Shri.Dattayatra Jagannath Patharkar At Post-Nimkarda Tq.Balapur Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	1940	1630
13	Shri.Sahebrao Murlidhar Gawande At Post.-Aloshi Tq.Balapur Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	1750	1590
14	Sau.Vidya Yashwant Rajurkar At Post-Dhabki Tq.Akola Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	1855	1540
15	Shri Omprakash Janorkar At Post-Dhabki Tq.Akola Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	1740	1560
16	Shri Jagannath Ganpat Michke At Post-KanarkhedTq.Shegaon Dist.Buldhana	PDKV-JKAL 116 (Bt Hybrid)	1745	1420
17	Sau.Kokilabai Sahebrao Wakode At Post-Kanarkhed Tq.Shegaon Dist.Buldhana	PDKV-JKAL 116 (Bt Hybrid)	2180	1785
18	Shri Sahebrao Zabaji Wakode At Post-Kanarkhed Tq.Shegaon Dist.Buldhana	PDKV-JKAL 116 (Bt Hybrid)	1854	1655
19	Shri Vinod Ramkrushna Kale At Post-Kanarkhed Tq.Shegaon Dist.Buldhana	PDKV-JKAL 116 (Bt Hybrid)	1740	1650
20	Shri Sanjay Ambadas Bawner At Post-KapustalniTq.Anjangaon-Surji Dist.Amravati	PDKV-JKAL 116 (Bt Hybrid)	1675	1544
21	Shri Madhavrao Ambadas Bawner At Post-Kapustalni Tq.Anjangaon - Surji Dist.Amravati	PDKV-JKAL 116 (Bt Hybrid)	1785	1655
22	Shri Ishwar Namdevrao Thakare At Post-VyalaTq.Balapur Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	1695	1475
23	Shri Ujwal Ishwar Thakare At Post-VyalaTq.Balapur Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	1765	1654

24	Shri Ravindra Madhukar Bhawane At Post-AlandaTq.Barshitakali Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	1980	1710
25	Sau Warsha Gajanan Wajire At Post-VyalaTq.Balapur Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	1845	1698
26	Shri Gajanan Shivram Wajire At Post-VyalaTq.Balapur Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	1880	1620
27	Shri Ganeshrao Tryambakrao Deshmukh At Post- Jamkeshwar Ta.Barshitakali Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	2230	1854
28	Sau.Rekhabai Ganeshrao Deshmukh At Post-Jamkeshwar Ta.Barshitakali Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	1868	1640
29	Shri Pramod Vitthalrao Nighot At Post-KarliTq.Murtizapur Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	2150	1840
30	Shri Gopal Haribhau Bhiwarkar At Post-KarliTq.Murtizapur Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	1875	1680
31	Shri Ramesh Vishwanath Badhe At Post- Sisa-MasaTq.Akola Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	1980	1745
32	Shri Gajanan Vishwanath Badhe At Post-SangludTq.Akola Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	1850	1630
33	Shri Bhushan Vasant Badhe At Post- Sisa-BondarkhedTq.Akola Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	1955	1720
34	Shri Wasudev Kashiram Chopde At Post-YelwanTq.Akola Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	1650	1430
35	Sau. Vidya Sahebrao Ingale At Post-YelwanTq.Akola Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	1960	1700
36	Shri Ganesh Ganpat Wankhade At Post-AnduraTq.Balapur Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	1775	1520
37	Sau.Guntabai Ganpat Wankhade At Post-AnduraTq.Balapur Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	2340	1920
38	Shri Gajanan Ganeshrao Deshmukh At Post-GanojaTq.Chandurbazar Dist.Amravati	PDKV-JKAL 116 (Bt Hybrid)	2250	1945
39	Shri Rajabhau Ganeshrao Deshmukh At Post-GanojaTq.Chandurbazar Dist.Amravati	PDKV-JKAL 116 (Bt Hybrid)	2020	1610
40	Shri Ganesh Lakshman Makode At Post-Sangawi BazarTq.Akola Dist.Akola	PDKV-JKAL 116 (Bt Hybrid)	2130	1850
	Average		**1919**	**1654**

8. Marathwada Agricultural University, Nanded

8.1. FLDs on Integrated Crop Management in Cotton

S. No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	Radhakishan Laxman LahadePhulwadi Partur Jalna	NHH 44 *Bt*	1750	1500
2	Anil Radhakishan LahadePhulwadi Partur Jalna	NHH 44 *Bt*	1800	1600
3	Manmath Marotrao GawliJambhrun Ardhapur Nanded	NHH 44 *Bt*	1250	1100
4	Vitthal Raghunath GawliJambhrun Ardhapur Nanded	NHH 44 *Bt*	1200	1000
5	Devidas Ramji PotewarJambhrun Ardhapur Nanded	NHH 44 *Bt*	1100	900
6	Sakharam Mariba BholeJambhrun Ardhapur Nanded	NHH 44 *Bt*	1200	1000

7	Chandrakant Motiram SarodeJambhrun Ardhapur Nanded	NHH 44 *Bt*	1150	1000
8	Sambhaji Kishanrao PhulwadeDatala Kandhar Nanded	NHH 44 *Bt*	1250	1100
9	Nazeer Ahmad Mohammad JalalKundalwadi Biloli Nanded	NHH 44 *Bt*	1500	1400
10	Balaji Jaywantrao ShindeManjram Naigaon Nanded	NHH 44 *Bt*	1300	1200
11	Eknath Pandurang NagulwarKolambi Naigaon Nanded	NHH 44 *Bt*	1550	1300
12	Shankar Namdev PanchalChinchala Umri Nanded	NHH 44 *Bt*	1600	1400
13	Smt. Ashatai Baburao BhadaleJagapurHadgaon Nanded	NHH 44 *Bt*	1800	1600
14	Sudam Mariba AgboteRautkheda Kandhar Nanded	NHH 44 *Bt*	2000	1800
15	Smt. Chhayabai Manikrao PawdeMendla Bk. Ardhapur Nanded	NHH 44 *Bt*	1800	1600
16	Rajesh Prabhakar KadamDegaonArdhapur Nanded	NHH 44 *Bt*	1700	1500
17	Smt. Suman DeshpandeTadkalas Purna Parbhani	NHH 44 *Bt*	1800	1600
18	Ramesh Vitthalrao PawdePawdewade Nanded Nanded	NHH 44 *Bt*	2000	1800
19	Smt. Sindhutai Subhashrao PawdePawdewade Nanded Nanded	NHH 44 *Bt*	1450	1250
20	Madhav Santoba BodkeLoha Loha Nanded	NHH 44 *Bt*	1600	1400
21	Smt. Vidya Madhav BodkeLoha Loha Nanded	NHH 44 *Bt*	1000	900
22	Manoj Anandrao DeshmukhKausadi Jintur Parbhani	NHH 44 *Bt*	1000	800
23	Moinuddin JalaluddinKausadi Jintur Parbhani	NHH 44 *Bt*	1000	900
24	Sanjay Balmukund SharmaKausadi Jintur Parbhani	NHH 44 *Bt*	1200	1000
25	Ajinkya Anil DeshmukhKausadi Jintur Parbhani	NHH 44 *Bt*	1100	1000
26	Ashish Hanuman SharmaKausadi Jintur Parbhani	NHH 44 *Bt*	1200	1100
27	Arun TudmeBiloli Biloli Nanded	NHH 44 *Bt*	1600	1450
28	Asdurkhan Md. Khan PathanWarphalna Partur Jalna	NHH 44 *Bt*	1500	1300
29	Fahimkhan Abdul Khan PathanWarphalna Partur Jalna	NHH 44 *Bt*	1600	1400
30	Wahabkhan PathanWarphalna Partur Jalna	NHH 44 *Bt*	1500	1300
31	Umakant Rangnath RautWadepuri Loha Nanded	NHH 44 *Bt*	1800	1600
32	Vikrant Rangnath RautWadepuri Loha Nanded	NHH 44 *Bt*	1900	1700
33	Dadaram Motiram GujalwarWadepuri Loha Nanded	NHH 44 *Bt*	2000	1800
34	Balaji Devrao DalveWadepuri Loha Nanded	NHH 44 *Bt*	1600	1400
35	Ram Pandurang AthawadeWadepuri Loha Nanded	NHH 44 *Bt*	1500	1300
36	Manik Kondiba DalveWadepuri Loha Nanded	NHH 44 *Bt*	1600	1400
37	Smt. Laxmibai Dattaram BodkeWadepuri Loha Nanded	NHH 44 *Bt*	1800	1600
38	Rajesh Vasantrao RautWadepuri Loha Nanded	NHH 44 *Bt*	2000	1800
39	Vasantrao Harji RautWadepuri Loha Nanded	NHH 44 *Bt*	1900	1700
40	Balaji Nagorao BodkeWadepuri Loha Nanded	NHH 44 *Bt*	1600	1400

41	Achut Bhanudas DalveWadepuri Loha Nanded	NHH 44 *Bt*	1800	1600
42	Anandrao Gyanoji BodkeWadepuri Loha Nanded	NHH 44 *Bt*	1700	1500
43	Ramaji Sudam RajegoreBerla Loha Nanded	NHH 44 *Bt*	1600	1400
44	Kishan Shankar JadhavBerla Loha Nanded	NHH 44 *Bt*	1800	1600
45	Sanjay Shivhar PhulwadeDatala Loha Nanded	NHH 44 *Bt*	2000	1800
46	Santosh Prabhakar PandhareMajre Dharmapuri Kandhar Nanded	NHH 44 *Bt*	1900	1700
47	Sambhaji Prabhankar PandhareDharmapuri Kandhar Nanded	NHH 44 *Bt*	1600	1400
48	Murlidhar Khobraji LokhandeMajre Dharmapuri Kandhar Nanded	NHH 44 *Bt*	1800	1700
49	Laxman Umaji GhodkePanbhosi Kandhar Nanded	NHH 44 *Bt*	1600	1400
50	Ishwar Maroti DubukwadPanbhosi Kandhar Nanded	NHH 44 *Bt*	1500	1300
51	Digambar Jalba SonkambleChikhalbhosi Kandhar Nanded	NHH 44 *Bt*	2000	1800
52	Vilas Digambar SonkambleChikhalbhosi Kandhar Nanded	NHH 44 *Bt*	2000	1700
53	Gangadhar Vikram KanghuleChikhalbhosi Kandhar Nanded	NHH 44 *Bt*	2000	1800
54	Ananda Vitthal NilegaveChikhalbhosi Kandhar Nanded	NHH 44 *Bt*	1600	1500
55	Padmakar Pandurang KanghuleChikhalbhosi Kandhar Nanded	NHH 44 *Bt*	1500	1300
56	Rajendra Murlidhar JadhavShripatraiwadi Ambejogai Beed	NHH 44 *Bt*	1700	1600
57	Murlidhar Baburao JadhavShripatraiwadi Ambejogai Beed	NHH 44 *Bt*	1450	1250
58	Bhaskar Murlidhar JadhavShripatraiwadi Ambejogai Beed	NHH 44 *Bt*	1800	1600
59	Smt. Meena Bhaskar JadhavShripatraiwadi Ambejogai Beed	NHH 44 *Bt*	1600	1400
60	Balasaheb Madhav JadhavShripatraiwadi Ambejogai Beed	NHH 44 *Bt*	1500	1300
61	Smt. Sunita Balasaheb JadhavShripatraiwadi Ambejogai Beed	NHH 44 *Bt*	1800	1650
62	Nagorao Narayan PawarShripatraiwadi Ambejogai Beed	NHH 44 *Bt*	1900	1700
63	Rangnath Narayan PawarShripatraiwadi Ambejogai Beed	NHH 44 *Bt*	2000	1800
64	Namdev Mohan ChauhanDipewadgaonAmbejogaiBeed	NHH 44 *Bt*	1500	1300
65	Uttreshwar Balkrishn GulghileDipewadgaon Ambejogai Beed	NHH 44 *Bt*	1600	1400
66	Shivaji Purbhaji BhuleJambhrun Ardhapur Nanded	NHH 44 *Bt*	1800	1600
67	Ramchandra Parasram KadamKarwadi Ardhapur Nanded	NHH 44 *Bt*	1600	1400
68	Jivnaji Kashinath AwardeKarwadi Ardhapur Nanded	NHH 44 *Bt*	1800	1700
69	Shivaji Vishwnath PotewarJambhrun Ardhapur Nanded	NHH 44 *Bt*	1900	1800
70	Sambhaji Shivaji KhadkeAntarwala Jalna Jalna	NHH 44 *Bt*	2000	1850

71	Bhausaheb Bapurao MaskeAntarwala Jalna Jalna	NHH 44 *Bt*	1900	1750
72	Babasaheb Bhimrao LandgeDhamangaon Jalna Jalna	NHH 44 *Bt*	1800	1600
73	Mirza Shahzad BaigRamkheda Bhokardan Jalna	NHH 44 *Bt*	1500	1400
74	Shikoor Basheer BaigRamkheda Bhokardan Jalna	NHH 44 *Bt*	1600	1350
75	Chattbhan Grijanath JagtapGopalwadi Shekta Aurangabad	NHH 44 *Bt*	1650	1400
76	Dadasaheb Mohan ChauhanGopalwadi Shekta Aurangabad	NHH 44 *Bt*	1800	1700
77	Suresh Ramnath JagtapGopalwadi Shekta Aurangabad	NHH 44 *Bt*	1900	1750
78	Annasaheb Pralhad JadhavGopalwadi Shekta Aurangabad	NHH 44 *Bt*	1600	1400
79	Khayyum Aziz ShaikhGopalwadi Shekta Aurangabad	NHH 44 *Bt*	1500	1400
80	Santosh Shrikant JadhavGopalwadi Shekta Aurangabad	NHH 44 *Bt*	1600	1450
81	Sardar Mahboob ShaikhGopalwadi Shekta Aurangabad	NHH 44 *Bt*	1800	1700
82	Bhausaheb Baburao HapseJadgaon Aurangabad Aurangabad	NHH 44 *Bt*	2000	1800
83	Balu Bapurao WaghJadgaon Aurangabad Aurangabad	NHH 44 *Bt*	1800	1700
84	Sahebrao Pundlik HivraleJalgaon Pheram Aurangabad	NHH 44 *Bt*	1100	900
85	Badrinath Gorakhnath TambeNagamthanVaijapurAurangabad	NHH 44 *Bt*	1200	1000
86	Suresh Gorakhnath TambeNagamthanVaijapurAurangabad	NHH 44 *Bt*	1300	1200
87	Abdul Bari ShaikhWadavni Paithan Aurangabad	NHH 44 *Bt*	1400	1200
88	Shaikh Taher Shaikh LiyaqatWadavni Beed Beed	NHH 44 *Bt*	1500	1200
89	Shaikh Mustafa Shaikh ChandWadavni Beed Beed	NHH 44 *Bt*	1410	1300
90	Namdev Jalba KadamIkalimor Naigaon Nanded	NHH 44 *Bt*	1600	1400
91	Anandgir Rajgir GiriIkalimor Naigaon Nanded	NHH 44 *Bt*	1700	1500
92	Laxman Babarao MudkhedeSujlegaon Naigaon Nanded	NHH 44 *Bt*	1800	1600
93	Narsing Babarao MudkhedeSujlegaon Naigaon Nanded	NHH 44 *Bt*	2000	1700
94	Digambar Hanumant MudkhedeSujlegaon Naigaon Nanded	NHH 44 *Bt*	1800	1600
95	Bhaskar Vitthalrao PatilPimpalgaon Degloor Nanded	NHH 44 *Bt*	2000	1800
96	Arun Pandharinath PatilPimpalgaon Degloor Nanded	NHH 44 *Bt*	1800	1600
97	Wamanrao Govindrao PatilPimpalgaon Degloor Nanded	NHH 44 *Bt*	1700	1500
98	Sangram Babarao PatilPimpalgaon Degloor Nanded	NHH 44 *Bt*	1500	1400
99	Vitthalrao Hulba PatilPimpalgaon Degloor Nanded	NHH 44 *Bt*	1600	1400
100	Pandharinath Govindrao PatilPimpalgaon Degloor Nanded	NHH 44 *Bt*	2000	1800
	Average		**1634**	**1453**

8.2. FLDs on Desi / ELS / ELS Cotton Seed Production

S. No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	Smt. Radhbai Krishna RudrawarMarlak Nanded Nanded	PA 528	1800	1600
2	Deepak Krishna RudrawarMarlak Nanded Nanded	PA 528	2000	1800
3	Gangadhar Piraji SakhareDhangartakli Purna Parbhani	PA 528	1800	1600
4	Vitthal Piraji SakhareDhangartakli Purna Parbhani	PA 528	1900	1700
5	Smt. Anjanabai Namdev SakhareDhangartakli Purna Parbhani	PA 528	2000	1800
6	Gangadhar Dnyandev PawarWazur Purna Parbhani	PA 528	1700	1500
7	Ganeshrao Vithoba DhageSanpuri Parbhani Parbhani	PA 528	1800	1600
8	Naresh Ganeshrao ShindeSanpuri Parbhani Parbhani	PA 528	1600	1400
9	Shripad Dattapant VaidyaNankheda Parbhani Parbhani	PA 528	1800	1600
10	Subhash Dattarao Bapu DeshmukhTakali Parbhani Parbhani	PA 528	2500	2300
11	Laxman Kharat ChincholiPartur Partur Jalna	PA 528	2400	2100
12	Madhav Ramrao KhatingDevthana Parbhani Parbhani	PA 528	2000	1800
13	Shivram Laxman KhatingDevthanaParbhaniParbhani	PA 528	1700	1500
14	Ramchandra Dnyanoji KhatingDevthanaParbhaniParbhani	PA 528	1600	1400
15	Vasant Waman SurvasePimpala Parbhani Parbhani	PA 528	1800	1600
16	Manju Maroti SurvasePimpala Parbhani Parbhani	PA 528	2000	1800
17	Keshav Munjaji GavaneSaranpur Manvat Parbhani	PA 528	1700	1500
18	Sadashiv Vasantrao PandeJawla Bz. Basmat Hingoli	PA 528	1600	1400
19	Sopan Sattuji DhageHatta Basmat Hingoli	PA 528	1800	1600
20	Gajanan Ramprasad GopalManur Majalgaon Beed	PA 528	1200	1100
21	Maroti Babanrao ChauhanSambar Parbhani Parbhani	PA 528	1250	1000
22	Santram Vitthalrao GarulSambar Parbhani Parbhani	PA 528	1085	900
23	Dnyaneshwar Vishwanath ChauhanSambar Parbhani Parbhani	PA 528	1165	1050
24	Pandurang Limbaji GundSambar Parbhani Parbhani	PA 528	1200	1100
25	Bhagwan Gyanoba ChauhanSambar Parbhani Parbhani	PA 740	1150	1000
26	Shivaji Uttamrao SuryawanshiDati Kalamnuri Hingoli	PA 740	1400	1200
27	Gajanan Bhujangrao GunjkarKalamnuri Kalamnuri Hingoli	PA 740	1500	1400
28	Tulsiram AmbhoreJawla Bz. Basmat Hingoli	PA 740	1600	1400
29	Devidas Marotirao KalyankarJawla Mudkhed Nanded	PA 740	1500	1300
30	Ramesh Marotirao KalyankarJawla Mudkhed Nanded	PA 740	1600	1400

31	Madhukar Shrirang DadhaleArdhapur Ardhapur Nanded	PA 740	1700	1500
32	Mirza ShaikhAntarwal Badnapur Jalna	PA 528	1800	1600
33	Pandurang KhadkeAntarwal Badnapur Jalna	PA 740	1600	1400
34	Bapuanna DhabaleAntarwal Badnapur Jalna	PA 528	1500	1300
35	Mahadev LandeAntarwal Badnapur Jalna	PA 740	1400	1200
36	Sunil Keshavrao DeshmukhSagroli Biloli Nanded	PA 740	1800	1600
	Average		**1665**	**1474**

8.3. FLDs on Intercropping in Cotton

S. No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton / Intercrop Yield (kg/ha)		
			FLD	Intercrop	Farmer's Practice
1	Yeshwant Narayan Raje Bamni Hadgaon Nanded	Bt Cotton + Green Gram	1800	650	2000
2	Vandana Yeshwant Raje Bamni Hadgaon Nanded	Bt Cotton + Green Gram	1850	660	2000
3	Deshpande LalithadasTadkalas Purna Parbhani	Bt Cotton + Green Gram	1650	600	1800
4	Jagannath Sahdev Shinde Manjram Naigaon Nanded	Bt Cotton + Green Gram	1850	650	2000
5	Shriram Bhaurao Shinde Manjram Naigaon Nanded	Bt Cotton + Green Gram	1700	600	1800
6	Nagesh Baburao Hambarde Vishnupuri Nanded Nanded	Bt Cotton + Green Gram	1575	550	1700
7	Vishwambar Nagorao Kadam Degaon Ardhapur Nanded	Bt Cotton + Green Gram	1650	550	1800
8	Prabhakar Naroji Kadam Degaon Ardhapur Nanded	Bt Cotton + Green Gram	1450	500	1590
9	Gangaram Erba Bhandare Sawlithadi Biloli Nanded	Bt Cotton + Green Gram	1300	550	1470
10	Ashok Tukaram Kirakane Dabdari Himayatnagar Nanded	Bt Cotton + Green Gram	1700	525	1800
11	Narhari Sambhaji Kirakane Dabdari Himayatnagar Nanded	Bt Cotton + Green Gram	1800	660	2000
12	Narayan Patil Buasawant Aherchincholi Ambejogai Beed	Bt Cotton + Green Gram	1650	600	2000
13	Shantabai Narayan Sawant Aherchincholi Ambejogai Beed	Bt Cotton + Green Gram	1700	650	1800
14	Padmakar Namdev Bhosle Umbephal Ambejogai Beed	Bt Cotton + Green Gram	1600	600	1700
15	Madhukar Namdev Bhosle Umbephal Ambejogai Beed	Bt Cotton + Green Gram	1700	600	1800
16	Dattu Sonam Taur Umbephal Ambejogai Beed	Bt Cotton + Green Gram	1300	500	1500
17	Vitthal Dattu Taur Umbephal Ambejogai Beed	Bt Cotton + Green Gram	1200	450	1450
18	Renukadas Haribhau Joshi Dongarpimpla Ambejogai Beed	Bt Cotton + Green Gram	1200	500	1450

19	Shantanu Renukadas Joshi Dongarpimpla Ambejogai Beed	Bt Cotton + Green Gram	1800	600	2000
20	Sahdev Balkrishn Gulbhile Dongarpimpla Ambejogai Beed	Bt Cotton + Green Gram	1600	500	1800
21	Ratan Dhondiram Gulbhile Dongarpimpla Ambejogai Beed	Bt Cotton + Green Gram	1400	510	1600
22	Bapurao Rangnath Dhabade Dhopteshwar Jalna Jalna	Bt Cotton + Green Gram	1500	600	1600
23	Ashok Rambhau Dhabade Dhopteshwar Jalna Jalna	Bt Cotton + Green Gram	1280	610	1450
24	Nandkishor Parmeshwar Shelke Dhopteshwar Jalna Jalna	Bt Cotton + Green Gram	1500	550	1600
25	Shaikh Ayyub Shaikh Ahmad Dhopteshwar Jalna Jalna	Bt Cotton + Green Gram	1400	580	1500
26	Kailash Agaji Shelke Dhopteshwar Jalna Jalna	Bt Cotton + Green Gram	1500	570	1600
27	Ravi Pandurang Jadhav Dhoksal Jalna Jalna	Bt Cotton + Green Gram	1600	500	1800
28	Harishchandra Patil Buagavane Dhoksal Jalna Jalna	Bt Cotton + Green Gram	1400	500	1600
29	Chandrakant Jagannath Khadke Antarwala Jalna Jalna	Bt Cotton + Green Gram	1300	425	1500
30	Pandurang Jagannath Khadke Antarwala Jalna Jalna	Bt Cotton + Green Gram	1400	450	1600
31	Janardan Shivaji Khadke Antarwala Jalna Jalna	Bt Cotton + Green Gram	1300	500	1500
32	Ramchandra Baliram Dhandge Rahira Ghansawangi Jalna	Bt Cotton + Green Gram	1600	450	1750
33	Rajendra Balaji Vaidya Khushali Jalna Jalna	Bt Cotton + Green Gram	1800	550	2000
34	Vishnu Baburao Ghimare Kodoli Bhokardan Jalna	Bt Cotton + Green Gram	1400	600	1500
35	Shaikh Khalil Sk. Saifuddin Dhabadi Bhokardan Jalna	Bt Cotton + Green Gram	1600	500	1800
36	Laxman Bhagaji DasputeAdgaon Bk. Aurangabad Aurangabad	Bt Cotton + Green Gram	1700	620	1800
37	Dharmraj Babasaheb Nagare Adgaon Bk. Aurangabad Aurangabad	Bt Cotton + Green Gram	1400	500	1600
38	Narayan Shesherao Bhanuse Jodwadi Aurangabad Aurangabad	Bt Cotton + Green Gram	1300	600	1500
39	Mahesh Ratnakar Jogdhane Adgaon Bk. Aurangabad Aurangabad	Bt Cotton + Green Gram	1700	525	1800
40	Vilas Raghunath Thombre Salwadgaon Aurangabad Aurangabad	Bt Cotton + Green Gram	1600	450	1825
41	Swarupchand Lalchand Bahure Sagarwadi Badnapur Jalna	Bt Cotton + Green Gram	1400	400	1575
42	Devchand Lalsingh Bahure Sagarwadi Badnapur Jalna	Bt Cotton + Green Gram	1700	650	1800
43	Mahindra Devchand Bahure Sagarwadi Badnapur Jalna	Bt Cotton + Green Gram	1600	350	1750
44	Kasabai Devchand Bahure Sagarwadi Badnapur Jalna	Bt Cotton + Green Gram	1500	400	1600
45	Rajendra Devchand Bahure Sagarwadi	Bt Cotton +	1700	550	1800

	Badnapur Jalna	Green Gram			
46	Shesherao Ravan Jadhav Bhukasdhara Naigaon Nanded	Bt Cotton + Green Gram	1850	450	2000
47	Virbhadra Dnyanba Pawar Golegaon Naigaon Nanded	Bt Cotton + Green Gram	1600	500	1800
48	Avdhut Madhavrao Sakhare Takali Naigaon Nanded	Bt Cotton + Green Gram	1800	600	2000
49	Tarabai Madhavrao Sakhare Takali Naigaon Nanded	Bt Cotton + Green Gram	1600	500	1750
50	Parmeshwar Bhagwan Khundgarad Kandari Badnapur Jalna	Bt Cotton + Green Gram	1400	400	1560
	Average		**1558**	**538**	**1720**

9. Mahatma Phule Krishi Vidyapeeth, Rahuri

9.1. FLDs on Integrated Crop Management in Cotton

S. No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	Smt. Kaveri Dattatray Zarekar A/P-MalunjeTal-Rahuri	Phule Shwetambari	2130	2050
2	Shri. Bapusaheb Ranba Shinde A/P-Lakh Tal-Rahuri	Phule Suman	2100	2150
3	Shri.Suresh Tarachand Gaikwad A/P-Lakh Tal-Rahuri	Phule Shwetambari	2010	2050
4	Shri.Pandurang Appasaheb Tambe A/P-Lakh Tal-Rahuri	Phule Shwetambari	2050	1940
5	Shri.Dnyandeo Bapusaheb Shinde A/P-Lakh Tal-Rahuri	RCH-688	2130	2250
6	Shri.Smt. Sunita Dnyaneshwar Shinde A/P-Lakh Tal-Rahuri	Phule Suman	2040	1810
7	Shri.Rambhau Parwat Zine A/P-Kendal Kh Tal-Rahuri	Phule Mahi	1930	2040
8	Shri.Dattatray Jagganath Shirsat A/P-Kendal KhTal-Rahuri	Phule Suman	2025	2130
9	Smti.Kusum Dhondiram Adhav A/P-Kendal KhTal-Rahuri	Phule Suman	1950	2030
10	Smt.Sunanda Appasaheb Gunjal A/P-Kendal KhTal-Rahuri	Phule Shwetambari	1840	1680
11	Shri.Ashok Haribhau Adhav A/P-Kendal Kh Tal-Rahuri	Phule Chetana	1760	1520
12.	Shri.Vilas Rambhau Zine A/P-Kendal KhTal-Rahuri	Phule Shwetambari	1840	1730
13.	Shri.Babasaheb Jagganath Raut A/P-KangoniTal-Newasa	Phule Shwetambari	2050	2130
14	Shri.Pradip Ganpat Rashinkar A/P-Kangoni Tal-Newasa	Phule Suman	1825	1710
15	Shri Haribhau Bhagwan Kedar A/P-Kangoni Tal-Newasa	Phule Suman	1750	1810
16	Shri Sarjebapu Asaram Edake A/P-Kangoni Tal-Newasa	Phule Shwetambari	1600	1650

17	Shri Sachin Bharat Kale A/P-Dhandarphal khTal-Newasa	Phule Suman	1750	1820
18	Shri Satish Sampat Khatal A/P-Dhandarphal khTal-Newasa	Phule Mahi	2010	2040
19	Shri. Yogesh Jivan Nile A/P-Dhandarphal khTal-Newasa	Phule Mahi	1970	1950
20	Smt. Shobha Bharat Kale A/P-Dhandarphal khTal-Newasa	Phule Suman	2130	1950
21	Smt.Machindra Murlidhar Shete A/P-Gotumba Akhada Tal-Rahuri	Phule Shwetambari	1960	1980
22	Shri Khanderao Murlidhar Shete A/P-Gotumba Akhada Tal-Rahuri	Phule Shwetambari	2030	2060
23	Shri. Bhausaheb Machindra Tarde A/P-Gotumba Akhada Tal-Rahuri	Phule Mahi	2080	2130
24	Shri.Chandrakant Ambadas Galle A/P-Lakh Tal-Rahuri	Phule Mahi	1920	2040
25	Shri. Lahanu Chimaji Khadke A/p – Tandulwadi Tal Rahuri Dist. A. Nagar	Mahyco - 7017	2010	1840
26	Shri Shitaram Shivram Yeole A/P- Ghorpadwadi Tal-Rahuri	Bhakti	3930	3760
27	Shri Shivaji Janardan Sagar A/P- Ghorpadwadi Tal-Rahuri	Bhakti	2060	1920
28	Shri.Eknath Nirvuti Gawade A/P- Ghorpadwadi Tal-Rahuri	Rashi-659	1910	1630
29	Shri.Ashok Punjaji Gawade A/P- Ghorpadwadi Tal-Rahuri	Bhakti	1890	1680
30	Shri.Machindra Rambhau Dongare A/P-Ghorpadwadi	Bhakti	1830	1680
31	Shri.Subhash Bhagwat Gade A/P- Ghorpadwadi	Bhakti	1730	1560
32	Shri.Govind Lahu Thorat A/P- Ghorpadwadi	Bhakti	2030	1835
33	Sandip Radhkisan Yeole A/P- Ghorpadwadi	Bhakti	2610	2250
34	Shri.Sampat Eknath Jadhav A/P- Ghorpadwadi	Dhandev	2250	2130
35	Shri. Bharat Dattatray Jadhav A/P-MalharwadiTal-Rahuri	Bhakti	2140	1980
36	Shri. Hemant Sanjay Todmal A/P- Rahuri khTal-Rahuri	Kaveri	2060	1950
37	Smt.Alka Rajendra Todmal A/P- Rahuri kh.Tal-Rahuri	Kaveri	2230	2050
38	Machindra Jagganath Dainiwal A/P- Malunje Tal-Rahuri	Dhandeo plus	1760	1580
39	Shri.Dagadu Pandharinath Pacharne A/P-Shingave Keshav Tal-Pathardi	Mahyco7017	1820	1690
40	Shri Bapu Lahanu Ghorpade A/P-Shingave Keshav Tal-Pathardi	Ajit-155	1670	1125
41	Shri. Bapurao Govind Ghorpade A/P-Shingave Keshav Tal-Pathardi	Ajit-199	1450	1325
42	Shri. Laxman Govind Ghorpade A/P-Shingave Keshav Tal-Pathardi	Ajit-199	2230	1970
43	Shri.Yogesh Chandrabhan Pawar A/P-Digras Tal-Rahuri	Dhandeo	2160	1840
44	Shri.Karbhari Laxman Borude A/P-Kangoni Tal-Newasa	Mahyco-7017	2340	2060

45	Shri. Balasaheb Rambhau Kathore A/P-Kangoni Tal-Newasa	Dhandeo plus	1850	1670
46	Shri. Shubham Nanasaheb Todmal A/P- Rahuri Kd. Tal - Rahuri	Ajit - 155	2750	2310
47	Shri. Prasad Rangnath Sangle A/P – Kale Akhada Tal - Rahuri	Ajit - 155	1860	1750
48	Shri. Udaysingh Sakharam Ingle A/P-Amona Tal-Chikhali Dist. Buldhana	Phule Yamuna Phule-688	3000	2670
49	Shri Santaji Pawar A/P Kadamba Tal Rahuri Dist A .nagar.	Ajit - 155	2160	2000
50	Shri. Ambnadas Sriram Rajput A/P-Amona Tal-Chikhali Dist. Buldhana	Phule Yamuna Jangi	3100	2830
51	Shri. Uttamrao Govindrao Ingle A/P-Amona Tal-Chikhali Dist. Buldhana	Phule Yamuna Phule Suman Phule Swetambari	3000	2750
52	Shri. Pandhari Uttamrao Ingle A/P-Amona Tal-Chikhali Dist. Buldhana	Phule-688 Phule Dhanwantry	3200	3050
53	Shri. Gajanan Dagadu Suradkar A/P-Berala Tal-Chikhali Dist. Buldhana	Phule Yamuna Phule-688	2800	2650
54	Shri. Bhagwan Shamarao Ingle A/P-Amona Tal-Chikhali Dist. Buldhana	Phule 688 Jadu	2950	2730
55	Shri. Vishnu Tukaram Sangale A/P-Amona Tal-Chikhali Dist. Buldhana	Phule-688 Jambo	3150	2960
56	Shri. Shubham Baliram Ingle A/P-Amona Tal-Chikhali Dist. Buldhana	Phule Yamuna Bramha	2600	2350
57	Shri. Devidas B. Ingle A/P-Amona Tal-Chikhali Dist. Buldhana	Phule Yamuna Phule-688	2500	2340
58	Shri. Ramesh Sakharam Ingle A/P-Amona Tal-Chikhali Dist. Buldhana	Phule-688 Bhakti	2510	2360
59	Shri. Kisan Bongane A/P-Ghorpadwadi Tal-Rahuri	Bhakti	2260	2110
60	Shri. Shivaji Janardan Sagar A/P-GhorpadwadiTal-Rahuri	Bhakti	3650	3320
61	Shri.Ashok Punjaji Gawade A/P- Ghorpadwadi	Bhakti	2350	2060
62	Shri.Machindra Rambhau Dongare A/P-Ghorpadwadi	Bhakti	2650	2410
63	Shri.Subhash Bhagwat Gade A/P- Ghorpadwadi	Bhakti	1920	1745
64	Shri.Govind Lahu Thorat A/P- Ghorpadwadi	Bhakti	2040	1850
65	Shri. Kailas Sahebrao Ghorpade A/P-Ghorpadwadi	Bhakti	2410	2160
66	Shri.Sampat Eknath Jadhav A/P- Ghorpadwadi	Dhandev	2350	2160
67	Shri. Bharat Dattatray Jadhav A/P-MalharwadiTal-Rahuri	Bhakti	2650	2340
68	Shri. Satish Sitaram Kalapure A/p – Khadambe Tal. Rahuri	Cotbank	2230	2000

69	Shri. Sakharam Gorak Bhavar A/p –Khesev Singve Tal Pathardi	Ajit - 155	2560	2430
70	Shri. Eknath Dagdu Ghorpade A/p –Khesev Singve Tal Pathardi	Ajit - 199	1850	1730
71	Shri. Bapu Lahanu Ghorpade A/p –Khesev Singve Tal Pathardi	Ajit - 199	1960	1470
72	Shri. Vaibhav Mahadev Sase A/p –Khesev Singve Tal Pathardi	Ajit - 199	2060	1830
73	Shri. Vikram Subhash Gaikwad A/p Ashwi kd. Tal Sangamner	Jadu	2875	2580
74	Shri. Govardhan Rambhau Bhavar A/p Shingve Keshav	Ajit-155	2250	2040
75	Shri. Shubhash Shankar Mali A/p Kholar Tal Rahata	Bhakti	2650	2340
	Average		**2228**	**2073**

9.2. FLDs on Intercropping in Cotton

S. No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton / Intercrop Yield (kg/ha)		
			FLD	Intercrop	Farmer's Practice
1	Shri Rajendra Sitaram Yeole A/P-Ghorpadwadi Tal-Rahuri	Bhakti + Cabbage	3825	7500	3910
2	Shri Bhausaheb Shivram Yeole A/P-Ghorpadwadi Tal-Rahuri	Bhakti + Watermelon	3810	16000	3760
3	Shri Bhausaheb Ganpat Pawar A/P-Ghorpadwadi Tal-Rahuri	Bhakti + Watermelon	3710	16000	3620
4	Shri.Kailash Khanduji Musmade A/P-MalharwadiTal-Rahuri	Cotbank + Watermelon	2620	16000	2610
5	Shri Balasaheb Lahanu Dhage A/P-VarvandiTal-Rahuri	US Agri seeds-4708 + Mung	1610	11250	1524
6	Shri. Dattatray Namedo Zarekar A/P-MalunjeTal-Rahuri	Phule Shwetambari + Maize (African Tall)	1800	11700	1730
7	Shri. Dnyandeo Bapusaheb Shinde A/P-LakhTal-Rahuri	RCH-688 + Maize (African Tall)	1950	12750	2010
8	Smt. Dattatray Namdeo Zarekar A/P-MalunjeTal-Rahuri	Jangi-7017 + Maize (African Tall)	1750	10250	1450
9	Shri.Karbhari Laxman Borude A/P-Kangoni Tal-Newasa	Jungi-7017 + Soybean	1950	1875	1860
10	Shri.Babasaheb Jagganath Raut A/P-KangoniTal-Newasa	Code Bank + Mung Local	2130	675	2050
11	Smt. Sunderbai Sarjebapu Edake A/P-KangoniTal-Newasa	Mahyco-7017 + Mung Local	2430	750	2360
12	Shri. Bhausaheb Rangnath Kathore A/P-KangoniTal-Newasa	Bhakti + Mung Local	1970	610	1840
13	Shri.Padurang Shrivaji Sapre A/p –Wagacha Akhada. Tal- Rahuri.	US- 7067 + Mung Vaibhav	1750	550	1600

14	Shri.Balasaheb Rambhau Katore A/P-Kangoni Tal-Newasa	Jungi-7017 + Soybean(JS-335)	1875	750	1760
15	Shri. Narendra Popat Edke A/P-Kangoni Tal-Newasa	Jungi-7017 + Soybean	2125	840	2010
16	Shri. Daulat Mrtnad Pawar A/p Kendal Tal. Rahuri	Ajit-155 + Maize	2375	10500	2210
17	Shri. Eknath Machindra Bendre A/p Kendal Tal. Rahuri	Bhakti + Maize	2875	11650	2650
18	Shri. Prakash Yohan Chavan A/p Kendal Tal. Rahuri	Bhakti + Maize	2260	13500	2130
19	Shri. Nanasaheb Lananu Shelar A/p Kendal Tal. Rahuri	Ajit-155 + Maize	1640	11600	1580
20	Shri. Ranjendra Eknath Adhav A/p Kendal Tal. Rahuri	Raja + Maize	2625	12400	2450
21	Shri. Babasaheb Madhavrao Adhav A/p Kendal Tal. Rahuri	Ajit-155 + Maize	2738	13200	2620
22	Shri. Sopan Shivaji Adhav A/p Kendal Tal. Rahuri	Bhakti + Maize	2180	14500	2050
23	Shri. Shankar Pandharinath Tarade A/p Kendal Tal. Rahuri	Bhakti + Maize	1710	13750	1530
24	Smit. Swati Ashok Wagh A/p Manori Tal. Rahuri	Ajit-155 + Mung Local	1925	650	1760
25	Shri. Ganesh Balasaheb Dhage A/p/Warwandi Tal Rahuri	US-7067 + Mung Vaibhav	2050	1800	1860
	Average		**2307**	**8442**	**2197**

10. ICAR – Central Institute for Cotton Research, Nagpur

10.1. FLDs on Integrated Crop Management in Cotton

S.No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	Manohar Sherkure Address-Nagzari Tal-Hingna Dist-Nagpur	ICAR-CICR Rajat Bt	625	570
2	Shatik Shendre Address-Nagzari Tal-Hingna Dist. Nagpur	ICAR-CICR PKV081 Bt	540	520
3	Ramesh Bhonde Address-Nagzari Tal-Hingna Dist. Nagpur Mob- 8806130521	ICAR-CICR PKV081 Bt	610	565
4	Ramesh Gajbhiye Address-Nagzari Tal.-Hingna Dist. Nagpur Mob-7499232887	ICAR-CICR PKV081 Bt	575	520
5	Yamuna Atram Address-Katagdhar Tal.-Hingna Dist. Nagpur Mob-7620505925	ICAR-CICR Rajat Bt	630	585
6	Vinayak Narnavre Address-Katagdhar Tal.-Hingna Dist. Nagpur Mob-9021620826	ICAR-CICR Rajat Bt	670	590
7	Ramdas Varthi Address-Katagdhar Tal-Hingna Dist. Nagpur Mob-7499774287	ICAR-CICR PKV081 Bt	585	530
8	Prakash Narnavre Address-Katagdhar Tal.-Hingna Dist. NagpurMob-9370746255	ICAR-CICR PKV081 Bt	530	505
9	Hari Narnavre Address-KatagdharTal.-Hingna Dist. NagpurMob-7887420360	ICAR-CICR PKV081 Bt	600	565

10	Prakash Shrirame Address-KatagdharTal.-Hingna Dist. Nagpur	ICAR-CICR PKV081 Bt	545	500
11	Gajanan Dhurve Address-KatagdharTal-Hingna Dist. NagpurMob-9673611274	ICAR-CICR Rajat Bt	650	570
12	Ravindra Bhojane Address-Katagdhar Tal-Hingna Dist. NagpurMob-9021602295	ICAR-CICR Rajat Bt	580	510
13	Rajat Madavi Address-Lakhmapur Tal-Hingna Dist. Nagpur Mob-7499122352	ICAR-CICR Rajat Bt	585	515
14	Bandu Masram Address-Lakhmapur Tal-Hingna Dist. Nagpur Mob-9767710638	ICAR-CICR Rajat Bt	612	540
15	Santosh Kodape Address-Lakhmapur Tal-Hingna Dist. Nagpur Mob-7038642951	ICAR-CICR Rajat Bt	605	545
16	Bhojraj Masram Address-Lakhmapur Tal-Hingna Dist. Nagpur	ICAR-CICR PKV081 Bt	590	525
17	Bhojraj Vadme Address-Lakhmapur Tal-Hingna Dist. Nagpur Mob-8605107035	ICAR-CICR PKV081 Bt	615	575
18	Vaman Partegi Address-Lakhmapur Tal-Hingna Dist. Nagpur Mob-7218634087	ICAR-CICR PKV081 Bt	565	510
19	Prakash Masram Address-PipaldharaTal-Hingna Dist. NagpurMob-7083600311	ICAR-CICR Rajat Bt	634	565
20	Ramesh Puram Address-PipaldharaTal-Hingna Dist. NagpurMob-8080998977	ICAR-CICR PKV081 Bt	678	585
21	Arun MaraskolheAddress-Pipaldharatal. Hingna Dist. NagpurMob-9130314835	ICAR-CICR PKV081 Bt	562	505
22	Dhanraj MoharleAddress-Pipaldhara Tal-Hingna Dist. Nagpur	ICAR-CICR Rajat Bt	540	510
23	Kashinath Sadmake Address-PipaldharaTal-Hingna Dist. Nagpur	ICAR-CICR Rajat Bt	590	535
24	Nilkanth Sadmake Address-PipaldharaTal-Hingna Dist. Nagpur Mob-7083040695	ICAR-CICR PKV081 Bt	623	584
25	Sheshrao Randive Address-Katagdhar Tal-Hingna Dist. Nagpur	ICAR-CICR PKV081 Bt	646	605
26	Purushottam RandiveAddress-Katagdhar Tal-Hingna Dist. Nagpur	ICAR-CICR Rajat Bt	580	536
27	Motiram Bhojne Address-Katagdhar Tal-Hingna Dist. Nagpur	ICAR-CICR PKV081 Bt	620	574
28	Vijay Supalkar Address-Katagdhar Tal-Hingna Dist. Nagpur	ICAR-CICR Rajat Bt	595	546
29	Gajanan Randive Address-Katagdhar Tal-Hingna Dist. Nagpur	ICAR-CICR Rajat Bt	545	515
30	Pandhurang Narnavre Address-Katagdhar Tal-Hingna Dist. Nagpur	ICAR-CICR Rajat Bt	635	605
31	Vijay Kamble Address-PindkaparTal- Umred Dist. Nagpur Mob-9049549386	NHH 44 Bt	-	530
32	Rajendra Balvir Address-Vaygaon (Bailmare) Tal-Samudrapur Dist. Wardha 8605553150	PKV Hy2Bt	625	590
33	Pavan Shende Address-Vaygaon (Bailmare) Tal-Samudrapur Dist. Wardha 9850358953	PKV Hy2 Bt	548	509
34	Ashok Gaikwad Address-Dhurkheda Tal-Umred Dist.Nagpur 9422212667	ICAR-CICR Rajat Bt	590	532
35	Sandhya Ashok Gaikwad Address-Dhurkheda Tal-Umred Dist.NagpurMob-9422212667	NHH44 Bt	-	565

36	Bhimraj Gaikwad Address-Dhurkheda Tal-.Umred Dist.Nagpur	PKV Hy 2Bt	614	565
37	Santosh Gaikwad Address-Dhurkheda Tal-Umred Dist.Nagpur	PKV Hy 2Bt	635	595
38	Shekhar Gaikwad Address-Dhurkheda Tal-Umred Dist.Nagpur	ICAR-CICR Rajat Bt	662	624
39	Parmeshwar Gaikwad Address-Dhurkheda Tal-Umred Dist.Nagpur	ICAR-CICR Rajat Bt	584	528
40	Kishan Gaikwad Address-Dhurkheda Tal-Umred Dist.Nagpur	NHH44 Bt	562	510
41	Sharad Gaikwad Address-Dhurkheda Tal-Umred Dist.Nagpur	NHH44 Bt	624	560
42	Muktabai Pillewan Address-Dhurkheda Tal-Umred Dist.Nagpur	ICAR-CICR Rajat Bt	532	500
43	Chintaman Gaikwad Address-Dhurkheda Tal-Umred Dist.Nagpur	PKV Hy2 Bt	637	575
44	Ramchandra Gaikwad Address-Dhurkheda Tal-Umred Dist.Nagpur	NHH44 Bt	547	505
45	Maroti Gaikwad Address-Dhurkheda Tal-Umred Dist.Nagpur	NHH44 Bt	560	515
46	Mangal GaikwadAddress-Dhurkheda Tal-Umred Dist.Nagpur	PKV Hy 2Bt	630	560
47	Raibahan Gaikwad Address-Dhurkheda Tal-Umred Dist.Nagpur	PKV Hy 2Bt	540	500
48	Anil Gaikwad Address-Dhurkheda Tal-Umred Dist.Nagpur	PKV Hy 2Bt	625	590
49	Nirbhay DhabardeAddress-DhodgaonTal-Samdarpur Dist-Wardha Mob- 9527807062	NHH44 Bt	670	576
50	Vijay Motghare Address-Dhodgaon Tal-Samdarpur Dist-Wardha	NHH44 Bt	565	532
51	Vinod Umate Address-Dhodgaon Tal-Samdarpur Dist-Wardha	NHH44 Bt	-	570
52	Siddharth Waghmare Address-Sukali Tal-Higana Dist-Nagpur	NHH44 Bt	-	534
53	Moreshwar Maraskolhe Address-Bid borgaon Tal-Umred Dist-Nagpur	NHH44 Bt	580	545
54	Rajendra Gotmare Address-Bid borgaon Tal-Umred Dist-Nagpur	PKV Hy2 Bt	645	580
55	Ajay Dashrath Kamble Address-Pindkapar Tal- Umred Dist. Nagpur	NHH44 Bt	610	565
56	Gautam Vairagade Address-Sukali Tal-Hingna Dist. Nagpur 9765032051	NHH44 Bt	568	540
57	Dilip Sawarkar Address-Wadhamna Tal-Hingna Dist. Nagpur	PKV Hy2 Bt	635	570
58	Bhimrao Bhende Address-Wadhamna Tal-Hingna Dist. Nagpur	NHH44 Bt	-	560
59	Nandu Itankar Address-Wadhamna Tal-Hingna Dist. Nagpur Mob-9665900161	NHH44 Bt	580	530
60	Chandrabhan Dehankar Address-Kalkuhi Tal-Hingna Dist. Nagpur Mob-9657895710	ICAR-CICR Rajat Bt	660	580
	Average		**598**	**549**

10.2. FLDs on Desi / ELS / ELS Cotton Seed Production

S. No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	Haridas Mahant Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1028 (Ravi)	650	595
2	Bhogidas Niswade Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA1028 (Ravi)	625	560
3	Suresh Mendke Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA1028 (Ravi)	540	510
4	Sachin Adkine Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1028 (Ravi)	565	535
5	Sunil Nihare Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1028 (Ravi)	545	505
6	Gautam Dabrase Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1028 (Ravi)	605	580
7	Arun Mendke Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1028 (Ravi)	640	565
8	Premraj Dhapke Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1028 (Ravi)	585	540
9	Suresh Dabrase Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1028 (Ravi)	570	510
10	Kamblabai Dhabke Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA1028 (Ravi)	560	540
11	Ramaji Bhoyar Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1028 (Ravi)	590	480
12	Prashant Mehant Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1028 (Ravi)	540	505
13	Sandip Futariya Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1028 (Ravi)	630	582
14	Bhimrao Nimaskar Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1028 (Ravi)	540	510
15	Gautam Dabrase Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1028 (Ravi)	560	525
16	Vaman Dhamnde Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1032	570	520
17	-Janrao Bhoyar Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1032	565	460
18	Dayal Dhampke Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1032	570	540
19	Bhojraj Dhapke Address-Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1032	540	485
20	Deepak BhairwarAddress-Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1032	560	535
21	Pankaj MahantAddress-Gondi Digras Tal-Katol Dist-Nagpur 9673947014	ICAR CICR-CNA 1032	580	475
22	Yujiraj DhamndeAddress-Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1032	590	525
23	Dilip Khamnkar Address-Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1032	550	510
24	Balak Lolusare Address-Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1032	590	530

25	Rakesh Lolusare Address-Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1032	560	530
26	Satish Lolusare Address-Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1032	520	460
27	Syresh Lolsure Address-Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1032	610	530
28	Daryad Dhamnde Address-Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1032	570	430
29	Rajendr Dhabke Address-Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1032	590	560
30	Nanarao Dabrase Address-Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1028(Ravi)	542	510
31	Pradip Futariya Address-Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1028(Ravi)	580	530
32	Pachan Futariya Address-Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1032	570	545
33	Dayadas Mahant Address-Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1032	565	535
34	Haridev Futariya Address-Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1032	585	510
35	Kamlabai Mendke Address-Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1028(Ravi)	570	530
36	Doyaji Kene Address-Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1028(Ravi)	515	505
37	Prashant Kene Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1032	575	510
38	Mandabai Kene Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1032	635	575
39	Praful Kene Address-Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1032	540	515
40	Pravin Mendke Address-Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1028(Ravi)	625	545
41	Santosh Mendke Address-Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1032	575	520
42	Kisana Kene Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1032	590	520
43	Yadavrao Aapa Address-Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1032	530	508
44	Darbhav Dhamnde Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1032	615	525
45	Vaman Dhamnde Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1032	565	530
46	Dinesh Thote Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1028 (Ravi)	550	510
47	Suvarna Dhapke Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1028 (Ravi)	635	585
48	Jivan Bhaiswar Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1028 (Ravi)	570	510
49	Premdas Niswade Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1028 (Ravi)	540	505
50	Sunil Dabrase Gondi Digras Tal-Katol Dist-Nagpur	ICAR CICR-CNA 1028 (Ravi)	625	585
	Average		**576**	**524**

10.3. FLDs on Intercropping in Cotton

S.No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton / Intercrop Yield (kg/ha)		
			FLD	Intercrop	Farmer's Practice
1	Dadarao Pipalkar Address-pidha Dist.Yavatmal	ICAR-CICR PKV 081 Bt + Moong (Utkarsha)	585	440	615
2	Anil Wankhede Address-pidha Dist.Yavatmal	ICAR-CICR PKV 081 Bt + Moong (Utkarsha)	574	425	585
3	Latabai Tekam Address-pidha Dist.Yavatmal	ICAR-CICR Rajat Bt + Moong (Utkarsha)	538	460	625
4	Sukhabai Tekam Address-pidha Dist.Yavatmal	ICAR-CICR PKV 081 Bt + Moong (Utkarsha)	480	510	610
5	Mahadev Meshram Address-pidha Dist.Yavatmal	ICAR-CICR Rajat Bt + Moong (Utkarsha)	505	430	590
6	Vitthal Logsavle Address-Shivani Dist.Yavatmal	ICAR-CICR Rajat Bt + Moong (Utkarsha)	530	450	550
7	Ashok Nayakvad Address-Shivani Dist.Yavatmal Mob- 7887661849	ICAR-CICR Rajat Bt + Moong (Utkarsha)	548	465	605
8	Ratan Nayakvad Address-Shivani Dist.Yavatmal Mob- 7218360874	ICAR-CICR GJHV374 Bt + Moong (Utkarsha)	580	420	580
9	Girabai Tikhade Address-pidha Dist.Yavatmal	ICAR-CICR GJHV374 Bt + Moong (Utkarsha)	562	460	575
10	Soma Madavi Address-pidha Dist.Yavatmal	ICAR-CICR GJHV374 Bt + Moong (Utkarsha)	540	480	620
11	Vinayak Meshram Address-pidha Dist.Yavatmal	ICAR-CICR PKV 081 Bt + Tur (PKV Tara)	490	350	540
12	Janrao Tekam Address-pidha Dist.Yavatmal	ICAR-CICR PKV 081 Bt + Udid (TAU 1)	575	470	535
13	Vihay Atram Address-Shivani Dist.Yavatmal	ICAR-CICR Rajat Bt + Udid (TAU 1)	535	510	545
14	Pushpa Lonkar Address-Shivani Dist.Yavatmal	ICAR-CICR Rajat Bt + Udid (TAU 1)	565	490	530

15	Bhaurao Nayakvad Address-Shivani Dist.Yavatmal Mob- 8208716927	ICAR-CICR GJHV374 + Bt Udid (TAU 1)	520	480	560
16	Babarao Khumbhalkar Address-Shivani Dist.Yavatmal Mob- 7773995230	ICAR-CICR GJHV374 + Bt Udid (TAU 1)	545	520	584
17	Santosh Kalokar Address-pidha Dist.Yavatmal	ICAR-CICR Rajat Bt + Soyabean (MAUS 158)	585	320	572
18	Rambhau Marape Address-Pimpalkhuti Dist.Yavatmal	ICAR-CICR Rajat Bt + Soyabean (MAUS 158)	530	435	530
19	Kiman Wadekar Address-Pimpalkhuti Dist.Yavatmal Mob- 7796010910	ICAR-CICR Rajat Bt + Soyabean (MAUS 158)	495	325	520
20	Sanjay Bhoyar Address-Pimpalkhuti Dist.Yavatmal	ICAR-CICR Rajat Bt + Soyabean (MAUS 158)	584	380	586
21	Vinayak Turankar Address-Naza Dist.Yavatmal	ICAR-CICR Rajat Bt+ Soyabean (MAUS 158)	567	410	595
22	Chandrakant Mohnapure Address-Naza Dist.Yavatmal	ICAR-CICR PKV 081 Bt + Soyabean (MAUS 158)	544	335	534
23	Kishor Wasekar Address-Naza Dist.Yavatmal	ICAR-CICR GJHV374 Bt + Soyabean (MAUS 158)	563	340	546
24	Maroti Maskarne Address-Hiradi Dist.Yavatmal	ICAR-CICR GJHV374 Bt + Soyabean (MAUS 158)	480	310	568
25	Sadashiv Lihare Address-Hiradi Dist.Yavatmal	ICAR-CICR GJHV374 Bt + Soyabean (MAUS 158)	530	350	604
26	Bhaurao Ghodam Address-Hiradi Dist.Yavatmal	ICAR-CICR PKV 081 Bt + Soyabean (MAUS 158)	574	480	578
27	Kailas Kakar Address- Pidha Dist.Yavatmal	ICAR-CICR Rajat Bt + Tur (PKV Tara)	565	375	564
28	Gangadhar Kanorkar Address-Shivani Dist.Yavatmal	ICAR-CICR Rajat Bt + Tur (PKV Tara)	570	345	580
29	Mudabai Atram Address-Shivani Dist.Yavatmal	ICAR-CICR Rajat Bt + Tur (PKV Tara)	526	420	565
30	Nikhil Naikwad Address-Shivani Dist.Yavatmal	ICAR-CICR Rajat Bt + Tur (PKV Tara)	540	455	540
31	Vimal Nikwad Address-Shivani Dist.Yavatmal	ICAR-CICR Rajat Bt + Tur (PKV Tara)	582	380	610

32	Pramod Borikar Address- Nildoh Tal-Higana Dist-Nagpur Mob- 9764912290	ICAR-CICR Rajat Bt + Soyabean (MAUS 158)	590	320	530
33	Kamlesh Deshmukh Address- Nildoh Tal-Higana Dist-Nagpur Mob- 9730605650	ICAR-CICR Rajat Bt + Soyabean (MAUS 158)	574	325	527
34	Kalpana Thakre Address- Nildoh Tal-Higana Dist-Nagpur Mob- 9923092627	ICAR-CICR Rajat Bt + Soyabean (MAUS 158)	560	370	564
35	Manohar Bhoyar Address- Nildoh Tal-Higana Dist-Nagpur Mob- 7709204371	ICAR-CICR Rajat Bt + Soyabean (MAUS 158)	570	365	574
36	Prakash Javade Address- Dhodgaon Tal-Samdrpur Dist-Wardha Mob- 9923283589	ICAR-CICR GJHV374 Bt + Tur (PKV Tara)	585	490	542
37	Pankaj Bhagat Address- Dhodgaon Tal-Samdrpur Dist-Wardha Mob- 9420064882	ICAR-CICR GJHV374 Bt + Tur (PKV Tara)	530	480	538
38	Vilas Motghare Address- Dhodgaon Tal-Samdrpur Dist-Wardha Mob- 9922123716	ICAR-CICR GJHV374 Bt + Tur (PKV Tara)	562	365	584
39	Kailas Kute Address- Dhodgaon Tal-Samdrpur Dist-Wardha	ICAR-CICR GJHV374 Bt+ Tur (PKV Tara)	556	455	570
40	Ganesh Naitam Address- Dhodgaon Tal-Samdrpur Dist-Wardha Mob- 9623537681	ICAR-CICR GJHV374 Bt + Tur (PKV Tara)	560	395	563
41	Nirbhay Dhabarde Address- Dhodgaon Tal-Samdrpur Dist-Wardha Mob- 9527807062	ICAR-CICR Rajat Bt + Tur (PKV Tara)	574	445	564
42	Sudhavar Thute Address- Dhodgaon Tal-Samdrpur Dist-Wardha Mob- 9921714237	ICAR-CICR Rajat Bt + Tur (PKV Tara)	585	460	582
43	Mohan Umate Address- Dhodgaon Tal-Samdrpur Dist-Wardha	ICAR-CICR Rajat Bt+ Tur (PKV Tara)	540	485	590
44	Mahadev Vate Address- Dhodgaon Tal-Samdrpur Dist-Wardha Mob- 9637587756	ICAR-CICR Rajat Bt + Tur (PKV Tara)	565	450	575
	Average		**551**	**418**	**569**

11. RVSKVV Khandwa

11.1. FLDs on Integrated Crop Management in Cotton

S.No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (Kg/ha)	
			FLD	Farmer's Practice
1	Sh. Mansingh S/O Gulab Singh Mandla	Rassi 659	1500	1300
2	Sh Mukesh S/O Chitar Tembhare Mandla	Rassi 659	1750	1550
3	Sanju S/O Ajab singh Rathore Mandla	Rassi Neo	1550	1400
4	Sh Mahendra Singh S/O Karan Singh Injalwada	Ajeet 155	1570	1450
5	Sh Ramlal S/O Nirbhay Singh Injalwada	Rassi Magna	1700	1520
6	Sh Takat S/O Mangilal Karawat Injalwada	Rassi 659	1600	1400
7	Sh Bharat S/O Gadwad Karawat Injalwada	Rassi 659	1670	1440
8	Sh Sajan Singh S/O Mukut SinghInjalwada	Rassi Neo	1650	1460
9	Ramkunwar Bai W/O Sardar Jalodiya Pipalkota	Ajeet 155	1650	1420
10	Sh Guman Singh S/O Raghunath Jalodiya Pipalkota	Rassi Meghana	1760	1530
11	Kusum bai W/O Lakhme Singh Baghel Pipalkota	Rassi Meghna	1550	1300
12	Basubai W/O Datar Pipalkota	Rassi Neo	1660	1470
13	BirajBai W/O Fattuji Pipalkota	Ajeet 155	1780	1600
14	Sh Rupaji S/O Kailash Pokharpeer	Rassi 659	1720	1520
15	Sh Rakesh S/O Bhikaru Pokharpeer	Rassi 659	1560	1450
16	Sh Shivpal S/O Jagdish Singh Pokharpeer	Rassi Meghna	1650	1500
17	Sh Gopal S/O Arjun Pokharpeer	Ajeet 155	1670	1480
18	Sh Raj Singh Pokharpeer	Rassi Neo	1780	1600
19	Sh Jagdish S/O Gangaram Pokharpeer	Rassi 659	1650	1440
20	Sh Bhagirath S/O Satish Pokharpeer	Ajeet 155	1700	1540
	Average		**1656**	**1468**

112 FLDs on Intercropping in Cotton

SNo	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton / Intercrop Yield (kg/ha)	
			FLD	Farmers' practice
1	Sh Rajaram S//O Dewaji Bhuifal	Cotton+Pigeonpea	1500	1300
2	ShMansingh S/O Kailash Bhuifal	Cotton+Pigeonpea	1600	1400
3	Sh Paranram S/O Rukhad Bhuifal	Cotton+Pigeonpea	1400	1250
4	Sh Bharat S/ O Mangilal Bhuifal	Cotton+Pigeonpea	1440	1360
5	Sh Laxminarayan S/O Dariyaw Bhuifal	Cotton+Pigeonpea	1340	1220
6	Sh Mohan S/O Mojolal Bhuifal	Cotton+Pigeonpea	1240	1170
7	Sh Kailash S/O Devram Bhuifal	Cotton+Pigeonpea	1550	1300
8	Sh Lalam S/O Shankar Bhuifal	Cotton+Pigeonpea	1350	1160
9	Sh Prahlad S/O Jagnnath Bhuifal	Cotton+Pigeonpea	1600	1500
10	Sh Aanandram S/O Totaram Bhuifal	Cotton+Pigeonpea	1300	1200
11	Sh Baliram S/O Mojiram Bhuifal	Cotton+Pigeonpea	1400	1330
12	Sh Jitendra S/O Shriram Bhuifal	Cotton+Pigeonpea	1480	1300
13	Sh Mohabbat S/o Govind Bhuifal	Cotton+Pigeonpea	1530	1280
14	Sh Vijay S/O Kamalchand Haraswada	Cotton+Pigeonpea	1250	1100

15	Sh Ravindra S/O Aatmaramji Haraswada	Cotton+Pigeonpea	1350	1220
16	Sh Baliram S/O Thakurji Haraswada	Cotton+Pigeonpea	1450	1320
17	Sh Aasaram S/O Shobharamji Haraswada	Cotton+Pigeonpea	1500	1340
18	Sh Hariram S/O Nabal Singh Haraswada	Cotton+Pigeonpea	1300	1160
19	Sh Gajraj S/O Chetramji Haraswada	Cotton+Pigeonpea	1460	1300
20	Sh Radheshyam S/O Dashrath Haraswada	Cotton+Pigeonpea	1330	1200
	Average		**1418**	**1270**

12. ANGRAU, Guntur

12. 1. FLDs on Integrated Crop Management in Cotton

SNo	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	AAnji Reddy Jonnalagadda	Jadoo BG II	1280	1164
2	VTirumala Reddy Jonnalagadda	Jadoo BG II	1124	1099
3	N Rama Swamy Jonnalagadda	Jadoo BG II	1092	986
4	B Sambaiah Jonnalagadda	Jadoo BG II	1167	1094
5	B Srinivasa Rao Jonnalagadda	Jadoo BG II	1266	1165
6	O Subramanyam Gorlavaripalem	Jadoo BG II	1322	1071
7	O Tirupathamma Gorlavaripalem	Jadoo BG II	1184	1054
8	G Chandra Shekar Yanamadala	Jadoo BG II	1246	1097
9	B Hari babu Yanamadala	Jadoo BG II	1452	1201
10	AVenkateswara Rao Kovelamudi	Jadoo BG II	1157	1063
11	ASankara Rao Kovelamudi	Jadoo BG II	1483	1281
12	TNarayana Yanamadala	Jadoo BG II	1302	1129
13	ASambayya Gorlavaripalem	Jadoo BG II	1295	1167
14	OYerukalayya Gorlavaripalem	Jadoo BG II	1145	997
15	M Srinivasa Rao Rayavaram	Jadoo BG II	1560	1211
16	M Nageswara Rao Rayavaram	Jadoo BG II	1057	998
17	R Kotayya Madala	Jadoo BG II	1125	1005
18	MVeeranjaneyulu Madala	Jadoo BG II	1012	981
19	P Praveenkumar Madala	Jadoo BG II	1615	1287
20	GChinna laxmayya Madala	Jadoo BG II	1041	1002
21	SVeeraiah Madala	Jadoo BG II	1240	1167
22	VSubba Reddy Madala	Jadoo BG II	1169	998
23	VVenkata ReddyJonnalagadda	Jadoo BG II	1147	1086
24	PYella Reddy Gorantla	Jadoo BG II	1209	1107
25	VSiva Reddy Gorantla	Jadoo BG II	1366	1204
26	V Prabhakar Gorantla	Jadoo BG II	1466	1099
27	B Ratnakumar Pedanandipadu	Jadoo BG II	1099	1012
28	KSubramanyam Pedanandipadu	Jadoo BG II	1156	1087
29	CHari babu Nagulapadu	Jadoo BG II	1034	1009
30	N Shankara Rao Pedanandipadu	Jadoo BG II	1267	1109
31	Y Annapurnamma Pedanandipadu	Jadoo BG II	1076	1032
32	N Narasimha Rao Jonnalagadda	Jadoo BG II	1468	1299

33	IKrishnarjuna Jonnalagadda	Jadoo BG II	1201	1099
34	ISambasiva Rao Jonnalagadda	Jadoo BG II	1344	1287
35	GMarkandeswar Rao Jonnalagadda	Jadoo BG II	1045	991
36	P Prakasam Jonnalagadda	Jadoo BG II	1288	1167
37	M Srikanth Jonnalagadda	Jadoo BG II	1405	1209
38	ILinga Rao Jonnalagadda	Jadoo BG II	1067	1022
39	GSrinivasa Rao Jonnalagadda	Jadoo BG II	1123	1103
40	N Swami Das Jonnalagadda	Jadoo BG II	1285	1122
41	Sh Rahamatenesa Lam	Jadoo BG II	1062	998
42	ShAmir Basha Lam	Jadoo BG II	1291	1167
43	ShKarimulla Damarapalli	Jadoo BG II	1024	1011
44	ShAltaf Damarapalli	Jadoo BG II	1305	1080
45	MRehaman Damarapalli	Jadoo BG II	1109	1065
46	ShHaseena Damarapalli	Jadoo BG II	1280	1108
47	ShJani Bhasha Bejathpuram	Jadoo BG II	1093	1007
48	ShGous Pedapalakaluru	Jadoo BG II	1229	1132
49	ShAmar Tadikonda	Jadoo BG II	1256	1175
50	Krishna Reddy Gudipudi	Jadoo BG II	1329	1213
51	Sh Jilani Palakaluru	Jadoo BG II	1022	1006
52	Basala Venkat Rao Chengizkhanpeta	Jadoo BG II	1155	1033
53	Tulava Venkat Rao Chengizkhanpeta	Jadoo BG II	1287	1149
54	Tuluva Srinivasa Rao Chengizkhanpeta	Jadoo BG II	1143	1035
55	K Srinivas Reddy Tatireddypalem	Jadoo BG II	1207	1116
56	K Nagamalleswar Reddy Tatireddypalem	Jadoo BG II	1103	1044
57	Vanga Naveen Reddy Jonnalagadda	Jadoo BG II	1455	1241
58	Kasu Girish Reddy Pata Mallayapalem	Jadoo BG II	1245	1167
59	KSambi Reddy Pata Mallayapalem	Jadoo BG II	1317	1205
60	C Rama Rao Gorantla	Jadoo BG II	1277	1184
	Average		1226	1107

13. ANGRAU, RARS Nandhyal

13.1. FLDs on Integrated Crop Management in Cotton

SNo	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	S Ramesh Konthlapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	1080	850
2	ANarayana Konthlapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	960	815
3	KSekhar Konthlapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	880	750
4	SSwami reddy Konthlapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	740	640
5	Pakeer sahib Konthlapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	930	820

6	PAyya swami Konthlapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	820	720
7	Mallappa Konthlapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	670	600
8	GKrishnudu Konthlapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	780	650
9	MMadhava swami Konthlapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	750	600
10	JKrishunudu Konthlapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	625	560
11	Peddaayyapu Reddy Guttapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	895	720
12	Chinna ayyapu Reddy Guttapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	750	620
13	JNagendrudu Guttapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	645	550
14	Dasthagiri Guttapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	730	650
15	SSubba Reddy Guttapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	700	620
16	Bakar sahib Guttapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	640	580
17	PMaabu Guttapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	870	700
18	MTirupalu Guttapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	750	670
19	VPedda Shivaiah Guttapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	850	720
20	SRamasubba Reddy Guttapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	770	610
21	Mohammed Rafi Guttapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	920	830
22	PBasha Guttapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	870	780
23	SYellanagi Reddy Guttapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	860	750
24	TVP Veera badra Konthlapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	930	790
25	Peddamaddayya Konthlapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	980	820
26	Basava Raju Konthlapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	790	660
27	Yagantayya Konthlapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	690	550
28	Lakshmi Narayana Konthlapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	750	610
29	Hussain Basha Guttapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	840	720
30	GKalavathi Guttapadu (v) Orvakal (m) Kurnool (dt)	Jadoo BG II	750	610
	Average		**807**	**686**

14. PJTSAU, ARS Adilabad

14.1. FLDs on Integrated Crop Management in Cotton

SNo	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	Sanjeev P/ Narsaih Seetagondi (V) Gudihatnoor (M); 9985663460	RCH-659	1810	1530
2	A Venkati/ Naganna Seetagondi (V) Gudihatnoor (M) 9848924456	RCH-659	1933	1600
3	J Akshayya/ Gangaram-Seetagondi (V)Gudihatnoor (M)	RCH-659	1750	1578
4	Jangili Ramulu/ Narayana-Seetagondi (V)Gudihatnoor (M)	RCH-659	1878	1545
5	B Vilas/ Mallaji Seetagondi (V)Gudihatnoor (M) 8074404868	RCH-659	1965	1650
6	A Devanna/ Poshetty Seetagondi (V)Gudihatnoor (M) 9177941090	RCH-659	1788	1555
7	G Markandi/ Bhumanna Seetagondi (V) Gudihatnoor (M) 7702148401	RCH-659	1980	1685
8	T Narsingu/ Devanna-Seetagondi (V) Gudihatnoor (M)	RCH-659	1815	1645
9	B Mallesh/ Vitoba-Seetagondi (V)Gudihatnoor	RCH-659	1870	1500
10	J Janardhan/ Narayana-Seetagondi (V)Gudihatnoor (M)	RCH-659	1923	1598
11	T Vidhyasagar/ Ashanna-Seetagondi (V)Gudihatnoor (M)	RCH-659	1783	1543
12	M Santosh/ Devanna Seetagondi (V)Gudihatnoor (M) 9951872166	RCH-659	1950	1535
13	Pendur Laxman/ Suddanus Seetagondi (V)Gudihatnoor (M) 9398136662	RCH-659	1890	1555
14	Kade Narsingu/ Narsimulu Seetagondi (V)Gudihatnoor (M) 9912506484	RCH-659	1795	1593
15	J Sanjeev/ Gangaram Seetagondi (V)Gudihatnoor (M) 9989419262	RCH-659	1993	1613
16	J Narayana/ Linganna-Seetagondi (V)Gudihatnoor (M)	RCH-659	1823	1653
17	A Bhumanna/ Poshetty Seetagondi (V)Gudihatnoor (M) 9502919530	RCH-659	1850	1535
18	T Kishtanna/ Ashanna-Seetagondi (V)Gudihatnoor (M)	RCH-659	1935	1500
19	P Gunwant Rao/ Mallaji Seetagondi (V)Gudihatnoor (M) 9505840118	RCH-659	1798	1583
20	J Pochubai/ Ramulu-Seetagondi (V)Gudihatnoor (M)	RCH-659	1913	1598
21	Damma B/ Mallesh Seetagondi (V)Gudihatnoor (M) 6302467772	RCH-659	1835	1610
22	T Ashok/ Ashareddy-Seetagondi (V)Gudihatnoor (M)	RCH-659	1775	1525
23	Tombanand/ Uddhav-Seetagondi (V)Gudihatnoor (M)	RCH-659	1958	1593

24	Ramesh M/ Devanna Seetagondi (V)Gudihatnoor (M) 9010779853	RCH-659	1868	1470
25	Avinash/ Ramulu Seetagondi (V)Gudihatnoor (M) 8886582858	RCH-659	1790	1485
26	T Ramulu/PothannaSeetagondi (V)Gudihatnoor (M)	RCH-659	1948	1680
27	Ch Ramu/NamdevSeetagondi (V)Gudihatnoor (M)	RCH-659	1840	1620
28	B Mallesh/-Seetagondi (V)Gudihatnoor (M)	RCH-659	1795	1548
29	M Malku/MankuSeetagondi (V)Gudihatnoor (M)	RCH-659	1775	1480
30	Damma Rathan/ Mallaji-Seetagondi (V)Gudihatnoor (M)	RCH-659	1970	1658
31	B Somanna/SuryabhanSeetagondi (V)Gudihatnoor (M)	RCH-659	1855	1595
32	G Vittal/PandurangSeetagondi (V)Gudihatnoor (M)	RCH-659	1820	1500
33	G Narayana/PandurangSeetagondi (V)Gudihatnoor (M)	RCH-659	1930	1568
34	A Prakash/RamuluSeetagondi (V)Gudihatnoor (M)	RCH-659	1815	1610
35	R Dattu/MarkandiSeetagondi (V)Gudihatnoor (M)	RCH-659	1953	1525
36	Kammari Hiraman/RamaraoSeetagondi (V)Gudihatnoor (M)	RCH-659	1750	1540
37	S Rekha Santi/BhumannaSeetagondi (V)Gudihatnoor (M)	RCH-659	1843	1593
38	Vishwanath/GorakhnathSeetagondi (V)Gudihatnoor (M)	RCH-659	1915	1553
39	Patil Vinod/GangaramSeetagondi (V)Gudihatnoor (M)	RCH-659	1985	1673
40	B Mallesh/NamdevSeetagondi (V)Gudihatnoor (M)	RCH-659	1823	1460
41	A Ashok/ RamuluSeetagondi (V)Gudihatnoor (M)	RCH-659	1938	1543
42	Seemarlu/NarsinguSeetagondi (V)Gudihatnoor (M)	RCH-659	1955	1595
43	Ganesh/DuryodhanSeetagondi (V)Gudihatnoor (M)	RCH-659	1840	1608
44	Dasu/LasmannaSeetagondi (V)Gudihatnoor (M)	RCH-659	1910	1520
45	Ganapati/LasmannaSeetagondi (V)Gudihatnoor (M)	RCH-659	1800	1478
46	Ondu Mallesh/OndojiSeetagondi (V)Gudihatnoor (M)	RCH-659	1815	1575
47	Beri Ramulu/NarsimluSeetagondi (V)Gudihatnoor (M)	RCH-659	1895	1695
48	K Venkatesh/NarsinguSeetagondi (V)Gudihatnoor (M)	RCH-659	1955	1630
49	Kanaka Ganganna/Bhujang raoSeetagondi (V)Gudihatnoor (M)	RCH-659	1798	1588
50	Ashok/ NanajiSeetagondi (V)Gudihatnoor (M)	RCH-659	1838	1510
51	Ramesh/RamjiSeetagondi (V)Gudihatnoor (M)	RCH-659	1910	1463
52	Kumre Gijjubai/JyothiramSeetagondi (V)Gudihatnoor (M)	RCH-659	1983	1558
53	Kumre Gijjubai/SambuSeetagondi (V)Gudihatnoor (M)	RCH-659	1750	1503

54	P Ganganna/BheemannaSeetagondi (V)Gudihatnoor (M)	RCH-659	1868	1445
55	K Jangubai/DevraoSeetagondi (V)Gudihatnoor (M)	RCH-659	1803	1618
56	Sudheer Kumar/ChinnaiahSeetagondi (V)Gudihatnoor (M)	RCH-659	1905	1690
57	Kodapa jeevan/Gunvanth raoSeetagondi (V)Gudihatnoor (M)	RCH-659	1795	1550
58	Pendur Ganganna/BheemannaSeetagondi (V)Gudihatnoor (M)	RCH-659	1840	1623
59	Pendur Janganna/NaguSeetagondi (V)Gudihatnoor (M)	RCH-659	1880	1555
60	Kursenga Bheem rao/IsruSeetagondi (V)Gudihatnoor (M)	RCH-659	1960	1542
61	Kodapa Ramji/Dev raoSeetagondi (V)Gudihatnoor (M)	RCH-659	1915	1590
62	Kodapa Linganna/RamjiSeetagondi (V)Gudihatnoor (M)	RCH-659	1980	1695
	Average		**1871**	**1572**

14.2. FLDs on intercropping in cotton

S .No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	Sreeramulu Narsingu/-Vyzapur (V)Gudihatnoor (M)	Cotton + Redgram	1905	1618
2	Ganesh/ Duryodhan-Vyzapur (V)Gudihatnoor (M)	Cotton + Redgram	2015	1675
3	Ashok/ Nanaji-Vyzapur (V)Gudihatnoor (M)	Cotton + Redgram	1870	1735
4	Ganapati/ Lasmanna-Vyzapur (V)Gudihatnoor (M)	Cotton + Redgram	1933	1595
5	Kumre Gijjubai/ Sambu-Vyzapur (V)Gudihatnoor (M)	Cotton + Redgram	1978	1705
6	G Narayana/ Pandurang-Vyzapur (V)Gudihatnoor (M)	Cotton + Redgram	1840	1613
7	Patil Vinod/ Gangaram-Vyzapur (V)Gudihatnoor (M)	Cotton + Redgram	2000	1720
8	Vishwanath/ Gorakhnath-Vyzapur (V)Gudihatnoor (M)	Cotton + Redgram	1893	1683
9	Ondu Mallesh/ Ondoji-Vyzapur (V)Gudihatnoor (M)	Cotton + Redgram	1960	1540
10	K Venkatesh/ Narsingu-Vyzapur (V)Gudihatnoor (M)	Cotton + Redgram	1988	1645
11	Kumre Gijjubai/ Jyothiram-Vyzapur (V)Gudihatnoor (M)	Cotton + Redgram	1815	1628
12	B Somanna/ Suryabhan-Vyzapur (V)Gudihatnoor (M)	Cotton + Redgram	2025	1600
13	Dasu/ Lasmanna-Vyzapur (V)Gudihatnoor (M)	Cotton + Redgram	1945	1670
14	Kammari Hiraman/ Ramarao-Vyzapur	Cotton + Redgram	1853	1630

	(V)Gudihatnoor (M)			
15	P Ganganna/ Bheemanna-Vyzapur (V)Gudihatnoor (M)	Cotton + Redgram	2043	1715
16	A Ashok/ Ramulu Vyzapur (V)Gudihatnoor (M) 9347306332	Cotton + Redgram	1923	1733
17	S Rekha Santi/ Bhumanna-Vyzapur (V)Gudihatnoor (M)	Cotton + Redgram	1965	1568
18	Kanaka Ganganna/ Bhujang rao-Vyzapur (V)Gudihatnoor (M)	Cotton + Redgram	2023	1623
19	Rekha Dattu/ Markandi Vyzapur (V)Gudihatnoor (M) 7893198982	Cotton + Redgram	1838	1610
20	Ramesh/ Ramji-Vyzapur (V)Gudihatnoor (M)	Cotton + Redgram	1945	1608
21	A Prakash/ Ramulu-Vyzapur (V)Gudihatnoor (M)	Cotton + Redgram	1878	1642
22	G Vittal/ Pandurang Vyzapur (V)Gudihatnoor (M) 9848923045	Cotton + Redgram	1818	1635
23	Sudheer Kumar/ Chinnaiah-Vyzapur (V)Gudihatnoor (M)	Cotton + Redgram	1980	1670
24	B Mallesh/ Namdev-Vyzapur (V)Gudihatnoor (M)	Cotton + Redgram	1913	1530
25	Beri Ramulu/ Narsimulu-Vyzapur (V)Gudihatnoor (M)	Cotton + Redgram	1870	1593
	Average		**1929**	**1639**

15. University of Agricultural Sciences, Dharwad

15.1. FLDs on Integrated Crop Management in Cotton

S No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield(q/ha)	
			FLD	Farmer's Practice
1	Gurunath Basappa Koli Amminbhavi Dt: Dharwad	DCH-32 Bt	1200	850
2	Gurunath Bhovi Amminbhavi Dt: Dharwad	MRC 7383	900	825
3	Neelavva O Banavi Amminbhavi Dt: Dharwad	Super Cot	1250	1025
4	Malleshappa Rudravpur Amminbhavi Dt: Dharwad	Super Cot	1375	1125
5	Hanumantappa Halli Shyagoti Dt: Gadag	Diamond	1250	950
6	Shantavva B Marigoudar Shyagoti Dt: Gadag	Vega	1250	1025
7	Sharavva Mahadevgouda Patil Shyagoti Dt: Gadag	Bindaas	1350	1050
8	Suresh Ronad Shyagoti Dt: Gadag	Supercot	1175	950
9	Shivappa Manjappa Halli Shyagoti Dt: Gadag	Jingi	1300	1075
10	Jayavanth Basappa Poojar KoturDt: Dharwad	ATM	1375	1150
11	Kallesh R Bommanavar Kotur Dt: Dharwad	Jalwa	1200	1125
12	Nagappa Hunnekeri Kotur Dt: Dharwad	Yuva	1225	1100
13	Kallappa Maadari Kotur Dt: Dharwad	Tiera	1125	950
14	Madiwalappa Ambannavar Kotur Dt: Dharwad	MRC 7383	1300	1100
15	Goudappagouda S Kundgol Kotur Dt: Dharwad	Dynamo	1200	975
16	Shivanand Y Naykar Heballi Dt: Dharwad	Vega	1200	1075
17	Chanabasappa R Kudekar Heballi Dt: Dharwad	Vega	1300	1100
18	Ningappa M Naykar Heballi Dt: Dharwad	Vega	1200	1050
19	Ravi Fakirappa Bijari Heballi Dt: Dharwad	Miracle	1100	925

20	Shantavva H Naykar Heballi Dt: Dharwad	MRC 7383	1275	1075
21	Siddharoda Basappa Koli Amminbhavi Dt: Dharwad	Lotus	100	750
22	Hanamavva S Bhovi Amminbhavi Dt: Dharwad	Lotus	1250	950
23	Prakash M Gosal Amminbhavi Dt: Dharwad	Super Cot	750	550
24	Bheemappa Gulappa Tidhi Amminbhavi Dharwad	Vega	1125	900
25	Basappa V Ronad Shyagoti Dt: Gadag	Bindaas	1250	950
26	Neelakanthappa M Goravar Shyagoti Dt: Gadag	First Class	1500	1200
27	Anilkumar S Appannavar Kotur Dt: Dharwad	Kuber	180	150
28	Shivangouda G patil Neeralakatti Dt: Dharwad	Super Cot	200	140
29	Limbanna M Naykar Heballi Dt: Dharwad	Super Cot	100	80
30	Basappa M Hongal Heballi Dt: Dharwad	Vega	100	750
	Average		1241	1008

15.2. FLDs on Desi / ELS / ELS Cotton Seed Production

S No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	Rajendragouda Neelappgouda Patil At: Gavarvad T: Gadag 7996056233	DCH-32 BG-II Vs DCH-32 NBt	550	540
2	Kalmeshwaryya Shivalingayya Hiremath At: Kiratgeri T: Gadag 9902994210	DCH-32 BG-II Vs DCH-32 NBt	570	565
3	Shivakumargouda Tammangouda Patil At: Kiratgeri T: Gadag 9901641023	DCH-32 BG-II Vs DCH-32 NBt	680	672
4	Shambulingayya Shivalingayya Hiremath At: At: Kiratgeri T: Gadag 9902994210	DCH-32 BG-II Vs DCH-32 NBt	620	615
5	Ningappa Fakirappa Kumbar At: Chikkagunjala T: Kundgol 9972024893	DCH-32 BG-II Vs DCH-32 NBt	418	410
6	Vijayalaxmi Pkirappa Kyalkond At: Chikkagunjala T: Kundgol 9972024893	DCH-32 BG-II Vs DCH-32 NBt	480	450
7	Maruthi Basavaneppa Karigar At: Dodwad T: Bailhongala 8553918096	DCH-32 BG-II Vs DCH-32 NBt	360	355
8	Vittal Basavaneppa Karigar At: Dodwad T: Bailhongala 7026396641	DCH-32 BG-II Vs DCH-32 NBt	440	440
9	Tamappa Hanumappa Gokavi At: Shirur T: Navalgund 9113695699	DCH-32 BG-II Vs DCH-32 NBt	630	580
10	Shivangouda Bhimangouda Patil At: Yenagi T: Saundatti 9945823032	DCH-32 BG-II Vs DCH-32 NBt	580	555
11	Mugappa Shivappa Kudari At: Yenagi T: Saundatti 7259483890	DCH-32 BG-II Vs DCH-32 NBt	490	490

12	Basappa Shivarayappa Belavadi At: Yenagi T: Saundatti 9535758350	DCH-32 BG-II Vs DCH-32 NBt	360	350
13	Ramesh Nirasappa Belavadi At: Yenagi T: Saundatti 7026060126	DCH-32 BG-II Vs DCH-32 NBt	390	380
14	Ravikumar Shankareppa Kudri At: Yenagi T: Saundatti 9731767058	DCH-32 BG-II Vs DCH-32 NBt	510	486
15	Basangouda Bhimangouda Patil At: Yenagi T: Saundatti 9945823032	DCH-32 BG-II Vs DCH-32 NBt	440	435
16	Sharanabasappa Neelakantappa Budhihaal At: Honnapur T: Ron 7090145653	DHB-1071 NBt Vs DCH-32 NBt	450	430
17	Hanamappa Hakki At: Honnapur T: Ron 7090145653	DHB-1071 NBt Vs DCH-32 NBt	430	420
18	Rakshitha Sharanabasappa Budhihaal At: Honnapur T: Ron 7090145653	DHB-1071 NBt Vs DCH-32 NBt	465	445
19	Iranagouda M Chinappagoudar At: Shirkol T: Navalgund 7996177714	DHB-1071 NBt Vs DCH-32 NBt	580	570
20	Nagaraj S Patil At: Aratageri T: Gadag 9980205805	Sahana Vs ARBH-813	370	350
	Average		**491**	**477**

15.3. FLDs on Intercropping in Cotton

S .No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton / Intercrop Yield(kg/ha)		
			FLD	Intercrop	Farmer's Practice
1	Mallikarjun Janakunavar At: Amminbhavi 7259755393	Cotton+Peas	750	438	700
2	Basavraj Mahadevappa Tidhi At: Amminbhavi 9902596010	Cotton+Peas	700	350	700
3	Veerangouda Patil At: Shyagoti 8147493558	Cotton+Ground nut	708	250	600
4	Ashok Mahadevappa Halli At: Shyagoti 9164236936	Cotton+Ground nut	909	227	750
5	Malappa Ningappa Gaddi At: Karadigudda 9986015392	Cotton+Peas	1094	938	900
6	Manjunath T Gaddi At: Karadigudda 9538536582	Cotton+Peas	1025	250	900
7	Shivanand Bachagundi At: Karadigudda 9900592041	Cotton+Green gram	966	341	900
8	Bhimappa Jakkannavar At: Karadigudda 9620063776	Cotton+Green gram	1071	357	800
9	Yalappa M Bachagundi At: Karadigudda 9845041869	Cotton+Ground nut	833	417	750

10	Ningappa Kempbasannavar At: Karadigudda 9611685925	Cotton+Green gram	688	281	700
11	Yallavva Gaddi At: Karadigudda 9663485279	Cotton+Green gram	962	769	900
12	Shivappa Shivanand Meti At: Karadigudda 9986065375	Cotton+Peas	833	125	750
13	Subash Kurubar At: Karadigudda 9986182658	Cotton+Ground nut	789	263	750
14	Fakirappa Sangappanavar At: Karadigudda 9916108132	Cotton+Peas	962	288	850
15	Sadanand Basappa kalyani At: Karadigudda 7975322283	Cotton+Peas	1000	200	900
16	Shidappa Ghanti At: Kotur 7760610501	Cotton+Green gram	1172	391	1100
17	Kalappa Gangappa Dodamani At: Kotur 6361438039	Cotton+Green gram	1083	250	900
18	Vittal Rachappa Kundgol At: Heballi 7975517431	Cotton+Peas	800	250	750
19	Somalingappa K Naykar At: Heballi 8746024648	Cotton+Green gram	1181	556	1000
20	Shekappa M Sadar At: Heballi 9945631575	Cotton+Peas	1016	781	950
	Average		**927**	**386**	**828**

16. University of Agricultural Sciences, Raichur

16.1. FLDs on Integrated Crop Management in Cotton

S. No	Name and Address of the Farmer	Seed Cotton Yield (kg/ha)	
		FLD	Farmer's Practice
1	Sharanappa S/o Paranna gouda Nelahal Raichur taluk & Dist Mob: 9886136039	3140	2680
2	Shekarappa S/o Narasanna Nelahal Raichur taluk & Dist Mob: 8296893644	2950	2700
3	Basappa /o Narayanappa Nelahal Raichur taluk & Dist Mob: 9535133948	2860	2550
4	Badesab S/o Khasimsab Nelahal Raichur taluk & Dist Mob: 9739330902	2900	2650
5	G Satyanarayana S/o G Ganiraju Nelahal Raichur taluk & DistMob: 7760469069	3250	2850
6	Rudragouda Mallabad Shahapur taluk Yadagir Dist Mob: 9538389809	2740	2560
7	Bheemareddy Biradar Hothpet Shahapur taluk Yadagir Dist Mob: 9591217763	2950	2750
8	Shranagouda Patil Hothpet Shahapur taluk Yadagir Dist Mob: 9880403678	3050	2660
9	Abhishek Konda Gogi K Shahapur taluk Yadagir Dist Mob: 8197346619	3080	2820
10	Bheemareddy Patil Thalaka Shahapur taluk Yadagir Dist Mob: 9945459102	2750	2480

11	Ramanna Gouda Gogipet Shahapur taluk Yadagir Dist Mob: 8884928570	2940	2780
12	Sayabanna Gogipet Shahapur taluk Yadagir Dist Mob: 9886607489	2850	2640
13	Dhanaraja Gogi K Shahapur taluk Yadagir Dist Mob: 8317327756	2940	2650
14	Mallikarjuna Chamanala Shahapur taluk Yadagir Dist Mob: 8747817917	2780	2440
15	Devaraj Jadav Ganganala Thanda Shahapur taluk Yadagir Dist Mob: 9902838554	2660	2400
16	Smt J Ambamma W/o Rudragouda Tekkalakote Siruguppa Taluk Ballari Dist Mob:9902750934	2900	2720
17	K M Basavarajaiah S/o Omkaraiah Tekkalakote Siruguppa Taluk Ballari Dist Mob: 9902747555	3180	2720
18	Smt Huchchamma W/o Yallappa Mittesugur Siruguppa Taluk Ballari Dist Mob:9731285356	2660	2450
19	Smt Renukamma W/o late sarojappa Halekote Siruguppa Taluk Ballari Dist Mob:6360408458	3250	2950
20	K Veerayya S/o K Hanumappa Halekote Siruguppa Taluk Ballari Dist Mob:7483096138	2860	2640
21	Maheshwara Pujari Sannathi Chittapur Taluk Kalaburagi District Mob: 9972677742	3250	2850
22	Erayya Swamy Kannagana Halli Chittapur Taluk Kalaburagi District Mob: 9380622398	3280	2960
23	Somu S/o Durganna Dandgurda Chittapur Taluk Kalaburagi District Mob: 9742231519	3280	2820
24	Hanumantha S/o Mallappa Dandgurda Chittapur Taluk Kalaburagi District Mob: 9611667003	3100	2760
25	Arjuna S/o Mallappa Dandgurda Chittapur Taluk Kalaburagi District Mob: 9380400349	3300	2950
26	Chandrashekar S/o Eshwarappa Dandgurda Chittapur Taluk Kalaburagi District Mob: 7411880026	2950	2750
27	Suresh Patil S/o Bassan gouda Dandgurda Chittapur Taluk Kalaburagi District Mob: 9972787870	3150	2880
28	Shrimanth Bhari Sugar Chittapur Taluk Kalaburagi District Mob: 9731020555	3050	2840
29	Manjunath Thottinalli Alloli Chittapur Taluk Kalaburagi District Mob: 9686015373	2950	2650
30	Sunil Kardahalli Nalwar Chittapur Taluk Kalaburagi District Mob9972294198	2960	2750
	Average	**2999**	**2710**

16.2. FLDs on Desi / ELS / ELS Cotton Seed Production

S No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	K Kumaragouda S/o K Virupakshigouda Kuntanal village Yalapi post Ballari taluk & DistMob: 9901836314		2380	2250
2	Smt K Nirmala S/o Hanumanagouda Kuntanal village Yalapi post Ballari taluk & Dist		2550	2340

	Mob: 9148399107			
3	Rajashekara S/o Thipperudragouda Kuntanal village Yalapi post Ballari taluk & Dist Mob: 9880348232		2460	2350
4	Smt Neelamma w/o Thipperudragouda Kuntanal village Yalapi post Ballari taluk & Dist Mob: 9880348232		2680	2240
5	K Basappa S/o K Siddappa Kuntanal village Yalapi post Ballari taluk & Dist Mob: 9731878843		2520	2450
6	Smt Thayamma w/o Channannagouda Kuntanal village Yalapi post Ballari taluk & Dist Mob: 9535138213		2360	2160
7	K Veerabhadragouda S/o K Basavanagouda Kuntanal village Yalapi post Ballari taluk & Dist Mob: 9686650936		2460	2300
8	K Virupakshigouda S/o K Siddanagouda Kuntanal village Yalapi post Ballari taluk & Dist Mob: 8197575167		2550	2340
9	Smt Agasara Parvathi w/o Basavaraja Kuntanal village Yalapi post Ballari taluk & Dist Mob: 9964219153		2530	2350
10	Hanumanagouda S/o Virupakshigouda Kuntanal village Yalapi post Ballari taluk & Dist Mob: 9480354792		2250	2050
11	Govinda S/o Kullayappa Kuntanal village Yalapi post Ballari taluk & Dist Mob: 9900146728		2340	2150
12	Smt Mangamma S/o Pennayya Kuntanal village Yalapi post Ballari taluk & Dist Mob: 6360422363		2640	2350
13	Chikka Obalesha S/o Gadikani Ramaiah Kuntanal village Yalapi post Ballari taluk & DistMob: 81399755730		2450	2250
14	Obalesha S/o Ramaiah Kuntanal village Yalapi post Ballari taluk & DistMob: 7899928912		2560	2250
15	Dodda Anjaneya S/o HanumanthappaKuntanal village Yalapi post Ballari taluk & Dist Mob: 9964343590		2360	2140
	Average		**2473**	**2265**

17. University of Agricultural Sciences, Chamrajnagar

17.1. FLDs on Integrated Crop Management in Cotton

S No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	Mahesha s/o Mahadevappa Taggaluru Beguruhobli Gundlupettaluk 9141357761	Puli	1525	1280
2	Ramegowda s/o Kalegowda Kalanahundi Beguruhobli Gundlupettaluk 9538441475	Minerva	1390	1230

3	Rajegowda s/o Paresegowda Kalanahundi Beguruhobli Gundlupettaluk 7676308274	Minerva	1330	1170
4	Revegowda s/o Javaregowda Taggaluru Beguruhobli Gundlupettaluk 9591900472	Minerva	1635	1438
5	Karigowda s/o Kullegowda Kalanahundi Beguruhobli Gundlupettaluk 9632864760	Bahubali	1545	1363
6	KSwamy s/o Chikkegowda Kalanahundi Beguruhobli Gundlupettaluk 6364564896	Minerva	1550	1340
7	Siddaramegowda s/o BasavegowdaKalanahundi Beguruhobli Gundlupettaluk 8861231711	Puli	1558	1288
8	Ramegowda s/o Bellegowda Kalanahundi Beguruhobli Gundlupettaluk 9008109313	Minerva	1340	1215
9	Mahadevegowda s/o Marigowda Kalanahundi Beguruhobli Gundlupettaluk 9731439384	Bahubali	1530	1308
10	Mahadevappa s/o Nagappa Raghavapura Beguruhobli Gundlupettaluk 9844707078	Minerva	1495	1298
11	Mahesha s/o Mahadevappa Raghavapura Beguruhobli Gundlupettaluk 9901067546	Puli	1340	1198
12	Shivabasavegowda s/o Madegowda Kalanahundi Beguruhobli Gundlupettaluk 8105647595	Minerva	1365	1170
13	Bettegowda s/o Bellegowda Kalanahundi Beguruhobli Gundlupettaluk 9964746913	Rasi	1723	1563
14	Nagaraju s/o Ningappa Raghavapura Beguruhobli Gundlupettaluk 8660961890	Bahubali	1558	1363
15	Ramesha s/o Ramegowda Raghavapura Beguruhobli Gundlupettaluk 9591056489	Bahubali	1613	1480
16	Lankesh s/o Kadabasappa Bettadamadahalli Beguruhobli Gundlupettaluk 9980376681	Rasi	1680	1508
17	Shivegowda s/o Paresegowda Kalanahundi Beguruhobli Gundlupettaluk 9108165353	Minerva	1713	1553
18	Mahesha s/o Subbegowda Kalanahundi Beguruhobli Gundlupettaluk 9611991994	Rasi	1610	1420
19	Rajegowda s/o Madegowda Kalanahundi Beguruhobli Gundlupettaluk 8861318248	Rasi	1775	1558
20	Nagaraju s/o Siddappa Taggaluru Beguruhobli Gundlupettaluk 9864161721	Minerva	1530	1433
21	Puttappa s/o Nagappa Raghavapura Beguruhobli Gundlupettaluk 8150050428	Minerva	1773	1630
22	Mahesha s/o Shivappa Raghavapura Beguruhobli Gundlupettaluk 9731138325	Bahubali	1465	1348
23	Basavaraju s/o Mahadevappa Raghavapura Beguruhobli Gundlupettaluk 9731138350	Minerva	1605	1375
24	Mallikarjuna s/o Basavarajappa Tagaluru Beguruhobli Gundlupettaluk 9141765943	Minerva	1508	1318
25	Nagendra s/o Mahesh Raghavapura Beguruhobli Gundlupettaluk 8105665091	Minerva	1465	1273
26	Nataraju s/o Siddappa Nenekatte Beguruhobli Gundlupettaluk 9632492310	Mahadeva	1288	1233
27	Mahadevaswamy s/o Rajappa Nenekatte Beguruhobli Gundlupettaluk 8861992537	Bahubali	1483	1215
28	Basavanna s/o Kariyappa Nenekatte Beguruhobli Gundlupettaluk 7760217539	Minerva	1530	1410

29	Parashivappa s/o Nagappa Nenekatte Beguruhobli Gundlupettaluk 9611788190	Puli	1590	1323
30	Parashivappa s/o Nagappa Nenekatte Beguruhobli Gundlupettaluk 8861290514	Minerva	1495	1388
31	Basavesh s/o Siddaramegowda Nenekatte Beguruhobli Gundlupettaluk 8197759635	Minerva	1178	1093
32	Mahadevegowda s/o Sannegowda Nenekatte Beguruhobli Gundlupettaluk 9901042045	Bahubali	1320	1168
33	Paramesh s/o Channaviradaiah Hasaguli Beguruhobli Gundlupettaluk 9902117306	Bahubali	1810	1580
34	Chinnaswamy s/o Nagappa Hasaguli Beguruhobli Gundlupettaluk 8762510365	Minerva	1763	1538
35	Shivalingegowda s/o Chinnaswamy Kalanahundi Beguruhobli Gundlupettaluk 7090050522	Puli	1370	1163
36	S Nagaraju s/o Siddegowda Kalanahundi Beguruhobli Gundlupettaluk 9632580642	Bahubali	1475	1295
37	Revanna s/o Doddegowda Kalanahundi Beguruhobli Gundlupettaluk 9742524480	Minerva	1455	1313
38	Kumar s/o Parasegowda Kalanahundi Beguruhobli Gundlupettaluk 9741220669	Bahubali	1633	1558
39	Mahesh s/o Kalegowda Kalanahundi Beguruhobli Gundlupettaluk 9743057673	Minerva	1788	1625
40	Sanjeevan s/o Shivegowda Kalanahundi Beguruhobli Gundlupettaluk 8105656818	Bahubali	1410	1238
41	Shivaraju s/o Puttaswamygowda Kalanahundi Beguruhobli Gundlupettaluk 8970651218	Bahubali	1763	1578
42	Swamy s/o Karigowda Kalanahundi Beguruhobli Gundlupettaluk 8549032897	Minerva	1713	1445
43	Shivakumar s/o Shivegowda Kalanahundi Beguruhobli Gundlupettaluk 9663769626	Bahubali	1758	1533
44	Revesh s/o Kalegowda Kalanahundi Beguruhobli Gundlupettaluk 9741673234	Minerva	1485	1070
45	Manjunath s/o Kongalappa Kallahalli Beguruhobli Gundlupettaluk 9740164950	Mahadeva	1570	1365
46	Shivakumar s/o Shanthappa Kallahalli Beguruhobli Gundlupettaluk 9964030858	Mahadeva	1370	1233
47	Shivappa s/o Subappa Kallahalli Beguruhobli Gundlupettaluk 7022768273	Mahadeva	1613	1503
48	Suresh s/o Devappa Kallahalli Beguruhobli Gundlupettaluk 9481822763	Mahadeva	1513	1335
49	KMGuruvappa s/o Mallappa Kallahalli Beguruhobli Gundlupettaluk 9916081206	Mahadeva	1495	1280
50	Gurushanthappa s/o Chikkanna Kallahalli Beguruhobli Gundlupettaluk 7090596910	Puli	1738	1533
51	Mahadevashetty s/o Basavashetty Kallahalli Beguruhobli Gundlupettaluk 7338218741	Mahadeva	1558	1468
52	Mahadevappa s/o Madappa Kallahalli Beguruhobli Gundlupettaluk 8970469750	Mahadeva	1775	1580
53	Mahadevappa s/o Chikkanna Kallahalli Beguruhobli Gundlupettaluk 9481188664	Mahadeva	1570	1420
54	Mahadevappa s/o Virathappa Kallahalli Beguruhobli Gundlupettaluk 9482009020	Puli	1575	1330

55	Chikkalingappa s/o Channaverappa Kallahalli Beguruhobli Gundlupettaluk 9164120523	Mahadeva	1620	1508
56	Veerappa s/o Shivabasappa Kallahalli Beguruhobli Gundlupettaluk 9483480023	Mahadeva	1355	1215
57	Papanna s/o Chikkananjappa Kallahalli Beguruhobli Gundlupettaluk 8495885433	Minerva	1538	1380
58	Shivananjappa s/o Veerathappa Kallahalli Beguruhobli Gundlupettaluk 7353143549	Mahadeva	1613	1328
59	KVBasavaraju s/o Veerathappa Kallahalli Beguruhobli Gundlupettaluk 8105513571	Bahubali	1585	1518
60	KMVeerappa s/o Madappa Kallahalli Beguruhobli Gundlupettaluk 7996769959	Mahadeva	1418	1253
61	Shivanagamma w/o Prabhuswamy Kallahalli Beguruhobli Gundlupettaluk 9380636847	Puli	1463	1233
62	Chinnaraju s/o Puttabasappa Kallahalli Beguruhobli Gundlupettaluk 8722882953	Minerva	1340	1130
63	Natashekar s/o Gurubasappa Kallahalli Beguruhobli Gundlupettaluk 9141413846	Mahadeva	1708	1530
64	GVasanthkumar s/o Gurusiddashetty Nitre Beguruhobli Gundlupettaluk 975555809	Bahubali	1483	1330
65	Puttamadashetty s/o Giddashetty Nitre Beguruhobli Gundlupettaluk 9071034171	Minerva	1365	1098
66	NSManjunath Prasad s/o Siddaraju Nitre Beguruhobli Gundlupettaluk 9945183106	Mahadeva	1560	1463
67	Gurusiddashetty s/o Kusanashetty Nitre Beguruhobli Gundlupettaluk 6363400640	Minerva	1535	1355
68	Swamy s/o Basavaraju Nitre Beguruhobli Gundlupettaluk 8296821050	Puli	1433	1265
69	Shivarangaswamy s/o Basavaraju Nitre Beguruhobli Gundlupettaluk 9008264862	Minerva	1493	1350
70	PunithkumarNS s/o Siddaraju Nitre Beguruhobli Gundlupettaluk 8722359468	Bahubali	1738	1558
71	KSBasavanna s/o Shivappa Kallahalli Beguruhobli Gundlupettaluk 8743901217	Minerva	1605	1463
72	Sadashivappa s/o Shankarappa Kallahalli Beguruhobli Gundlupettaluk 7899400448	Bahubali	1780	1580
73	Mahadevaswamy s/o Shanthamallappa Kallahalli Beguruhobli Gundlupettaluk 8150897337	Minerva	1440	1310
74	Veerappa s/o Mahadevappa Kallahalli Beguruhobli Gundlupettaluk 9535770512	Mahadeva	1620	1438
75	Gurumalappa s/o Honnappa Kallahalli Beguruhobli Gundlupettaluk 9743656984	Minerva	1613	1353
	Average		**1368**	**1547**

17.2. FLDs in Desi / ELS / Seed Production in Cotton

S. No.	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	Prasannakumar s/o basavaraju Kalanahundi		1130	1233

2	Kalegowda s/o Kalegowda Kalanahundi		1158	1338
3	Rangaswamy s/o Govinda Kalanahundi		1188	1383
4	Purusothamma s/o Shivamurthy Agathagawdanahalli		1385	1563
5	Guruswamy s/o Subbappa Kalanahundi		1510	1605
6	Ganesh s/o Kammegowda Kalanahundi		1288	1520
7	Kumaregowda s/o Basavegowda Kalanahundi		1528	1645
8	Mahesha s/o Basavegowda Kalanahundi		1205	1308
9	Ravikumar s/o Revesha Kalanahundi		1525	1720
10	Shivabasavegowda s/o Maregowda Kalanahundi		1403	1510
11	RaviKM s/o Mahadevegowda Kalanahundi		1455	1688
12	Shivalinga s/o Ramegowda Kalanahundi		1550	1705
13	Chinnaswamy s/o Kalegowda Kalanahundi		1580	1788
14	Shivarajegowda s/o Nanjegowda Kalanahundi		1245	1343
15	Marigowda s/o Marigowda Kalanahundi		1343	1560
16	Shivalingegowda s/o Chikkegowda Kalanahundi		1513	1660
17	Karigowda s/o Bellegowda Kalanahundi		1388	1585
18	VenkatarajuB s/o Devashetty Beguru		1318	1510
19	Mahadevashetty s/o Madashetty Beguru		1233	1330
20	Chikkamadashetty s/o Marishetty Beguru		1045	1243
21	Guruswamappa s/o Gurumallappa Bhogayanahundi		1345	1413
23	Rajappa s/o Gurumallappa Bhogayanahundi		1308	1563
24	Guruprakash s/o Nagappa Bhogayanahundi		1045	1283
25	BSJayadevappa s/o Srikantappa Bhogayanahundi		1090	1238
26	Basavanna s/o Gurumallappa Kotekere		1215	1315
27	Nanjundaprasad s/o Basappa Kotekere		1325	1508
28	Mahadevashetty s/o Javareshetty Bannitalapura		1483	1545
29	Mahadevegowda s/o Nanjegowda Bhogayanahundi		1518	1720
30	Sathymma w/o Bellegowda Manchahalli		1393	1560
31	Guruprasad s/o Prabhuswamy Madapattanna		1313	1508
32	Nagappa s/o Prabhuswamy Nenekatte		1090	1328
33	Nanjappa s/o Veerabadrappa Nenekatte		1383	1613
34	Devaraju s/o Shivappa Nenekatte		1190	1330
35	Mahesha s/o Basappa Kamarahalli		1510	1570
36	KSMadappa s/o Shivarudrappa Kamarahalli		1463	1733
37	Mahesha s/o Guruswamy Kabbahalli		1330	1483

38	Siddappa s/o Shantamallappa Kabbahalli		1353	1468
39	Mahadevappa s/o Nanjappa Kabbahalli		1163	1308
40	Ningappa s/o Manjappa Kabbahalli		1195	1363
41	Doddashetty s/o Sannashetty Kabbahalli		1105	1330
42	Rajanna s/o Veerappa Kabbahalli Kabbahalli		1013	1210
43	MSNagamallappa s/o Siddegowda Honnashettarahundi		1328	1508
44	Shivappa s/o Malappa Honnashettarahundi		1358	1495
45	Revanna s/o Shivanna Honnashettarahundi		1198	1340
46	Madappa s/o Mahedevappa Kabbahalli		1440	1545
47	Shankarappa s/o Subbappa Kalanahundi		1530	1560
48	Shivaiah s/o Nagappa Kalanahundi		1513	1595
49	Dundappa s/o Kalappa Kalanahundi		1438	1528
50	Basavanna s/o Puttappa Kalanahundi		1093	1310
	Average		**1321**	**1480**

18. Tamil Nadu Agricultural University, Coimbatore

18.1. FLDs on Integrated Crop Management in Cotton

S No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	Karuppusamy karuppannan S/O Karuppannan 4/99 senkadu Thottipalayam Vellamadi Coimbatore	MCU 5	2300	1800
2	Rukumani W/O Duraisamy 4/94 sengadu Thottipalayam Vellamadi Coimbatore-641110	MCU 5	2200	1750
3	Duraisamy S/O veerappan 4/94 sengadu Thottipalayam Vellamadi Coimbatore-641110	MCU 5	2700	1800
4	Beenamol Kalyanasundaram W/o Kalyanasundaram 4/84 sengadu Thottipalayam Vellamadi Coimbatore-641110	MCU 5	2050	1550
5	Ramasamy Veerappan S/O Veerappan 3/163 Northstreet Thottipalayam Vellamadi Coimbatore-641110	CO 17	2500	1700
6	Aniya kutti Ramasamy S/o Ramasamy 84CSengadu Thottipalayam Vellamadi Coimbatore-641110	MCU 5	2650	1800
7	Kalyanasundaram Kalikuty S/o Kalaikutty 4/84 sengadu Thottipalayam Vellamadi Coimbatore-641110	MCU 5	2300	2000
8	Vellingiri Kaliannan S/o Kaliannan 4/90 sengadu Thottipalayam Vellamadi Coimbatore-641110	MCU 5	1800	1400
9	Duraisamy Veerappan S/O Veerappan 4/93 sengadu Thottipalayam Vellamadi Coimbatore-641110	MCU 5	2000	1550

10	Kalikutti Ayinakutti S/o Ayinakutti 4/52 sengadu Thottipalayam Vellamadi Coimbatore-641110	MCU 5	1900	1600
11	Muniyappan Marappan S/o marappan 9/100A sengadu Thottipalayam Vellamadi Coimbatore-641110	MCU 5	2100	1700
12	Subramaniyan Muniappan S/o Muniappan 9/100A North street Thottipalayam VellamadiCoimbatore-641110	MCU 5	2400	1600
13	Karupusamy Seerangan S/o Seerangan 4/101-2 sengadu Thottipalayam Vellamadicoimbatore-641110	CO 17	1950	1300
14	Velliyangiri rangasamy S/oRangasamy 4/91 sengadu Thottipalayam Vellamadi Coimbatore-641110	MCU 5	2250	1500
15	Vellingiri Karuppan S/o Karuppan 4/87 sengadu Thottipalayam Vellamadi Coimbatore-641110	MCU 5	1900	1350
16	Kannammal Vellingiri w/o Vellingiri87 sengadu Thottipalayam Vellamadi coimbatore-641110	CO 17	2200	1550
17	Selvaraj Karuppan S/oKaruppan 3/94 sengadu Thottipalayam Vellamadicoimbatore-641110	MCU 5	1800	1300
18	Kalikutty S/o Rangasamy 4/89 sengadu Thottipalayam Vellamadicoimbatore-641110	CO 17	2350	1600
19	Karupusamy Marappan S/o Marappan 4/81 sengadu Thottipalayam Vellamadicoimbatore-641110	CO 17	2100	1650
20	Kalyanasuntharam Kalaikutty S/o kalikutty 4/84 sengadu Thottipalayam Vellamadi Coimbatore-641110	MCU 5	1950	1550
21	Jaganathan Krishnasamy S/oKrishnasamy 2/143Anna nagar Kanurpudhur Kannur Tiruppur 641655	MCU 5	2500	1600
22	Nagammal R W/o Rangasamy 2/89 Kanurpudhur Kanur Avinasi Tiruppur- 641655 9659473604	MCU 5	2400	1350
23	Kanthasasmy S/oKulandhaiyappan 2/168 Kanurpudur Kanur Avinasi Tiruppur- 641655	MCU 5	2200	1650
24	Palaniyammal S W/o Sadaiappan 2/89c Kanurpudhur Kanur Avinasi Tiruppur- 641655	MCU 5	2350	1475
25	Sadaiappan R S/o Rasi 2/89c Kanurpudhur Kanur Avinasi Tiruppur- 641655	CO 17	2600	1650
26	Kannammal sankar W/o Sankar 2/83 Kanurpudhur Kanur Avinasi Tiruppur- 641655	MCU 5	1750	1350
27	Kulanthaiyammal W/o Subramani cettiyar 2/128 Kanurpudhur Kanur Avinasi Tiruppur- 641655	CO 17	2550	1750
28	Varadharaju S/o Ramasamy 2/191 Kanurpudhur Kanur Avinasi Tiruppur- 641655	MCU 5	2200	1500
29	Gothandapani S/o Ramasamy 2/191 Kanurpudhur Kanur Avinasi Tiruppur- 641655	MCU 5	2350	1310
30	Soundharajan S/oPalaniyappan 2/245 Kanurpudhur Kanur Avinasi Tiruppur- 641655	MCU 5	2050	1350
	Average		**2212**	**1568**

18.2. FLDs in Desi / ELS / Seed Production in Cotton

S No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton Yield (kg/ha)	
			FLD	Farmer's Practice
1	Maheshwari, W/o Subbiah, 2/173, North Colony, Andipatti, Ilayarasanendal (Po), Kovipatti (Tk), Thoothukudi (Dt.)			
2	Easwari , w/o Muniyandi, 2/194, North Colony, Andipatti, Ilayarasanendal (Po), Kovipatti (Tk), Thoothukudi (Dt.)			
3	Mottaiyan, S/o Mottaiyan, 2/131, North Colony, Andipatti, Ilayarasanendal (Po), Kovipatti (Tk), Thoothukudi (Dt.)			
4	Sundari, W/o Kumarasamy , 2/165, Andipatti, Ilayarasanendal (Po), Kovipatti (Tk), Thoothukudi (Dt.)			
5	Anandhakumar, S/o Jesudas, 4/167, East Colony, Ilayarasanendal (Po), Kovilpatti (Tk), Thoothukudi (Dt.)			
6	Packiyaraj, S/o Selvam, 4/142, East Colony, Ilayarasanendal (Po), Kovipatti (Tk), Thoothukudi (Dt.)			
7	P. Kanagaraj, S/o Ponnusamy, South street, Uthupatti (Po), Kovilpatti (Tk),Thoothukudi (Dt.)			
8	Ramasubbu, S/o Kandhasamy, East street, Vadakkupatti			
9	Kasi rajan, S/o Karuppiah, West street, Vadakkupatti			
10	Navaneedhan, S/o Nammalvar, Gopalapuram, Kovilpatti			
11	Srinivasaragavan, S/o Samyappan, Venkadachalapuram, Kovilpatti			
12	Ganesamoorthy, S/o Ramasamy, Lakshmy Nagar, Villisery			
13	Kengaraj, S/o Kandasamy, Perumal Kovil street, Pillaiyarnattham			
14	Sundhar raj, S/o Ganapathysamy, Middle street, Nakkalamuthanpatti			

18.3. FLDs on Intercropping in Cotton

S .No	Name and Address of the Farmer	Variety / Hybrid	Seed Cotton / Intercrop Yield(kg/ha)		
			FLD	Intercrop	Farmer's Practice
1	Th. M. Easwaran, 6/90, Mariamman Kovil Street, Ayyanapuram, Thulukkaptti, Kadaneri Post, VirudhunagarDt	SVPR 6	1850	170	1600
2	Th. VictorJeyaseelan, S/o.Albert, 576, Pokuvarathunagar 4th Street, Kunnur (Post), Watrap (TK), VirudhunagarDt	SVPR 6	1950	210	1650
3	Th. Veyilumuthu, S/o.Ramaiah, 1/172, MuthalammanKovil Street, Thulukkaptti, Kadaneri Post, VirudhunagarDt	SVPR 6	1650	150	1400
4	Th. S. Asokan @Madasamy, 1/124, MuthalammanKovil Street, Thulukkaptti, Kadaneri Post, VirudhunagarDt	SVPR 6	1750	140	1450
5	Th. V. Kaleeswaran, S/o.Vadivel, 1/126, MuthalammanKovil Street, Thulukkaptti, Kadaneri Post, VirudhunagarDt	SVPR 6	1400	90	1200
6	Th. R. Ayyanar, S/o.Ramaiah, 1/157, MuthalammanKovil Street, Thulukkaptti, Kadaneri Post, VirudhunagarDt	SVPR 6	1800	180	1600
7	Th. Pavalakoodan, S/o.Ayyanar, Ayyanapuram Thulukkaptti, Kadaneri Post, VirudhunagarDt	SVPR 6	1300	160	1150
8	Tmt. K. Subbuthai, W/o.Kanthasamy Subamaniapuram Nathikudi Post, Vembakottai (TK), VirudhunagarDt	SVPR 6	1800	120	1600
9	Th. P. Valaydam, S/o.Packianathan, 2/220, North Street, Nathikudi Post, Vembakottai (TK), VirudhunagarDt	SVPR 6	1800	190	1650
10	Th. G. Suryagandhi, D/o.Rengasamy, 81/1, MariammanKovil Street, Rajagopalapuram, Nachiarkovil, Srivilliputtur VirudhunagarDt	SVPR 6	1300	120	1100
11	Th. M. Ramesh, S/o.Marimuthu, 6/78, Mariammankovil Street, Ayyanarpuram, Thulukkaptti, Kadaneri Post, VirudhunagarDt	SVPR 6	2100	160	1700
12	Th. A. Avudaiyan, S/o.Arumugam, 66, Ward 6, Ayyanarpuram, Thulukkaptti, Kadaneri Post, WatrapTk VirudhunagarDt	SVPR 6	1700	60	1500
13	Th. P. Ponnaiah, S/o.Poolan, 50/3,	SVPR 6	1950	110	1700

	Sankiliveerappankovil Street, Athikulam, Srivilliputtur, VirudhunagarDt				
14	Tmt. S. Lakshmi, W/o.Samuthram, 162 /4 , Govindan Nagar Colony, Srivilliputtur (TK), VirudhunagarDt	SVPR 6	1400	120	1950
15	Th. R. Murugan, S/o.Ramar, 102 C, Karisalkulam (Post), Srivilliputtur (TK), VirudhunagarDt	SVPR 6	1350	110	1150
16	Th. V. Selvaraj, P.Reddiyapatti, 4/168 A, West Street, Reddiapatti, Pandappuli, Sankarankovil TenkasiDt	SVPR 6	2050	180	1850
17	Th. P. JothiMurugan, S/o.Perumalsami, 3/44, Pillaiyarkovil street, Reddiapatti, Pandappuli, Sankarankovil, TenkasiDt	SVPR 6	1700	140	1550
18	Th. Subburaj, S/o.Subbiah, 4/10, Mela Street, Reddiapatti, Pandappuli, Sankarankovil, TenkasiDt	SVPR 6	2250	230	1900
19	Th. Thandeeswaran, Sivarakottai	SVPR 6	1750	140	1550
20	Th. Jeyaram, S/o.Muthuvel, Middle Street, Muthulingapuram, Subbulapuram (Post), Peraiyur (TK), Vannivelampatti, Madurai – 625 702	SVPR 4	1200	90	950
	Average		**1703**	**144**	**1510**

Photographs

Visit of Scientists from CCSHAU, Hisar to FLD



Interaction between Scientists of CCSHAU, Hisar and FLD Farmers



Meeting for FLD farmers at Sriganganagar



Scientists of ARS, Sriganganagar with FLD farmers



Monitoring of FLD conducted by ICAR-CICR, Regional Station, Sirsa



FLD Conducted by ICAR-CICR, Sirsa



FLD Conducted by NAU, Surat



Interaction between Scientists of NAU, Surat and FLD Farmers



FLD by JAU, Junagadh



Scientist of JAU Junagadh Clarifies the doubts of FLD farmer



Scientists from PDKV, Akola with FLD Farmers



Scientist of PDKV, Akola explains the technology to FLD Farmers



FLD on cotton intercropping with watermelon by MPKV, Rahuri



FLD conducted by MPKV, Rahuri



FLD on ICM – Rajat Bt conducted by ICAR-CICR, Nagpur



FLD on Desi cotton -CNA1028 (Ravi) by ICAR-CICR, Nagpur



FLD on GJHV374 Bt by ICAR-CICR, Nagpur



FLD by ANGRAU, Guntur



Scientists from ANGRAU, Nandhyal in the FLD farmer's field



FLD conducted by ANGRAU, Nandhyal



FLD Farmers Meet at Adilabhad



Field Visit to FLD by PJTSAU, Adilabhad



FLD on ICM Conducted by UAS, Dharwad



FLD Beneficiaries of UAS, Dharwad



FLD farmers' meet – UAS, Raichur



Visit of Scientists from UAS, Chamrajnagar to the FLD



Field Day conducted by UAS, Chamrajnagar



Interaction between Scientists from TNAU, Coimbatore and FLD farmers



Scientist of TNAU with FLD beneficiaries



News Clippings







Achievements in Cotton Improvement at ICAR-CICR, Regional Station Sirsa



O. P. Tuteja, S. K. Verma, Debashis Paul,
Amarpreet Singh, V. N. Waghmare, Y. G. Prasad

ICAR- Central Institute for Cotton Research
Regional Station, Sirsa, Haryana-125055

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Suraksha (CICR-H Cotton 36)

Suraksha is an extra long staple, high yielding, good quality *G. hirsutum* cotton variety developed by pedigree method from a three way cross of Surabhi x (MCU 5 x Z2). Suraksha is suitable for cultivation in the irrigated tracts of South Zone States of Tamil Nadu, Karnataka, Telengana and Andhra Pradesh and Central Zone States of Gujarat, Maharashtra, Madhya Pradesh and Odisha.

Plant Characters

Tall and semi-spreading plant which grows upto 140 cm with medium hairs on stems and leaves. Flowers have cream petal with yellow pollen. The variety is characterized by medium sized boll weighing 4.1 g/boll.

Yield potential

The variety recorded a mean seed cotton yield of 15.98 q/ha and 13.72 q/ha in South Zone and Central Zones States under irrigated conditions under normal spacing, whereas the yield potential is 40.19 q/ha in South Zone and 22.35 q/ha in Central Zone States. The variety is characterized by a ginning outturn of 34 %.

Fibre Quality Characters (HVI Mode)

Character	Suraksha	Suraj
Upper Half Length (mm)	32.4 (SZ) 31.9 (CZ)	31.9
Micronaire (µg/inch)	3.7 (SZ) 4.4 (CZ)	4.4
Bundle strength (g/tex)	34.3(SZ) 33.5 (CZ)	32.8

The variety is suitable for spinning upto 70s count yarn.

Package of Practices

Land Preparation and Manuring

Plough the land to a good tilth and before last ploughing apply 12-15 tonnes /ha of farm yarn manure / compost and 500 kg/ha of neem cake and incorporate them into the soil. A basal dose of 50:50:50 kg NPK/ha and top dressing of 50 kg N/h in two splits at 50 and 75 days along with neem cake is recommended. Application of micronutrient mixture @ 15kg/ha before sowing is advantageous. Regular use of biofertilizers like Azotobacter, Azospirillum and Phosphobacteria may reduce the usage of inorganic fertilizers like Nitrogen and Phosphorus besides maintaining good soil health.

Seed rate and Sowing

Recommended seed rate for the variety is 8 kg / ha of fuzzy seeds or 5 kg/ha of acid delinted seeds treated with Bavistin @ 2g/kg of seed or *Trichoderma viride* @ 5g/kg of seeds. For better sucking pest control at the initial period of crop growth, Gaucho @ 7 g/kg of acid delinted seeds may be useful. Timely sowing is essential to realize good yield.

Spacing

The ridges may be formed with ridge maker at a distance of 75 – 90 cm depending on the soil fertility and plant to plant distance may be maintained at 30-45 cm. Dibble the seeds @ 2/hill and thin it to single seedlings on 20th day to ensure uniform stand.

Weed control

To prevent emergence of broad leaved weeds, spray Fluchloralin or Pendimethalin @ 2 to 2.5 l/ha as pre emergence herbicide followed by irrigation. Afterwards, depending upon the weed population, one or two hoeing may be done.

Weed control

For economizing water, 2:1 skip row or paired row planting is recommended. Maintenance of adequate moisture at germination and flowering stage will ensure good growth and productivity.

Weed control

In wide spaced cotton crop, the inter row spaces can be profitably utilized by intercropping with short duration pulses like black gram, green gram or soybean or vegetables like onion, beetroot or radish. Use of cowpea as an inter crop reduces the sucking pest damage in cotton. After harvest, the remaining biomass can be used as mulch.

Pest & Disease Management

By adopting integrated plant protection measures, effective control of pests can be achieved. Use chemical control measures only when it is absolutely essential.

Name of the Pest	Control measure
Sucking pests	
Aphids, Thrips or Jassids	Seed treatment with Imidacloprid @ 7 g/kg seed and / or
	Spray Imidacloprid 200 SL (100-125 ml) or Thiamethoxam 25 WG (100-125 g) or Acetamiprid 20 SP (100 g)
Whitefly	Hostothion 40 EC (100-125 ml) or Imidacloprid 200 SL (100-125 ml) or Diafenthiuron 5 WP (800 g)
Mealy Bug	Profenophos 50 EC (1250 ml) or Quinalphos 25 EC (2000 ml) or Thiodicarb 75 WP (750 g)
Mirid Bug	Imidacloprid 200 SL (100-125 ml) or Acetamiprid 20 SP (100 g)
Stem Weevil	Soil application of Carbofuran (30 kg) + Neem cake 150 kg + Drenching with NSKE 5% or Chlorpyriphos (4 ml/litre)
Ash Weevil	Soil application of Carbofuran (30 kg) or Chlorpyriphos (5 ml/litre)
Red Spider Mite	Spray wettable sulphur or keltane (550 g or ml)

Boll worms	
Spotted Bollworm	Spray Profenophos 50 EC (1500 ml)
American Bollworm	Spray Spinosad 45 SC (160 ml) or Indoxocarb 14.5 EC (500 ml) or Thiodicarb 75 WP (1000 g) or Chlorpyriphos 20 EC (2000 – 2500 ml)
Pink Bollworm	Spray Thiodicarb 75 WP (1000 g)
Diseases	
Alternaria Leaf Spot	Spray Copper Oxychloride (1.25 to 2.0 kg)
Bacterial Blight	Spray Streptocycline (25 g) + Copper Oxychloride (1.25 to 2.0 kg)
Grey Mildew	Spray Carbendazim 50 WP (250 g)

Prepared by

Dr. S. Manickam
Sh. J. William Raja
Sh. R. Senthil Kumar
Sh. K. Aravind



Published by
Dr. A. H. Prakash
Project Coordinator (Cotton Improvement) and Head,
ICAR-Central Institute for Cotton Research,
Regional Station,
Coimbatore – 641 003
Phone: 0422-2430045, 2431238

Email: cicrcbe@gmail.com
Website:www.cicr.org.in

Suraksha
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G. hirsutum Variety



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