

**ICAR-CENTRAL INSTITUTE FOR COTTON RESEARCH**

**LIST OF ONGOING PROJECTS 2016-17**

| S. N. | Project title  | Investigators  | Duration |
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|       | <b>Crop Improvement</b>  |  |          |
| 1.    | <b>Cotton Breeding Program (CBP)</b>   |  |          |
|       | CBP 1: Improvement of tetraploid and diploid cottons for fibre properties through population improvement approaches.                   | V. N. Waghmare (PI),<br>Vinita Gotmare (PA),<br>O. P. Tuteja (PA),<br>S. K Verma   | 2000-20  |
|       | CBP 2: Studies on Genetic Enhancement of <i>G. hirsutum</i> .  | T. R. Loknathan (PI)   | 2002-17  |
|       | CBP 3: Development of drought tolerant genotypes with good fibre quality in <i>G. hirsutum</i> .                                       | Suman Bala Singh (PL),<br>A. H. Prakash (PA)   | 2008-17  |
|       | CBP 4: Breeding of upland cotton for improved fibre quality and resistance to biotic stress (Jassid).                                  | S. M. Palve (PI)   | 2005-21  |
|       | CBP 5: Development of long staple <i>G. hirsutum</i> variety with improved fibre strength.   | S. Manickam (PL),<br>V. N. Waghmare (PA),<br>S. L. Ahuja (PA)  | 2008-17  |
|       | CBP 6: Development of early maturing, medium staple varieties and hybrids Resistant to CLCuV.  | O. P. Tuteja (PL),<br>D. Monga (PA),<br>S. K. Verma (PA),<br>Rishi Kumar (PA),<br>S. M. Palve (PA)                         | 2008-17  |
|       | CBP 7: Development of <i>G. hirsutum</i> genotypes with high yield and high GOT.   | S. L. Ahuja (PL),<br>R. A. Meena (PA),<br>D. Monga (PA),<br>Rishi Kumar (PA)   | 2012-18  |
|       | CBP 8: Development of high yielding, early maturing extra long staple <i>G. barbadense</i> genotypes with high GOT.                    | K. P. M. Dhamayanthi (PL),<br>R. B. Singandhupe (PA),<br>M. Saravanan (PA)   | 2012-17  |
|       | CBP 9: MAS/MAB for Water-logging in Cotton.  | Vinita Gotmare (PL) ,<br>S.E.S.A. Khader (PA),<br>M. Saravanan (PA),<br>J. H. Meshram (PA),<br>J. Annie Sheeba (PA)        | 2012-20  |
|       | CBP 10: Breeding for early maturity compact plant type and jassid tolerance in cotton.   | H. B. Santosh (PI),<br>S. Manickam (PA)  | 2014-19  |
|       | CBP 11: Identification of male sterile plants in genetic male sterility (GMS) using molecular markers.                                 | O. P. Tuteja (PL),<br>S. B. Singh (PA),<br>M. Sarvanan (PA)  | 2012-17  |
|       | CBP 12: Development of Cotton leaf curl virus resistant genotypes using <i>G. arboreuml</i> <i>G. herbaceum</i> through introgression. | S.K. Verma (PI),<br>O. P. Tuteja (PA),<br>D.Monga (PA),<br>Rishi Kumar (PA),<br>Vinita Gotmare (PA),<br>H. B. Santosh (PA) | 2015-21  |
|       | CBP 13: Breeding to improve performance of <i>Gossypium herbaceum</i> for adaptation to climate change in central India.               | D.V. Patil (PI),<br>Punit Mohan (PA)   | 2015-20  |
|       | CBP 14: Development of high yielding, early maturing Asiatic cotton ( <i>Gossypium arboreum</i> ) genotypes suitable to south Zone.    | A. Manivannan (PI),<br>Punit Mohan (PA), M. Saravanan (PA),  | 2015-20  |

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|     |  | V. N. Waghmare (PA),<br>N. Gopalakrishnan (PA)  |         |
| 2.  | <b>Cotton Germplasm Management Program (CGMP)</b>  |   |         |
|     | CGMP 1: Collection, conservation, evaluation, documentation and maintenance of germplasm of cultivated species of <i>Gossypium</i> .               | Punit Mohan (PL),<br>S. Manickam (PA),<br>R. A. Meena (PA),<br>K. P. M. Damayanthi (PA)                                     | 2006-17 |
|     | CGMP 2: Conservation, characterization and utilization of wild species, races of cultivated species and synthetic polyploids of <i>Gossypium</i> . | Vinita Gotmare (PL),<br>G. Balasubramani (PA).  | 2008-18 |
|     | CGMP 3: Exploration, collection and conservation of land races of desi cotton and perennials and from different regions of India.                  | M. Saravanan (PL)   | 2011-17 |
| 3.  | DUS characterization and DNA finger printing of public sector cotton varieties.  | V. Santhy (PL),<br>H. B. Santosh (PA)   | 2012-17 |
| 4.  | Studies to improve the seed and boll setting efficiency in cotton.   | R. A. Meena (PL),<br>Rishi Kumar (PA),<br>K. Rathinavel (PA)  | 2012-18 |
| 5.  | Evaluation of exogenous application of plant growth hormones and other chemicals on seed yield and quality of cotton.                              | Sunil Mahajan (PI)  | 2015-17 |
|     | <b>Biotechnology</b>   |   |         |
| 6.  | Deployment of biotechnological tools for enhancing cotton seed by-product utilization: Reduction of gossypol content using CYP6AE14 gene.          | K. P. Raghavendra (PI), Sandhya<br>Kranthi (PA),<br>G. Balasubramani (PA),<br>K. Velmourougane (PA),<br>Savita Santosh (PA) | 2014-17 |
| 7.  | Basic Studies on Somatic embryogenesis of Cotton.  | Joy Das (PI),<br>Rakesh Kumar, S.B. Nandeshwar<br>(PA)  | 2015-17 |
| 8.  | Development of novel methods for gene delivery into cotton.  | Rakesh Kumar (PI),<br>Joy Das (PA)  | 2015-17 |
|     | <b>Crop Production</b>   |   |         |
| 9.  | Allelopathy as an alternative weed management strategy in cotton.  | Blaise Desouza (PI),<br>P. Nalayini (PA),<br>A. Manikandan (PA)   | 2012-17 |
| 10. | Role of Leaf Phytochemicals in cotton leaf reddening and plant responses to management through growth chemicals, nutrients and insecticides.       | J. Annie Sheeba (PI),<br>A. Manikandan (PA)   | 2012-17 |
| 11. | Evaluation of nano-formulated micronutrients foliar spray for yield maximization in different cotton genotypes.                                    | D. Kanjana (PI)   | 2012-17 |
| 12. | Correlation of leaf colour transmittance with relation to soil/plant nutrient status.  | J. Annie Sheeba (PI)  | 2014-17 |
| 13. | Evaluation of Structured water for cotton production.  | P. Nalayini (PI)  | 2014-19 |
| 14. | Efficient nitrogen fixing legumes for cotton based cropping systems.   | A. Manikandan (PI),<br>P. Nalayini (PA)   | 2015-20 |
| 15. | Development of remunerative cotton based cropping systems based on conservation agriculture principles.  | R. Raja (PI),<br>D. Kanjana (PA)  | 2015-19 |

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| 16.                    | Survey, Surveillance and Identification of Weeds of Economic Value in Cotton Based Cropping System.   | S. N. Rokde (PI)   | 2015-17  |
| 17.                    | Participatory evaluation of Technology & eTools development for improving profitability from calcareous soils.  | A R Raju (PI),<br>S N Rokde (PA),<br>RB Singandhupe (PA) , Anuradha Narala (PA)<br>A. Manikandan (PA)  | 2016-20  |
| 18.                    | Exploiting the epigenetic transgenerational inheritance of stress responsive traits for imparting abiotic stress tolerance to cotton.   | J Annie Sheeba (PI)  | 2016 -21 |
| 19.                    | Impact of Institutional Credit on Cotton Farming in Vidarbha Region of Maharashtra.   | Anuradha Narala (PI), S M Wasnik (PA),<br>Nandini Gokte (PA),<br>Vinita Gotmare (PA)   | 2016-17  |
| 20.                    | Development of interactive decision support systems for cotton pest management with prerecorded voice modules.  | M Sabesh(PI),<br>K R Kranthi (PA),<br>C Karpagam (PA)  | 2016-19  |
| <b>Crop protection</b> |   |  |          |
| 21.                    | Gene discovery for useful traits.   | K. R. Kranthi (PI),<br>Sandhya Kranthi (PA),<br>K. P. Raghavendra (PA),<br>K. Velmourougane (PA),<br>J. Annie Sheeba (PA),<br>A. Sampathkumar (PA) | 2014-19  |
| 22.                    | Role of epicuticular wax in reaction of cotton genotypes to whitefly/ CLCuD.  | Rishi Kumar (PI),<br>D. Monga (PA),<br>Sandhya Kranthi (PA),<br>J. Annie Sheeba (PA)   | 2014-17  |
| 23.                    | Isolation and characterization of endophytes in cotton and endosymbionts in bollworms.  | M. Amutha (PI)   | 2012-17  |
| 24.                    | Production, stabilisation, formulation and validation of microbial agents and their natural products against insects and nematode pests of cotton.  | J. Gulsar Banu (PL),<br>M. Amutha (PA)   | 2012-17  |
| 25.                    | Development of reverse transcription loop mediated isothermal amplification (RT- LAMP) for early detection of cotton leaf curl and tobacco streak viruses of cotton ( <i>G. hirsutum</i> ). | S. P. Gawande (PI),<br>Dilip Monga (PA)  | 2015-18  |
| 26.                    | Studies to identify the most virulent strains of entomopathogenic fungi for whitefly control.   | S. K. Sain (PI),<br>D. Monga (PA),<br>S. Kranthi (PA),<br>Rishi Kumar(PA),<br>Prabhulinga T. (PA),<br>Dipak Nagrale (PA)                           | 2016-19  |
| 27.                    | Diversity analysis of Whitefly ( <i>Bemisia tabaci</i> ), predators and parasitoids.  | Prabhulinga T. (PI),<br>Sandhya Kranthi (PA),<br>Rishi Kumar (PA) ,  | 2016-18  |

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|     |   | M. Amutha (PA),<br>V. Chinna Babu Naik (PA)  |         |
| 28. | Evaluation of cotton PGPR for broad spectrum resistance against insect pests and diseases.  | Dipak T Nagrale (PI),<br>T. Prabhulinga (PA)   | 2016-19 |
| 29. | Whitefly: Studies on ecology and host plant resistance.   | Rishi Kumar (PI),<br>S. K. Sain (PA),<br>Prabhulinga T. (PA),<br>S. Kranthi (PA),<br>D. Monga (PA)   | 2016-20 |
| 30. | Technology Mission on Cotton MM I   |  | 2012-17 |
|     | TMC MM 1.1: Development of multi-gene constructs and Bt cotton varieties for sustainable pest management.   | K. R. Kranthi (PI),<br>S. B. Singh (PA),<br>K. P. Raghavendra (PA),<br>S. B. Nandeshwar (PA),<br>G. Balasubramani (PA),<br>K. Velmourougane (PA), Sandhya Kranthi (PA),<br>H. B. Santosh (PA)  |         |
|     | TMC MM 1.2: Marker Assisted Breeding for Cotton Leaf Curl Disease (ClCuD), Bacterial Leaf Blight (BLB) and Nematodes Resistance in Cotton.              | V. N. Waghmare (PI),<br>A. Sampath Kumar (PA),<br>N. Narkhedkar (PA),<br>S. Manickam (PA),<br>J. Gulsar Banu (PA),<br>H. B. Santosh (PA)   |         |
|     | TMC MM 1.4: Evaluation of genotypes and agrotechniques for high density planting system and surgical cotton varieties.                                  | M. V. Venugopalan (PI),<br>Blaise DeSouza (PA),<br>V. Chinna Babu Naik (PA), Punit Mohan (PA),<br>T. R. Lokanathan (PA),<br>A. R. Raju (PA),<br>A. Sampath Kumar (PA),<br>K. Shankarnarayanan (PA),<br>S. L. Ahuja (PA),<br>R. A. Meena (PA)   |         |
|     | TMC MM 1.5: Simulation models/electronic gadgets to predict insect infestation, bollworm resistance to Bt cotton, area, production and price of cotton. | Sandhya Kranthi (PI),<br>K. R. Kranthi (PA),<br>V. S. Nagrare (PA),<br>V. Chinna Babu Naik (PA),<br>Anuradha Narala (PA),<br>A. H. Prakash (PA),<br>M. Amutha (PA), K.<br>Shankarnarayanan (PA), Isabella Agarwal (PA),<br>B. Dharajothi (PA),<br>Rishi Kumar (PA),<br>M. Sabesh (PA),<br>J. Annie Sheeba (PA) |         |
|     | TMC MM 1.6: E-Kapas Network and Technology Documentation.   | S. M. Wasnik (PI),<br>A. H. Prakash (PA),<br>S. Usha Rani (PA),<br>O. P. Tuteja (PA),<br>M. Sabesh (PA),   |         |

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|                                   |   | Anuradha Narala (PA),<br>N. Gopalakrishnan (PA)  |         |
|                                   | TMC MM I 1.7: Development of cotton picking machinery for small scale cotton production systems.  | G. Majumdar (PI)   |         |
| <b>Externally funded projects</b> |   |  |         |
| 31.                               | Consortia Research platform- Natural Fiber<br>Development of tissue culture technology for cotton fibre initiation.   | S. B. Nandeshwar (PI), Rakesh Kumar (PA),<br>Joy Das (PA)  | 2015-17 |
| 32.                               | Consortia Research Platform on biodiversity.  | Punit Mohan (PI),<br>Vinita Gotmare (PA),<br>J. H. Meshram (PA),<br>S. Manickam (PA),<br>R. A. Meena (PA)  | 2014-17 |
| 33.                               | NSP: National Seed Project (Crops).   | K. Rathinavel (PI)   | 1999-17 |
| 34.                               | DUS: Implementation of PVP legislation 2001 and DUS testing of cotton under ICAR-SAU system.  | K. Rathinavel (PI)   | 2003-17 |
| 35.                               | MSP: ICAR project on Seed Production in Agricultural Crops and Fisheries.   | P. R.Vijayakumari (Nd Offi),<br>V. Santhy (PA),<br>K. Rathinavel (PA),<br>R. A. Meena (PA)                 | 2007-17 |
| 36.                               | NASF: Molecular characterization and validation of fiber strength genes with fiber specific promoter for improvement in cotton.                               | G. Balasubramani (PI),<br>K. P. Raghvendra (PA),<br>J. Amudha (PA), S. B. Nandeshwar (PA)                  | 2012-17 |
| 37.                               | NPTC: Transgenics in crops. Insect and disease resistant transgenic cotton.   | G. Balasubramani (PI), J. Amudha (PA), S. B. Nandeshwar (PA), K. P. Raghvendra (PA), Suman Bala Singh (PA) | 2012-17 |
| 38.                               | NICRA: Climate change- adaptation and mitigation strategies in cotton.  | S.E.S.A Khader (PI),<br>A. H. Prakash (CoPI),<br>Blaise Desouza (CoPI),<br>M.V. Venugopalan (CoPI)         | 2013-17 |
| 39.                               | Mahyco: Monitoring changes in baseline susceptibility to Cry toxins in the cotton bollworm, <i>H. armigera</i> , pink bollworm and <i>Spodoptera litura</i> . | Sandhya Kranthi (PI),<br>K. R. Kranthi (CoPI) ,<br>V. Chinna Babu Naik (CoPI)                              | 2012-17 |
| 40.                               | GEAC: Event based approval mechanism.   | Sandhya Kranthi (PI),<br>K. R. Kranthi (CCPI)  | 2010-17 |
| 41.                               | Consortia Research Platform IIHR (Lead centre): ORP on Management of sucking pests in horticultural crops.  | Sandhya Kranthi (PI),<br>M. Amutha (PA)  | 2014-17 |
| 42.                               | TMC MM II: Dissemination of IRM strategies in India.  | K. R. Kranthi (PI),<br>Sandhya Kranthi (PA),<br>D. Monga (PA),<br>B. Dharajothi (PA), Rishi Kumar (PA)     | 2007-17 |
| 43.                               | DST: Entomopathogenic-endophytes mediated plant defense as a novel approach for the management of bollworms in cotton   | . M. Amutha (PI)   | 2013-17 |
| 44.                               | Maha. Govt: Crop pest surveillance and advisory project (CROPSAP) in Maharashtra.   | V. S. Nagrare (PI)   | 2010-17 |
| 45.                               | NFSM-OPMAS: On line pest monitoring and advisory services (OPMAS) under NFSM –commercial crops.   | R. K. Tanwar (PI),<br>D. Monga (PA),<br>Rishi Kumar (PA)   | 2012-17 |
| 46.                               | ICAR Extramural: Introgression of genes for whitefly and CLCuD resistance in upland cotton ( <i>G. hirsutum</i> ).  | V.N waghmare (PI),<br>S. M. Palve (CoPI),<br>S. B Nandeshwar (CoPI), Rakesh                                | 2016-17 |

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|     |  | Kumar (CoPI),<br>D. Monga (CoPI),<br>S. K. Verma (CoPI),<br>Rishi Kumar (CoPI)                     |                          |
| 47. | Gender Knowledge System in Agriculture (ICAR Flagship Project).  | S Usha Rani (CCPI),<br>Anuradha Narala (Co PI)   | 2015-17                  |
|     | <b>MSC/ PhD/ PDF research work</b>   |  |                          |
|     | PDF: Potential application of Wax degrading microorganisms as an effective bio-pesticide formulation for the control of Mealybugs on Cotton ( <i>Gossypium</i> spp.) | Name of PDF:<br>Dr. N. Arunkumar,<br>(Agricultural Microbiology)<br>Mentor : Dr. N. Gopalakrishnan | 2016-18                  |
|     | MSc: Genetic diversity analysis of coloured germplasm accession of cotton <i>Gossypium</i> sp.   | Name of MSc student:<br>Satyam Kumar Kesari<br>(Agri Biotechnology)<br>Guide – Dr. V. N. Waghmare  | 2016-17<br>(6<br>Months) |