

# Central Institute for Cotton Research

## Twelfth Weekly Advisory for Cotton Cultivation: 9<sup>th</sup> to 15<sup>th</sup> October 2012

*"The advisory is based on inputs received from the State Agricultural Universities of the respective states"*

### NORTH ZONE

#### Punjab

In general, the cotton crop is at maturity and first pick is in progress. The farmers are advised to ensure clean and neat picking to maintain good quality of the produce. In case of late sown crop, precautions for the control of whitefly incidences may be taken. At present, whitefly, if serious, can be managed with OPs (Ethion @800ml/acre; Triazophos @600ml/ac) while jassid can be checked with Imidacloprid @40ml/ac /Thiamethoxam@40g /ac or Ulala @ 80 g/ac, respectively. Monitor the fields (particularly growing non bt cotton) for bollworm infestation in squares and bolls regularly. Cotton leaf curl virus disease has been observed in larger areas of cotton cultivation in Punjab. Check for boll rotting, if any after rains, and manage with carbendazim@0.1%.

#### Haryana

Desi cotton crop is in picking stage where as Bt. cotton hybrids are in early boll opening stage. In general, the crop is healthy. Observations at Hisar, Fatehabad, Sirsa and Jind districts revealed population of leafhopper nymphs and adults below economic threshold level in all the fields. Mean population of whitefly adults ranged from 0.6-28.8 adult per leaf (av. 5.36 adult/leaf). The average population of whitefly adults/leaf was quite high in fields of in village Bhojraj (11.3), Umra, (7.6), Ikkas (11.5), Kharakpunia (7.2), Fransi (6.2), Sadalpur (9.2), Bhattu Kalan (8.4), Darba Kalan (8.3), Panniwala mota (7.3), Moriwala (28.8), Daryapur (7.0). No incidence of bollworms was observed. However, the incidence of *Spodoptera* spp. and cotton mealybug were observed in traces in 25% and 28% fields respectively. Traces to moderate incidence of cotton leaf curl virus disease was observed in some fields of Hansi, Barwala and Jind subdivisions. In late sown (June) and late maturing cotton crop where white fly population is above ETL, farmers are advised to take precautionary measures. Do not irrigate the field after 1/3<sup>rd</sup> opening of the bolls in the field. Avoid picking of rotten bolls. Dry the kapas before storage to avoid micro-organism damage. Farmers are advised to monitor their crop regularly.

#### Rajasthan

Weather during next 4 days would be stable. Chances of rainfall is nil with fall in night temperature. Farmers at this moment are advised to vacate their fields as early as possible and can go for sowing of Taramira and heat tolerant mustard varieties in non-command areas using available soil moisture. In irrigated cotton, need based irrigation at square formation may be given. Pest problem in cotton may increase due to high day temperature coupled with high humidity for which farmers are advised to be little bit vigilant and apply plant protection chemicals if required.

### CENTRAL ZONE

#### Gujarat

Withdrawal of south west monsoon from Gujarat has started. There has been some scattered rains in some parts of the State. Cloudy weather with little sunshine had adverse effect on crop. Moderate level of sucking pest infestation is continued and farmers have been suggested systemic insecticides for protection for the crop. In Junagadh region, due to good rainfall in previous week, regrowth may start. The incidence of jassids was below ETL and thrips was very low as well as sowing in farmers fields. Whitefly and mealy bug population were observed below ETL throughout the week. Population of mite was observed very low at some farmers field and aphid & mirid bug

population was not found during this period, but stem borer infestation was observed only in early sown Agronomy and Plant breeding trials as well as in some farmers field. The incidence of *Helicoverpa* and *Earias* was observed very low in Non Bt cotton hybrids and *Spodoptera* was not found this week. *Coccinellids* and Spiders were noted and *Chrysoperla* was not found during mid week. Overall condition of the farmers field of Junagadh Agricultural University jurisdiction area was very severe for cotton growth and boll formation stages. Reddening, leaf cracking and leaf shattering was observed in some varieties of cotton in the farmers field as well as in Cotton Research Station due to rainfall after long dry spell. *Alternaria* leaf spot and bacterial blight disease of cotton was noticed during last week of September in farmers field as well as in Cotton Research Station.

### **Maharashtra**

Rains received during last week in Marathwada was helpful for cotton. Irrigated cotton is in boll development to boll bursting stage. Foliar application of 2% KNO<sub>3</sub> and 0.2% MgSO<sub>4</sub> should be done for better development of bolls and management of leaf reddening, respectively. Rainfed cotton is in flowering to boll development stage. Foliar spray of 2% DAP should be done during flowering stage. Infestation of white flies is observed in many areas. Incidence of pink bollworm is observed in some pockets in irrigated cotton. The total rainfall received at Akola centre was 682.5 mm. Incidence of Jassids and white flies were noticed in Vidarbha region. Leaf spots were observed in some pockets. Bacterial blight was noticed, Farmers should take up spray of 2 per cent Urea at flowering and 2 per cent spray of DAP at boll development stage.

### **Madhya Pradesh**

About 1450 mm rains received so far. Earthening is advised in rain fed crop. In irrigated crop, picking started. Precautions should be taken during picking. White fly is still a problem in fields. It should be managed by Triazophos or Difenturon or Bifenthrin as per need. The other pests are below ETL. No disease problem is there.

## **EAST ZONE**

### **Odisha**

The cotton crop is at 14 to 15 week (boll development) stage. Topping should be done when plants reach 1 m height or 90 days old. Spraying should be done with 2% DAP for better boll development. To reduce leaf reddening, spray 1% urea mixed with 1% MgSO<sub>4</sub>. Appropriate control measures for *Alternaria* blight, bacterial leaf spot jassid and aphid infestation that exceeds ETL (for jassids - 2 jassids per leaf and for aphids 15-20% affected plants) and *Spodoptera litura* are to be taken accordingly.

## **SOUTH ZONE**

### **Andhra Pradesh**

The total acreage of cotton in Andhra Pradesh is 21.64 lakh ha during the year 2012-13. During the period under report, good amount of rainfall was received across the State. In Telangana region, the crop is in boll development to initiation of boll bursting stage. Irrespective of the Bt hybrids grown, no boll worm incidence was recorded. In Coastal region, the crop is in flowering to boll development stage. Foliar nutrition of 2% urea or 2% DAP or 2% KNO<sub>3</sub> along with 1% MgSO<sub>4</sub> at square formation, flowering and boll formation is recommended. Moderate to high incidence of leaf hopper and thrips was observed. Sporadic incidence of mealy bug infestation is observed. A booster dose of 30kg urea and 10kg Muriate of Potash is recommended to mitigate the excess moisture conditions. Topping of plants is advised wherever excess plant height is observed.

### **Karnataka**

Rainfall in northern districts during last week of September saved the cotton crop which was showing drooping symptoms due to moisture stress. Moderate rainfall is expected during next week in majority areas as per the weather forecast. For late sown crop, advised top dressing with 25 kg N/ha (i.e. 50 kg Urea/ha) to the 60 days old crop and earthing up of crop with intercultivation. Foliar spray of 2% urea and 2% DAP alternatively at 15 days

interval after 70 DAS with 1% MgSO<sub>4</sub> and Planofix (5 ml in 15 lit of water) to the crop which is at peak flowering and boll formation stage to reduce leaf reddening and square dropping in the crop. In 100 days old cotton crop, it is suggested to spray the crop with recommended pyrethroid for controlling pink boll worm attack and about 750 lit of spray mixture has to be sprayed for one hectare area. Rotting of early formed lower bolls is expected due to cloudy and drizzling conditions.

### Tamil Nadu

Dry weather is continued in all the cotton grown tracts of Tamil Nadu. Winter irrigated cotton in Coimbatore and Erode districts are in vegetative to flowering stage. Premonsoon sowing at Tuticorin district are completed and expected for rainfall. Cotton crop in winter rainfed tract of Perambalur district are suffering due to lack of rainfall. Jassid incidence is severe in all cotton growing areas. Farmers are advised to take up sowing after receipt of sufficient rainfall in the winter vertisol rainfed zone viz., the taluks of Thirumangalam and Peraiyur of Madurai, all taluks of Virudhunagar district, Kovilpatti and Vilathikulam taluks of Tuticorin and Sankarankovil taluk of Tirunelveli district. Acid delinting may be adopted for the varieties selected for rainfed sowing namely KC 2, KC 3 and SVPR 2. Seed treatment with *Trichoderma viride* 4g/kg of seed or Carbendazin 2g/kg of seed may be adopted before sowing to control root rot.

## MANAGEMENT STRATEGIES

### PEST MANAGEMENT

1. **Neem oil 2.5 lit/ha mixed with 0.05% detergent** can be used for the management of jassids or whitefly or aphids.
2. ***Verticillium lecanii*** can be used for sucking pest control wherever good formulations are available from reliable manufacturers.
3. If whitefly and/or jassid damage reaches economic threshold levels of grade-II damage of curling and crinkling of lower leaves and yellowing of margins, any one of the insecticides such as Flonicamid or Fipronil or Dimethoate or Difenthiuron or Acephate or Ethion can be used.
4. If mirid bug is observed in the developing squares, it is advised to spray Acephate 75 SP @ 1 g/lit or Fipronil 5 SC @ 1.0 ml/lit of water
5. For the control of *Spodoptera* sp. farmers are advised to spray 200 ml Rimon 10 EC or 250g Larvin 75WP in 250 litres of water per acre or or SINPV @ 500 LE/ha
6. **On non-Bt American cotton and Desi cotton varieties, use HaNPV on Bt-cotton at 50% bollworm infested plants** (plants having flared squares with entry hole) followed by the application of **5% NSKE** a week later. **Or, use Phosalone** at 50% bollworm infested plants (plants having flared squares with entry hole) or for the management of *Spodoptera* or whitefly.
7. For boll rot complex, spray copper oxychloride (800g/ac) or carbendazim (400 g/ac) in 250 Litres of water. For better results, mix 10g Selvet 99 or 50 ml Triton in 100 litres of fungicidal solution.
8. To minimise shoot weevil damage, it is suggested to spray the crop with Curacron @ 2 ml/lit + (Dichlorovas) DDVP @ 0.5 ml/lit.
9. **Do not spray against minor lepidopteran insects** such as the cotton leaf folder, *Sylepta derogate* and cotton semilooper, *Anomis flava*. The larvae cause negligible damage to cotton but serve as hosts for parasitoids such as *Trichogramma* spp., *Apanteles* spp and *Sysiropa formosa*, that attack *H. armigera*.
10. ***Trichogramma***, if available, can be used on non-Bt genotypes at 70-80 DAS. Avoid *Trichogramma* egg parasitoid releases on Bt-cotton since maximum neonates get killed on Bt-cotton and with *Trichogramma* application becoming superfluous.
11. **Do not spray Bt-formulations on Bt cotton** to avoid further selection pressure.
12. Spray the crop with Profenophos 50 EC @ 2 ml/lit of water / Spray of Thiodicarb 75 WP @ 20 g or Spinosad 45 SC @ 4 ml/10 lit for controlling pink boll worm attack and about 750 lit of spray mixture has to be sprayed for one hectare area.

13. Optimize nutrient management for macro and micronutrients. **Foliar spray of MgSO<sub>4</sub>, 2% Urea followed by 2% DAP**, to ensure proper Cry1Ac expression and also to reduce problems of leaf reddening. Sprays of 1% cobalt chloride and soil drenching with Bavistin 1 % in the initial stage of wilt was found to help in the recovery of plants.
14. **If conventional insecticides are ineffective, use Spinosad, Emamectin benzoate or Indoxacarb or Rynaxypyr on non-Bt-cotton** at ETLs of 50% infested plants (plants having flared squares with entry hole). Spinosad, Emamectin benzoate, Indoxacarb and Rynaxypyr are highly effective on pyrethroid resistant *H. armigera*. Apart from their toxicity to *H. armigera*, Spinosad and Emamectin benzoate are also effective on *E. vittella* and jassids and hence are preferred first over indoxacarb. Both insecticides have a high selective toxicity towards the target pests while being less toxic to many beneficial insects in the cotton ecosystem. These insecticides are ideally suited in eco-sustainable insecticide resistance management programmes.

### WEED CONTROL AND DISEASE MANAGEMENT STRATEGIES

1. Parawilt symptoms are noticed in some fields after rains or irrigation which can be cured by spraying cobalt chloride @10mg/litre (10ppm) on affected plant within few hours of onset of symptoms or a mixture of Copper Oxy chloride 25g and 200g Urea in 10 ltr of water used for drenching.
2. If foliar diseases appear, spray Streptomycin sulphate (6-8 g/ac) plus copper oxychloride (600-800g/ac) in 200-250 L of water at 15 days interval.
3. For Myrothecium leaf spot disease, spray of Streptomycin sulphate (6-8 g/ac) plus copper oxychloride (600-800 g/ac) in 200-250 L of water at 15 days interval can check the further spread of the disease and for better results mix 10g Selvet 99 or 50 ml Triton in 100 litres of fungicidal solution.
4. For sudden drying (New wilt) symptoms at several places, cultivators are advised to drench the affected plants with urea 1.5% immediately.
5. Leaf spots can be controlled by adding 25 g / 10 litres of water copper oxy chloride with insecticide or Dithane M 45 @ 2.5g or Propiconazole 1ml/l of water.
6. Bacterial blight is controlled by spraying of Copper oxy chloride + Streptocycline (25 g + 1 g /10 lit. water ).
7. For control of *Alternaria* blight, spray Mancozeb@2.5 g per one litre of water.
8. For Wilt / Root rot, soil drenching with Copper oxy chloride @ 3g/l or Carbendazim 1g/l is recommended.
9. Rotting of early formed lower bolls is expected due to cloudy and drizzling conditions. Depending upon the severity of the disease, spraying the crop with Mancozeb 75 WP + Chlorothalonil 70 WP each @ 2 g/lit of water is advised.
10. Farmers are advised to spray 2 % urea, 0.5% Zinc Sulphate and 0.2 % Boron, twice at 15 days interval as preventive measures against red leaf.
11. Planofix (NAA) hormone may be sprayed @ 20 ppm (7 ml per 15 litres of water) to reduce square and flower drop.
12. If grey mildew disease is seen on the leaves, it is suggested to spray the crop with Carbendizim or Tridemorph @ 1g/lit of water.
13. To overcome leaf reddening problem, farmers can take up spray of 2% DAP along with 1% Muriate of Potash or KNO<sub>3</sub>.

Note: The advisory is based on inputs received from the State Agricultural Universities of the respective states and for queries or clarifications or details, the Project coordinator (cotton), Coimbatore may be contacted.

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