

# Central Institute for Cotton Research

## Tenth Weekly Advisory for Cotton Cultivation: 25<sup>th</sup> September to 1<sup>st</sup> October 2012

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

The net sown cotton area reached an estimated 114.94 lakh hectares as on 21st September 2012

### NORTH ZONE

#### Punjab

The cotton crop in Punjab is in peak boll development stage. As the rains continue, weeds can be controlled with Paraquat at 500ml/acre or Glyphosate at 1L/acre in 100 L of water with protective hood to avoid drift on to cotton leaves. The infestation of whitefly is very high in cotton growing areas of Punjab which needs immediate spray of recommended insecticides. The incidence of cotton leaf curl virus disease have also been noticed in districts of Bathinda, Mansa and Muktsar in addition to traditional infected areas of Abohar. The infestation of *Spodoptera*, American boll worm and Spotted boll worm were recorded on *desi* cotton and non-*Bt* varieties of American cotton. Appropriate recommended management strategies may be followed. Parawilt symptoms are noticed in some areas. Farmers are advised to visit and monitor their cotton field for insect pests and diseases regularly.

#### Haryana

Cotton crop is now in reproductive stage. In general the crop is healthy. Foliar application of 1% KNO<sub>3</sub> at flowering and boll formation stage is recommended. During survey in Hisar, Fatehabad and Bhiwani districts, the following observations were made. Population of whitefly and leaf hopper were kept in check below economic threshold through application of insecticides. No incidence of pink bollworm and spotted boll work was observed. The incidence of *Spodoptera* was observed in 35% fields and the larval population was very high (4-5 larva/plant) in village Bosti (Hisar). Mealybug was kept in check by the parasitoid *Aenasius bambawalei* and the pest was found only in traces in 25% cotton fields. At few farmer's field in Hisar and Bhiwani districts, Myrothecium leaf spot was observed. Farmers are advised to monitor their crop for insect pests and diseases regularly. Among the diseases, leaf spots have been recorded at many locations. The problem of root rot & parawilt has been recorded. Incidence of CLCuD has also been recorded which was specific to hybrid and region. Farmer have been advised to manage whitefly. Presently crop is in reproductive stage. In *Desi* cotton sown in April, some of the bolls have opened

#### Rajasthan

The weather during next 4 days would be stable with light rains during first three days. As the crop is in peak boll development stage, Water logging is to be avoided by draining out water from the field. The incidence of sucking pests are on the rise with jassids/ White fly/ Thrips population of 5-6/3 leaves; 30-32/3leaves; 22-25/3 leaves respectively. Due to incessant rains and cloudy weather, parawilt is also observed. Cotton leaf virus is noticed in some pockets.

## CENTRAL ZONE

### Gujarat

Medium to heavy rainfall occurred in all over Gujarat state. Weather condition is satisfactory for cotton crop. Among sucking pest, jassids and thrips' severe infestation was recorded in Bt as well non Bt cotton. The incidence of jassids was above ETL and thrips was very low. Aphid, whitefly and mealy bug population were observed below ETL throughout the week. Population of mite was observed at some farmers field below ETL and mirid bug population was not found during this period, but stem borer infestation was observed only early sowing in 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 in 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 the cotton in the farmers' field as well as 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

At Nanded, pre-Seasonal Cotton in Marathwada is in boll development stage where as rainfed cotton is in flowering stage. Continuous rain during the last week has created water logging condition in low lying fields. Improving soil drainage by opening trenches is advocated. Wilting symptoms should be taken care of immediately. Infestation of jassids and thrips is observed in many areas. Foliar application of Urea / DAP @ 2 % may be done at flowering and boll development stage. MgSO<sub>4</sub> is recommended @ 0.2 % (20 g/ 10 lit.) at 75 DAS foliar application of 2 % KNO<sub>3</sub> may be done during boll formation and boll development stage. Spray of Carbendazim @ 10 g or 80 % Sulphur @ 25 g / 10 lit. should be done as precautionary measure for Grey mildew at 60 and 90 DAS. At Akola, population of jassids and whiteflies were noticed in Vidarbha region. Leaf spots were observed in some pockets. Bacterial blight is noticed in some areas.

### Madhya Pradesh

There was no rain during last week and conditions were favourable for weeding and interculture. Cultivators are advised to give dose of fertilizer in rainfed fields. Earthing operations are to be performed. Picking is started in summer sown irrigated crop. White fly is posing problem in most of the fields and its population is above ETL. Thrips incidence is also recorded. The overall area under BG I is much less and in few fields, incidence of *Spodoptera* is also observed. This is noticed only on those fields which were adjoining to the previous soybean fields and were mostly affected by *Spodoptera*.

## EASTERN ZONE

### Odisha

The cotton crop is at twelve to thirteen weeks (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>. Management strategies for *Alternaria* blight

and bacterial leaf spot, can be followed as given under. The same is applicable to control jassid, aphid population and *Spodoptera litura*.

## SOUTHERN ZONE

### Andhra Pradesh

The total acreage of cotton in Andhra Pradesh is 21.64 lakh ha during the season. The crop is in squaring to boll development stage. In general, the crop condition is satisfactory. Third top dressing of N & K fertilizers is recommended for early sown crop. 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. In general, very low or no incidence of commonly occurring diseases was observed. A booster dose of 30kg urea and 10kg Muriate of Potash per hectare is recommended to mitigate the excess moisture conditions.

### Karnataka

In the early sown crop in southern districts, the crop is 100-110 days old. Foliar spray of 2% urea or 2% of 19:19:19 soluble fertiliser 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 menace. As dry spell is prevailing in majority part of cotton growing areas, it is suggested for light irrigation wherever irrigation facilities are available.

### Tamil Nadu

As the rains are insufficient, the sowing of cotton in the rainfed belts of 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 can be delayed by one more week. Dry weather is continuing in winter irrigated cotton tracts of Tamil Nadu. Few places in Southern districts of Tamil Nadu received one or two rains

## 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. 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.

5. **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.
6. **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*.
7. **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.
8. **Do not spray Bt-formulations on Bt cotton** to avoid further selection pressure.
9. 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.
10. **If conventional insecticides are ineffective, use Spinosad, Emamectin benzoate or Indoxacarb or Chlortraniliprole (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 ecosustainable insecticide resistance management programmes.

## 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.
6. Bacterial blight is controlled by spraying of Copper oxy chloride + Streptocycline (25 g + 1 g /10 lit. water ).
7. There is incidence of *Alternaria* blight in some patches. To control it spray Mancozeb@2.5 g per one litre of water.

8. Wilt / Root rot is observed and 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.

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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