

Central Institute for Cotton Research

Ninth Weekly Advisory for Cotton Cultivation: 18 to 24 September 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 116.2 lakh hectares by 17th September 2012.

NORTH INDIA

Punjab

In Faridkot area of Punjab, parawilt is observed after rains. Spray cobalt chloride @10mg/litre (10ppm) on affected plant within few hours of onset of symptoms. Bollworms incidence on non-bt cotton needs to be regularly monitored. Complete Potassium nitrate sprays @ 2% per acre and repeat 3-4 times at weekly intervals. 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 sucking pests especially whitefly is quite high in cotton growing areas of Punjab. The recommended insecticides should be sprayed immediately for the control of these pests. Cotton leaf curl virus disease has also been observed in areas of cotton cultivation in Punjab. Appropriate recommended management strategies may be taken for this. As the crop is in flowering to boll development stage, irrigation should be applied where sufficient rainfall is not there. The continuous cloudy weather may increase the attack of pests and diseases, so farmers are advised to monitor their crop for insect pests and diseases regularly.

Haryana

Cotton crop is now in reproductive stage. In general the crop is healthy. Excessive nitrogen application may be avoided. Foliar application of 1% KNO₃ at flowering and boll formation stage is recommended. During survey in Hisar, Rohtak, Fatehabad & Jind districts, the following observation were made. Population of whitefly was quite low (0.03 to 1.6 adults/leaf). It was kept in check by the farmers through application of insecticides. No incidence of bollworms and *Spodoptera* was observed. Leafhopper population ranged from 1 to 2.5 nymphs and adults per leaf. Twenty four per cent fields had mealy bug infestation but the infestation was in traces only on few plants near the border. Activity of mealybug and its parasitoids was also recorded on *Parthenium Abutilon* weeds, and the parasitoid is expected to keep the pest under check. Since high humidity and high temperature are prevailing, the population of leafhopper may increase in the coming fortnight. If dry conditions prevail, the population of whitefly may increase. Bollworm infestation needs to be monitored on non-Bt varieties and Desi cotton varieties. Leaf curl virus disease has been noticed in some localized area of Hisar, Hansi, Barwala and Jind subdivisions of Hisar and Jind districts. At farmers field in Hisar and Bhiwani districts, Myrothecium leaf spot disease was observed. 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. If heavy rains occur, proper drainage is required. Farmers are advised to monitor their crop for insect pests and diseases regularly.

Rajasthan

The cotton crop is in peak boll formation stage. Sucking pest (Jassids and, whitefly and thrips) in American cotton and spotted bollworm in Desi cotton were the major problems during the week. The Leaf curl disease is also being observed in most of the hybrids. At Banswara, the cotton crop is in boll development stage. For parawilt, Cobalt chloride 100ppm solution or solution of urea 1.5kg /100liter water is being recommended. The weather during next 4 days would be stable with light rains during first two days. Farmers are advised to drain water from the field.

CENTRAL INDIA

Madhya Pradesh

The cotton crop was waterlogged due to heavy rains (1400 mm). Farmers got very less opportunity for field operations. Due to water logging there was problem of new wilt. The farmers are advised to drench the soil around affected plants with urea 1.5% or drenching of Propiconazole @ 2 ml per litre around affected plants.

Gujarat

As per the latest available information, nearly 23 lakh hectares covered under cotton crop. Medium to heavy rainfall occurred in all over the state. Weather condition is satisfactory for cotton crop. Among sucking pests, severe infestation of jassids and thrips was recorded in Bt as well as in non Bt cotton. Besides, sporadic infestation of *Helicoverpa* and *Earias* were observed. Appropriate measures may be suggested. Aphids, whitefly and mealy bug population were observed below ETL throughout the week. Population of mite was observed at some farmers field above ETL and mirid bug population was not found during this period, but stem borer infestation was observed in Agronomy and Plant breeding trials as well as on some farmers field. The incidence of *Helicoverpa* and *Earias* was very low in Non Bt cotton hybrids while, *Spodoptera* was not found during the week. *Coccinellids* and Spiders were noted and *Chrysoperla* was not found during mid week.

Reddening, cracking and leaf shattering of leaf was observed in some varieties of cotton both in farmers field as well as at Cotton Research Station due to rains 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. If humid/ cloudy weather continues to persist then spray application of Steptocycline@0.1g with Copper Oxychloride 2.5g per litre water is advised

Maharashtra

Irrigated cotton in Marathwada is in boll development stage where as rainfed cotton is in square formation to flowering phase. Infestation of Jassids, Thrips and White flies were observed on irrigated cotton whereas jassids and thrips infestation is observed in rainfed cotton. Insecticide sprays should be done considering ETL. Second top dressing of nitrogen should be done at 8 weeks after sowing @ 36 Kg N / ha under rainfed condition if not done previously. Spray of MgSO₄ @ 0.2 % should be given at 45 DAS and 75DAS. Foliar application of KNO₃ should be undertaken at flowering and boll development stage. Shedding of squares and flowers is observed in some areas. Foliar spray of NAA @ 2 ml / 10 lit water is advised. Wilting

of plants is reported in some pockets where good quantum of rainfall is received. Drenching of Copper Oxy Chloride (COC) @30 g / 10 lit water along with improving soil drainage by opening of trenches should be followed. The population of thrips and whiteflies were noticed in Vidarbha region. IPM practices like installation of yellow sticky trap (12 traps per ha) should be used . Leaf spots were observed in some pockets for which 25 g / 10 litres of water copper oxy chloride should be added with insecticide. Bacterial blight is noticed. Spraying of Copper oxy chloride + Streptocycline (25g + 1g /10 lit. water) is recommended

Odisha

The cotton crop is at eleven to twelve weeks (boll development) stage. Planofix (NAA) hormone may be sprayed @ 20 ppm (7 ml per 15 litres of water) to reduce square and flower drop. 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% MgSO₄. There is incidence of *Alternaria* blight in some patches. To control it, spray Mancozeb@2.5 g per one litre of water. For management of bacterial leaf spot, spray Steptocycline@0.1g with Copper Oxychloride 2.5g per one litre water. For reducing the jassid and aphid population, first spraying should be done with neem based pesticide (1500 ppm) @ 3 ml/litre of water. If the pest population exceeds ETL (for jassids - 2 jassids per leaf and for aphids 15-20% affected plants) insecticides may be used. To control *Spodoptera litura*, may be effectively controlled with SINPV @ 500 LE/ha. For mass trapping of the male adults, install Pheromone traps @ 20 Nos/ha.

SOUTH INDIA

Andhra Pradesh

The total cultivated area of cotton in Andhra Pradesh is 21.40 lakh ha during the year 2012-13. The crop is in flowering, boll formation and in 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% KNO₃ at square formation, flowering and boll formation is recommended. Moderate to high incidence of leaf hopper and thrips was observed. Wherever the sucking pest damage exceeds threshold levels as recommended by ANGRAU, insecticide control measures may be taken up. In general, very low or no incidence of commonly occurring diseases was observed.

Karnataka

At Dharwad, foliar spray of 2% urea or 2% of 19:19:19 soluble fertiliser with 1% MgSO₄ and Planofix (5 ml in 15 lit of water) to the crop which is at peak flowering and boll formation stage should be sprayed to reduce leaf reddening menace. *Spodoptera* incidence is reported in some parts of northern districts in 40-45 days old crop. 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. Suggested spraying the crop which is at boll development stage with Mancozeb 75 WP + Chlorothalonil 70 WP each @ 2 g/lit of water to check the rotting of early formed bolls. In the early sown crop in southern districts where the crop is 100-110 days old, it is suggested to monitor the incidence of pink boll worm. Ovicidal spray of Thiodicarb 75 WP @1g/lit of water is suggested. Light irrigation is advisable in black soils during the dry spell wherever the crop is under protective irrigation

Tamil Nadu

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. Pre-monsoon sowing is in progress in winter rainfed cotton area of Tuticorin district. Dry weather continuing in winter irrigated cotton tracts.

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. **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.
5. **Do not spray against minor lepidopteran insects** such as the cotton leaf folder, *Sylepta derogata* 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*.
6. ***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.
7. **Do not spray Bt-formulations on Bt cotton** to avoid further selection pressure.
8. Optimize nutrient management for macro and micronutrients. **Foliar spray of MgSO₄, 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.
9. **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 (600-800 g/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.
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.

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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