

Central Institute for Cotton Research

Seventh Weekly Advisory for Cotton Cultivation: 3 to 9 September 2012

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

The net-sown cotton area in the country reached 112.83 lakh hectares by 31st August 2012

NORTH INDIA

The area in north India was 15.66 lakh hectares. Crop in North India is in reasonably good condition. Jassids and whitefly infestation is high in some susceptible hybrids in parts of Punjab. Incidence of cotton leaf curl virus has been reported from Abohar and parts of Rajasthan. It is important to get rid of alternate host weeds of whiteflies and use efficient control measures for whitefly management.

Punjab

Continuous cloudy weather and rains over the week may increase the attack of sucking pests and bacterial blight disease so farmers are advised to monitor their crop for insect pests and diseases regularly. The crop is in fruiting phase and healthy. Whitefly and jassids' incidence continues to be high and recommended plant protection measures may be initiated. Spray Potassium nitrate 2% per acre and repeat 3-4 times at weekly intervals as the flowering has initiated. If Parawilt symptoms occur after irrigation or rains, spray cobalt chloride @ 10mg/litre (10ppm) on affected plant within few hours of onset of symptoms. 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.

Haryana

The crop is now in reproductive stage. In general the crop is healthy. Apply one third recommended dose of nitrogen fertilizer. Excessive nitrogen may be avoided. Foliar application of 2½% urea at flowering and boll formation stage is recommended. Weeding, interculture and fertilizer application must be done immediately during rain free period. In case of **2-4,D malformation** after cutting the malformed twigs, spray the crop with 2.5 kg of urea plus 500 g ZnSO₄ in 100L of water. In the last week of August, whitefly infestation was below economic threshold level. However leafhopper infestation varied from economic threshold to above threshold level. During this period, average maximum and minimum temperature ranged from 25°C to 32°C. The leaf hopper population on cotton may increase if rain occurs frequently and mean relative humidity above 70 per cent. The rains and cloudy condition over the week can trigger sucking pests and foliar diseases in cotton growing area of Haryana. If foliar diseases appear, spray streptomycin sulphate (6-8 g/ac) plus copper oxychloride (600-800 g/ac) in 200-250 L of water 3-4 times at 15 days interval. In root rot disease patches, soil drenching with Carbendazim solution @ 2 g/L water can stop 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

Cotton area this year reached 4.50 lakh hectares in the state. In Northern parts of Rajasthan the crop is in boll development stage. The weather is cloudy and temperature is around 35-38°C. Spotted boll worm infestation was recorded on Desi cotton and non-Bt varieties of American cotton. Appropriate recommended management strategies may be initiated.

In Southern Rajasthan, the weather condition during next week would be stable with scanty to heavy rains. Farmers are also advised to plough-in the green manuring crops and for conservation of rain water. Water stagnation in crops may be avoided. Farmers are advised to have need based inter culture operations in maize & cotton with urea top dressing. Excess moisture in field may be drained out. Parawilt can be effectively managed in the early stages using cobalt chloride 100ppm solution or solution of urea 1.5kg /100liter water.

CENTRAL INDIA

Crop in Saurashtra and Kutch regions of Gujarat is yet to recover from the early drought stress. Much of the crop in Gujarat was sown late and needs proper nutrient management to ensure that the crop gains proper growth. Cotton in the eight major cotton growing districts of Marathwada in Maharashtra, has been facing drought like conditions. Parts of MP and western part of Vidarbha also faced initial drought and sowing was taken up in late June and early July. Eastern districts of Vidarbha received good rains and crop is in good condition. Cotton area in AP reached record levels of more than 21 lakh hectares and the crop is in good condition. Drought like conditions also prevailed in Karnataka.

Madhya Pradesh

Spray of insecticide, weeding & interculture operations etc are in progress in rainfed cotton. In Indore region, due to continuous rains in August, crop growth is stunted in some villages. Due to the dry conditions that prevailed in the last week of August, this week inter-culture operations can be initiated. Flower drop occurred due to rains in nearby areas. Attack of sucking pests such as jassids, aphids and white fly were noticed in the fields. Management strategies may be initiated as per recommendations.

In Khandwa region, a total of 1016 mm rains received so far in the tehsil which is quite above the average. The conditions were favourable for weeding, inter-culture & fertilizer application. Jassids attack require continuous monitoring and management. Infestation of thrips and whiteflies are below ETL.

Gujarat

Cloudy weather with sporadic rain however is still not congenial for the cotton crop. Saurashtra and Kutch areas are still reeling under water stress. In some part of the State, rainfall occurred though it was lacking in most of the areas. Jassid and thrips infestations were observed in parts of the state. In the non-Bt cotton, sporadic infestation of the cotton leafworm, *Spodoptera litura* was observed. Recommended plant protection measures may be initiated to manage the leafworm and sucking pests in susceptible hybrids if the damage reaches economic threshold.

Maharashtra

Cotton area reached 41.0 lakh hectares in the state.

In the Marathwada region, pre-seasonal cotton, sown under drip irrigation in May, is in flowering to boll development stage where as rainfed cotton is in vegetative growth phase. Infestation of Jassids, Thrips and White flies is observed in pre-seasonal cotton where as Aphids, Jassids and Thrips infestation is observed in rainfed cotton. Second dressing of nitrogen should be done at 8 weeks after sowing @ 36 Kg N / ha. Spray of MgSO₄ @ 0.2 % should be given at 45 DAS and 75 DAS.

The total rainfall received at Akola centre was 487.7 mm. Incidence of Aphids, thrips and Jassids were noticed in Vidarbha region. Farmers should go for spraying of Dimethoate 30 EC @ 10 ml or Methyl Demeton 25 EC @ 8 ml or Acetamipride 25 % @ 1.5ml per 10 liter of water. Leaf spots were observed in some pockets to control this disease. 25 g / 10 litres of water Copper oxy chloride should be added with insecticide. Bacterial blight is noticed for which Copper oxy chloride + Streptocycline (25 g + 1 g /10 lit. water) is recommended.

In the Vidarbha region, crop is in good condition in parts, especially in the eastern region. The total rainfall received at Akola centre was 488 mm. Incidence of Aphids, thrips and Jassids were noticed in Vidarbha region. Leaf spots were observed in some pockets. 25 g / 10 litres of water with copper oxy chloride should be added along with insecticide. Bacterial blight is noticed for which spraying of Copper oxy chloride + Streptocycline (25 g + 1 g /10 lit. water) is recommended. Due to continuous rains since last 25 days, farmer could not take intercultural operations. Top dressing of urea application may be done immediately after weeding. In case of water logging, excess water should be removed from field. Farmers should take up intercultural operations. If top-dressing has not been done as yet, urea application may be done immediately after weeding.

The crop is in boll bursting stage in Khandesh and Western Maharashtra region. The regions where there is intermittent rainfall viz: Jalgaon, Dhule, Pune districts of MPKV, Rahuri jurisdiction, there may be possibility of the incidence of fungal foliar disease and bacterial blight. As a precautionary measure it is essential to undertake 2-3 Sprays of (Copper oxichloride 25 gm + Streptocyclin 1 gm)/10 lit. of water, where the crop is at square formation stage. The sowing of Bt. cotton before 20th May (2nd fortnight of May) is suffering from Para wilt incidence. The Para wilt syndrome may be rectified to some extent by drenching of 100-150 ml solution containing Urea (1.5 %) + Potash 1.5 %) followed by drenching of DAP (2%) at 15 days in same manner to affected plants. For good results, drenching treatment followed by light irrigation. Also, it is advised to drain out excess water saturated in fields of cotton. Wherever irrigation facilities are available, it is recommended to irrigate the cotton field by alternate furrow method. Use sprinkler or drip irrigation wherever possible. Carryout inter-culture operations like hoeing and mulching in cotton field to maintain the moisture in the soil.

Odisha

The crop is about eight 50-60 days old (square and flower formation) stage. Third top dressing must be done with 25% N. Planofix (NAA) hormone may be sprayed @ 20 ppm (7 ml per 15 litres of water) to reduce square and flower drop. There is incidence of *Alternaria* blight and Bacterial leaf spot in some place. Spray Mancozeb@2.5 g per one litre of water for *Alternaria* blight and for bacterial leaf spot spray Streptocycline @0.1g with copper oxychloride 2.5g per one litre water. Wherever *Spodoptera litura* and sucking pest infestations are noticed, recommended plant protection measures must be initiated based on the advisory issued by the State Agricultural University.

SOUTH INDIA

Andhra Pradesh

Cotton area reached an all time record in the state at 21.0 lakh hectares. In the Telangana region, the crop is in squaring to flowering stage. Depending upon the moisture availability farmers are advised to take up second split application of fertilizers. Spodoptera pest incidence (migratory) is reported on bollgard and bollgard-II in some places, for which spraying of Novaluran / Thiodicarb is recommended.

In the coastal region the crop is in vegetative to squaring stage. Taking the advantage of the rains received during the last week, farmers are advised to go for second split application of fertilizers. As per the recommendations of ANGRAU, stem application may be taken up with with monocrotophos + water (1:4) for the control of sucking pest complex. Wilt/rot is observed and soil drenching with copper oxy chloride is recommended. Due to the intermittent rains where ever, inter-cultivation is not possible for the control of grassy weeds, spray 400 ml of quizalafop ethyl in 200 l of water per acre. For the control of broad leaves, spray 250 ml pyriithiobac sodium in 200 l of water per acre. Foliar nutrition with 2% urea or 2% DAP or 2% KNO₃ at square formation, and flowering stage is recommended.

Karnataka

Scattered rainfall in coastal districts of the State and no rainfall in northern districts during next week as per the forecast of Meteorology department. Top dressing with urea @ 25 kg/acre and earthing-up of the crop with inter-cultivation is suggested where ever the crop is of 50-60 days old. Advised foliar spray of 2% urea or DAP or 2% KNO₃ or 1% 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 boll formation stage. Topping is advised in inter-specific Bt hybrid crop of 85-90 days old to check the vegetative growth and reduce the sucking pest incidence. Suggested for close monitoring of mirid bug in the crop which is at peak square formation stage and advised need based control measures with spraying of Acephate 75 SP @ 1 g/lit of water if the insect is noticed. The crop under protective irrigation may be irrigated by adopting alternate furrow method of irrigation at critical stages like flowering and boll formation stage. Heavy irrigation in black soils to be avoided. Advised application of fertilizer to desi cotton crop sown during first week of this month @ 40:25:25 N-P-K kg/ha if not applied at sowing. Intercultivation and hand weeding operations may be initiated in *herbaceum* and *arboreum* cotton varieties sown during July and August first week.

After long dry spell i.e after a month, Raichur and surrounding areas have received rainfall. Thrips population ranged from 2-16/ three leaves. Leafhopper population ranged from 2-12/ three leaves. Aphids population ranged from 2-9 / three leaves. Natural enemies (Spiders, coccinellid grubs, chrysopa grubs) were also noticed. In general, thrips population is high followed by leafhoppers and aphids

Tamil Nadu

In the summer irrigated zones of Tamil Nadu (Parts of Tirunelveli, Virudhunagar, Ramanathapuram, Madurai districts) if picking of kapas was completed, it is advised to uproot the cotton plant from the field to avoid the carry over population of stem weevil in the preceding winter rainfed crop. The winter vertisol rainfed zone with high rainfall of Madurai, Tuticorin, Tirunelveli and Virudhunagar districts receive retreat of southwest monsoon in this week. Hence, the farmers of Thirumangalam Taluk of Madurai, Tiruchurapalli and Aruppukottai Taluks of Virudhunagar district are advised to take up sowing after receipt of sufficient rainfall.

The sowing is in progress at Coimbatore and surrounding areas. Winter rainfed sowing in Annur area of Coimbatore district is in progress. Few farmers started the premonsoon sowing in rainfed tract of Tuticorin District of Tamil Nadu. Sowing was completed nearly 50 percent in Perambalur district under rainfed condition.

MANAGEMENT STRATEGIES

1. **Stem application or soil application** (near the root zone) of dimethoate or acephate at 30-40 DAS and 50-60 DAS for effective eco-friendly control of thrips, mirid bugs, mealy bugs and other sucking pests.
2. **Neem oil 2.5 lit/ha mixed with 0.05% detergent** can be used for the management of jassids or whitefly or aphids.
3. ***Verticillium lecanii*** can be used for sucking pest control wherever good formulations are available from reliable manufacturers.
4. 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.
5. **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 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*.

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 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.
10. **Use Spinosad or Indoxacarb on only non-Bt-cotton** at ETLs of 50% infested plants (plants having flared squares with entry hole). **Avoid these insecticides on Bt-cotton** so that the efficacy of these insecticides can be preserved for bollworm control in non-Bt cotton. Spinosad, Emamectin benzoate and Indoxacarb 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

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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