

Pest of cotton



Major Pests of Cotton

1.	Spotted bollworms	Earias vittella & E. insulana	Noctuidae	Lepidoptera
2.	American bollworm/ Green bollworm	Helicoverpa armigera	Noctuidae	Lepidoptera
3.	Cotton pink bollworm	Pectinophora gossypiella	Gelechiidae	Lepidoptera

Pests of Cotton – Sap Feeders & Foliage Feeders

Major Pests				
1.	Leafhopper	Amrasca devastans	Cicadellidae	Hemiptera
2.	Cotton aphid	Aphis gossypii	Aphididae	Hemiptera
3.	Thrips	Thrips tabaci	Thripidae	Thysanoptera
4.	Whitefly	Bemisia tabaci	Aleyrodidae	Hemiptera
5.	Mealy bug	Phenacoccus solani Paracoccus marginatus	Pseudococcidae	Hemiptera



1. Spotted bollworms: *Earias vitella* & *E. insulana*

Host range: Cotton, bhendi, holly hock, *Hibiscus*.

Damage symptoms

- Small caterpillar bores into top tender shoot, the portion of the shoot above the damage withers, droops and dries up. Depending upon the locality up to 50 percent of the crop may be damaged in this manner.
- When the squares and bolls begin to develop, these caterpillars move from the shoots and start damaging bolls by making conspicuous holes into them.
- The developing bolls are also damaged and some of the damaged bolls fall to the ground.
- The infested bolls, which are not shed, are destroyed by the larvae eating the seeds and filling them with excrement. Such affected bolls may open prematurely and badly.

2. American bollworm/Green bollworm: *Helicoverpa armigera*

Host range: Sorghum, lablab, soybean, peas, sunflower, safflower, chillies, groundnut, tobacco, bhendi, maize, tomato.

Damage symptoms

- The caterpillars feed on leaves, squares, flowers and small bolls.
- Caterpillars attack the squares, flower and bolls by thrusting their head inside and leaving the rest of the body outside.
- The damaged squares and young bolls drop away from the plants.
- The developed bolls and open bolls are not attacked

ETL: 10% of affected fruiting parts or bolls or one egg/plant or one larva/plant

Management of bollworms

Monitoring

- Pest monitoring through light traps, pheromone traps.

Cultural practices

- Grow Bt cotton viz., Bollgard.
- Grow *Helicoverpa* resistant varieties like L 1245, LD 135, Sujata, LK 861, Abadhita.
- Grow spotted bollworm resistant varieties like L 1245, JK 119-25-54, BCS 10, BCS 10-75, FBRN 2-6, HAO 66- 107-1/1, Hopi, Deltapine, LH 95, UK 48G 27, Sanguineum

Biological control

- Conservation and augmentation of natural predators and parasites for effective control of the pest.
- release of egg parasite, *Trichogramma* spp.

Chemical

- During the early stages of square formation, apply endosulfan 35 EC @ 0.2 l/ha.

3. Cotton pink bollworm: *Pectinophora gossypiella*

Host range: Cotton, bhendi, holly hock and other malvaceous plants

Damage symptoms

- The caterpillars feed on flower buds, flowers and bore into bolls.
- When they are found in flowers, the flowers do not open and give rosette appearance
- They also feed on developing anther and style and occasionally on ovary
- The young bolls, when attacked, are shed after a few days.

Management

- Use pheromone trap @ 12/ha to monitor the adult moth activity.
- During bolling and maturation stage, spray fenpropathrin 30 EC 250-340 ml or fenpropathrin 10EC 750-1000 ml or triazophos 40 EC 1.5 - 2.0 L or cypermethrin 10 EC 500-700 ml or 25 EC 180-250 ml or phosalone 35 EC 2.0 L or quinalphos 20 AF 1.75- 2.5 L in 1000 L of water/ha
- Spray triazophos 40 EC 2.0 Land endosulfan 35 EC 2.0 L in alternation even after 100 DAS in problem areas.

4. Leafhopper: *Amrasca devastans*



Host range: Cotton, potato, brinjal, castor, bhendi, tomato, hollyhock and sunflower.

Damage symptoms

- Both nymphs and adults suck the sap from the under surface of leaves, tender leaves turn yellow, leaf margins curl downwards and reddening sets in.
- In the case of severe infestation leaves get a bronze or brick red color which is typical "hopper burn". Crop growth retarded.

ETL: 50 nymphs / adults per 50 leaves or yellowing and curling from the middle to upper portion of the plants in 25% of plants in the field

Management

- Early sowing and close spacing of cotton reduce pest infestation particularly if the rainfall is heavy.
- Release predators viz., *Chrysopa carnea*.
- Spray monocrotophos 36 WSC @ 1000 ml/ha and NSKE 5% @ 25 kg/ha or 750 ml endosulfan 35 EC in 1000 L of water per hectare.
- Use resistant varieties like MCU 3, MCU 5 and MCU 9.

5. Cotton aphid: *Aphis gossypii*



Host plants: Cotton, bhendi, brinjal, chillies, guava

Damage symptoms

- It is a potential pest on cotton infesting tender shoots and under surface of the leaves.
- They occur in large numbers, suck the sap and cause stunted growth, gradual drying resulting in death of the plants.
- Development of black sooty mould due to the excretion of honey dew gives the plant, a dark appearance

ETL: 5% of infested plants.

Management

- Monitor the nymphs and adults of early season sucking pests from the 14th day after sowing.
- Conserve natural enemies viz., *Monochilus sexmaculatus*, *Coccinella septumpunctata*, *Aphelinus mali*, *A. flavipes*, *Phylloscopus tristis*
- Spray any of the following insecticides with 500 L water/ha.

6. Thrips: *Thrips tabaci*



Damage symptoms

- Both nymph and adult lacerate the tissue and suck the sap from the upper and lower surface of leaves and in cases of severe infestation they curl up and become crumbled.
- Silvery sheen on the lower surface can be seen in early stages of attack.

ETL: 1 No. /leaf

Management

- Monitor the nymphs and adults from the 14th day after sowing.
- Spray any one of insecticides

Buprofezin 25 SC 1000 ml	Profenofos 50 EC 1000 ml
Diafenthiuron 50 WP 600 g	Thiacloprid 21.7 SC 100-125 ml
Fipronil 5 SC 1.5-2.0 L	

7. Whitefly: *Bemisia tabaci*



Host range: Cotton, tomato, tobacco, sweet potato, cassava, cabbage, cauliflower, melon, brinjal and bhendi.

Damage symptoms

- Nymphs and adults suck the sap from the under surface of leaves.
- Severe infestation results in premature defoliation, development of sooty mould, shedding of buds and bolls and poor boll opening.
- It also transmits the leaf curl virus disease in cotton.

ETL: 5-10 nymphs / leaf

Management

- Use white fly tolerant varieties like LK 861, Amravathi, Kanchan, Supriya, LPS 141
- Treat 100 kg seeds with Imidacloprid 48 FS 500-900 ml or Imidacloprid 70 WS 500-1000 g Thiamethoxam 30 FS 1.0 L l or Thiamethoxam 70 WS 430 g.
- Spray NSKE 5% and neem oil 5 ml or fish oil rosin soap at 1 kg / 40 L of water (or) in combination with recommended dose of insecticide (2 ml/L).

8. Mealy bug: *Phenacoccus solan*



Host range: Polyphagous pest. Ornamental plants, fruit crops, vegetables and field crops. Ninety-one host plants spread across 24 families has been recorded in India till date.

Damage symptoms:

- Plants infested during vegetative phase exhibit symptoms of leaf curling, distorted and bushy shoots, crinkled and/or twisted and bunchy leaves.
- Late season infestation during reproductive crop stage results in late opening of bolls, reduced plant vigour, early crop senescence, affecting the yield badly.

Management

- Spray biopesticides viz., *Verticillium lecanii* (Potency 2 X 10⁸ C.F.U /gm) 10gm/l and *Beauveria bassiana* (Potency 10⁸ spores/ml) 10ml/l.
- Spray less hazardous insecticides, such as acephate, 75 SP 2.0 kg, malathion 50 EC 2 L, buprofezin 25 SC 2.0 L/ha. As the last option, spray moderately hazardous insecticides: Quinolphos 25 EC or Chlorpyrifos 20EC 3 L or



Profenophos 50EC Thiodicarb 75WP 5.0gm/l 2.5 L in 800- 100 L of water per ha.

- Neem Seed Kernel Extract (NSKE 5%) 50ml/L + Neem oil 5ml/ L + detergent powder 1gm/L or Fish oil rosin liquid 10 ml mixed with neem 10ml/L or Karanj oil 10ml /L can be sprayed as spot application on infested stalks.

Minor Pests

Minor Pest		
1	Red cotton bug (Minor but regular)	<i>Dysdercus cingulatus</i>
2	Dusky cotton bug (Minor but regular)	<i>Oxycarenus hyalinipennis</i>
3	Tobacco Cutworm	<i>Spodoptera litura</i>
4	Leaf roller	<i>Sylepta derogata</i>
5	Semiloopers	<i>Anomis flava Xanthodes graelsi</i> <i>Tarache nitidula</i>

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