

Pink Cotton Boll Worm

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Local name - Kapas ki lal surhi

Scientific name - *Pectinophom (Platyedra) gossypiella* Saund.

Order : Lepidoptera

Family : Gelechiidae.

Host plant: Mainly cotton, but some time on Deccan Hemp .Kanghi and Gulkhara etc. .

Distribution

It is widely distributed and probably the most serious cotton pest on a world basis . Besides India , it is mainly found in Myanmar , Sri Lanka , Egypt , South Africa , Maxico , Brazil , Hawaii , Philipines and Australia . In India , it was first of all found in Mumbai (Maharashtra) during 1842 and now distributed in U.P. , Punjab , Rajasthan , Andhra Pradesh , Gujarat , Bihar and other cotton growing states .

Nature of damage

The damage is caused by the larvae which bore into flower buds , flowers and young bolls . The young attacked bolls are invariably fall down . The pink boll worm larve do most spectacular damage to practically mature cotton bolls in which they enter at such a tiny stage (just - hatched larvae) that their entry hole gets healed and in which they devour both seed and fibre - forming tissues . The infestation some times is so severe that up to 10 caterpillars may be found in a single boll and 75 to 100 per cent bolls may be infested The oil content and the germinating capacity of the seed and lint formation are badly affected The American cotton is more damaged than the Desi cotton and may cause 25-50 % loss . The larva of spotted boll worm prefer to eat the gynaecium , while pink boll worm cats anthers of the flowers , the holes on big bolls are plugged by the former , while remain open in case of later.



Life history

There are four developmental stages viz, egg , larva , pupa and adult are found in its life cycle as described below:

Egg: The female moth starts egg laying after 1 or 2 days of copulation. The eggs are laid singly or in batches of 2-10 on leaves, buds , flowers and bolls . A single female can ac 125 to 300 eggs which are 0.50 mm in length and 0.30 mm in breadth. The egg are flattened, elongated and nearly white when laid freshly , becoming brown on the third day and deep brown at the time of hatching . The hatching period varies from 4 to 29 days depending upon the environmental conditions. In U.P. during rainy season , it hatches in 4-5days.

Larva: The newly hatched larva is colourless and about 1 mm in length . It bores into the boll, begins to feed on seed and when one seed is finished , it passes onto the next . The entry holes get quickly healed up and it is difficult to distinguish an infested boll from an uninfested one . The full grown caterpillar is 13 x 2 mm long and pinkish in colour. The larvae undergo generally 3 moults and the larval period depends on two distinct types of life cycle referred as short life cycle and long life cycle. The short life cycle is completed just like other lepidopterous pest in 30 to 90 days.

In case of long life cycle, the larvae enter in to resting stage where they remain over a period of 8-12 months and sometimes up to 2 years before they pupate and moths emerge . The interesting point in the long life cycle is that at certain time of the year. two types of larvae are found in a mixed population . One type pupates in the normal manner, while the other type makes preparations for prolonged hibernation. The larva scooper and together around itself generally two seeds , some time more than two seeds with the help of silken threads and the enter the resting stage is the hibernaculum prepared between double seeds . It is this stage which has been responsible for the universal distribution of the pink boll worm in cotton growing regions of the world . When this double - seed is sown along with healthy seeds , the resting larva comes out of its hibernaculum and make a tunnel up to the surface and then go down to pupate.

Pupa: The pupation takes place in a silken cocoon on the ground among fallen leaves and flowers etc. The pupa is light brown in colour and measures 6 mm in length and 26 mm in breadth. At the time of hatching, the colour of pupa changes in to dark brown . The pupal period lasts in 6-20 days.

Adult: The adults are small moths of dark, fuscous brown colour and about 1 cm in body length . The antennae are filiform, the palpi long and curved . The fore wings are pointing towards margins and possesses long brown fringes . They are active during the night.

The moths are comparatively quite long - lived. Male generally survives upto 20 days, while female upto 55 days. Under normal conditions, the life cycle is completed in 22 to 77 days, but the long - life cycle is completed in about 13.5 months in U.P. There are 4 to 6 generations in a year.

Control

1. Collection and destruction of infested flowers, flower buds and bolls etc.
2. Heat all cotton seeds at about 104-110F, either in the sun or by Simon cotton seed heater to kill the hibernating larvae in them.
3. Seeds should be fumigated, either with methyl bromide @ 3.5 kg / 100 sq m seeds for 24 hrs or with aluminium phosphide @ 45 tablets / 100 sq m seeds for 7 days before sowing .
4. Ratooning of cotton should not be practiced in infested areas and all other alternate hosts should be destroyed.
5. The spraying may be done with any one of the following insecticides at fortnightly intervals twice or thrice to destroy the pest :

- (a) Thiometon 25 Ec . @ 1.000 lit / hec .
 - (b) Quinalphos 25 Ec @ 2.0 lit / hec .
 - (c) Endosulfan 35 Ec @ 2.500 lit / hec .
 - (d) Fenitrothion 50 Ec @ 3.000 lit / hec .
 - (e) Carbaryl 50 Wp 2.500 kg / hec .
6. Set up delta type pheromone trap @ 12 Nos / ha to monitor and attract the male moth and kill.

Natural enemies

The following are natural enemies found in different stages of the pest.

Egg parasite

- (a) *Triphlapi pectinophone*

Larval parasite

- (a) *Microbracon lefroyi* (D and G)
- (b) *M. greeni*
- (c) *Bracon kitchneri* (Will)
- (d) *Apanteles pectinophorae*
- (e) *Elasmus puspriedrae* Ferr .

Legal control

As per direction of Director of Plant Protection, Quarantine and Storag, Ministry of Food and Agriculture , India , all imported cotton must be fumigated at ports .