PINK BOLLWORM (PBW)

Pectinophora gossypiella

Description:

Adults:

Small, grayish brown, inconspicuous moths. When wings are folded appearance is elongated and slender with fringe on wing tips.

Eggs:

Eggs are very small, 0.2 in (0.25 mm), laid singly or in small groups under the calyx of green bolls.

Larvae:

White when first hatched, with dark brown heads. Mature larvae are about 0.4-0.5 in (10-12 mm) long an have wide transverse pink bands on the back.

Pupae:

Shiny brown in color and formed in silk cocoon on the ground, in soil, or inside damaged boll.

Hosts:

Cotton, okra, occasionally on weeds and ornamentals in cotton family.

Left: PBW adult (source: UC IPM) and Right: PBW larvae emerging from cotton boll (Peggy Greb, USDA ARS).

Damage:

- Damage both squares and bolls; damage to bolls most serious.
- Larvae feed on the seeds and destroy fibers of cotton, reducing quality and crop yield.
- As larvae burrows within a boll, lint is cut and stained, resulting in severe quality loss.
- Damaged bolls are vulnerable to infection by fungi that cause boll rot and produce aflatoxin.

Left PBW larval damage (source: Peter Ellsworth) and Right: PBW larva inside boll (source: TNAU Agritech).

Phenology:

- Four to five generations per year, depending on climate.
- Overwinters as fully developed larvae in diapause, often found in bolls, soil, or on plants that remained unplowed through the winter.
- Can emerge as early as February, but peak emergence is usually from April to June.
- Overwintered larvae pupate in spring and adults emerge beginning a series of summer generations.

Lure Type and Maintenance:

- PHEROCON® PBW controlled release lure.
- Replace PHEROCON® PBW lures every 4 weeks.

Lure Storage:

- Store in unopened factory sealed packages in a cool place (< 74° F or 24° C maximum) for short periods or refrigerate longer term.
- Refrigerate or freeze unopened packages to carry over for annual storage.

Trap Design:

- PHEROCON® II or PHEROCON® IIID traps.

Placement Time:

- Place in field at first square.

Placement Pattern:

- Place traps at least 50 rows from edge and 50 paces from end of field.
- Attach traps to stakes so they can be raised as plants grow to keep traps at top of canopy.

Trap Density:

- Minimum of two traps per field.
- One per 20 acres (8 hectares).

Trap Maintenance:

- Check traps at least weekly, preferably every 1-3 days.
- Replace traps every 4 weeks, or when fouled with dust or insect debris.

Recommendations:

- Limit insecticide treatments to when susceptible bolls are present.
- Pheromone traps and degree-days help concentrate sampling to when PBW adult captures are increasing, and susceptible bolls are present.
- If flight is underway, sample bolls to determine if treatment is needed.

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Boll Sampling:

- Boll sampling is the only reliable way to determine infestation level.
- Pick 25 bolls at random in each quarter of the field or every 20 acres (8 hectares), if over 80 acres (32 hectares).
- Pick bolls as you walk, one or two from each chosen plant.
- Choose bolls at random and not at field edge. Do not limit samples to where growth is rank.
- Choose bolls 14 to 21 days old.
- Crack bolls open and check for larvae. (This does not have to be done in the field).
- It is important to detect small larvae so insecticides can control adults.
- Count bolls as infested only if larvae is found.

Source: Recommendations and certain other sections were sourced from UC Pest Management Guidelines for Pink Bollworm, USDA National Invasive Species Center, and CABI Invasive Species Compendium for Pink Bollworm.

Note, always:

- Use only one lure per trap.
- Count and record captures as recommended.
- Change trap as needed.
- Discard lures in trash far from the area of use and remove trash afterwards.
- Follow recommendations.
- Contact local extension authorities and consultants for regional advice.

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