AMERICAN BOLLWORM (ABW)

Helicoverpa armigera

Description:

Adults:

Stout-bodied moth of typical noctuid appearance. Males are usually greenish-grey and females are orangish-brown. Forewings span 1.4-1.5 in (3.5-4 cm), have 7-8 blackish spots on the margin and a broad, irregular, transverse brown band.

Eggs:

Spherical, yellowish-white when first laid, changing to dark brown before hatching, and 0.15-0.24 in (0.4-0.6 mm)3 in diameter. Laid on plants that are flowering or about to produce flowers.

Larvae:

Newly hatched larvae are yellowish white. Fully grown larvae are about 1.2-1.5 in (3.04 cm) long, with a brown mottled head, yellow to dark green color with wavy, pale longitudinal stripes. Color is extremely variable and can be described as shades of green, straw-yellow, and pinkish- to reddish-brown. Total of 6 larval instars.

Pupae:

Mahogany-brown, 0.55-0.7 in (1.4-1.8 cm) long, and a smooth surface.

Hosts:

Maize, cotton, beans, tomato, soybeans, legumes, tobacco, several fruits, and a range of vegetable crops and field crops.

Left: adult ABW (source: USDA APHIS PPQ, bugwood.org). Right: ABW larvae (source: bugwood.org).

Damage:

- **Cotton:** larvae bore holes at the base of flower buds and hollow them out, feed on leaves and shoots, or bore into maturing green bolls.
- **Tomato:** young fruits are invaded and fall; larger larvae may bore into older fruits.
- **Maize:** eggs are laid on the silks, larvae invade the cobs and developing grain is consumed.
- Leaves, flowers, and sometimes entire plants consumed. Severe infestations cause defoliation.

Top: larva chewing hole into base of cotton boll (source: UC IPM Management Guide). Center: larval damage to tomato and Bottom: larval feeding damage to maize (source: bugwood.org).

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AMERICAN BOLLWORM (ABW), *Helicoverpa armigera*

Phenology:

- Two to five generations per year depending on weather and location.
- A generation is completed every 27 to 35 days.
- Overwinters as pupae.

Lure Type and Maintenance:

- PHEROCON® ABW controlled release septa.
- Replace PHEROCON® ABW lures every 4 weeks.

Lure Storage:

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

Trap Design:

- PHEROCON® VI Delta, PHEROCON® 1C, or PHEROCON® IIC.

Placement Time:

- Before adult emergence or before crops become susceptible to damage.

Placement Pattern:

- At least one trap in each of the four corners of the field.

Trap Density:

- Never use less than two traps per field.
- One trap per 20 acres (8 hectares).

Trap Maintenance:

- Check traps weekly.
- Replace trap liners monthly or when fouled with dust or insect debris.

Recommendations:

- Early detection is critical to ensure effective timing of sprays.
- Use pheromone monitoring traps to determine beginning of first-generation flight and scout fields for larvae to determine proper timing for insecticide sprays.
- Easily develops insecticide resistance; rotational use of insecticides with different modes of action within a cropping season is recommended.

Source: Recommendations and certain other sections were sourced from CABI Invasive Species Compendium, Purdue Entomology Helicoverpa armigera Management Guidelines, and UC IPM Cotton Bollworm Pest Management Guidelines.

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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