BOX TREE MOTH (BTM)

Cydalima perspectalis

Description:

Adults:

White, slightly iridescent wings with a dark brown band on the outer margin and characteristic white spot on forewings. Wingspan of 1.5 in (4 cm). Two color morphs have been observed with the most common being white while the other morph is almost entirely brown.

Eggs:

Eggs are 1 mm in diameter and laid in aggregation on the underside of host plant leaves in clusters of 5-20 eggs. Initially pale yellow in color with a black spot marking the head capsule of developing larvae becoming evident as eggs mature.

Larvae:

Five to seven larval instars ranging in size from 0.4 in (0.1 cm) at emergence to approximately 1.3-1.6 in (3.5-4 cm) when fully grown. Newly hatched larvae are greenish-yellow with black head capsules. Later instars are green with black spots, white hairs, and a shiny black head capsule.

Pupae:

Formed within a cocoon of white silk secured between two host leaves or twigs. Initially light green with black bands and mature pupae are brown in color.

Hosts:

Boxwood, purple-leaved holly, burning bush, Japanese spindle plant.

Above left: adult female BTM, white color variation. Above right: Mature larva on host tree. Left: Pupa surrounded by white silk and host foliage. (source: CABI Invasive Species Compendium Cydalima perspectalis Datasheet)

Damage:

- Larvae feed on the leaves and shoots of trees and can also feed on bark which causes drying out of trees and tree death.
- Signs of feeding include green-black frass and silk threads on the host plant.
- Young larvae feed only on the upper part of the leaves, leaving the hard inside leaf structure intact and giving it a “peeled” appearance causing the leaves to eventually die.
- Mature larvae completely consume leaves. Total defoliation causes the death of trees

Left: BTM larval feeding damage (source: Wikimedia).
Right: tree death resulting from severe feeding damage (source: EBTS).

Phenology:

- Three to five generations per year depending on climate and location.
- Life cycle includes an obligate diapause of 6-8 weeks.
- Overwinter as larvae in silk cocoons spun between two host leaves joined together.
- Development from egg to adult at 68°F (20°C) occurred in about 40 days

Lure Type and Maintenance:

- PHEROCON® BTM controlled release septa lure.
- Replace PHEROCON® BTM 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® Bucket Trap.

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BOX TREE MOTH (BTM), *Cydalima perspectalis*

Placement Time:

- Before spring emergence of overwintering generation, typically May through July, or when temperatures are ≥ 47°F (8.4°C).
- For summer generations, traps should be placed July through October, or when temperatures are ≥ 50°F (10.5°C).

Placement Pattern:

- Traps should be hung at a height of 1.5 m above the soil surface from the tree or using a metal hook.
- Traps should be spaced at a minimum of 10 m intervals.

Trap Density:

- Never use less than two traps to monitor for adult captures.

Trap Maintenance:

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

Recommendations:

- Box trees are used extensively in horticulture due to their longevity and stress resistance. In areas infested with BTM, it has become impossible to maintain healthy trees without chemical treatments or mechanical removal of larvae from trees.
- Host plant damage revealed by visual inspection can include windowing of leaves, defoliation, dry leaves, or dead trees. Webbing on foliage and pupal cocoons between leaves can be visual signs of presence of the pest

Source: Recommendations and certain other sections were sourced from Penn State Extension Box Tree Moth and CABI Invasive Species Compendium Cydalima perspectalis Datasheet.

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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