EUROPEAN PEPPER MOTH (EPM)

Duponchelia fovealis

Description:

Adults:

Adults have a wingspan of 0.75 - 0.83 in (19 - 21 mm). Forewings are grey to brown with distinctive yellowish transverse lines. The lowest lines on the outer wing have a pronounced "finger" that points towards the back edge of the wings. Males have a long, slender abdomen that curves upward when at rest, almost 90 degrees from horizontal.

Eggs:

Small (0.02 x 0.03 in), oval eggs are whitish-green when laid and turn to red, then brown prior to hatching. They are laid singly or in clusters of three to ten overlapping eggs, mostly on the undersides of leaves. Eggs can also be found on the upper surfaces of the leaf, on stalks, at the base of the plant, or in the upper soil layer. In addition, eggs laid on the fruit has also been recorded.

Larvae:

Larvae are creamy white to brown with a dark head capsule and brown spots extending across and around each segment. Each spot has one short, stout hair emerging from each of them. Larvae avoid detection by feeding near the base of plants below the soil line and at times burrow into the stems. Prior to pupation, they can reach 0.7 - 1.25 in (17 - 30 mm) long.

Pupae:

The pupae undergo pupation in a cocoon composed of webbing, frass and soil particles that is usually attached to the undersides of leaves.

Left: EPM adult; note the undulating white line on the forewing distinctive to EPM (source: UF Entomology). Right: EPM larva (source: Henk Stigter, Plant Protection Service, Netherlands).

Hosts:

Wide host range consisting of commercially grown crops such as peppers, corn, cucumbers, tomatoes, strawberries, pomegranates, certain herbs, aquatic plants, and many ornamental flowering plants such as poinsettias, begonias, and impatiens.

Damage:

- Larvae can feed on all plant parts and may be difficult to detect due to their habit of hiding in protected locations, such as tunnels in stems, inside the fruits, within silken webbing on leaves, under soil debris and beneath or inside plant pots.

Left: Damage to pepper (arrow points to burrowing hole) due to feeding of larva. Right: Arrow points to stem damage (girdling). Source: UF IFAS European Pepper Moth.

- Young larvae feed mostly on leaves where they make round or crescent-shaped holes.
- Older larvae can consume whole leaves or may feed below the soil surface leaving little signs of damage.
- Larvae can bore into stems and fruit or may girdle stems potentially killing whole plants.

Phenology:

- Annual variations in life cycle depend on climatic conditions.
- Development time from egg to adult is 47 days at 68°F (20°C) but will be shorter in warmer climates and greenhouses.
- Larvae are adapted to moist conditions and can tolerate high humidity, even waterlogged conditions.
- Adults live for one to two weeks; they are not tolerant to cold and do not diapause.
- In greenhouses and warm southern climates, EPM can reproduce continuously with 7-8 generations per year possible.

Lure Type and Maintenance:

- PHEROCON® EPM controlled release septa lure.
- Replace PHEROCON® EPM 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 OR PHEROCON® Bucket Trap.

Placement Time:

- Before spring emergence, or when temperatures are ≥ 50°F (10.5°C).

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Placement Pattern:

- Traps should be hung at a height that is level with the top of the crop.
- Traps should be spaced at a minimum of 25-meter intervals.
- Place one trap on a susceptible border to intercept adults as they move into the field, and another trap at the center of the field.

Trap Density:

- Never use less than two traps to monitor for adult captures.
- Minimum of two traps per 10 acres (4 hectares).

Trap Maintenance:

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

Recommendations:

- As with most greenhouse pests, exclusion from the greenhouse is the first line of defense. Examine new stock for any signs of infestation or maintain a period of isolation, if possible.
- Management for this pest includes biological, cultural, and chemical controls combined with monitoring systems to determine population presence and extent..

Source: Recommendations and certain other sections were sourced from UF IFAS European Pepper Moth Guidelines and UC Cooperative Extension.

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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