

PEPPER WEEVIL (PEW)

Anthonomus eugenii

Description:

Adults:

The body of an adult is about 0.125 in (3 mm) long, arched, and dark in color with yellowish-white scale-like hairs. Typical weevil appearance with a long snout. Males produce a potent multi-component aggregation pheromone which attracts both males and females in varying ratios.

Eggs:

Eggs are generally placed singly in holes cut by females into the pepper bud or in the base of young pepper pods and hatch in 3-5 days. Females avoid ovipositing into buds or pods already containing an egg.

Larvae:

Mature larvae are white to gray in color with yellowish-brown heads, are 0.25 in (6 mm) long, and resemble a white grub. Larvae feed on seed core or tissue of pod walls and larval development requires about 2-3 weeks.

Pupae:

Pupation occurs within the pepper pod, on or in the seed receptacle, and requires about 3-6 days.

Hosts:

Peppers (*Capsicum* spp.) is the primary host and nightshade is a less preferred secondary host.



Left: adult PEW (source: Rutgers Extension). Right: PEW pupae (left) and larvae (right) (source: A. Sparks, University of Georgia).

Damage:

- Adult and larvae feed on flower buds, immature pods, and fruit resulting in flower and fruit drop prematurely, reducing yields.
- Adult feeding punctures appear as dark specks on the fruit and are usually not very damaging, though sometimes fruit can be deformed.
- Larvae feed on the inner core and fruit walls; infested fruit usually contains frass and decaying tissue.
- Adult weevils make exit holes in the walls of the fruit when they emerge.

- An indication of infestation is the presence of several dropped fruit at the base of a plant
- Fruit infested near maturity may not fall, resulting in the potential for infestation and rejection of pepper shipment.



Top left: feeding damage caused by PEW larvae. Top right: PEW larva inside pepper (source: UF Extension). Bottom left: exit hole wound; adult PEW remains inside the fruit until they either chew a hole to escape or the pepper rots (source: OMAFRA).

Phenology:

- Multiple generations per year with a complete generation (egg to egg) in 20-30 days.
- Average three to five generations in most locations.
- PEW does not have a diapause phase and can survive on crop and weed hosts plants in south regions during the winters.
- In areas with winters that are too cold for PEW to overwinter, they can be brought in or hitchhike on pepper fruit transplants.
- Adults usually arrive on peppers when they are beginning to bloom.

Lure Type and Maintenance:

- PHEROCON® PEW dual lure Be sure to use both lures.
- Replace PHEROCON® PEW Dual lures every 2-3 weeks.

Lure Storage:

- Keep unopened factory sealed packages in a cool place (< 74° F or 24° C maximum) for short periods or up to three months until used.
- Refrigerate or freeze unopened packages to carry over for annual storage.

Trap Design:

- PHEROCON® PEW trap.

PEPPER WEEVIL (PEW), *Anthonomus eugenii*

Placement Time:

- Variable with location, usually two weeks before bloom to detect first adult emergence or migration into field.
- Trap effectiveness decreases with maturation of pepper plants and with changes in PEW population dynamics.
- Traps may capture a large portion of the population at the end of the season when fields are harvested or after a hard freeze.

Placement Pattern:

- Position traps on suitable poles, stakes, or laths just above the canopy of the plant. The bottom of the trap should be at the top of the plant. Use wire twist ties to position traps in the vertical position on poles or stakes, or staple to a wooden lath.
- Initially, use a perimeter pattern to intercept first generation adults as they move into the field. Place traps 3 to 4 rows into the field (approximately 15 ft or 5 m).
- May need to position traps on the side of the field where nightshade, tomatoes, or other potential hosts may be located.
- Be sure to set up traps within field for accurate monitoring.

Trap Density:

- Minimum of 1 trap per 2.5 acres (1 ha), in addition to traps on the leeward or alternate host sides of the field.
- In areas with a history or presence of heavy infestation pressure, use 1 trap per 1 acre (0.4 ha).

Trap Maintenance:

- At minimum, check traps weekly or twice weekly.
- Replace traps every two weeks or whenever fouled with dust or insect debris.
- Be sure to remove release paper from both sides of trap to ensure maximum capture efficiency.

Recommendations:

- Control measures are generally triggered when a single adult PEW is captured.
- Use traps to identify the direction adult migration is coming from, and to isolate "hot spots" so control measures can be concentrated where they are most needed.
- Continue trapping program throughout the growing season to monitor entire crop and check effectiveness of control measures being used.
- Crop rotation and sanitation practices can lower PEW populations in the field.

Source: Recommendations and certain other sections were sourced from UC Pepper Weevil IPM Guidelines and University of Florida IFAS Extension.

Note, always:

- Use only one set of dual lures 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.