



Organization of American States
in cooperation with the Mayan Reserve Foundation,

FACT SHEET PEPPER WEEVIL

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Pepper Weevil (*Anthonomus eugenii*)



Figure 1 and 2: Adult pepper weevil

Introduction

The pepper weevil is a severe pest on hot and sweet pepper. The adults feed on fruit and leaf buds and lay eggs on flowers, buds and fruits. The grubs feed inside the pepper pods which causes premature fruit drop and can result in loss of whole crops.

Biology

Eggs: They are white/ yellow and oval in shape. Eggs measure 0.53 mm in length and 0.30 mm in width. One female can lay 6 eggs per day and the fecundity averages 341 eggs. Before laying the egg the female forms an egg cavity with her mouthparts and seals the puncture with a light brown fluid that hardens and darkens.

This spot is visible and one indicator of pest infestation on hot pepper plants.

Larva: Pepper Weevils have three instars, which range in size from 1mm to 3.3mm. Because the larvae are aggressive, only one survives inside a single bud, though more than one can occur within larger fruits. The mean development time for all three instars and a prepupal period is 12.3 days.

Pupa: The pupa resembles the adult in form, except that the wings are not fully developed. The pupa state lasts in average for 4.7 days.

Adult: A clean, round hole marks the escape of the beetle from the bud or fruit. Newly emerged adults are light brown and darken to a greyish-black in 2 to 3 days. The shape of the beetle is oval and the size varies from 2.0-3.5 mm in length and 1.5-1.8 mm in

width. The body is strongly arched and with a long, stout beak. (Fig. 2 on top) Feeding begins right after emergence. Males produce an aggregation pheromone that attracts both sexes.

Life cycle

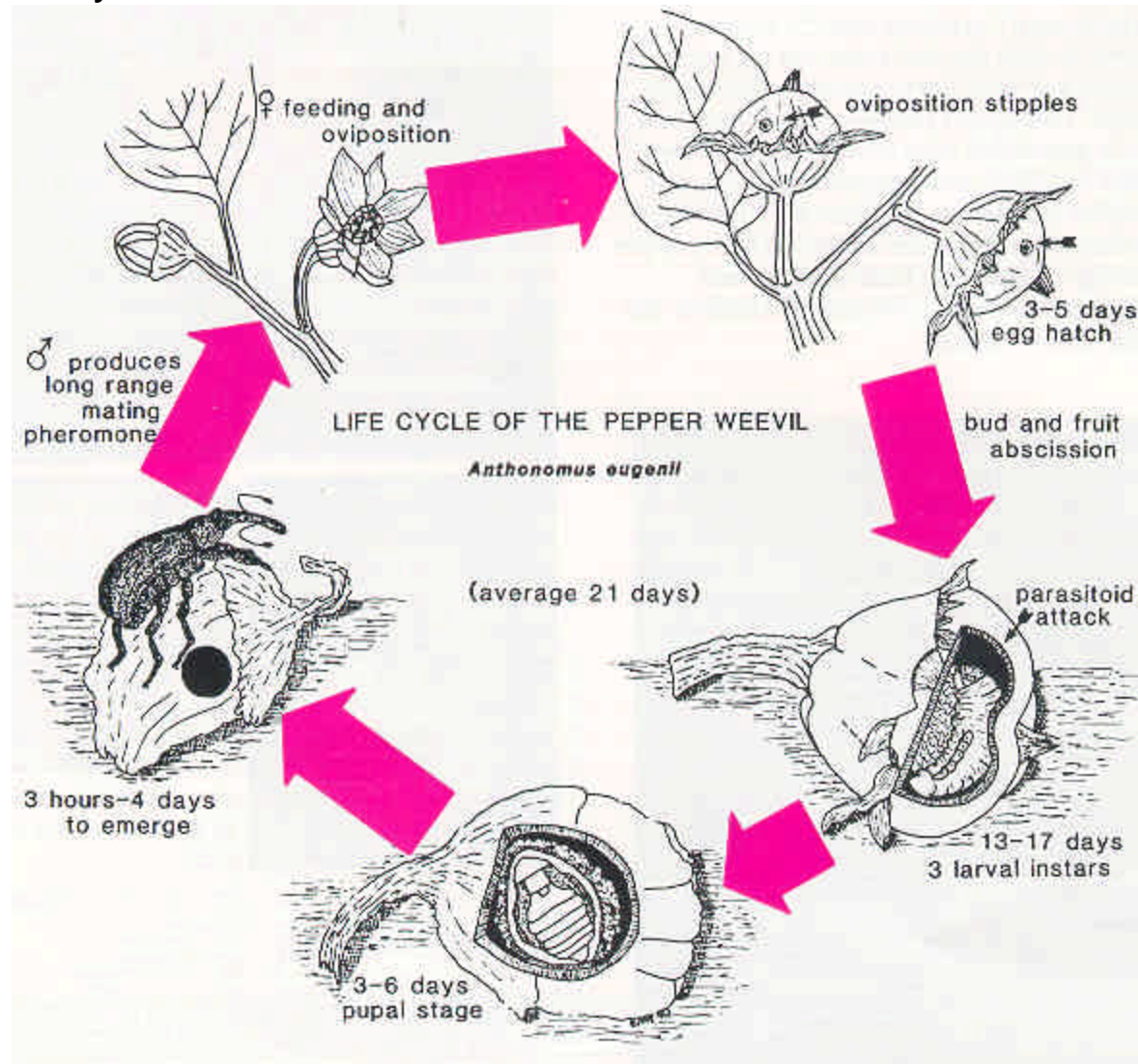


Figure 3. Life cycle of the pepper weevil (Illustration by E. Vasquez)

Generation time and number of generations per year are mostly determined by host availability and temperature.

Generation time ranges from 2 weeks in hot weather to 6 weeks in cold weather.

The pepper weevil has no dormant stage; this life history feature determines its northern distribution.

Generations per year: 5 to 8

Longevity of adults: 3 moth with food, 1-3 weeks without food

Host plants and damages

Pepper weevil larvae develop only on plants in the family Solanaceae. Among vegetables, all varieties of pepper are used as host plants. Several species of nightshade (*Solanum* spp.) support pepper weevil and serve as host plant.

The pepper weevil females prefer to lay their eggs in developing fruit 1.3 to 5.0 cm in diameter over smaller or larger fruits.

An important form of damage is the destruction of blossom buds and immature pods, caused by adult and larval feeding. Larval feeding within the mature pods is another important form of damage, causing the core to become brown and often moldy. (Figure 4)

The stem turns yellow and the fruit itself turns yellow or red prematurely. Adults feeding on stems or leaves cause no severe damage.

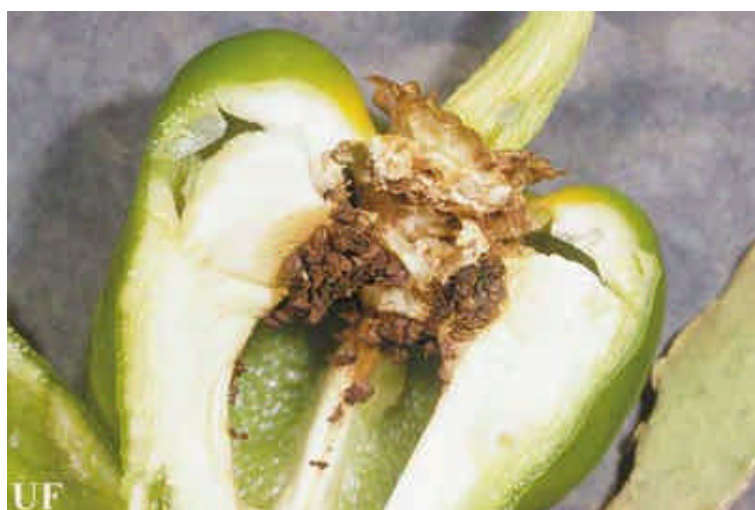


Figure 4: Feeding damage caused by pepper weevil larvae

Monitoring

There are several possibilities to monitor the pepper weevils. Adult populations are best obtained by visual examination of plants and yellow traps. Another possibility is the installation of pheromone traps. Traps should be placed 10 to 60 cm above the soil.

Visual monitoring is more effective in the morning, the time when the pepper weevils are more active. In the literature the action threshold is found to be 1 adult pepper weevil per 200 plants, this equals 5% percent damaged terminals.

Sampling method	Minimum sample	Comments
Whole plant inspection	25 plants (1 hour)	
Terminal bud inspection	1600 terminals (0.5 hour)	2 buds on 800 plants, only adults
Damage to terminal buds	200 terminals (0.5 hour)	2 buds on 100 plants, eggs, adults...

Pesticides

Only adults can be controlled by pesticides. The eggs and larvae are well protected inside the buds and fruits. The falling of fruits shouldn't be taken as the first sign of pepper weevil infestation.

There are plenty of insecticides recommended for the use against the pepper weevil, but most of them are toxic to honeybees too and other pests, like the broad mite, may increase following the application.

Management Practices

- Production of non-infested pepper seedlings
- Scout field weekly starting before first bloom. Also scout night-shade plants in the area.
- Remove fallen fruit from the fields.
- Avoid carry-over of weevils from one season to the next.
- Target insecticide sprays at the adults by getting good spray coverage and timing application with the presence of adults or their emergence from fallen fruit.
- Avoid locations with pepper weevil infestation when selecting sites for a new pepper crop

Sources

- Texas Agricultural Extension Service:
<http://insects.tamu.edu/extension/bulletins/l-5069.html>
- University of Florida Institute of Food and Agricultural Sciences, Department of Entomology and Nematology:
http://creatures.ifas.ufl.edu/veg/beetle/pepper_weevil.htm