

insect answers

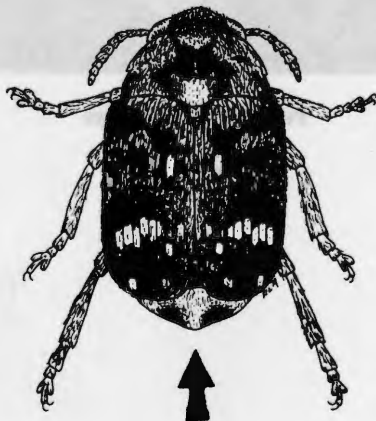


BIOLOGY AND CONTROL OF THE PEA WEEVIL

The pea weevil (*Bruchus pisorum*) is one of the most injurious pests of peas in the United States. It has no other host but peas and attacks all known varieties. It is worldwide in distribution. Since peas are not native to this country, it is undoubtedly an introduced pest of some early date.

Appearance

Adult pea weevils are small, grayish or grayish brown beetles about 1/5 inch long, somewhat oval, with the sides almost parallel. They have a distinct patch of white scales at the middle of the base of the pronotum or "shoulder" area. The elytra or wing covers possess patches of scattered white scales and a zigzag white line just below the middle. The wing covers are short and the tip of the abdomen may be seen below the wing covers. This exposed tip has a white marking that superficially resembles an airplane.



Airplane Marking

This marking separates it from the bean weevil, which is often confused with the pea weevil. The egg is orange, oval, slightly less than 1/16 inch long. The larvae are white and sickle-shaped. They are about 1/16 inch long at hatching and 1/4 inch long when full grown. The pupa is approximately the same size as the adult, roughly oval in shape, and is cream-colored. The pupa shows the outlines of the body parts of the future adult.

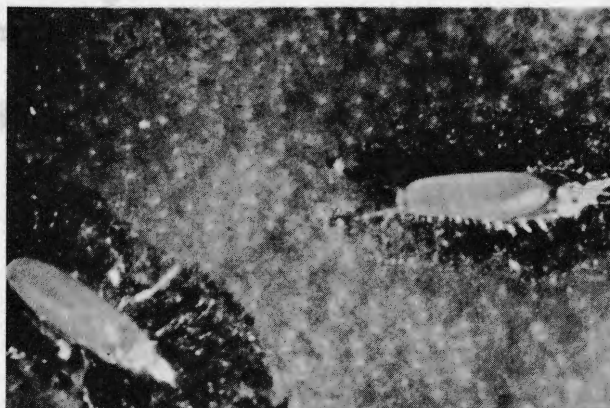
Life History

The pea weevil spends the winter as an adult in any spot protected from the weather, including peas in storage, crevices in fence posts, around barns, debris in the field, and under bark of trees. Most weevils begin to leave their hibernation spots about the time peas begin to bloom and continue to do so for about two months. Weevils usually appear first near the edges of pea fields; consequently, this is where the greatest infestation occurs. They are strongly attracted to the pea blossoms and are readily found on them.

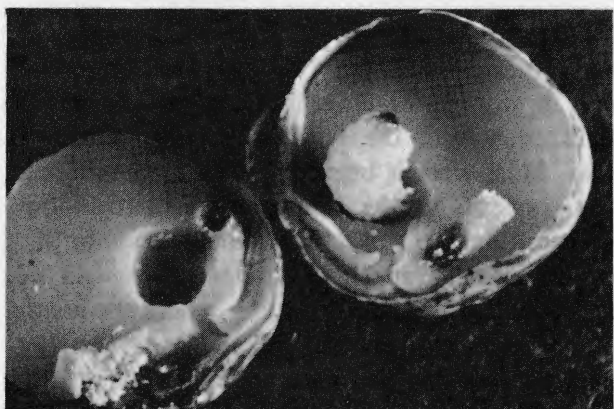
Female weevils may lay several hundred eggs during a season. However, they will not begin to lay eggs until they feed for several days on pollen. Eggs are laid singly or in pairs, one above the other on the outside of fresh pods only. These hatch in about six to nine days, longer in cool weather. The young larva bores through the pod at the point of attachment and into the seeds. The point of entry is indicated by a small, dark spot or sting. Only one larva develops in a single seed. The full-sized larva consumes all but



Pea Weevil Laying Egg



Pea Weevil Eggs



Pea Weevil Larva and Damage



Pea Weevil Entrances

The history of the pea weevil is well known. It is a common pest of the pea crop in many parts of the world. The weevil is a long-lived insect, and its life cycle is completed in about a year. It is a very destructive pest, and its damage to the pea crop is considerable. The weevil is a very common pest of the pea crop in many parts of the world. It is a very destructive pest, and its damage to the pea crop is considerable. The weevil is a very common pest of the pea crop in many parts of the world. It is a very destructive pest, and its damage to the pea crop is considerable.

most injurious pests of peas in the United States. It has no other host but peas and attacks all grown varieties. It is worldwide in distribution. There are no known natural enemies. It is undoubtedly an introduced pest of pea crops. Date: 1950

Adult pea weevils are small, grayish to greenish-brown beetles about 1/2 inch long, somewhat oval with the sides almost parallel. They have a

female weevil may lay several hundred eggs during a season. However, there will not begin to lay eggs until they have several days on the pod. Eggs are laid singly or in pairs, one always the other on the outside of leaf pods only. These hatch in about six to ten days, larvae are small worms. The young burrow through the pod at the point of attachment and into the seed. The point of entry is indicated by a small hole and in this hole the larva develops in a white web. The finished larva measures 1/2 inch



the outer skin of the seed and leaves a thin, circular exit hole for the future adult. Larvae develop in about five weeks. The pupal stage lasts for about one to three weeks, depending on temperature. Development from egg to adult requires about two months in the Northwest.

Injury

The larva of the pea weevil is the damaging stage. Larval feeding on seed destroys its viability. Peas marketed as fresh produce or for canning that show weevil “stings” are downgraded or rejected. Adult pea weevils cause no damage to peas. They are essentially pollen and nectar feeders.

Control

There are a number of measures that can reduce or eliminate the need for chemical control.

- Plant weevil-free seed. Weevils can escape from infested seed and invade the growing crop.
- Plow under field refuse and take care of viner refuse, as this can be a source of further weevil development and future infestation.
- Destroy vines in home gardens as soon as the peas get beyond the edible stage.
- Clean out potential hibernating sites. Brush-filled fence rows should be taken care of, and dilapidated farm buildings should be removed.
- Prevent harvest loss. Efficiently operated combines greatly reduce seed loss. Plow under shattered peas to a depth of eight inches immediately after harvest. Eliminate volunteer plants, if possible.
- Maintain harvested peas in escape-proof containers, i.e., tight bags. Fumigate infested peas.

Control of Pea Weevil in Home Gardens

Insecticide	Formulation	Minimum Days Last Application Before Harvest
Malathion	4% dust	3 (7 if vines are fed to livestock)
Methoxychlor	5% dust	7
Rotenone	1% dust	1

Dust with methoxychlor during the first portion of the bloom period when adults appear and before they lay eggs. Make three to four applications at four- to seven-day intervals. When pods begin to form, use malathion, methoxychlor, or rotenone dusts. Make three to four applications at four- to seven-day intervals.

Control of Pea Weevil in Commercial Fields

Timing of control treatments is based on two different levels of weevil infestations. These are called economic thresholds. For green peas, the economic threshold is one or more weevils in 50 sweeps. For dry peas, the economic threshold is 3 or more weevils per 50 sweeps.

Insecticide—Actual Toxicant Per Acre (use one)	Minimum Days Last Application Before Harvest
Imidan, 1 lb spray	7 (see remarks)
Malathion, 1 lb spray or dust	3 (7 if vines fed to livestock)
Malathion (ULV), 0.5 lb spray	14
Methoxychlor, 1.0-1.25 lb spray	7
*Parathion, 0.3-0.5 lb spray or dust	10

Remarks:

Do not cut “fresh” pea forage sprayed with Imidan for hay. Do not graze or feed to livestock within seven days of application.

Use 5% methoxychlor at 20 lbs per acre. Do not apply to varieties with edible pods after pods start to form.

Parathion or malathion applied for aphid control have given good pea weevil control if applied during bloom and before pods are formed.

NOTE: One treatment of methoxychlor, parathion, or malathion is rarely sufficient for complete weevil control. Any weevils entering the field four or five days after treatment may not be killed by the residue present and will require another insecticide application. Do not use parathion closer than 15 days before harvest if vines are to be fed to livestock.

Treating for Pea Weevil in Storage

*Methyl bromide—Use at 2 lb per 1000 cu ft above 60 degrees F. in bin; 3 lb per 1000 cu ft below 60 degrees F. in bin; 3 lb per 1000 cu ft above 60 degrees F. in freight cars. Expose for 24 hours.

*Hydrocyanic acid (HCN)—Use at 1 1/4 lb per 1000 cu ft above 35 degrees F. in warehouse. Expose for 12 hours. Three lb per 1000 cu ft above 35 degrees F. in freight cars. Aerate for 24 hours.

Do not use cyanide unless you have had special training by a competent person.

*These materials are highly toxic and should be applied by commercial licensed applicators. Parathion may be applied by growers if an annual permit is obtained from a licensed pesticide dealer.

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Use pesticides with care. Read the label on the container and follow the directions carefully.

Never smoke while applying insecticides and avoid breathing the spray or dust. Wear natural rubber gloves when handling pesticides. Wash hands and face carefully with soap and water after applying. If insecticides are spilled on the skin or clothing, remove contaminated clothing and wash exposed skin areas thoroughly.

Always store pesticides in their original containers, never in fruit jars or soft drink bottles, and be sure that labels remain on the original containers. Keep containers away from food or animal feed and out of the reach of children or irresponsible persons.