Integrated Pest Management
Pest Profiles
University of Idaho Extension Bulletin 1054

Pest Common Name

Pea leaf weevil

Pest Scientific Name

Sitona lineatus

Host Plants

Field pea and faba bean are preferred hosts, though many other legumes such as alfalfa, clover, and vetch are also hosts

Integrated Pest Management of Pea Leaf Weevil in Legumes

Description

Adult pea leaf weevils are about 1/5 inches (5 millimeters) long, with a broad, blunt snout (Figure 1). They are grayish brown overall, with three light stripes extending from the thorax to the end of the abdomen. Adult pea leaf weevils may be mistaken for other *Sitona* spp., such as alfalfa curculio, but their stripping and size may help distinguish them.

Figure 1. Adult pea leaf weevil. Source Dennis Schotzko, University of Idaho.

Figure 2. Pea leaf weevil larva. Courtesy of the Ken Gray Insect Collection, Oregon State University (OSU) Libraries Special Collections and Archives Research Center (SCARC).

Larvae range in size from 1/10 to 1/4 inches (3.2–6.4 mm). Larvae are legless, with a white body with dark-brown head capsule, and curl into a “C” shape when disturbed (Figure 2).

Eggs are small and oval shaped and are white when laid, but turn black near hatching.

Biology

Pea leaf weevil adults overwinter in alfalfa fields, field margins, and perennial legumes. Once temperatures reach about 55°F (13°C), pea leaf weevils begin to move into pea and faba bean fields to feed and mate. Each female can lay up to three thousand eggs at the base of seedlings or in small crevices in the soil. When these eggs hatch, larvae burrow into the soil to feed on root nodules of their host plant. Larvae pass through five growth stages or instars before pupating in the soil. In late summer, the next generation of adults emerge and continue feeding before seeking overwintering sites.

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Figure 3. Damage to root nodules caused by feeding of pea leaf weevil larvae. Courtesy of the Ken Gray Insect Collection, OSU Libraries SCARC.

Figure 4. Pea leaf weevil–adult feeding damage to leaves. Courtesy of the Ken Gray Insect Collection, OSU Libraries SCARC.

Damage

Pea weevil larvae feed primarily on the roots and root nodules of legumes. This feeding can seriously damage the roots of the host plant and in severe infestations can completely destroy the root nodules (Figure 3). Root nodules contain beneficial nitrogen-fixing bacteria, so their destruction significantly reduces the plant's ability to fix nitrogen. Without root nodules, the amount of nitrogen input to seeds and soil is severely reduced.

Adult pea leaf weevils also damage legume crops, most often causing characteristic scalloping of leaf edges with their feeding (Figure 4). Though they generally do not impact yield as heavily as larvae, when population numbers are extremely high adult feeding can kill young shoots.

Monitoring

Because adult weevils are hard to count, action thresholds are based on observed plant damage (i.e., leaf notching). To determine if action is necessary early in the season, sample 10 sites in the field, 5 sites at the field edge, and 5 sites 35 yards into the field. Sites should be about twenty-five yards apart. At each site, select ten seedlings and note the proportion with leaf notches. If 30% or more of plants show damage, action may be necessary.

Later in the season, dig up the plants to look for signs of larvae feeding on root nodules.

Management

Primary Management Tactics

Proper irrigation and fertilization (particularly with nitrogen) can help plants overcome pea leaf weevil damage. Broad spectrum insecticides should not be considered unless infestation is severe and other control measures have failed. Systemic and foliar insecticides are available for pea leaf weevil control. Unlike foliar insecticides, systemic insecticides have residual activity that helps control weevils that emerge after the spray is made, accounting for sporadic emergence. However, currently no model exists that accurately predicts when pea leaf weevil population densities will warrant the use of systemics. Due to this lack of a predictive model, base treatment decisions on regional and field histories of pea leaf weevil population size and damage.

Cultural

- Plant later in the season (~10 days) to avoid peak pea leaf weevil dispersal OR facilitate plant development past the vulnerable early stage before peak pea leaf weevil dispersal.
- Using no-till systems may reduce pea leaf weevil damage and foster populations of beneficial predators.

Chemical

- Systemic and foliar insecticides are available for the control of pea leaf weevils.

- Unlike foliar insecticides, systemic insecticides have residual activity that helps control weevils that emerge after the spray is made, accounting for sporadic emergence. However, currently there is no model that accurately predicts when the pea leaf weevil population densities will warrant the use of systemics.
- Timing applications of foliar insecticides are difficult, but they are most effective when applied before females lay eggs.
- Recommendations for pesticides to use in the management of pea leaf weevil in various legumes and other crops can be found on the PNW Pest Management Handbooks website.

Caution: Read Pesticide Labels

Pesticide labels override other recommendations.

ALWAYS read and follow the instructions printed on the pesticide label. The pesticide recommendations in this UI webpage do not substitute for instructions on the label. Pesticide laws and labels change frequently and may have changed since this publication was written. Some pesticides may have been withdrawn or had certain uses prohibited. Use pesticides with care. Do not use a pesticide unless the specific plant, animal, or other application site is specifically listed on the label. Store pesticides in their original containers and keep them out of the reach of children, pets, and livestock.

Trade Names — To simplify information, trade names have been used. No endorsement of named products is intended nor is criticism implied of similar products not mentioned.

Groundwater — To protect groundwater, when there is a choice of pesticides, the applicator should use the product least likely to leach.

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BUL 1054 | Published August 2023 |