



SASKATCHEWAN
ALFALFA SEED
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ALFALFA WEEVIL AND OTHER LEGUME WEEVILS IN SASKATCHEWAN

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Several species of weevils occur in legume fields on the prairies. Proper identification and knowledge of the life cycles of these weevils can help the producer separate the casual or harmless insect from the insect pest with the potential to wipe out production profit margins.

Alfalfa weevil, *Hypera postica* (Gyll), has been a chronic pest of alfalfa in southern Alberta since the 1950's. Traditionally found below the 50th parallel, it has steadily expanded its range northward and eastward, and now is a major pest throughout the alfalfa growing areas of Saskatchewan and Manitoba. The adult weevil is a snout beetle, about 5 mm in length. Young adults are light brown in colour, with a darker brown stripe down the center of the back. Older adults are dark brown. The alfalfa weevil overwinters as an adult in field trash, weeds, ditches, and other protected locations. Adults become active early in the spring; following mating, egg clusters are laid in suitable egg-laying sites including alfalfa stems. Eggs are usually laid in groups of 10 - 20, although up to 40 eggs may be found at one laying site; the female alfalfa weevil may lay 600 - 800 eggs during her lifetime. Small green larvae emerge and feed on shoot tips and then on open leaves.

High populations of larvae may severely defoliate an alfalfa plant, leaving only leaf midribs and stems. In hay fields, losses are expected if 25-50% of the leaves on the upper one-third of the stem show damage, if 50-70% of the terminals are injured, or if there are more than 3 active larvae per stem at any plant height. Early cutting of the first crop is the preferred control method, but if there are more than 7-10 days to harvest and numbers are high, an insecticide application may be warranted. If hay value is high and there are more than 2 active larvae per crown in regrowth, insecticide use may be necessary to save the second cutting. In alfalfa seed fields, economic thresholds are 20-25 larvae per 180° sweep or 35-50% of the foliage tips damaged.

Although several insecticides are registered for alfalfa weevil control in forage and seed alfalfa, it should be noted that small wasps in the genus *Bathyplectes* are important in control of the weevil, and insecticide application may kill both the weevils and the wasps. Alfalfa weevil and many other weevils are kept in check in wet years by a fungal disease.

Although both the larvae and adults of the **clover leaf weevil**, *Hypera punctata* (Fab.), feed on the tender stems and young leaves of all kinds of clovers and alfalfa, the insect is considered a minor pest of red and white clover. The larvae feed on furled young leaves, and then chew irregular holes in leaf margins. Because it overwinters primarily as a larva around the crown of host plants, feeding damage from the clover weevil can occur early in spring, with the worst damage occurring in cool, dry conditions.

Sweetclover weevil, *Sitona cylindricollis* Fähr., is the main pest of seedling sweetclover, especially in a dry season, and can also seriously injure seedling alfalfa. These dark grey, 4-5 mm long weevils chew characteristic notches out of the edges of legume leaves. They may be difficult to locate, because they frequently drop off the plant and blend in with the soil when disturbed. The larvae feed on roots and are not believed to cause direct damage to the crop, although they may provide an entry point for root rots.

Sweetclover weevils cannot complete their life cycle on alfalfa, and are not considered a problem in a well-established alfalfa crop. New fields of sweetclover should be seeded as far away from established fields as possible. If defoliation is evident and seedlings are growing slowly, use of an insecticide for weevil control may be necessary. Sweetclover underseeded to a cover crop such as canola may escape damage from sweetclover weevil. Vigorously growing second year clover fields will usually outgrow weevil defoliation.

Another *Sitona* species, *Sitona lineellus* Bonsdorff (= *scissifrons*), the **alfalfa curculio**, is common in alfalfa fields across the prairies. Adults feed on the foliage and larvae attack the roots of alfalfa, red clover, ladino clover, alsike clover, peas, and sweetclover. Under heavy infestation, seedling plants can be severely injured; second year or older plants usually tolerate *S. lineellus* injury. While the alfalfa curculio overwinters as an adult and has habits similar to the sweetclover weevil, it is somewhat smaller in size.

These are the most common weevil pests of forage legumes on the prairies. Usually, they are

kept in check by predators, parasitoids, and pathogens. Occasionally, however, control systems may become unbalanced, and the producer needs to take remedial action. Knowledge of the pest and its biology will aid in decision-making.

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Figure 1. Legume-feeding weevils, showing differences in body shape and especially rostrum ("nose") between *Hypera* species (curved, long) and *Sitona* species (blunt)

a) *Hypera nigrirostris* Fab.
(actual length 3.5-4.5 mm)



b) *Sitona cylindricollis* Fähr.
(actual length 3-5 mm)



Figure 2. Alfalfa weevil *Hypera postica* (Gyll.) Left - newly emerged adult; Center - weevil eggs inside an alfalfa stem; Right - larva with typical leaf feeding pattern



Figure 3. Sweetclover weevil *Sitona cylindricollis* Fähr. Left - adult; Center - typical notching of leaf edges; Right - damage to second year root crown of sweetclover plants by sweetclover weevils (healthy crown on right)

