



Alfalfa Weevil life cycle and control

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Several different weevil species are found in alfalfa; the alfalfa weevil adult is about ¼ inch long (male smaller than the female), with a dark stripe running down the back. Larvae are green, leg-less, with a white strip running down the back and a black head. Both adults and larvae feed. Heavy feeding skeletonizes leaves, leaving a whitish or frosted appearance across the field. Sometimes damage is heavy in an isolated field here or there, for no discernable reason. In other fields, heavy damage occurs on south-facing slopes (warmer) or sandy areas (areas of slower alfalfa growth). One thing is certain; over the last several years, reports of damage by alfalfa weevil (and spraying) have increased in Michigan.



Adult beetle



Eggs



Larvae



Pupa in web case

Scouting

Growers in Michigan should begin scouting for weevils in May. The easiest method uses “tip injury”. Survey several different areas of the field and check tips of 100 stems for feeding. Treat if 40% of stems show damage AND the field won’t be cut for at least seven days. If the field may be cut within the next week, then consider cutting early to kill weevils rather than spraying.

Another scouting method is the “stem and bucket” action threshold, from Ohio State Univ., which uses both weevil number and crop height. Collect 30 stems at random (snap off at base) into a bucket from a field. Shake the stems into the bucket to knock off late instar larvae (i.e. the big dudes). Don’t worry about the little larvae. Count the total number of larvae in the bucket. Then randomly select 10 of the 30 stems you just picked, and measure the average stem height (I marked a ruler on the handle of my sweep net).

The treatment threshold – given in number of larvae per 30 stems - varies with average stem height in inches, as follows:

- 12 inches - 30 to 50 larvae
- 16 inches - 40 to 75 larvae
- 20 inches - 45 to 85 larvae
- 24 inches - 50 to 90 larvae

Alfalfa weevil tip defoliation



For any scouting method, make sure that you sample across the field, not just on one side or on an edge. If at threshold, remember the preferred control measure is cutting rather than spraying. This keeps the beneficial insects - and there are many - alive in your alfalfa field.

There are times - for example if forage quality might be adversely affected by cutting too early - when cutting is not possible. When a decision is made to spray, remember to note preharvest interval (PHI) of the insecticides labeled for alfalfa. These PHIs range from 0 to 28 days, depending on the product, rate per acre, and intended use of the crop. Don't get caught treating close to harvest with a long-PHI product or rate. Some examples of PHIs by product/ rate are the following:

| | |
|---------|---|
| 0 days | Ambush/ Pounce at a low rate |
| 1 day | Proaxis and Warrior, for alfalfa harvested for forage |
| 7 days | Baythroid at any rate, Cobalt, Furadan and Lorsban at low rates Proaxis and Warrior, for alfalfa harvested for hay |
| 14 days | Ambush / Pounce at a high rate; Cobalt, Furadan and Lorsban at a mid-rate |
| 21 days | Cobalt and Lorsban at a high rate |

Impacts of spraying

Also remember that there are many beneficial insects in alfalfa that are killed by sprays with longer residuals. Most labels now include honeybee warning statements. Every year, the Michigan Department of Agriculture receives complaints about bee kills. It is a good policy to notify beekeepers in the neighborhood when you do spray, because they may be able to move hives, or restrict bee movement for a few hours. Fields in bloom should never be sprayed because all of the insecticides registered for alfalfa are toxic to bees – these fields should be cut. Spraying also impacts natural populations of parasitoids, wasps which attack, feed on, and kill weevil larvae or adults.



The web cocoon on the left contained a healthy weevil pupa. However, the cocoon on the right contained a wasp pupa. Earlier in the summer, a wasp laid its egg in a weevil larva. The immature wasp ate the weevil larva from the inside-out, killing it before pupation. Several species of parasitoids generally provide good control of alfalfa weevil, but biocontrol is disrupted by the application of insecticides.

Regrowth

After cutting, don't forget to check for weevil larvae that fell to the ground and escaped the machinery. These can feed on regrowth and delay or prevent green-up. The threshold after cutting is 6 to 8 larvae per square foot of regrowth.