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ALFALFA WEEVIL

With first cutting alfalfa, comes the annual appearance of alfalfa weevils chewing through stands and destroying yields and quality. Proper scouting, identification, and treatment are needed to properly handle these hay field pests.

Most alfalfa weevils overwinter as adults, become active as temperatures increase, and lay eggs. Some may lay eggs in the stem during fall and, if winter is not too severe, will successfully overwinter. These eggs will hatch earlier than those laid in spring, sometimes causing two flushes of weevil larvae in the spring. In the last few years some areas of Nebraska have received damage to regrowth after the first cutting due to a combination of late larval feeding and adult feeding. This is something to be aware of after the first cutting.

Alfalfa weevil damage consists of small holes and interveinal feeding on the newest leaflets near the stem tips. The larvae are small (1/16 to 3/8 inch long) and pale yellowish green, becoming a darker green when larger. These legless worms have black heads and a white stripe the length of the back. The alfalfa weevil larvae spend nearly all their time on the plant. They curl into a C-shape when disturbed.

Once the alfalfa is high enough to use a sweep net, take a sample to establish whether weevils are present. If they are, randomly select at least five sampling sites from across the entire field. At each site, gently pick or cut at least 10 alfalfa stems at ground level. Shake the larvae off the stems by beating the stems into a deep-sided bucket. Count the larvae and determine the average number of larvae per stem. Make sure to check for small larvae that may be enclosed in new, folded leaflets at the tips of the stems. Measure stem lengths and determine the average stem height.

All of these measurements can then be used to determine if treatment is worth the cost. In most cases, early cutting is the most economic control method once alfalfa reaches 50% bud. This table from North Dakota State University can help identify economic thresholds for treatment:

Table 1. Economic thresholds for alfalfa weevil larvae.								
Plant Growth Stage (Height)	Treatment Cost (\$/acre)	Crop Value (\$/ton)						Management Recommendation
		\$50	\$75	\$100	\$125	\$150	\$175	
Number of Alfalfa Weevil Larvae/Stem								
Midvegetative (10-15 inches)	7	3.6	2.2	1.5	1.1	0.9	0.7	Use a long-residual product
	8	4.1	2.6	1.8	1.4	1.1	0.8	
	9	4.7	3.0	2.1	1.6	1.2	1.0	
	10	5.3	3.4	2.4	1.8	1.4	1.2	
	11	5.9	3.7	2.7	2.1	1.6	1.3	
	12	6.4	4.1	3.0	2.3	1.8	1.5	
Late vegetative (16 to 20 inches)	7	3.8	2.4	1.8	1.4	1.1	0.9	Use a short to mid-PHI/PGI product
	8	4.4	2.8	2.1	1.6	1.3	1.1	
	9	4.9	3.2	2.4	1.8	1.5	1.2	
	10	5.5	3.6	2.6	2.1	1.7	1.4	
	11	6.1	4.0	2.9	2.3	1.0	1.6	
	12	6.7	4.4	3.2	2.5	2.1	1.7	

Early bud (>20 inches)	7	4.0	2.7	2.0	1.6	1.3	1.2	Cut early, or use a short PHI/PGI product
	8	4.6	3.1	2.3	1.8	1.5	1.3	
	9	5.2	3.5	2.6	2.1	1.7	1.5	
	10	5.8	3.8	2.8	2.3	1.9	1.6	
	11	6.3	4.2	3.2	2.5	2.1	1.8	
	12	6.9	4.6	3.5	2.8	2.3	2.0	
50% bud or greater								Cut early
<i>(Source: Integrated Pest Management of Alfalfa Weevil in North Dakota, E1676, Patrick B. Beauzay, et al, North Dakota State University 2013).</i>								

Because alfalfa weevil's natural enemies like lady beetles and parasitoid wasps can potentially keep weevils from reaching economic injury levels, use insecticides only when necessary.

Many insecticides are registered to control alfalfa weevil larvae. The Guide for Weed Management in Nebraska with Insecticide and Fungicide Information (EC130) is the best resource for rates and restrictions of commonly used insecticides for alfalfa weevil larval control. Highly effective insecticides include pyrethroids (active ingredient ends in "thrin") and products containing indoxacarb (e.g., Steward). Each product will differ in their modes of action and pre-harvest intervals so be sure to read the label carefully.

One thing to keep in mind when picking an insecticide is the possibility of dual control. Pyrethroid insecticides also provide aphid control but can have detrimental effects on beneficial insects. Indoxacarb products are more selective and do not affect most beneficial insects but will not provide aphid control.

Alfalfa weevils can ruin a hay crop quickly, so active scouting and quickly deciding on treatment are essential for control. Use economic thresholds to decide if harvest or insecticides are the best option when larval levels pass thresholds and keep an eye out even after first cutting for a late flush.

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