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Alfalfa weevil scouting and thresholds

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Alfalfa weevil scouting and thresholds

Abstract

Degree-day information indicates that alfalfa weevil larvae have hatched throughout much of southern Iowa (see map). Proper management of this insect requires timely scouting, correct identification, determination of population levels, and if necessary, cultural or chemical control. Fields should be scouted for alfalfa weevils because the larvae can be very destructive to first cutting alfalfa. They remove leaf tissue, beginning with the new leaves at the top of the plant, and then work down the stem to other leaves. This feeding reduces forage quality and quantity.

Keywords

Entomology

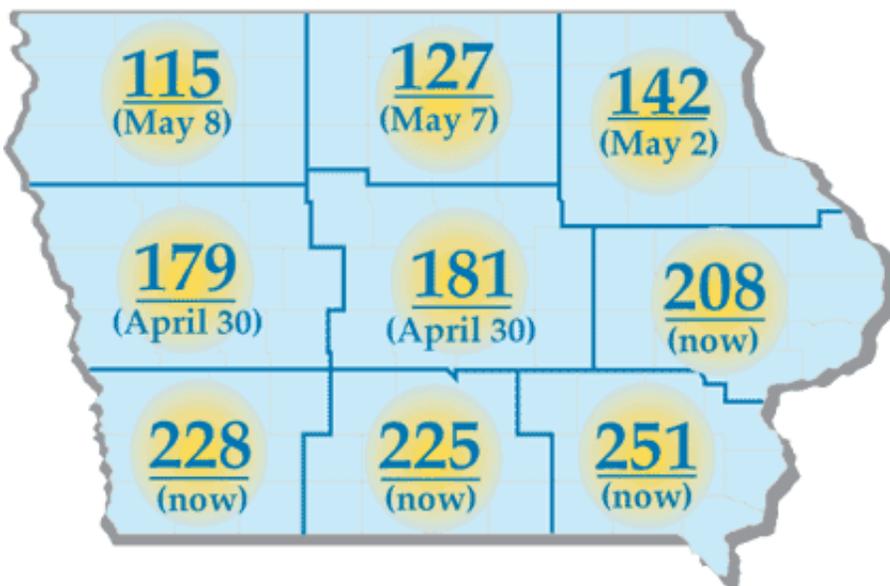
Disciplines

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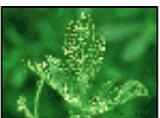
INTEGRATED CROP MANAGEMENT

Alfalfa weevil scouting and thresholds

Degree-day information indicates that alfalfa weevil larvae have hatched throughout much of southern Iowa (see map). Proper management of this insect requires timely scouting, correct identification, determination of population levels, and if necessary, cultural or chemical control.



Fields should be scouted for alfalfa weevils because the larvae can be very destructive to first cutting alfalfa. They remove leaf tissue, beginning with the new leaves at the top of the plant, and then work down the stem to other leaves. This feeding reduces forage quality and quantity.



Alfalfa weevil larvae skeletonize leaves at the top of the plant.

[Enlarge](#) [1]

Scouting should begin at approximately 200 degree days in fields south of I-80, and at 250 degree days in fields north of I-80. Begin by scouting on south-facing hillsides. Larvae hatch here first because these areas warm up more quickly than north-facing hillsides.

When you first scout for alfalfa weevil larvae, save some time by using a sweep net to quickly

and easily determine whether larvae have hatched in the field. If larvae are found in the net, collect 30 stems and look for larvae in the upper leaves. When collecting stems, break them as gently as possible so you do not dislodge larvae still on the plant. The best way to collect the most larvae is to grab the tip of the plant with one hand and break the base of the stem with the other hand, or cut it with a knife. Place stems inside a white, 5-gallon bucket and beat them against the side. Large larvae are knocked loose and can be counted easily, but newly developing leaves must be pulled apart to find very small, newly hatched larvae hidden in the plant tip.



Alfalfa weevil are small; less than 5/16-inch long.

[Enlarge](#) [2]

Alfalfa weevil larvae have a very dark head, almost black, and are pale green with a white stripe down the back. They are approximately 1/16 inch in length when they hatch and may be light yellow. After feeding for several days, they turn green. They are 5/16 inch in length when full grown.

Alfalfa weevil larvae may be confused with larvae of the clover leaf weevil that are much larger, have a light brown head, and often have the white stripe edged with pink. Clover leaf weevil larvae usually hide around the base of the plant during the day and feed mostly in lower leaves at night. They rarely cause economic yield losses and should not be counted as part of the alfalfa weevil sample.



Clover leaf weevil larvae may be common around the base of alfalfa stems but they rarely cause economic damage.

[Enlarge](#) [3]

New economic thresholds have been developed and appear in ISU Extension publication IPM 58, *Integrated Pest Management of Alfalfa Insects in the Upper Midwest*. This publication was developed by entomologists from several midwestern universities. Measure the plant height and then determine the average number of weevil larvae per stem based upon a 30-stem count before consulting Table 1. The economic threshold depends on crop height, estimated value of the crop, control costs, and the growing conditions stated in Table 1. Several insecticides labeled for weevils are listed in Table 2.

Table 1. Economic thresholds based on alfalfa weevil larvae per stem (calculated from a 30-stem sample).

Plant Height (Inches)	\$40/ton	\$70/ton	\$100/ton	Management Decision

4	1.8-2.8	0.8-1.3	0.6-0.8	Reevaluate in 4 days. If damage and larval numbers are increasing a long residual insecticide is recommended to prevent severe yield loss.
6	2.0-3.0	0.8-1.5	0.6-1.0	
8	2.2-3.2	0.9-1.7	0.7-1.2	
10	2.3-3.5	0.9-1.9	0.8-1.4	If alfalfa is in vegetative stages, a short residual insecticide should be used
12	2.4-3.8	1.0-2.2	0.9-1.6	
14	2.5-4.2	1.2-2.5	1.0-1.8	
16	2.6-4.6	1.5-2.8	1.1-2.0	If >60 percent of alfalfa is in the bud stage, harvest is recommended. Evaluate stubble after harvest. If not scheduled to be cut within 7-10 days, a short residual insecticide is recommended.
18	2.7-5.0	1.7-3.1	1.2-2.3	
20	2.8-5.8	2.0-3.4	1.4-2.6	
>20	3.0-7.0	2.4-4.0	1.6-3.0	

Use the smaller threshold if alfalfa is drought stressed or control costs are relatively low (\$7-10 per acre). Use larger threshold if rainfall is abundant, diseased larvae are present, or control costs are relatively high (\$11-14 per acre).

Table 2. Insecticides labeled for alfalfa weevil.

Insecticide	Rate per Acre (High and Low Rates)	Harvest Interval (days)
Baythroid 2E	1.6-2.8 ounces	7
Furadan 4F	0.5-2 pints	7-28
Lannate LV	3 pints	0
Lorsban 4E	1-2 pints	14-21
Pounce 3.2EC	4-8 ounces	0-14
Sevin XLR+	3 pints	7
Warrior	2.56-3.84 ounces	7

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<http://www.ipm.iastate.edu/ipm/icm//ipm/icm/2001/4-30-2001/alfscout.html>

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[1] <http://www.ent.iastate.edu/imagegal/coleoptera/curculionidae/alfalfaw/1343.53skel.html>

[2] <http://www.ent.iastate.edu/imagegal/coleoptera/curculionidae/0982.23alfweevil234.html>
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