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Alfalfa Weevils Active throughout Southern Iowa

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Alfalfa Weevils Active throughout Southern Iowa

Abstract

Adult alfalfa weevils become active and start laying eggs as soon as temperatures exceed 48°F. Like other insects, the development of alfalfa weevil depends on temperature, and we can use accumulation of growing degree days (GDD) to predict activity. Alfalfa weevil egg hatching begins when 200-300 GDD (base 48°F) have accumulated since January 1.

Disciplines

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April 12, 2021

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Based on accumulated temperatures since January, alfalfa weevils may be active in the southern half of the state (Figure 1). In Iowa, fields south of Interstate 80 should be scouted beginning at 200 GDD and fields north of Interstate 80 should be scouted beginning at 250 degree days. Areas in northern Iowa have lower GDD accumulation and may not see activity yet, but with forecasted temperatures we could see activity by the end of April.

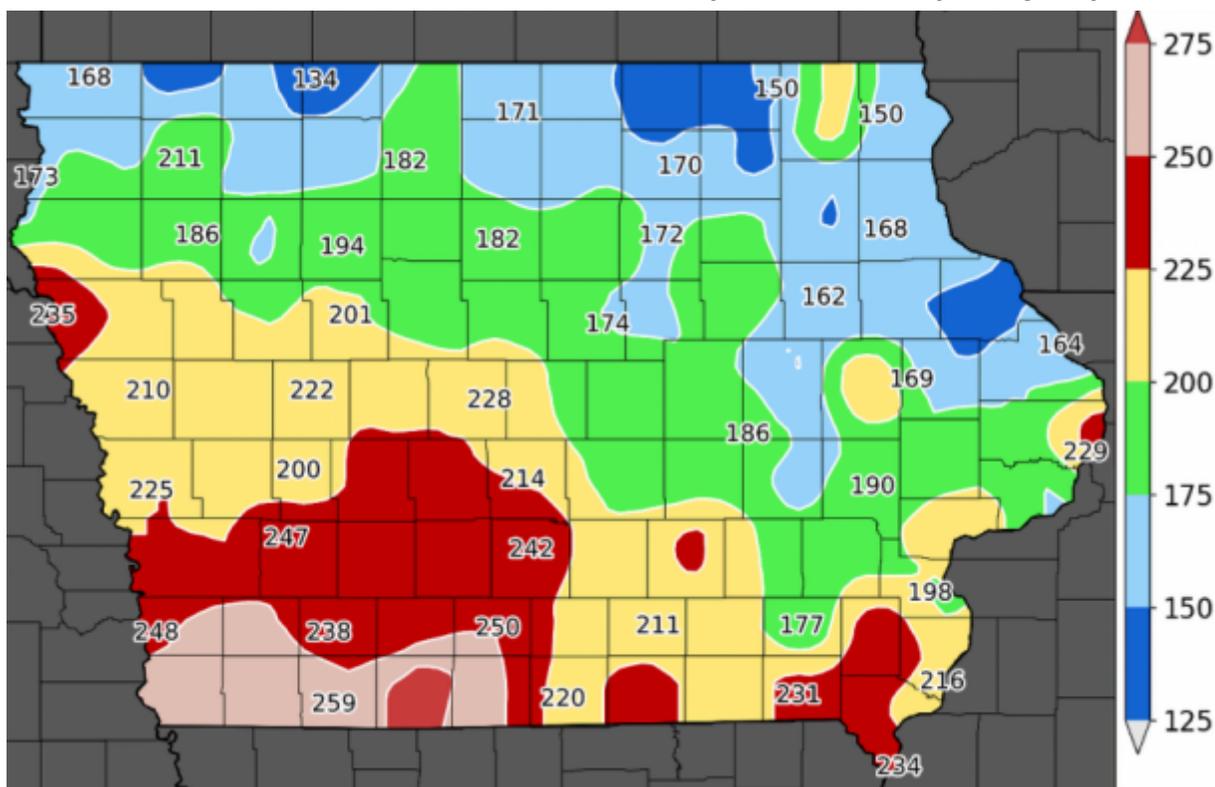


Figure 1. Accumulated growing degree days (base 48°F) in Iowa from January 1 – April 8, 2021. Map courtesy of Iowa Environmental Mesonet, ISU Department of Agronomy.

Biology

Alfalfa weevil is an important defoliating pest in alfalfa. Heavy infestations can reduce tonnage and forage quality. Alfalfa weevil larvae typically cause the majority of plant injury. Newly hatched larvae can be found feeding on terminal leaves, leaving newly expanded leaves skeletonized. Maturing larvae (Photo 1) move down the plant and begin feeding between leaf veins. Peak larval activity occurs around 575 GDD. Silken pupal cases are often attached to leaves in the lower canopy or in leaf litter.



Photo 1. Mature alfalfa weevil larvae have a dark head and pale green body with a white stripe down the back. Fully-grown larvae are about 5/16 inches long. Photo by John Obermeyer, Purdue University Extension.

The time it takes to reach the adult stage is dependent on temperature but is usually around eight weeks. Adults (Photo 2) cause less plant injury than larvae. They feed along the leaf margin, leaving irregular notches. Female alfalfa weevils can lay 800-4,000 eggs in a lifetime and insert 5-20 eggs at a time into alfalfa stems. A heavily infested field will look frosted or silver (Photo 3).



Photo 2. Alfalfa weevil adults have an elongated snout and elbowed antennae. Their wings and body are mottled or brown. Photo by Clemson University – USDA Cooperative Extension Slide Series, Bugwood.org.



Photo 3. Heavily-defoliated alfalfa fields appear frosted from a distance. Photo by Whitney Cranshaw, Colorado State University, ipmimages.org.

Scouting and Management

After reaching benchmark degree days (200 in southern Iowa and 250 in northern Iowa), use a sweep net to sample for adults and larvae. South-facing slopes warm up faster and may be a place to start sampling. Once the first larvae are collected in your sweep net, you need to know four pieces of information to decide if the economic threshold has been reached in that field:

1. Market value of the hay (\$/ton).
2. Control costs (\$/acre).
3. Plant height (inches).
4. Number of larvae.

The last two pieces of the economic threshold determination can be gathered by scouting the field. Collect six alfalfa stems from 5 random locations throughout the field (total of 30 stems) by breaking them off at the base, making sure to be gentle so as not to lose larvae during the process. Measure the height of these plants. Most of the larvae can be dislodged by vigorously shaking the stems into a bucket. Small larvae can be difficult to separate from the plant, so the plants should also be carefully inspected after shaking. Take the average plant height and count the total number of larvae per 30 stems, then use Table 1 to determine if an insecticide application is warranted.

Cutting alfalfa is an effective management tool for alfalfa weevil larvae, and an insecticide application may be avoided if harvesting occurs within a few days of reaching the economic threshold. Harvesting is preferred to chemical treatments once plants are 16 inches tall.

		Plants 12-18 inches AND Control costs (\$/acre)				Plants 18-24 inches AND Control costs (\$/acre)				Plants 24-30 inches AND Control costs (\$/acre)			
		\$12	\$14	\$16	\$20	\$12	\$14	\$16	\$20	\$12	\$14	\$16	\$20
		Hay value (\$/ton)	\$120	68	79	91	114	75	87	100	124	78	91
\$140	59	68	77	99	64	75	86	107	67	78	90	112	
\$160	51	60	68	86	56	65	75	93	58	68	79	98	
\$180	45	52	60	77	50	58	67	84	52	61	70	87	
\$200	41	48	54	69	45	52	60	76	47	55	63	79	
\$220	37	43	49	63	41	47	55	69	42	50	57	72	
\$240	34	40	45	58	37	43	50	63	39	46	53	66	
\$260	31	37	42	54	35	40	46	59	36	43	49	61	
\$280	29	34	39	50	32	37	43	55	33	40	45	56	
\$300	27	32	36	47	30	35	40	51	31	37	42	53	
\$320	26	30	34	44	28	33	38	48	29	35	40	49	
\$341	24	28	32	41	26	31	36	45	27	33	37	46	
\$360	23	26	30	39	25	29	34	43	26	31	35	44	
\$380	22	25	28	37	24	27	32	41	24	29	33	42	
\$400	20	24	27	35	22	26	30	39	23	28	32	39	

Table 1. Economic threshold of alfalfa weevil, based on the total number of larvae in a 30-stem sample (Originally published by John Tooker, Penn State Extension).

For more information on how to interpret the table, click [here](#).

Category: [Insects and Mites](#)

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