

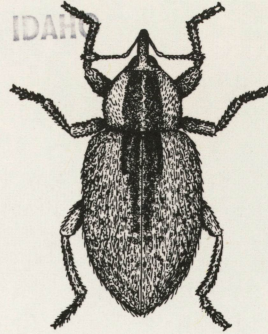
1967 Controls for ALFALFA WEEVIL

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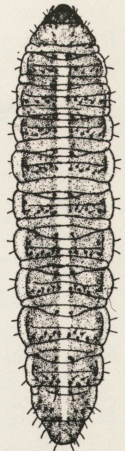
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Alfalfa weevil adult

(Courtesy Colorado State University)



Alfalfa weevil larva

is adult-like, immobile and contained within a lace-like cocoon.

The alfalfa weevil* is a serious threat to the profitable production of alfalfa in Idaho. Statewide dollar loss due to the weevil was estimated at \$11 million in 1965 and \$12 million in 1966. Similar losses will occur during 1967 unless a determined effort is made to control this pest.

Formerly, overwintering adult weevils were effectively controlled with early spring insecticide applications. In mid-1964 Federal label registrations for these chlorinated hydrocarbons were withdrawn. Residues of the chemicals were found on and in alfalfa forage and thus in milk and meat. According to the Federal Food and Drug Administration the presence of these residues in forage, milk or meat makes marketing these products illegal.

When buying alfalfa hay, insist upon a signed invoice which includes a complete record of the insecticides used on the hay in question! Approved insecticides are listed in this bulletin.

At the present time there is no field-proven registered insecticide for early spring application that will control adult weevils and not leave illegal residues. Alfalfa weevil control must now be directed at the larvae during the growing season. This practice is subject to greater error than previous adult control practices because timing of applications with larval activity is difficult. It is also more expensive.

APPEARANCE

Adult weevils are about 3/16 inch long and have a medium-sized beak projecting downward from the head. Newly emerged adults are grayish in color with a wide brownish stripe down the back. As the weevils get older they turn brown and darken in color. The larvae, on hatching, are dingy yellow but soon become green with a shiny black head and a prominent white stripe along the middle of the back. When full grown, they are about 3/8 inch long. The eggs are small, oval shaped and lemon yellow in color. They darken to an olive green color as hatching approaches. The pupa

**Hypera postica* (Gyllenhal)

LIFE HISTORY

Adults spend the winter in alfalfa stubble, along ditch banks and in field borders. They become active with the first warm weather in the spring. The female deposits her eggs inside the stems of old stubble or new growth. She accomplishes this by boring a small round hole in the stem with her beak and then turning around and depositing up to 30 eggs in the cavity. Most egg-laying occurs after the new growth appears and continues until mid-season when the females normally die. Each female is capable of laying at least 600 eggs. Hatching occurs throughout May and into June. The tiny larvae crawl up the stem and feed within the leaf buds of the terminal growth. Feeding may continue until early July. Each larva feeds for approximately 3 weeks before it drops to the ground and pupates. In 10 to 12 days the adult weevil emerges and is active in the field until cold weather.

TYPE OF DAMAGE

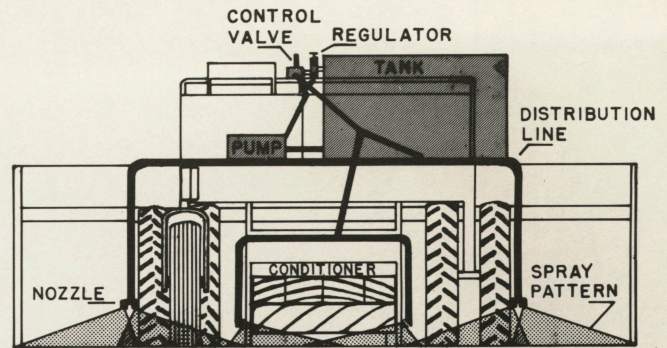
The adult weevils feed on alfalfa but do not seriously injure it. Feeding of the larvae on first crop hay results in a reduction of yield and hay quality. Larval feeding causes the leaves to be ragged or skeletonized. When severe damage occurs, entire fields take on a grayish or whitish cast. After cutting of the first hay crop the larvae drop into the stubble. The larvae that have not completed their development continue to feed on buds of the alfalfa crowns. This delays growth of the second crop and may be serious if the water supply is short, if the season is short, or if the second crop is to be left for seed. Under hot and dry weather conditions a large alfalfa weevil population can severely reduce stands.

Chemical Control

To be effective, insecticide treatments must be properly timed—based on thorough and frequent examinations of individual fields. It will be necessary to consider the amount of damage that is occurring, the maturity of the alfalfa and the size of the majority of the larvae. The rate of change of these variables is influenced by weather, by location, by elevation and by variety.

Damage in the first hay crop is not considered severe until 50 to 75% of the plant terminals show larval feeding and considerable ragging of the leaves. If this situation exists when the crop is approaching full-bud stage or when the crop is within 2 weeks of the normal cutting time, the best control will be to harvest the hay early and treat the stubble with one of the approved insecticides shown in the table below. Use a conventional sprayer or treat the stubble as you harvest. See the diagram below and University of Idaho Current Information Series Number 46, **Control of the Alfalfa Weevil with a "Sprayrower."** When severe damage is occurring, early cutting will give the best quality alfalfa hay. When the stubble is not treated, the field may remain bare for 3 weeks or longer due to larval feeding on the buds of the crowns.

When severe damage occurs before the alfalfa is near the bud stage and the larvae are small, it will be necessary to treat the standing hay crop. In this case the interval of time between insecticide application and harvest must be observed. It may be necessary to re-treat the stubble if the new growth is being held back by larval feeding following treatment of the standing hay.



Rear-view schematic of stubble treatment for alfalfa weevil with a sprayer-equipped swather. Details are listed in the College of Agriculture publication entitled, *Control of Alfalfa Weevil with a "Sprayrower."*

In addition to proper timing of the insecticide treatment, thorough and complete coverage is necessary for effective control. When spraying the standing hay crop with ground equipment, use at least 25 gallons of water per acre along with the recommended amounts of chemicals. When spraying stubble, use at least 10 gallons of water. Pressures should range between 30 and 60 pounds per square inch. Equipment should be in good operating condition and properly calibrated. Applications by air should deliver at least 10 gallons of water per acre.

Insecticides for Alfalfa Weevil Larvae Control

INSECTICIDE	APPLICATION		LIMITATIONS
	Dosage	Actual Per Acre	
Diazinon	4 lb. EC	1 lb.	Insecticide treatments must be properly timed—based on frequent examinations of individual fields. When 50 to 75% of plant terminals begin to show feeding damage either cut and treat stubble or treat the standing crop depending on the stage of alfalfa growth.
Guthion	2 lb. EC	6, 8, or 12 oz.	
Malathion ¹	5 lb. EC	1-1¼ lb.	
Methoxychlor ^{1,2}	2 lb. EC	1-1½ lb.	
Parathion ³	4 lb. EC	4 oz.	
			10 days ⁴ —moderately hazardous; use with normal safety precautions.
			14, 16 or 21 days depending on rate—hazardous; only use with caution.
			No days — safe to use. Recommended for "Sprayrower."
			7 days—safe to use. Recommended for "Sprayrower."
			15 days—hazardous; to be applied only by a commercial applicator.

¹Malathion and methoxychlor are the only insecticides recommended for use with sprayer-equipped swathers.

²All of the insecticides listed above, except methoxychlor, will control the pea aphid.

³Foliar application of parathion may result in residues which exceed established tolerances for cured hay.

⁴Days refer to minimum days from last application to harvest or feeding.

CAUTION—POISON

All insecticides are poisonous and must be handled with care in order to protect the operator, livestock, adjacent property and the consumer. Read and follow the label carefully each time a material is used. Keep accurate records of the pesticides you apply.

PESTICIDE RESIDUES — These recommendations are based on the best information currently available

for each chemical listed. If followed carefully, residues should not exceed the tolerance established for any particular chemical. To avoid excessive residues, follow recommendations carefully with respect to dosage levels, number of applications and minimum interval between application and harvest.

THE GROWER IS RESPONSIBLE FOR residues on his crops as well as for problems caused by drift from his property to other properties or crops.

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JAMES E. KRAUS, Director