

1966 Controls for ALFALFA WEEVIL

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APPEARANCE

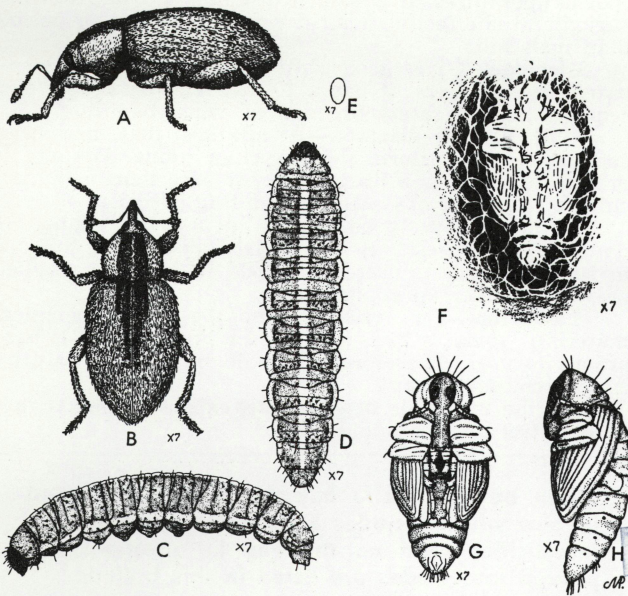
Adult weevils are about 3/16 inch long and have a medium-sized beak projecting downward from the head. Newly emerged adults are grayish in color with a wide brownish stripe down the back. As the weevils get older they darken in color. The larvae, on hatching, are dingy yellow but soon become green with 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 as hatching approaches. The pupa is adult-like, immobile and contained within a lace-like cocoon.

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. Most egg-laying occurs after the new growth appears and continues until mid-season when the females die or are killed. In egg-laying the female eats a hole in the stem with her beak and then turns around and deposits up to 30 eggs in the cavity. 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 on leaf buds in 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 appear ragged or skeletonized. When severe damage occurs, entire fields may take on a grayish or whitish cast. After cutting of



Courtesy Colorado State University

Stages in the life cycle of the alfalfa weevil: A and B, side and top view of adult; C and D, side and top view of larva; E, egg; F, pupa within lace-like cocoon; G and H, ventral and side view of pupa.

The alfalfa weevil¹ presents a serious threat to profitable production of alfalfa. A survey conducted by the Department of Entomology indicates a loss in excess of 11 million dollars in Idaho in 1965, excluding cost of weevil control. First crop alfalfa losses were as high as 30% in some counties. Second crop alfalfa was hurt even more, with losses running as high as 50% and regrowth often being delayed to the point that only 2 crops of alfalfa were taken in areas that normally have 3. In all probability, if not effectively controlled, this insect will cause even greater losses in the 1966 season.

Formerly, overwintering adult weevils were effectively controlled with early spring insecticide applications. USDA has withdrawn federal registration of the insecticides used for this purpose, because residues of these chemicals have occurred in milk or meat. According to the Federal Food and Drug Administration, foods with these residues are considered unfit for human consumption. Now there is no field-proven registered insecticide for spring application that will control adult weevils and not leave an illegal residue. Therefore, we must control alfalfa weevil larvae during the growing season, even though it is more expensive and subject to greater error than adult weevil control.

You can control alfalfa weevil without serious hay loss and without illegal residues in hay. You must properly time the control measures with weevil activity. You must select a control that best fits the weevil situation in each of your alfalfa fields.

¹*Hypera postica* (Gyllenhal)

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the first hay crop the larvae drop into the stubble and 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.

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 plants 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. 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.

The characteristics of the insecticides approved for larval control are different.

Insecticides for Alfalfa Weevil Larvae Control

Insecticide	Pounds actual needed per acre	Minimum days interval spray to harvest
Malathion, 5 lb., EC	1-1¼ lb.	No limit
Methoxychlor, 2 lb., EC	1-1½ lb.	7
Diazinon, 4 lb., EC	1 lb.	10
Methoxychlor & diazinon, 2.4 lb., EC	1¼ lb.	10
To be applied only by commercial applicators		
Guthion, 2 lb., EC	½ lb.	21
Parathion,* 4 lb., EC	¼ lb.	15

* Foliar application may result in residues which exceed established tolerances for cured hay.

Malathion—Performance has been good if it is applied when temperatures are above 60 F. It is safe to use and has no waiting period.

Methoxychlor—Performance has been good even at cool temperatures. It is safe to use, has a 7-day waiting period and is effective against weevil for a longer period than malathion.

Diazinon—Gives good control but is expensive compared to the others. It has a 10-day waiting period and requires normal safety precautions when handling.

Methoxychlor-diazinon—A mixture that has been reported to outperform methoxychlor alone. Toxicity is greater and cost is a little more per acre than methoxychlor by itself. It has a 10-day waiting period.

Guthion—Gives good control but must be applied 21 days before harvest. It has a high toxicity for humans and is hazardous to use. Therefore, it should be applied only by commercial applicators.

Parathion—Very effective and the most economical material. It has a high toxicity for humans and is hazardous to use. Therefore, it should be applied only by commercial applicators.

All the materials listed above, except methoxychlor, will control the pea aphid.

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.

Flaming of alfalfa stubble with LP gas burners has not effectively controlled the alfalfa weevil in Idaho. This practice has been widely publicized on the East Coast. Conditions on the East Coast differ in that the weevils lay most of their eggs in the fall rather than in the spring. Therefore, spring burning destroys the eggs. In Idaho the eggs are laid in the spring after the alfalfa is growing.

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.

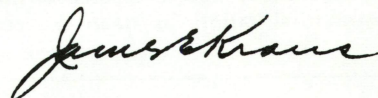
CAUTION—POISON

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 completely each time a material is used. Keep accurate records of the pesticides you apply.

PESTICIDE RESIDUES—These recommendations for use 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