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Alfalfa Weevil Control in Oregon

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The alfalfa weevil is one of the most damaging insect pests in the production of alfalfa hay. Although it has spread to most of the alfalfa-producing areas of the state, it is not always present in sufficient numbers to justify control. To date, control has only been necessary in heavily infested fields in counties east of the Cascade Mountains.

Control of the alfalfa weevil should be considered on an individual field basis and not a regional basis. The purpose of this fact sheet is to help growers decide when it will pay to apply insecticides to control weevil damage. This can be determined by measured test sweeps of the crop, using an insect-collecting net as directed, to indicate the number of weevil larvae.

Life history

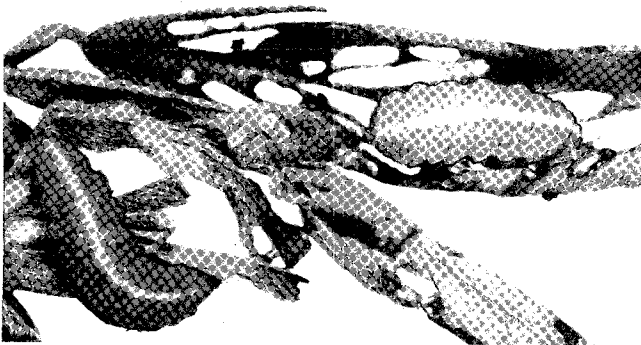
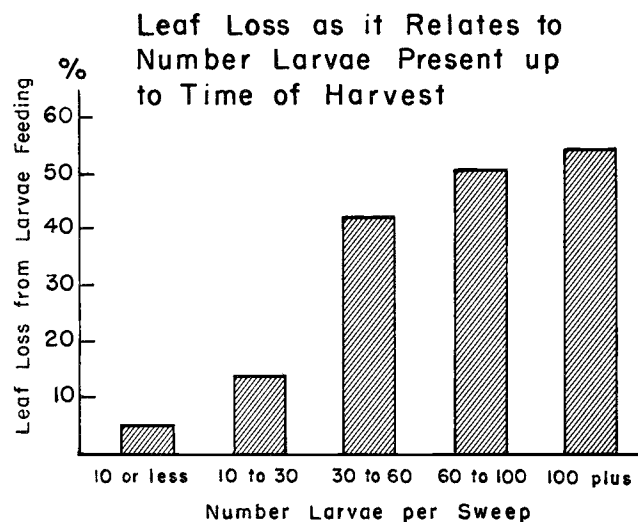
Adults overwinter in alfalfa stubble, along ditch banks, and along field borders. Weevils resume activity with the first warm weather in late winter or early spring. The first eggs are laid in dead alfalfa stems on the ground, and later clusters of eggs are laid within the growing stems. Each female is capable of laying several hundred eggs. Eggs hatch during May and June. Larvae from these eggs feed on the leaves for approximately three weeks and then drop to the ground to pupate in oval, netlike cocoons. Weevils emerge from the cocoons in about 10 to 12 days and are active until cold weather approaches.

Damage

The tiny larvae hatching from eggs begin feeding in the plant tips and upper leaves in May and early June, depending on location and season. As the larvae grow

larger, they feed on and skeletonize newly opening leaves. When larvae are numerous, this leads to substantial leaf loss and reduced hay quality. As plants dry, the entire alfalfa field may have a silvery appearance. Larval feeding usually continues up to, and sometimes through, the first cutting of hay. After the alfalfa is cut, larvae and newly emerged adults may feed on the new shoots and delay growth of the second cutting.

The amount of larval injury can be measured by the percentage of leaf loss from larval feeding. The bar graph shows the percentage of leaf loss caused by different levels of larval populations present in fields up to the time of the first cutting. It clearly illustrates that populations of less than 10 larvae per sweep do not cause appreciable losses and usually do not justify chemical treatment.



Alfalfa weevil larvae and typical leaf injury. The larvae are green with a white stripe down the back. Fully grown larvae are about $\frac{3}{8}$ of an inch in length.

Starting in late May, small alfalfa weevil larvae may be found by sweeping the field with an insect net. Treatment usually should not be applied this early in the season because delayed egg hatching during periods of cool or inclement weather may produce larvae after the insecticide has lost its effectiveness.

During the first week in June, larval populations increase and damage to terminal leaves becomes more noticeable. This is particularly true in fields that have a history of alfalfa weevil infestation or in fields where the weevil is likely to become a problem. By the second week in June it is possible to determine if treatment will be justified.



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When to treat

✓ If damage is noticeable one week or more prior to estimated cutting time, and more than 10 larvae per sweep are collected in the insect net, the field should be treated.

✓ If treatment was not applied a week or more before harvest, damage is quite severe, and larval populations are well in excess of 10 per sweep, it will still pay to treat the field and protect the second crop from injury.

Treatment not justified

✓ If no more than 10 larvae per sweep are found in the field one week before harvest.

✓ If there is only a small amount of leaf feeding and larvae are nearly full grown.

It should be understood that 10 larvae per sweep is simply a general index to assist growers in determining when to treat. Weather conditions, plant vigor, irrigation schedules, cutting date, previous history of weevils in the area, and a complex of factors may determine if treatment is justified. Experience with this insect in Oregon has shown that treatment should be applied only when necessary and not as a preventive practice.

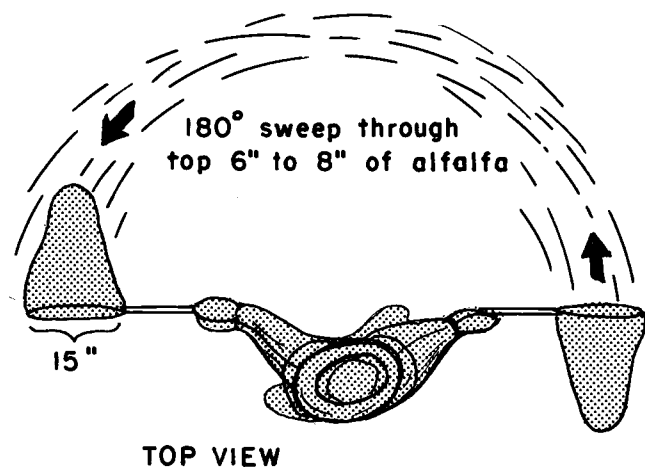
Growers, particularly those who have not had previous experience with the alfalfa weevil, are encouraged to seek assistance from county Extension agents or trained field men. Growers who follow the practice of sweeping their alfalfa fields with an insect net and examining the plants for evidence of weevil injury are in a position to save money by avoiding unnecessary pesticide application, or to prevent crop damage by using an insecticide at the time of greatest effectiveness.

The larval counts used as a basis for the recommendations in this fact sheet were made with a standard in-

sect sweep net having a diameter of 15 inches. The bag or net is made of unbleached muslin which is attached to a sturdy wire frame with a handle 26 inches long. Sweep nets can be made or purchased. County agents can suggest places where nets can be bought. Some insecticide dealers keep them in stock. Each sweep covers an arc of 180 degrees, with the net striking the upper 6 to 8 inches of the plant. When sweeping a field, take single sweep tests in various areas of the field. The average number of larvae found per sweep will be the basis for determining the need for control.

Control Recommendations

Insecticide	Dosage actual insecticide per acre	Interval between treatment and cutting
Malathion ^{a/}	1 pound	No interval, may be applied any time
or		
Methyl parathion ^{a/b/c/} ..	8 ounces	15-day interval
or		
Diazinon ^{a/}	1-1.5 pounds	10-day interval
or		
Methoxychlor	1.5 pounds	7-day interval
or		
Sevin ^{b/}	1 pound	No interval, may be applied any time
or		
Phosdrin ^{a/c/}	8 ounces	1-day interval
or		
Guthion	8-12 ounces	8 ounces, 16-day interval 8-12 ounces, 21-day interval (only one application of Guthion per cutting is per- mitted)
or		
Furadan ^{a/c/}	0.25-1.0 pound	0.25 pound, 7-day interval 0.50 pound, 14-day interval 1.0 pound, 28-day interval (only one application of Furadan per cutting is permitted)
or		
Supracide ^{a/c/}	0.50-1.0 pound	10-day interval (only one application of Supracide per cutting is permitted)
or		
Prepared combinations ^{a/}		Several combinations of ma- terials are available; see label for rate of applica- tion and interval from treatment to cutting



^{a/} Indicates insecticide also controls pea aphids.

^{b/} Both Sevin and methyl parathion have caused leaf spotting and yellowing.

^{c/} Phosdrin, methyl parathion, Furadan, and Supracide are hazardous materials and their use is not recommended in the more populated areas where fields are close to dwellings or farm buildings.

Note: Before using any insecticide, read the manufacturer's label for safety precautions.