

# Alfalfa Weevil Management

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- 1. Understand the weevil life cycle and damage it causes.** Adult weevils often lay eggs inside alfalfa stems during warm days in the fall, winter, and spring. Alfalfa weevil larvae grow through four stages (instars). Alfalfa weevil egg hatch and instar development begins when temperatures are above 48°F. Early in the season the first and second instars feed inside the terminal leaves, and show up as pinhole feeding. When the third and fourth instars develop they move to foliage on the lower portion of the plant, at this stage a large amount of foliage can be consumed.
- 2. Scout often starting early in the spring.** Walk alfalfa fields as early as late March for signs of leaf feeding. Most years the feeding gets progressively worse through April. The most effective scouting technique is to collect ten alfalfa stems in each of five locations around the field and tap them into a white bucket. Be sure to gently handle the stems so larvae don't fall to the ground before getting them to the bucket. Scissors can be helpful to accomplish this. Determine the average number of larvae per stem. The economic threshold for alfalfa weevils is an average of one or more larvae per stem and 30 percent or more of the plant terminals show feeding damage. If the field's infestation is greater than this, it may be time to start spraying.



In cool, wet springs, a fungal pathogen called *Zoophthora phytonomi* can infect and kill weevils. If this occurs, the infected larvae turn from their normal green color to a yellow color and may die off in 2-3 days after infection occurs.

Using degree day information to schedule field checks may save time. Information about degree days can be found at Missouri Commercial Agriculture Weekly Weather Station Summary <http://agebb.missouri.edu/weather/reports/gddTable.asp>

Alfalfa weevil feeding can be observed after a buildup of 190 degree days following a mild winter. In most years damage occurs later and scouting should begin after 225 degree days. More information about degree days and alfalfa weevil thresholds can be found at [https://uknowledge.uky.edu/cgi/viewcontent.cgi?article=1335&context=ky\\_alfalfa](https://uknowledge.uky.edu/cgi/viewcontent.cgi?article=1335&context=ky_alfalfa)

- 3. Decide if early harvest is necessary.** Early harvest, by either machine or livestock, is an option for management of weevils. This removes food and shelter from larvae and also increases their exposure to the sun. Remember, that it is best for the crop to not harvest earlier than 7-10 days prior to the normal growth stage of 1/10<sup>th</sup> bloom. Missouri research has found that 98% of the weevils can be reduced with mechanical harvest and 90% can be reduced by grazing cattle. If grazing, be cautious of bloat from wet foliage and damage to the crowns from trampling during wet conditions.
- 4. Choose labeled insecticides if threshold levels are reached.** Factors that may reduce efficacy of insecticide applications when used to control alfalfa weevil larva include:
  - a. Cool Temperatures.** Temperatures below 60°F slow the metabolic process of the developing larvae and often slow the onset of larval mortality below what is normally expected when insecticides are applied at warmer temperatures. Steward insecticide (Indoxacarb) has demonstrated increase larval mortality when used in cool conditions. Although, when conditions are normal insecticide efficacies on alfalfa weevil larvae are generally equivalent.
  - b. Insecticide rate.** Use of lower rates of insecticides when larval populations are very high may lead to reduced efficacy. Make sure to read the insecticide label to determine the correct rate.
  - c. Poor coverage.** It's best to use a lot of water in the spray mix for ground applications, with 20 gallons per acre considered optimum, and proper tip selection.
  - d. Pesticide resistance.** Development of resistance to the pesticides being used can decrease insecticide efficacy. To avoid pesticide resistance, rotate mode of action being used.

**Be sure to read and follow label directions, precautions, and restrictions of the product you purchase.**