

Insect Control in Alfalfa (Pure Stands Only) – 2017

Joanne Whalen, Extension IPM Specialist and Bill Cissel, Extension IPM Agent, University of Delaware
(adapted from the Virginia Tech Pest Management Guide, section written by Curt Laub, Research Associate, Virginia Tech)

Alfalfa Weevil

I. Sampling: Begin sampling in late March and continue on a weekly basis until the first cutting. Fields should also be checked within one week of the first cutting for both larval and adult damage to the re-growth. During the first visit, examine 5-10 stems for damage and larvae. A full stem sample is not needed until damage or larvae are found on the plants. If leaf feeding is present, randomly collect 30 stems from throughout the field. Grasp stems at the base and place each stem upside down in a bucket. After collecting the stems, separate them into 3 or 4 bundles and beat them against the inside of the bucket to dislodge larvae from the stems. Count and record all larvae found per 30 stems. Measure 10 of the 30 stems and record the average stem height. Also, note if buds or flowers are present to determine the percentage of plants in the bud or flower stage.

2. Decision Making: As a general guideline, the following thresholds can be used to make a treatment decision:

Average Stem Height (inches)	# Weevil Larvae per Stem
0-11	0.7
12	1.0
13-15	1.5
16	2.0
17-18	2.5

If alfalfa is in the full-bud stage and economic levels are present, early harvest is an alternative to spraying. If harvest is not possible within 3 days and populations are increasing, use a short residual insecticide. If economic levels of alfalfa weevil are present before harvest and you decide to cut instead of spray, be sure to check fields within one week of cutting for damage to the re-growth. If temperatures remain cool after cutting, there is often not enough “stubble heat” to control populations with early cutting. In some cases, damage to re-growth can be significant. As a general guideline, a stubble treatment may be needed if you find 2 or more weevils per stem and the population levels remain steady.

NOTE: The label is the law. Be sure to read the label before making any pesticide applications and observe all label restrictions including days from last application to harvest which varies for forage, hay and grazing. Also, to avoid injury to honey bees, do not apply insecticides during bloom.

OLF = Other labeled formulations

Insecticides Labeled for Control of Alfalfa Weevil				
Insecticide (Formulation)	Amount active ingredient per acre	Amount product per acre	Time limits: days before harvest	Remarks
beta-cyfluthrin (Baythroid XL)	0.0125 to 0.022 lb.	1.6 to 2.8 fl. oz.	Cutting for Hay /grazing: 7	RESTRICTED USE.
cyfluthrin (Tombstone 2EC) or OLF	0.025 to 0.044 lb.	1.6 to 2.8 fl. oz.	Cutting for Hay /grazing: 7	RESTRICTED USE.
indoxacarb (Steward EC)	0.065 to 0.11 lb.	6.7 to 11.3 fl. oz.	Hay harvest: 7	GENERAL USE
lambda-cyhalothrin (Warrior II [2.08EC]) or OLF	0.02 to 0.03 lb.	1.28 to 1.92 fl. oz.	Forage harvest: 1 Hay harvest: 7	RESTRICTED USE.
methomyl (Lannate LV)	0.9 lb.	3.0 pt.	Cutting for Hay/grazing : 7	RESTRICTED USE.
phosmet (Imidan 70-W)	0.7 to 1.0 lb.	1.0 to 1.3 lb.	Cutting for hay/grazing : 7	RESTRICTED USE.
permethrin (Perm-Up 3.2EC) or OLF	0.1 to 0.2 lb.	4.0 to 8.0 fl. oz.	≤ 0.1 lb. AI/A: 0 > 0.1 lb. AI/A: 14	RESTRICTED USE
zeta-cypermethrin (Mustang Maxx)	0.014 to 0.025 lb.	2.24 to 4.0 fl. oz.	Cutting/grazing: 3	RESTRICTED USE

Potato Leafhopper

1. Sampling: On new spring plantings, begin sampling by mid-May, or as soon as plants are 3 inches tall. On established stands, begin sampling within a week after the first cutting and continue on a weekly basis until the final harvest. Take sweep net samples any time during the day as long as the foliage is dry. Take 10 sweeps in each of 10 locations to determine the number of leafhoppers per 100 sweeps. Examine 20 random stems to determine the plant height and plant growth stage.

2. Decision Making: As a general guideline, the following thresholds can be used to make a leafhopper control decision. Keep in mind that fields may vary considerably in plant response to the leafhopper feeding depending on soil moisture, fertility, and cultivar.

Average Stem Height (inches)	Number per 100 Sweeps
3 or less	20
4 to 6	50
7 to 10	100
11 or greater	150

If alfalfa is more than 60 percent bud or flowering, consider harvesting in the next 7 days to avoid spraying. In this situation, the field should be re-sampled soon after harvest to determine the need for control. If the field cannot be harvested in 7 days and economic population levels are present, apply a short residual insecticide. If the alfalfa has experienced "hopper burn," significant yield loss has already occurred and the field should be cut instead of sprayed.

NOTE: The label is the law. Be sure to read the label before making any pesticide applications and observe all label restrictions including days from last application to harvest – varies for forage, hay and grazing. Also, to avoid injury to honey bees, do not apply insecticides during bloom.

OLF = Other labeled formulations

Insecticides Labeled for Control of Potato Leafhopper				
Insecticide (Formulation)	Amount active ingredient per acre	Amount product per acre	Time limits: days before harvest	Remarks
beta-cyfluthrin (Baythroid XL)	0.0065 to 0.0125 lb.	0.8 to 1.6 fl. oz.	Cutting for hay/grazing: 7	RESTRICTED USE.
cyfluthrin (Tombstone 2 EC) or OLF	0.013 to 0.025 lb.	0.8 to 1.6 fl. oz.	Cutting for hay/grazing: 7	RESTRICTED USE.
dimethoate (Dimethoate 400) or OLF	0.2 to 0.5 lb.	0.5 to 1.0 pt.	Hay harvest or Grazing: 10	RESTRICTED USE.
lambda-cyhalothrin (Warrior II [2.08EC]) or OLF	0.015 to 0.025 lb.	0.96 to 1.60 fl. oz.	Forage harvest: 1 Hay harvest: 7	RESTRICTED USE.
phosmet (Imidan 70-W)	0.7 to 1.0 lb.	1 to 1.3 lb.	Cutting for hay/grazing: 7	RESTRICTED USE
permethrin (Perm-Up 3.2EC) or OLF	0.1 to 0.2 lb.	4.0 to 8.0 fl. oz.	≤ 0.1 lb. AI/A: 0 > 0.1 lb. AI/A: 14	RESTRICTED USE
zeta-cypermethrin (Mustang Maxx)	0.014 to 0.025 lb.	2.24 to 4.0 fl. oz.	Cutting/grazing: 3	RESTRICTED USE

Insecticides Labeled for Control of Grasshoppers				
Insecticide (Formulation)	Amount active ingredient per acre	Amount product per acre	Time limits: days before harvest	Remarks
beta-cyfluthrin (Baythroid XL)	0.0155 or 0.022 lb.	2.0 to 2.8 fl. oz.	Cutting for Hay/grazing: 7	RESTRICTED USE.
cyfluthrin (Tombstone 2 EC) or OLF	0.031 to 0.044 lb.	2.0 to 2.8 fl. oz.	Cutting for Hay/grazing: 7	RESTRICTED USE.
lambda-cyhalothrin (Warrior II [2.08EC]) or OLF	0.02 to 0.03 lb.	1.28 to 1.92 fl. oz.	Forage harvest: 1 Hay harvest: 7	RESTRICTED USE.
malathion (Malathion 57EC)	0.94 to 1.25 lb.	1.5 to 2.0 pt.	0	GENERAL USE
zeta-cypermethrin (Mustang Maxx)	0.0175 to 0.025 lb.	2.8 to 4.0 fl. oz.	Cutting/grazing: 3	RESTRICTED USE

NOTE: The label is the law. Be sure to read the label before making any pesticide applications and observe all label restrictions including days from last application to harvest which varies for forage, hay and grazing. Also, to avoid injury to honey bees, do not apply insecticides during bloom.

OLF = Other labeled formulations

Insecticides Labeled for Control of Armyworms and Cutworms				
Insecticide (Formulation)	Amount active ingredient per acre	Amount product per acre	Time limits: days before harvest	Remarks
beta-cyfluthrin (Baythroid XL)	0.0125 to 0.022 lb.	1.6 to 2.8 fl. oz.	Cutting for Hay/grazing: 7	RESTRICTED USE. Effective against small armyworm larvae up to 2 nd instar
cyfluthrin (Tombstone 2 EC) or OLF	0.025 to 0.044 lb.	1.6 to 2.8 fl. oz.	Cutting for hay/grazing: 7	RESTRICTED USE. Effective against small armyworm larvae up to 2 nd instar
lambda-cyhalothrin (Warrior II [2.08EC]) or OLF	0.02 to 0.03 lb.	1.28 to 1.92 fl. oz.	Forage harvest: 1 Hay harvest: 7	RESTRICTED USE.
permethrin (Perm-Up 3.2 EC) or OLF	0.05 to 0.20 lb.	2.0 to 8.0 fl. oz.	≤ 0.1 lb. AI/A: 0 > 0.1 lb. AI/A: 14	RESTRICTED USE.
zeta-cypermethrin (Mustang Maxx)	0.0175 to 0.025 lb.	2.8 to 4.0 fl. oz.	Cutting/grazing: 3	RESTRICTED USE.

Pea Aphid

1. Sampling/Decision Making: The need to treat for pea aphids is rare (1 year in 10) in the Mid-Atlantic because lady bird beetles, wasp parasites, and other beneficial insects usually control this pest. The best sampling technique requires the same 15-inch sweep net used for potato leafhoppers. Ten sweeps at 10 random locations should be used to sample both the aphids and beneficials. If 50 or more aphids per sweep are collected and no beneficials are present, it is recommended that the field be cut early. Avoid spraying first crop because sprays will kill alfalfa weevil parasites.

NOTE: The label is the law. Be sure to read the label before making any pesticide applications and observe all label restrictions including days from last application to harvest which varies for forage, hay and grazing. Also, to avoid injury to honey bees, do not apply insecticides during bloom.

OLF = Other labeled formulations

Insecticides Labeled for Control of Pea Aphids				
Insecticide (Formulation)	Amount active ingredient per acre	Amount product per acre	Time limits: days before harvest	Remarks
beta-cyfluthrin (Baythroid XL)	0.022 lb.	2.8 fl. oz.	Cutting for hay /grazing: 7	RESTRICTED USE.
cyfluthrin (Tombstone 2 EC) or OLF	0.044 lb.	2.8 fl. oz.	Cutting for hay /grazing: 7	RESTRICTED USE.
dimethoate (Dimethoate 400) or OLF	0.25 to 0.5 lb.	0.5 to 1.0 pt.	Hay harvest or Grazing: 10	RESTRICTED USE.
lambda-cyhalothrin (Warrior II [2.08EC]) or OLF	0.02 to 0.03 lb.	1.28 to 1.92 fl. oz.	Forage harvest: 1 Hay harvest: 7	RESTRICTED USE.
malathion (Malathion 57EC)	0.94 to 1.25 lb.	1.5 to 2.0 pt.	0	GENERAL USE
methomyl (Lannate LV)	0.45 to 0.9 lb.	1.5 to 3.0 pt.	Cutting for Hay/grazing : 7	RESTRICTED USE
permethrin (Perm-Up 3.2EC) or OLF	0.1 to 0.2 lb.	4.0 to 8.0 fl. oz.	≤ 0.1 lb. AI/A: 0 > 0.1 lb. AI/A: 14	RESTRICTED USE
zeta-cypermethrin (Mustang Maxx)	0.014-0.025 lb.	2.24 to 4.0 fl. oz.	Cutting/grazing: 3	RESTRICTED USE