

ALFALFA

ALFALFA INSECT CONTROL

David Buntin, Research/Extension Entomologist

PEST	INSECTICIDE	AMOUNT PER ACRE	REMARKS AND PRECAUTIONS								
At-Planting seed Cutworms, grubs, wireworms	Lorsban 15G	6.6 lb	Apply in-furrow at planting for suppression of target pests. Do not cut or graze within 21 days after application. Make only 1 application per year.								
Alfalfa weevil (Hay production)	Baythroid XL (1.0EC) Lannate 2.4 LV Lannate 90 SP <u>chlorpyrifos</u> Lorsban 4E, Chlorfos, Chlorpyrifos, others 4E Mustang MAX, Respect (0.8EC) Methyl 4EC Permethrin, Ambush, other brands 3.2EC Steward 1.25SC <u>lambda cyhalothrin</u> Karate Zeon (2.08) Warrior, Silencer, Lambda, others (1.0) <u>gamma cyhalothrin</u> Declare (1.25) Proaxis (0.5) Tombstone (2.0)	1.6 - 2.8 fl oz 3 pt 1 lb 1 - 2 pt 2.24 - 4.0 fl oz 1 pt 8 fl oz 6.7 - 11.3 fl oz 1.28 - 1.6 fl oz 2.56 - 3.2 fl oz 1.02 - 1.54 fl oz 2.56 - 3.2 fl oz 1.6 - 2.8 fl oz	Alfalfa weevil infestations can normally be found from mid-February until after the 1st cutting. Scouted 1-2 times a week during this period by randomly pulling 30 whole stems from throughout the field. Place stems in a plastic bucket and dislodge larvae by vigorously flailing the stems against the sides of the bucket. Count the number of larvae. Use plant height to determine your treatment level where: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Stem Height (inches)</u></td> <td style="text-align: center;"><u>Larvae per stem</u></td> </tr> <tr> <td style="text-align: center;">3 - 8</td> <td style="text-align: center;">0.5</td> </tr> <tr> <td style="text-align: center;">9 - 14</td> <td style="text-align: center;">1.0</td> </tr> <tr> <td style="text-align: center;">15 or more</td> <td style="text-align: center;">1.5</td> </tr> </table> Do not treat solely on weevil numbers. Wait until you have damage on about 30% of the terminals before you consider spraying. For sweep net sampling, treat if 20 or more larvae per sweep are present. All weevil sprays should be made with ground equipment with a minimum of 20 gal./acre. <u>Grazing Alfalfa Pastures:</u> Products and rates listed in the table for grazing alfalfa have grazing restrictions of 0 to 3 days. Several products listed in the hay section have 7 day grazing restriction. The reduced rate of permethrin may be less effective in controlling larvae than rates recommended for hay production. NOTE: Chlorpyrifos products may cause injury to young, rapid growing foliage but normally does not affect yield. NOTE: Cobalt, mixture of chlorpyrifos and gamma cyhalothrin, also is registered for alfalfa weevil control.	<u>Stem Height (inches)</u>	<u>Larvae per stem</u>	3 - 8	0.5	9 - 14	1.0	15 or more	1.5
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9 - 14	1.0										
15 or more	1.5										
Alfalfa weevil (Grazing alfalfa) Products and rates listed have grazing restrictions of 0 to 3 days, see table of pesticide restrictions.	Permethrin, Ambush, other brands 3.2EC Mustang MAX, Respect (0.8EC) <u>lambda cyhalothrin</u> Karate Zeon (2.08) Warrior, Silencer, Lambda, others (1.0) <u>gamma cyhalothrin</u> Declare (1.25) Proaxis (0.5)	4 fl oz 2.24 - 4.0 fl oz 1.28 - 1.6 fl oz 2.56 - 3.2 fl oz 1.02 - 1.54 fl oz 2.56 - 3.2 fl oz	NOTE: EPA has revoked all crop tolerances of all formulations of Furadan . Any crop receiving an application of Furadan after January 1, 2010 cannot be legally sold.								
Aphids	<u>chlorpyrifos</u> Lorsban, Chlorfos, Chlorpyrifos, others (4E) Dimethoate 4EC, 400 Dimethoate 2.67EC Methyl 4EC <u>malathion</u> Malathion 5EC, 57EC, Malathion 8EC	1 - 2 pt 0.5 - 1 pt 0.75 - 1.5 pt 1 pt 1.5 - 2.0 pt 1.0 - 1.25 pt	In Georgia, especially in the Coastal Plain area, aphids can be extremely abundant without causing economic damage. Some varieties are resistant to aphids. Treat aphids as listed below based on average number per stem at a given stem height. If alfalfa is near the time of cutting consider cutting earlier and treating the stubble if aphids remain after cutting. <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Stem Height (inches)</u></td> <td style="text-align: center;"><u>Aphids per Stem</u></td> </tr> <tr> <td style="text-align: center;">10-15</td> <td style="text-align: center;">40-50</td> </tr> <tr> <td style="text-align: center;">16-20</td> <td style="text-align: center;">60-80</td> </tr> <tr> <td style="text-align: center;">21+</td> <td style="text-align: center;">100-120</td> </tr> </table> NOTE: Chlorpyrifos products may cause injury to young rapid growing foliage but normally does not affect yield. NOTE: Cobalt, mixture of chlorpyrifos and gamma cyhalothrin, also is registered for aphid control.	<u>Stem Height (inches)</u>	<u>Aphids per Stem</u>	10-15	40-50	16-20	60-80	21+	100-120
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ALFALFA INSECT CONTROL (continued)

PEST	INSECTICIDE	AMOUNT PER ACRE	REMARKS AND PRECAUTIONS
Aphids (cont.)	Permethrin, Ambush, other brands 3.2EC <u>lambda cyhalothrin</u> Karate Zeon (2.08) Warrior, Silencer, Lambda, others (1.0) <u>gamma cyhalothrin</u> Declare (1.25) Proaxis (0.5)	4 - 8 fl oz 1.28 - 1.92 fl oz 2.56 - 3.84 fl oz 1.02 - 1.28 fl oz 2.56 - 3.84 fl oz	
Armyworms (True armyworm, Fall Armyworm, Beet armyworm, Yellowstriped armyworm)	Belt (4.0) Coragen (1.67SC) Prevathon (0.43) Lannate 2.4 LV Lannate 90 SP Sevin 80S Sevin XLR Plus, 4F Mustang MAX, Respect (0.8EC) <u>lambda cyhalothrin</u> Karate Zeon 2.08) Warrior, Silencer, Lambda, others (1.0) <u>gamma cyhalothrin</u> Declare (1.25) Proaxis (0.5)	2.0 - 4.0 fl oz 3.5 - 5.0 fl oz 14 - 20 fl oz 3 pt 0.5 - 1 lb 1.625 lb 1.5 qt 3.2 - 4.0 fl oz 1.28 - 1.92 fl oz 2.56 - 3.8 fl oz 1.02 - 1.54 fl oz 2.56 - 3.84 fl oz	Treat when any of these armyworm pests or combination of pests are found at an average of 2 to 3 per square foot. NOTE: Tracer is most effective against small larvae, use higher rate for large larvae and large infestations.
Clover leaf weevil, Lesser clover leaf weevil, (Larvae)	Products applied for control of alfalfa weevil larvae may give helpful control of other leaf- feeding weevil larvae.		Treat when larvae or adults are damaging the leaves and stems on 30% of the plants.
Green cloverworm and/or Velvetbean caterpillar and/or Alfalfa Webworm and/or Alfalfa caterpillar and/or alfalfa looper	Baythroid XL (1.0EC) Belt (4.0) Coragen (1.67SC) Prevathon (0.43) Lannate 2.4 LV Lannate 90 SP Mustang MAX, Respect (0.8EC) Permethrin, Ambush, other brands 3.2EC Sevin 80S Sevin XLR Plus, 4F <u>lambda cyhalothrin</u> Karate Zeon (2.08) Warrior, Silencer, Lambda, others (1.0) <u>gamma cyhalothrin</u> Declare (1.25) Proaxis (0.5) Tombstone (2.0)	1.6 - 2.8 fl oz 2.0 - 4.0 fl oz 3.5 - 5.0 fl oz 14 - 20 fl oz 1.5 - 3 pt 0.5 - 1 lb 2.4 - 4.0 fl oz 4 fl oz 1.25 - 1.625 lb 1 - 1.5 qt 0.96 - 1.6 fl oz 1.92 - 3.2 fl oz 1.02 - 1.28 fl oz 1.92 - 3.2 fl oz 1.6 - 2.8 fl oz	FOLIAGE FEEDING CATERPILLARS: For alfalfa caterpillar, green cloverworm, velvetbean caterpillar, and alfalfa webworm, treat when any of these pests or combinations of pests are found at an average of 2 or more 1/2- inch long larvae per plant OR defoliation exceeds 10%.

ALFALFA INSECT CONTROL (continued)

PEST	INSECTICIDE	AMOUNT PER ACRE	REMARKS AND PRECAUTIONS
Blister beetles	Sevin 80S Sevin XLR Plus, 4F <u>Lambda cyhalothrin</u> Karate Zeon (2.08) Warrior, Silencer, Lambda, others (1.0) <u>gamma cyhalothrin</u> Declare (1.25) Proaxis (0.5)	1.25 lb 1 qt 1.28 - 1.92 fl oz 2.56 - 3.84 fl oz 1.02 - 1.54 fl oz 2.56 - 3.84 fl oz	Treat when 2 beetles per square foot are found. Beetles tend to aggregate on the weedy margins of fields. Blister beetles bailed up in hay are toxic to livestock, especially horses. NOTE: Cobalt, mixture of chlorpyrifos and gamma cyhalothrin, also is registered for blister beetle control.
Clover root curculio, Lesser clover leaf weevil, Sweet clover weevil (Adults only)	Methyl 4EC <u>lambda cyhalothrin</u> Karate Zeon (2.08) Warrior, Silencer, Lambda, others (1.0) <u>gamma cyhalothrin</u> Declare (1.25) Proaxis (0.5)	1 pt 1.28 - 1.92 fl oz 2.56 - 3.84 fl oz 1.02 - 1.54 fl oz 2.56 - 3.84 fl oz	CLOVER ROOT CURCULIO, SWEET CLOVER WEEVIL: Damage caused by larvae in soil feeding on roots and root nodules. No effective control for larvae in soil. Adults feed on foliage causing notches in leaves. Products listed may reduce adult populations.
Cutworms	Baythroid XL (1.0EC) Lannate 2.4 LV Lannate 90 SP Methyl 4EC Mustang MAX, Respect (0.8EC) Sevin 80S Sevin XLR Plus, 4F <u>lambda cyhalothrin</u> Karate Zeon (2.08) Warrior, Silencer, Lambda, others (1.0) <u>gamma cyhalothrin</u> Declare (1.25) Proaxis (0.5) Tombstone (2.0)	0.8 - 1.6 fl oz 1.5 - 3 pt 0.5 - 1 lb 1 pt 2.8 - 4.0 fl oz 1.625 lb 1.5 qt 0.96 - 1.6 fl oz 1.92 - 3.2 fl oz 1.02 - 1.54 fl oz 1.92 - 3.2 fl oz 0.8 - 1.6 fl oz	Several species. Treat if 3 or more cutworms per square ft. In standing alfalfa use enough pressure and water for spray penetration to the ground. If near cutting, consider cutting early and treating stubble if infestation remains. Cutworms often will congregate under windrowed hay.
Grasshoppers	Baythroid XL (1.0EC) Dimethoate 4EC, 400 Dimethoate 2.76EC <u>chlorpyrifos</u> Lorsban 4E, Chlorfos 4E, Chlorpyrifos 4E malathion Malathion 57EC Malathion 8EC Mustang MAX, Respect (0.8EC) <u>lambda cyhalothrin</u> Karate Zeon (2.08) Warrior, Silencer, Lambda, others (1.0) <u>gamma cyhalothrin</u> Declare (1.25) Proaxis (0.5) Tombstone (2.0)	2.0 - 2.8 fl oz 0.5 - 1 pt 0.75 - 1.5 pt 0.5 - 1 pt 1.5 - 2.0 pt 1.5 - 2.0 pt 2.8 - 4.0 fl oz 1.28 - 1.92 fl oz 2.56 - 3.84 fl oz 1.02 - 1.54 fl oz 2.56 - 3.84 fl oz 2.0 - 2.8 fl oz	Treat when heavy grasshopper infestations are causing excess defoliation. Grasshoppers often invade fields from adjacent weedy areas; border treatments are sometimes appropriate. NOTE: Chlorpyrifos products may cause injury to young rapid growing foliage but normally does not affect yield. NOTE: Cobalt, mixture of chlorpyrifos and gamma cyhalothrin, also is registered for grasshopper control.

ALFALFA INSECT CONTROL (continued)

PEST	INSECTICIDE	AMOUNT PER ACRE	REMARKS AND PRECAUTIONS										
Green June Beetle Larvae	Sevin 80S Sevin XLR Plus, 4F	1.625 lb 1.5 qt	Treat when populations average 1 larva per square foot.										
Fire ants	methoprene Extinguish (bait) (broadcast application)	1 - 1.5 lb	Generally fire ants are important predators and help reduce populations of other pest insects. However, treat when mounds are so numerous that they interfere with haying operations. Methoprene granular bait requires several weeks or months after application to reduce fire ant populations.										
Leafhoppers (potato leafhopper, aster leafhopper)	Baythroid XL (1.0EC) <u>chlorpyrifos</u> Lorsban 4E, Chlorfos 4E, Chlorpyrifos 4E Dimethoate 4EC, 400 Dimethoate 2.76EC Permethrin, Ambush, other brands 3.2EC Mustang MAX, Respect (0.8EC) <u>lambda cyhalothrin</u> Karate Zeon (2.08) Warrior, Silencer, Lambda, others (1.0) <u>gamma cyhalothrin</u> Declare (1.25) Proaxis (0.5) Tombstone (2.0)	1.6 - 2 .8 fl oz 0.5 - 1 pt 0.5 - 1 pt 0.75 - 1.5 pt 8 fl oz 3.2 - 4 .0 fl oz 1.28 - 1.60 fl oz 1.92 - 3.20 fl oz 1.02 - 1.28 fl oz 1.92 - 3.20 fl oz 1.6 - 2.8 fl oz	Potato leafhopper feeding generally causes V-shaped yellow leaf discoloration that reduces yield. Treat when sweep net samples show leafhopper numbers for a given stem height exceed the following levels: <table border="0"> <tr> <td><u>Stem Height (inches)</u></td> <td><u>Hoppers per sweep</u></td> </tr> <tr> <td>3 - 7</td> <td>0.5</td> </tr> <tr> <td>8 - 10</td> <td>1.0</td> </tr> <tr> <td>11 - 14</td> <td>2.0</td> </tr> <tr> <td>14+</td> <td>4.0 or cut hay early</td> </tr> </table> NOTE: Chlorpyrifos products may cause injury to young rapid growing foliage but normally does not affect yield. NOTE: Cobalt, mixture of chlorpyrifos and gamma cyhalothrin, also is registered for potato leafhopper control.	<u>Stem Height (inches)</u>	<u>Hoppers per sweep</u>	3 - 7	0.5	8 - 10	1.0	11 - 14	2.0	14+	4.0 or cut hay early
<u>Stem Height (inches)</u>	<u>Hoppers per sweep</u>												
3 - 7	0.5												
8 - 10	1.0												
11 - 14	2.0												
14+	4.0 or cut hay early												
Mites	Dimethoate 4EC, 400 Dimethoate 2.76EC Karate Zeon (2.08) Declare 1.25	1 pt 1.5 pt 1.92 fl oz 1.54 fl oz	Mite control may be difficult. Treat if mites are causing leaf discoloration over large areas of the field. If near cutting, consider cutting early and treating stubble if infestation remains. Apply by ground with 25 or more gal. per acre. Karate and declare for suppression only.										
Threecornered alfalfa hopper	Baythroid XL (1.0EC) Sevin 80S Sevin XLR Plus, 4F Mustang MAX, Respect (0.8EC) <u>lambda cyhalothrin</u> Karate Zeon (2.08) Warrior, Silencer, Lambda, others (1.0) <u>gamma cyhalothrin</u> Declare (1.25) Proaxis (0.5) Tombstone (2.0)	1.6 - 2 .8 fl oz 1.25 lb 1 qt 3.2 fl oz 1.28 - 1.92 fl oz 2.56 - 3.84 fl oz 1.02 - 1.28 fl oz 2.56 - 3.84 fl oz 1.6 - 2.8 fl oz	Treat when adults and/or nymphs are found on 10 % of seedling alfalfa plants or if adults or nymphs are girdling and killing 10% of the lateral stems in a field. NOTE: Cobalt, mixture of chlorpyrifos and gamma cyhalothrin also is registered for 3-cornered alfalfa hopper control.										
Thrips	Dimethoate 4EC, 400 Dimethoate 2.76EC Sevin 80S Sevin XLR Plus, 4F <u>lambda cyhalothrin</u> Karate Zeon (2.08) Warrior, Silencer, Lambda, others (1.0) <u>gamma cyhalothrin</u> Declare (1.25) Proaxis (0.5)	0.5 - 1 pt 0.75 - 1.5 pt 1.25 lb 1 qt 1.28 - 1.92 fl oz 2.56 - 3.84 fl oz 1.02 - 1.54 fl oz 2.56 - 3.84 fl oz	Treat when thrips are causing leaf discoloration and deformation over large areas of the field. NOTE: Cyhalothrin products are not effective against western flower thrips.										

ALFALFA INSECT CONTROL (continued)

Premixed or Co-Packed Insecticides: Products listed are available as premixes or co-packages of two insecticide active ingredients. User should check mixture labels for active ingredient, specific use rates, target pests, and precautions.	
Brand name (active ingredients)	Range of formulation rates
Cobalt (chlorpyrifos, gamma-cyhalothrin)	13 - 42 fl oz per acre.
Besiege (lambda-cyhalothrin, clorantraniliprole)	5.0 - 9.0 fl oz per acre.

PESTICIDE USE PRECAUTIONS AND RESTRICTIONS

CAUTION: Bees, including honey bees, play a major role in the pollination of alfalfa. During the bloom period, make insecticide applications during the early morning and evening hours, when bees are not visiting the field. Do not apply the following to alfalfa during the bloom period: dimethoate, chlorpyrifos, malathion, methomyl and methyl parathion. Read label for complete list of restrictions and precautions.

Baythroid XL (1.0 EC, beta-cyfluthrin); Tombstone (2.0, cyfluthrin): Do not apply within 7 days of harvest or grazing. Do not apply more than 3.2 fl. oz per acre per cutting and more than 12.8 fl. oz per acre per season. Do not apply to alfalfa - grass mixed stand. REI = 12 hrs.

Belt SC (4.0), (flubendiamide): Preharvest interval for forage and hay is 0 days. Do not apply more than 4.0 fl. oz. per acre per cutting and 12 fl. oz per acre per year. REI = 12 hours.

Coragen (1.67SC, chlorantraniliprole); Prevathon (0.43): Make one application per cutting. Days of last application to harvest is 0 days. REI = 4 hours.

Dimethoate (dimethoate): Make only one application per cutting. Do not apply within 10 days of grazing or cutting for hay. Do not apply during bloom period. REI = 48 hrs.

Declare (1.25), Proaxis (0.5), (gamma cyhalothrin): Apply only to pure alfalfa stands. Do not apply within 1 day of harvest for forage or within 7 days of harvest for hay. Do not apply more than 0.015 lb a.i. per acre or more than 0.06 lb a.i. per acre per season. REI = 24 hrs.

Karate Z, other brands (2.08); Silencer, Lambda T, other brands (1.0) (lambda cyhalothrin): Do not apply within 1 day of harvest for forage or within 7 days of harvest for hay. Do not apply more than 0.03 lb. a.i. per acre per cutting and more than 0.12 lb. a.i. per acre per season. Avoid application when bees are actively foraging. REI = 24 hrs.

Lannate (methomyl): Do not apply within 7 days of grazing or cutting for hay. Do not apply more than 3.6 lbs. ai per acre per crop. Do not apply to dormant or semi-dormant alfalfa when minimum daily temperature is 50 degrees Fahrenheit or lower. Do not apply during bloom period. REI = 48 hrs.

Lorsban 15 G (chlorpyrifos): Do not cut or graze within 21 days after application. Make only 1 application per year. REI = 24 hrs.

Lorsban, Chlorfos, Chlorpyrifos, other brands (4E, chlorpyrifos): Do not make more than 1 application per cutting and more than 4 applications per year. Cutting and grazing restrictions are 7 days for 0.5 pt. per acre, 14 days for 1 pt. per acre, and 21 days for rates above 1 pt. per acre. Do not apply if bees are active. Similar restriction apply to Cobalt, see label for specific rates and harvest intervals. REI = 24 hrs.

Malathion, other brands (malathion): Apply as needed up to day of grazing or cutting for hay. Do not apply during flowering. REI = 12 hrs.

Methyl 4EC (methyl parathion): Do not apply within 15 days of harvest, cutting, or grazing. Do not apply if the crop or weeds in the treated area are in bloom. Cannot be purchased after August 31, 2013, and cannot be used after December 31, 2013. REI = 96 hrs (4 days).

Mustang MAX, Respect (0.8E C, zeta-cypermethrin): Do not apply within 3 days of cutting or grazing or 7 days for harvesting seed. Maximum of 4 fl oz per acre per cutting and 12 fl. oz per acre per season. Do not make applications less than 7 days apart. REI = 12 hrs.

Permethrin, Ambush, other brands (3.2EC, permethrin): Do not apply more than 0.2 lb. ai per acre per cutting. For rates listed for grazing (=0.1 lb ai per acre or less), application may be made on day of harvest. For rate listed for hay production (= more than 0.1 lb ai per acre), do not apply within 14 days of harvest. When bees are active, apply in early morning or evening. REI = 12 hrs.

Sevin (carbaryl): Do not apply within 7 days of harvest or grazing. Do not make more than 1 application per cutting. Do not apply when crop is wet. Carbaryl may bleach tender foliage. Do not apply if bees are active. REI = 12 hrs.

Steward 1.2 5SC (indoxacarb): Make no more than 1 application per cutting. Do not apply more than 45 fl. oz per acre per season. Do not apply within 7 days of harvest. REI = 12 hrs.