



IPM-0978

Alfalfa

Insect and Weed Control Recommendations for 2018

INSECT PEST MANAGEMENT

Alfalfa is a superb forage, but it can be attacked by a complex of insect pests. In fact, the introduction of the alfalfa weevil about 70 years ago contributed to the decline of alfalfa acreage in Alabama. However, improved cultivars and management techniques have led to a renewed interest in alfalfa.

Alfalfa insect populations can vary greatly from field to field. Therefore, it is essential to check each alfalfa field frequently for the presence of insects or insect injury. Table 1 indicates when each insect pest is likely to be present. For optimum insect management alfalfa should be scouted weekly from February through the first hard freeze.

Action Thresholds for Alfalfa Pests

An action threshold is a decision-making tool that indicates when an insect population is high enough to cause significant yield loss. Listed below are the recommended action thresholds for the pests in the scouting guide.

Alfalfa Weevil. Treat when 50 percent of stems have injury and insects are present at the rate of 25 larvae per net sweep; or two larvae per stem when alfalfa is 16 inches tall; or one larva per stem when alfalfa is 10 inches tall. When the threshold is

reached, harvest if alfalfa is within 10 days of normal harvest. Otherwise, treat with an insecticide. After harvest, check to see how many alfalfa weevil larvae are present on the stubble and new regrowth. If there are more than eight larvae per square foot, consider a stubble spray.

Pea Aphid. The action threshold depends on height of crop. When alfalfa is 15 inches tall, treat if there are 50 aphids per stem; when it is 25 inches tall, treat if there are 120 aphids per stem. Aphid populations frequently decline due to natural enemies. Do not treat for aphids unless aphid populations are high.

True Armyworm, other Caterpillars. Treat when there are two to three caterpillars per square foot.

Three-Cornered Alfalfa Hopper. Treat when the insect is girdling and killing 10 percent of the lateral stems in the field—probably about three hoppers per plant.

Blister Beetles. These beetles poison livestock, particularly horses, when they are eaten along with the hay. Blister beetles are often clumped in the weedy margins of a field; spot treatment may be possible. Early cuttings are unlikely to be infested by blister beetle.

Table 1. Alfalfa Insect Scouting Guide

Insects	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Alfalfa Weevil		//////////										
Pea Aphids		//////////										
True Armyworms			//////////									
Other Caterpillars*												
Japanese Beetle				//////////								
Three-Cornered Alfalfa Hopper					//////////							
Blister Beetles						//////////						
Leafhoppers				//////////								
Grasshoppers												

* Corn earworm, webworms, alfalfa caterpillar, green cloverworm, yellow-striped armyworm, soybean looper, beet armyworm, fall armyworm.

KEY TO RATINGS: ////////// normal; ----- may vary with season.

Grasshoppers. Treat when heavy populations are defoliating the alfalfa. This will probably be about 12 per square yard.

Potato Leafhopper. Potato leafhopper feeding causes abnormal plant response. Only a few are needed to cause injury. Recommended thresholds are based on sweep-net sampling. Threshold is one half per sweep when alfalfa is 3 to 7 inches tall, one per sweep when 8 to 10 inches tall, and two per sweep when it is 11 to 14 inches tall. When alfalfa is taller, the yield loss will probably not be observed if it is harvested at the usual time.

Webworms. Treat when the crop is more than 2 weeks from cutting and when 25 to 30 percent of plant terminals are infested.

Sampling Equipment

Equipment needed depends on the method of measuring thresholds. When insect thresholds are based on the number of pests per stem, gently cut the stem off at the base and shake it into a bucket. When thresholds are based on number per area, use a sampling hoop that can be tossed onto the alfalfa. To make a hoop, bend the body of a wire coat hanger until it is approximately round. This should make a circle about 11 inches in diameter, which is approximately two-thirds of a square foot in area. Alternatively pvc pipe can be used to make a square foot frame. A sweep net is useful for detecting pest populations before they cause injury. A 15-inch diameter sweep net with a muslin or sailcloth bag can be purchased from various IPM or forestry supply stores.

Organic Insecticides That Can be Applied to Alfalfa

Organic producers may want to consider the following insecticides, most if not all of which are OMRI approved. Be sure to read the insecticide label to make sure it meets your needs. The following products contain azadirachtin: Azera, Azatrol EC, Neemix 4.5 and Ecozin Plus. The following products contain *Bacillus thuringiensis*: Biobit HP (subsp. *kurstaki* strain ABTS-351), Dipel DF (subsp. *kurstaki* strain ABTS-351), Javelin WG (subsp. *kurstaki* strain SA-11), Agree WG (susp. *aizawai* strain), and Xentari (subsp. *aizawai* strain ABTS-1857). Surround WP contains kaolin. Micothiol Disperss and Yellow Jacket Special Dusting Sulfur contain sulfur. Gemstar LC contains an insecticidal virus. PyGanic Crop Protection EC 1.4_{II} and PyGanic Crop Protection EC 5.0_{II} insecticides are OMRI approved and contain natural pyrethrins. There are other insecticides that contain pyrethrins. Be sure to choose one that does not contain piperonyl butoxide, as that chemical is not considered organic. Pest Out contains cottonseed, clove, and garlic oils. M-Pede contains potassium salts of fatty acids. Biolink Insect and Bird Repellent contains garlic. Ecotec contains rosemary and peppermint oils. Entrust and Entrust SC contain spinosad. Mycotrol ESO and BotaniGard ES contain *Beauveria bassiana* strain GHA. Grandevo contains *Chromobacterium subsugae* strain PRAA4-1. Other organic insecticides may be available. Always check the label to determine if a product is OMRI approved and suitable for your crop.

Table 2. Alfalfa Control ¹

Insecticide and Formulation	Acres per Gallon	Amount of Formulation per Acre	Lb. Active Ingredient per Acre	Minimum Days from Last Application to Harvest	Comments
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Caution: Most insecticides cannot be used when alfalfa is in bloom. Read labels for instructions.

ALFALFA WEBWORMS, GARDEN WEBWORMS					
alpha-cypermethrin FASTAC EC Other trade names ²	34–58	2.2–3.8 fl.oz.	0.014–0.025	3 (cutting, grazing) 7 (seed)	Fastac is a RESTRICTED USE pesticide.
beta-cyfluthrin BAYTHROID XL	46–80	1.6–2.8 fl.oz.	0.0125–0.022	7	Baythroid XL is a RESTRICTED USE pesticide.
carbaryl SEVIN XLR PLUS Other trade names ²	2.7–4	1–1.5 qt.	1–1.5	7	
chlorpyrifos LORSBAN ADVANCED Other trade names ²	5.3	1.5 pt.	0.7	21	Lorsban Advanced is a RESTRICTED USE pesticide.
chlorpyrifos + gamma-cyhalothrin COBALT	5–10	13–26 fl.oz.	0.25–0.51 + 0.004–0.009	7–14 ¹	Cobalt is a RESTRICTED USE pesticide.
chlorpyrifos + lambda-cyhalothrin COBALT ADVANCED Other trade names ²	5–11.6	11–26 fl.oz.	0.21–0.51 + 0.011–0.026	7–14 ¹	Cobalt Advanced is a RESTRICTED USE pesticide.

¹ See Table 3 for a list of insecticides, formulations, restricted entry intervals, and days to grazing or harvest.

² See Table 3 for other trade names.

Table 2. Alfalfa Control ¹ (cont.)

Insecticide and Formulation	Acres per Gallon	Amount of Formulation per Acre	Lb. Active Ingredient per Acre	Minimum Days from Last Application to Harvest	Comments
Caution: Most insecticides cannot be used when alfalfa is in bloom. Read labels for instructions.					
ALFALFA WEBWORMS, GARDEN WEBWORMS (cont.)					
chlorpyrifos + zeta-cypermethrin STALLION BRAND	11–26	5.0–11.75 fl.oz.	0.11–0.25+ 0.011–0.025	7	Stallion Brand is a RESTRICTED USE pesticide.
cyfluthrin TOMBSTONE Other trade names ²	46–80	1.6–2.8 fl.oz.	0.025–0.03	7	Tombstone is a RESTRICTED USE pesticide.
gamma-cyhalothrin DECLARE	100–166	0.77–1.28 fl.oz.	0.0075–0.0125	7 (hay) 1 (forage)	Declare is a RESTRICTED USE pesticide.
lambda-cyhalothrin ¹ WARRIOR II with ZEON TECHNOLOGY Other trade names ²	80–133	0.96–1.6 fl.oz.	0.015–0.025	7 (hay) 1 (forage)	Warrior II with Zeon Technology is a RESTRICTED USE pesticide.
lambda-cyhalothrin + chlorantraniliprole BESIEGE	16–25.6	5–8 fl.oz.	0.016–0.026 + 0.03–0.05	3 (hay) 1 (forage)	Besiege is a RESTRICTED USE pesticide.
methoxyfenozide INTREPID 2F	16–32	4–8 fl.oz.	0.06–0.12	3 (hay) 0 (grazing)	Use higher rate for heavier infestations.
permethrin POUNCE 25 WP Other trade names ²	1.25–5	3.2–12.8 oz.	0.05–0.2	0–14 ¹	All permethrin formulations are RESTRICTED USE pesticides.
zeta-cypermethrin MUSTANG MAXX 0.8E Other trade names ²	32–58	2.2–4 fl.oz.	0.014–0.025	3	Mustang Maxx is a RESTRICTED USE pesticide.
ALFALFA WEEVILS					
alpha-cypermethrin FASTAC EC Other trade names ²	34–58	2.2–3.8 fl.oz.	0.014–0.025	3 (cutting, grazing) 7 (seed)	Fastac is a RESTRICTED USE pesticide.
beta-cyfluthrin BAYTHROID XL	46–80	1.6–2.8 fl.oz.	0.0125–0.022	7	Baythroid XL is a RESTRICTED USE pesticide.
carbaryl SEVIN XLR PLUS Other trade names ²	2.7	1.5 qt.	1.5	7	
chlorpyrifos LORSBAN ADVANCED Other trade names ²	4–8	1–2 pt.	0.47–0.93	14–21 ¹	Use a minimum of 20 gallons per acre by ground. Lorsban Advanced is a RESTRICTED USE pesticide.
chlorpyrifos + gamma-cyhalothrin COBALT	3.4–7	19–38 fl.oz.	0.37–0.74 + 0.007–0.013	14–21 ¹	Cobalt is a RESTRICTED USE pesticide.

¹ See Table 3 for a list of insecticides, formulations, restricted entry intervals, and days to grazing or harvest.² See Table 3 for other trade names.

Table 2. Alfalfa Control ¹ (cont.)

Insecticide and Formulation	Acres per Gallon	Amount of Formulation per Acre	Lb. Active Ingredient per Acre	Minimum Days from Last Application to Harvest	Comments
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Caution: Most insecticides cannot be used when alfalfa is in bloom. Read labels for instructions.

ALFALFA WEEVILS (cont.)					
chlorpyrifos + lambda-cyhalothrin COBALT ADVANCED Other trade names ²	3.4–8	16–38 fl.oz.	0.31–0.74 + 0.016–0.038	14–21 ¹	Cobalt Advanced is a RESTRICTED USE pesticide.
chlorpyrifos + zeta-cypermethrin STALLION BRAND	11–14	9.25–11.75 fl.oz.	0.2–0.25 + 0.02–0.025	7	Stallion Brand is a RESTRICTED USE pesticide.
cyfluthrin TOMBSTONE Other trade names ²	46–80	1.6–2.8 fl.oz.	0.025–0.044	7	Tombstone is a RESTRICTED USE pesticide.
gamma-cyhalothrin DECLARE	83–125	1.02–1.54 fl.oz.	0.01–0.015	7 (hay) 1 (forage)	Declare is a RESTRICTED USE pesticide.
indoxacarb STEWARD EC	11.5–19	6.7–11.3 fl.oz.	0.065–0.11	7	Use 6.7 to 11.3 fluid ounces when longer residual control is needed.
lambda-cyhalothrin WARRIOR II with ZEON TECHNOLOGY Other trade names ²	67–100	1.28–1.92 fl.oz.	0.02–0.03	7 (hay) 1 (forage)	WARRIOR II is a RESTRICTED USE pesticide.
lambda-cyhalothrin + chlorantraniliprole BESIEGE	13–21	6–10 fl.oz.	0.02–0.03 + 0.04–0.06	7 (hay) 1 (forage)	Besiege is a RESTRICTED USE pesticide.
methomyl LANNATE 2.4LV Other trade names ²	2.7	3 pt.	0.9	7	Lannate is a RESTRICTED USE pesticide.
permethrin POUNCE 25WP Other trade names ²	1.25–2.5 A per lb.	6.4–12.8 oz.	0.1–0.2	0–14 ¹	FOR ROTATIONAL GRAZING: Use low rate for short-term weevil control when alfalfa is too short to graze. Graze as soon as possible for further weevil suppression. Pounce is a RESTRICTED USE pesticide.
phosmet IMIDAN 70-W	0.75–1 A per lb.	1.0–1.33 lb.	0.7–1.0	7	
zeta-cypermethrin MUSTANG MAXX 0.8E Other trade names ²	32–58	2.2–4 fl.oz.	0.014–0.025	3	Mustang Maxx is a RESTRICTED USE pesticide.
APHIDS					
alpha-cypermethrin FASTAC EC Other trade names ²	34–58	2.2–3.8 fl.oz.	0.014–0.025	3 (cutting, grazing) 7 (seed)	Fastac is a RESTRICTED USE pesticide.
chlorpyrifos LORSBAN ADVANCED Other trade names ²	4–8	1–2 pt.	0.47–0.93	14–21 ¹	Lorsban 4E is a RESTRICTED USE pesticide.

¹ See Table 3 for a list of insecticides, formulations, restricted entry intervals, and days to grazing or harvest.

² See Table 3 for other trade names.

Table 2. Alfalfa Control ¹ (cont.)

Insecticide and Formulation	Acres per Gallon	Amount of Formulation per Acre	Lb. Active Ingredient per Acre	Minimum Days from Last Application to Harvest	Comments
Caution: Most insecticides cannot be used when alfalfa is in bloom. Read labels for instructions.					
APHIDS (cont.)					
chlorpyrifos + gamma-cyhalothrin COBALT	5–10	13–26 fl.oz.	0.25–0.51 + 0.004–0.009	14 ¹	Cobalt is a RESTRICTED USE pesticide.
chlorpyrifos + lambda-cyhalothrin COBALT ADVANCED Other trade names ²	5–11.6	11–26 fl.oz.	0.21–0.51 + 0.011–0.026	7–14 ¹	Cobalt Advanced is a RESTRICTED USE pesticide.
chlorpyrifos + zeta-cypermethrin STALLION BRAND	11–14	9.25–11.75 fl.oz.	0.2–0.25 + 0.02–0.025	7	Stallion Brand is a RESTRICTED USE pesticide.
dimethoate DIMETHOATE 4EC Other trade names ²	8–16	0.5–1 pt.	0.25–0.5	10	DO NOT apply more than once per cutting.
flupyradifurone SIVANTO PRIME	12.2–18.3	7–10.5 fl.oz.	0.09–0.14	7	
gamma-cyhalothrin DECLARE	83–125	1.02–1.54 fl.oz.	0.01–0.015	7 (hay) 1 (forage)	Declare is a RESTRICTED USE pesticide.
lambda-cyhalothrin WARRIOR II with ZEON TECHNOLOGY Other trade names ²	67–100	1.28–1.92 fl.oz.	0.02–0.03	7 (hay) 1 (forage)	Warrior II is a RESTRICTED USE pesticide.
lambda-cyhalothrin + chlorantraniliprole BESIEGE	13–21	6–10 fl.oz.	0.02–0.03 + 0.04–0.06	7 (hay) 1 (forage)	Besiege is a RESTRICTED USE pesticide.
methomyl LANNATE LV Other trade names ²	2.7–5.3	1.5–3 pt.	0.45–0.9	7	Lannate is a RESTRICTED USE pesticide.
permethrin POUNCE 25 WP Other trade names ²	1.25–5	3.2–12.8 oz.	0.05–0.2	0–14 ¹	Use higher rate for higher pest pressure or for longer residual. Pounce is a RESTRICTED USE pesticide.
ARMYWORMS, CORN EARWORMS, FALL ARMYWORMS, YELLOW-STRIPED ARMYWORMS, GREEN CLOVERWORMS					
alpha-cypermethrin FASTAC EC Other trade names ²	34–58	2.2–3.8 fl.oz.	0.014–0.025	3 (cutting, grazing) 7 (seed)	Fastac is a RESTRICTED USE pesticide.
beta-cyfluthrin BAYTHROID XL	46–80	1.6–2.8 fl.oz.	0.0125–0.022	7	Baythroid XL is a RESTRICTED USE pesticide. Use on small larvae (1st–2nd instar).
chlorantraniliprole PREVATHON Other trade names ²	6.4–9.1	14–20 fl.oz.	0.045–0.067	0	

¹ See Table 3 for a list of insecticides, formulations, restricted entry intervals, and days to grazing or harvest.² See Table 3 for other trade names.

Table 2. Alfalfa Control ¹ (cont.)

Insecticide and Formulation	Acres per Gallon	Amount of Formulation per Acre	Lb. Active Ingredient per Acre	Minimum Days from Last Application to Harvest	Comments
Caution: Most insecticides cannot be used when alfalfa is in bloom. Read labels for instructions.					
ARMYWORMS, CORN EARWORMS, FALL ARMYWORMS, YELLOW-STRIPED ARMYWORMS, GREEN CLOVERWORMS (cont.)					
chlorpyrifos + gamma-cyhalothrin COBALT	3.4–6.7	19–38 fl.oz.	0.37–0.74 + 0.007–0.013	14–21 ¹	Cobalt is a RESTRICTED USE pesticide.
chlorpyrifos + lambda-cyhalothrin COBALT ADVANCED Other trade names ²	3.4–8	16–38 fl.oz.	0.31–0.74 + 0.016–0.038	14–21 ¹	Cobalt Advanced is a RESTRICTED USE pesticide.
chlorpyrifos + zeta-cypermethrin STALLION BRAND	11–14	9.25–11.75 fl.oz.	0.2–0.25 + 0.02–0.025	7	Stallion Brand is a RESTRICTED USE pesticide.
cyfluthrin TOMBSTONE Other trade names ²	46–80	1.6–2.8 fl.oz.	0.025–0.044	7	Tombstone is a RESTRICTED USE pesticide. Use on small larvae (1st–2nd instar).
gamma-cyhalothrin DECLARE	83–125	1.02–1.54 fl.oz.	0.01–0.015	7 (hay) 1 (forage)	Declare is a RESTRICTED USE pesticide. Use on small larvae (1st–2nd instar).
indoxacarb STEWARD	11.5–19	6.7–11.3 fl.oz.	0.065–0.11	7	Use intermediate to higher rate on later instar larvae. One application per cutting.
lambda-cyhalothrin WARRIOR II with ZEON TECHNOLOGY Other trade names ²	67–100	1.28–1.92 fl.oz.	0.02–0.03	7 (hay) 1 (forage)	Warrior II is a RESTRICTED USE pesticide. Use the higher rate for large larvae.
lambda-cyhalothrin + chlorantraniliprole BESIEGE	13–21	6–10 fl.oz.	0.02–0.03 + 0.04–0.06	7 (hay) 1 (forage)	Besiege is a RESTRICTED USE pesticide.
methomyl LANNATE 2.4LV Other trade names ²	2.7–5.3	1.5–3 pt.	0.45–0.9	7	Use higher rate for larger caterpillars. Lannate is a RESTRICTED USE pesticide.
methoxyfenozide INTREPID 2F	16–32	4–8 fl.oz.	0.06–0.12	3 (hay) 0 (grazing)	Use higher rater for heavier infestations.
spinosad ENTRUST SC	32–64	2–4 fl.oz.	0.03–0.06	3 (hay) 0 (grazing)	
zeta-cypermethrin MUSTANG MAXX 0.8E Other trade names ²	32–46	2.8–4 fl.oz.	0.07–0.025	3	Mustang Maxx is a RESTRICTED USE pesticide.

¹ See Table 3 for a list of insecticides, formulations, restricted entry intervals, and days to grazing or harvest.² See Table 3 for other trade names.

Table 2. Alfalfa Control ¹ (cont.)

Insecticide and Formulation	Acres per Gallon	Amount of Formulation per Acre	Lb. Active Ingredient per Acre	Minimum Days from Last Application to Harvest	Comments
Caution: Most insecticides cannot be used when alfalfa is in bloom. Read labels for instructions.					
BLISTER BEETLES					
carbaryl SEVIN XLR PLUS Other trade names ²	4–8	0.5–1 qt.	0.5–1	7	
chlorpyrifos + gamma-cyhalothrin COBALT	3.4–7	19–38 fl.oz.	0.37–0.74 + 0.007–0.013	14–21 ¹	Cobalt is a RESTRICTED USE pesticide.
chlorpyrifos + lambda-cyhalothrin COBALT ADVANCED Other trade names ²	3.4–8	16–38 fl.oz.	0.31–0.74 + 0.016–0.038	14–21 ¹	Cobalt Advanced is a RESTRICTED USE pesticide.
gamma-cyhalothrin DECLARE	83–125	1.02–1.54 fl.oz.	0.01–0.015	7 (hay) 1 (forage)	Declare is a RESTRICTED USE pesticide.
lambda-cyhalothrin WARRIOR II with ZEON TECHNOLOGY Other trade names ²	67–100	1.28–1.92 fl.oz.	0.02–0.03	7 (hay) 1 (forage)	Warrior II is a RESTRICTED USE pesticide.
lambda-cyhalothrin + chlorantraniliprole BESIEGE	13–21	6–10 fl.oz.	0.02–0.03 + 0.04–0.06	7 (hay) 1 (forage)	Besiege is a RESTRICTED USE pesticide.
GRASSHOPPERS					
alpha-cypermethrin FASTAC EC Other trade names ²	34–46	2.8–3.8 fl.oz.	0.017–0.025	3 (cutting, grazing) 7 (seed)	Fastac is a RESTRICTED USE pesticide.
beta-cyfluthrin BAYTHROID XL	46–80	2.0–2.8 fl.oz.	0.0155–0.022	7	Baythroid XL is a RESTRICTED USE pesticide.
carbaryl SEVIN XLR PLUS Other trade names ²	2.7–8	0.5–1.5 qt.	0.5–1.5	7	Use 1.25 to 1.875 pounds for mature grasshoppers or applications to dense foliage.
chlorpyrifos LORSBAN ADVANCED Other trade names ²	8–16	0.5–1 pt.	0.235–0.47	7–14 ¹	Lorsban Advanced is a RESTRICTED USE pesticide.
chlorpyrifos + gamma-cyhalothrin COBALT	10–18	7–13 fl.oz.	0.14–0.25 + 0.002–0.004	7	Cobalt is a RESTRICTED USE pesticide.
chlorpyrifos + lambda-cyhalothrin COBALT ADVANCED Other trade names ²	10–21	6–13 fl.oz.	0.12–0.25 + 0.006–0.013	7	Cobalt Advanced is a RESTRICTED USE pesticide.

¹ See Table 3 for a list of insecticides, formulations, restricted entry intervals, and days to grazing or harvest.² See Table 3 for other trade names.

Table 2. Alfalfa Control ¹ (cont.)

Insecticide and Formulation	Acres per Gallon	Amount of Formulation per Acre	Lb. Active Ingredient per Acre	Minimum Days from Last Application to Harvest	Comments
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Caution: Most insecticides cannot be used when alfalfa is in bloom. Read labels for instructions.

GRASSHOPPERS (cont.)					
chlorpyrifos + zeta-cypermethrin STALLION BRAND	11–14	9.25–11.75 fl.oz.	0.2–0.25 + 0.02–0.025	7	Stallion Brand is a RESTRICTED USE pesticide.
cyfluthrin TOMBSTONE Other trade names ²	46–64	2–2.8 fl.oz.	0.031–0.044	7	Tombstone is a RESTRICTED USE pesticide.
dimethoate DIMETHOATE 4EC Other trade names ²	8–16	0.5–1 pt.	0.25–0.5	10	
gamma-cyhalothrin DECLARE	83–125	1.02–1.54 fl.oz.	0.01–0.015	7 (hay) 1 (forage)	Declare is a RESTRICTED USE pesticide.
lambda-cyhalothrin WARRIOR II with ZEON TECHNOLOGY Other trade names ²	67–100	1.28–1.92 fl.oz.	0.02–0.03	7 (hay) 1 (forage)	Warrior II is a RESTRICTED USE pesticide.
lambda-cyhalothrin + chlorantraniliprole BESIEGE	13–21	6–10 fl.oz.	0.02–0.03 + 0.04–0.06	7 (hay) 1 (forage)	Besiege is a RESTRICTED USE pesticide.
phosmet IMIDAN 70-W	0.75–1 A per lb.	1.0–1.33 lb.	0.7–1.0	7	
zeta-cypermethrin MUSTANG MAXX Other trade names ²	32–46	2.8–4 fl.oz.	0.018–0.025	3	Mustang Maxx is a RESTRICTED USE pesticide.
IMPORTED FIRE ANTS					
s-methoprene EXTINGUISH PROFESSIONAL ANT BAIT	0.7–1 A per lb.	1–1.5 lb.	0.005–0.0075	0	Broadcast the bait according to label directions.
JAPANESE BEETLE ADULTS					
beta-cyfluthrin BAYTHROID XL	46–80	1.6–2.8 fl.oz.	0.0125–0.022	7	Baythroid XL is a RESTRICTED USE pesticide.
carbaryl SEVIN XLR PLUS Other trade names ²	4	1 qt.	1	7	
chlorpyrifos + gamma-cyhalothrin COBALT	3.4–7	19–38 fl.oz.	0.25–0.51 + 0.004–0.009	14–21 ¹	Cobalt is a RESTRICTED USE pesticide.
chlorpyrifos + lambda-cyhalothrin COBALT ADVANCED Other trade names ²	3.4–8	16–38 fl.oz.	0.31–0.74 + 0.016–0.038	14–21 ¹	Cobalt Advanced is a RESTRICTED USE pesticide.

¹ See Table 3 for a list of insecticides, formulations, restricted entry intervals, and days to grazing or harvest.

² See Table 3 for other trade names.

Table 2. Alfalfa Control ¹ (cont.)

Insecticide and Formulation	Acres per Gallon	Amount of Formulation per Acre	Lb. Active Ingredient per Acre	Minimum Days from Last Application to Harvest	Comments
Caution: Most insecticides cannot be used when alfalfa is in bloom. Read labels for instructions.					
JAPANESE BEETLE ADULTS (cont.)					
cyfluthrin TOMBSTONE Other trade names ²	46–80	1.6–2.8 fl.oz.	0.025–0.044	7	Tombstone is a RESTRICTED USE pesticide.
gamma-cyhalothrin DECLARE	83–125	1.02–1.54 fl.oz.	0.01–0.015	7 (hay) 1 (forage)	Declare is a RESTRICTED USE pesticide.
lambda-cyhalothrin WARRIOR II with ZEON TECHNOLOGY Other trade names ²	67–100	1.28–1.92 fl.oz.	0.02–0.03	7 (hay) 1 (forage)	Warrior II is a RESTRICTED USE pesticide.
lambda-cyhalothrin + chlorantraniliprole BESIEGE	13–21	6–10 fl.oz.	0.02–0.03 + 0.04–0.06	7 (hay) 1 (forage)	Besiege is a RESTRICTED USE pesticide.
POTATO LEAFHOPPERS					
alpha-cypermethrin FASTAC EC Other trade names ²	34–58	2.2–3.8 fl.oz.	0.014–0.025	3 (cutting, grazing) 7 (seed)	Fastac is a RESTRICTED USE pesticide.
beta-cyfluthrin BAYTHROID XL	80–160	0.8–1.6 fl.oz.	0.0065–0.0125	7	Baythroid XL is a RESTRICTED USE pesticide.
carbaryl SEVIN XLR PLUS Other trade names ²	4	1 qt.	1.0	7	Carbaryl may bleach tender foliage. DO NOT apply when crop is wet.
chlorpyrifos LORSBAN ADVANCED Other trade names ²	8–16	0.5–1 pt.	0.235–0.47	7–14 ¹	Some phytotoxic symptoms may be observed on young, tender growth. Lorsban Advanced is a RESTRICTED USE pesticide.
chlorpyrifos + gamma-cyhalothrin COBALT	10–18	7–13 fl.oz.	0.14–0.25 + 0.002–0.004	7	Cobalt is a RESTRICTED USE pesticide.
chlorpyrifos + lambda-cyhalothrin COBALT ADVANCED Other trade names ²	10–21	6–13 fl.oz.	0.12–0.25 + 0.006–0.013	7	Cobalt Advanced is a RESTRICTED USE pesticide.
chlorpyrifos + zeta-cypermethrin STALLION BRAND	11–26	5.0–11.75 fl.oz.	0.11–0.25 + 0.011–0.025	7	Stallion Brand is a RESTRICTED USE pesticide
cyfluthrin TOMBSTONE Other trade names ²	80–160	0.8–1.6 fl.oz.	0.013–0.025	7	Tombstone is a RESTRICTED USE pesticide.

¹ See Table 3 for a list of insecticides, formulations, restricted entry intervals, and days to grazing or harvest.² See Table 3 for other trade names.

Table 2. Alfalfa Control ¹ (cont.)

Insecticide and Formulation	Acres per Gallon	Amount of Formulation per Acre	Lb. Active Ingredient per Acre	Minimum Days from Last Application to Harvest	Comments
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Caution: Most insecticides cannot be used when alfalfa is in bloom. Read labels for instructions.

POTATO LEAFHOPPERS (cont.)					
dimethoate DIMETHOATE 4EC Other trade names ²	8–16	0.5–1 pt.	0.25–0.5	10	
flupyradifurone SIVANTO PRIME	12.2–18.3	7–10.5 fl.oz.	0.09–0.14	7	
gamma-cyhalothrin DECLARE	100–166	0.77–1.28 fl.oz.	0.0075–0.0125	7 (hay) 1 (forage)	Declare is a RESTRICTED USE pesticide.
lambda-cyhalothrin WARRIOR II with ZEON TECHNOLOGY Other trade names ²	80–133	0.96–1.60 fl.oz.	0.015–0.025	7 (hay) 1 (forage)	Warrior II is a RESTRICTED USE pesticide.
lambda-cyhalothrin + chlorantraniliprole BESIEGE	16–25.6	5–8 fl.oz.	0.016–0.026 + 0.03–0.065	7 (hay) 1 (forage)	Besiege is a RESTRICTED USE pesticide.
malathion MALATHION 5 Other trade names ²	4–5.3	1.5–2 pt.	0.94–1.25	0	
permethrin POUNCE 25WP Other trade names ²	1.25–2.5 A per lb.	6.4–12.8 oz.	0.1–0.2	0–14 ¹	Pounce is a RESTRICTED USE pesticide.
zeta-cypermethrin MUSTANG MAXX 0.8E Other trade names ²	32–58	2.2–4 fl.oz.	0.014–0.025	3	Mustang Maxx is a RESTRICTED USE pesticide.
THREE-CORNERED ALFALFA HOPPERS					
alpha-cypermethrin FASTAC EC Other trade names ²	34–58	2.2–3.8 fl.oz.	0.014–0.025	3 (cutting, grazing) 7 (seed)	Fastac is a RESTRICTED USE pesticide.
beta-cyfluthrin BAYTHROID XL	46–80	1.6–2.8 fl.oz.	0.0125–0.022	7	Baythroid XL is a RESTRICTED USE pesticide.
carbaryl SEVIN XLR PLUS Other trade names ²	4	1 qt.	1	7	
chlorpyrifos + gamma-cyhalothrin COBALT	3.4–7	19–38 fl.oz.	0.37–0.74 + 0.007–0.013	14–21 ¹	Cobalt is a RESTRICTED USE pesticide.
chlorpyrifos + lambda-cyhalothrin COBALT ADVANCED Other trade names ²	3.4–8	16–38 fl.oz.	0.31–0.74 + 0.016–0.038	14–21 ¹	Cobalt Advanced is a RESTRICTED USE pesticide.
chlorpyrifos + zeta-cypermethrin STALLION BRAND	11–26	5.0–11.75 fl.oz.	0.11–0.25 + 0.011–0.025	7	Stallion Brand is a RESTRICTED USE pesticide

Table 2. Alfalfa Control ¹

Insecticide and Formulation	Acres per Gallon	Amount of Formulation per Acre	Lb. Active Ingredient per Acre	Minimum Days from Last Application to Harvest	Comments
Caution: Most insecticides cannot be used when alfalfa is in bloom. Read labels for instructions.					
THREE-CORNERED ALFALFA HOPPERS (cont.)					
cyfluthrin TOMBSTONE	46–80	1.6–2.8 fl.oz.	0.025–0.044	7	Tombstone is a RESTRICTED USE pesticide.
gamma-cyhalothrin DECLARE	100–166	0.77–1.28 fl.oz.	0.0075–0.0125	7 (hay) 1 (forage)	Declare is a RESTRICTED USE pesticide.
flupyradifurone SIVANTO PRIME	9.1–12.2	10.5–14 fl.oz.	0.14–0.18	7	
lambda-cyhalothrin WARRIOR II with ZEON TECHNOLOGY Other trade names ²	80–133	0.96–1.60 fl.oz.	0.015–0.025	7 (hay) 1 (forage)	Warrior II is a RESTRICTED USE pesticide.
lambda-cyhalothrin + chlorantraniliprole BESIEGE	16–25.6	5–8 fl.oz.	0.016–0.026 + 0.03–0.05	7 (hay) 1 (forage)	Besiege is a RESTRICTED USE pesticide.
zeta-cypermethrin MUSTANG MAXX 0.8E Other trade names ²	32–58	2.2–4 fl.oz.	0.014–0.025	3	Mustang Maxx is a RESTRICTED USE pesticide.

¹ See Table 3 for a list of insecticides, formulations, restricted entry intervals, and days to grazing or harvest.

² See Table 3 for other trade names.

Table 3. Insecticides Labeled for Use on Alfalfa

Insecticide and Trade Name	A.I./ Formulated Product	Formulation	Restricted Entry Interval (hr)	Minimum Days from Last Application to Harvest (h) or Grazing (g)	Bee Hazard Restriction
alpha-cypermethrin *MoA Group 3A					
FASTAC CS (RESTRICTED USE)	0.83 lb./gal.	capsule suspension	12	3 (cutting or grazing) 7 (seed)	yes ¹
FASTAC EC (RESTRICTED USE)	0.83 lb./gal.	emulsifiable concentrate	12	3 (cutting or grazing) 7 (seed)	yes ¹
beta-cyfluthrin MoA Group 3A					
BAYTHROID XL (RESTRICTED USE)	1 lb./gal.	emulsifiable concentrate	12	7	yes ⁴
carbaryl MoA Group 1A					
SEVIN 4F	4 lb./gal.	liquid suspension	12	7	yes ²
SEVIN XLR PLUS	4 lb./gal.	liquid suspension	12	7	yes ²
CARBARYL 4L, others	4 lb./gal.	liquid suspension	12	7	yes ²

¹This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops if bees are visiting the treatment area.

²BEE CAUTION: May kill honeybees and other bees in substantial numbers. Do not apply this product to target crops or weeds in bloom. This product may show residual toxicity to honeybees, especially in humid climates and under slow drying conditions. This product is highly toxic to bees exposed to direct treatment or residues on crops or weeds in bloom. Notifying beekeepers within 1 mile of treatment area at least 48 hours before product is applied will allow them to take additional steps to protect their bees. Limiting applications to times when bees are least active, e.g., within 2 hours of sunrise or sunset, will minimize risk to bees.

⁴This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds on which bees are actively foraging. Additional information may be obtained by consulting your Cooperative Extension Service.

Table 3. Insecticides Labeled for Use on Alfalfa (cont.)

Insecticide and Trade Name	A.I./ Formulated Product	Formulation	Restricted Entry Interval (hr)	Minimum Days from Last Application to Harvest (h) or Grazing (g)	Bee Hazard Restriction
chlorantraniliprole MoA Group 28					
DUPONT CORAGEN	1.67 lb./gal.	suspension concentrate	4	0	no
DUPONT PREVATHON	0.43 lb./gal.	suspension concentrate	4	0	no
chlorpyrifos MoA Group 1B					
LORSBAN 4E (RESTRICTED USE)	4 lb./gal.	emulsifiable concentrate		7 (0.5 pt./A) 14 (1 pt./A) 21 (>1 pt./A)	yes ³
LORSBAN ADVANCED (RESTRICTED USE)	3.7 lb./gal.	water emulsion	24	Same as above	yes ³
GOVERN (RESTRICTED USE)	4 lb./gal.	emulsifiable concentrate	24	Same as above	yes ³
HATCHET (RESTRICTED USE)	4 lb./gal.	emulsifiable concentrate	24	Same as above	yes ³
CHLORPYRIFOS 4E AG, others (RESTRICTED USE)	4 lb./gal.	emulsifiable concentrate	24	Same as above	yes ³
CPF 4E (RESTRICTED USE)	4 lb./gal.	emulsifiable concentrate	24	Same as above	yes ³
ERASER (RESTRICTED USE)	4 lb./gal.	emulsifiable concentrate	24	Same as above	yes ³
NUFOS 4E (RESTRICTED USE)	4 lb./gal.	emulsifiable concentrate	24	Same as above	yes ³
VULCAN (RESTRICTED USE)	3.76 lb./gal.	emulsifiable concentrate	24	Same as above	yes ³
WARHAWK (RESTRICTED USE)	4 lb./gal.	emulsifiable concentrate	24	Same as above	yes ³
WARHAWK CLEARFORM (RESTRICTED USE)	4 lb./gal.	emulsifiable concentrate	24	Same as above	yes ³
WHIRLWIND (RESTRICTED USE)	4 lb./gal.	emulsifiable concentrate	24	Same as above	yes ³
YUMA 4E (RESTRICTED USE)	4 lb./gal.	emulsifiable concentrate	24	Same as above	yes ³
LORSBAN 75WG	12 oz./lb.	water dispersable granule	24 24	7 (0.33 lb./A) 14 (0.67 lb./A) 21 (>0.67 lb./A)	yes ³
chlorpyrifos + gamma-cyhalothrin MoA Group 1B + MoA Group 3A					
COBALT (RESTRICTED USE)	2.5 lb./gal. + 0.045 lb./gal	emulsifiable concentrate	24	7 (≤13 fl.oz./A) 14 (13–26 fl.oz./A) 21 (>26 fl.oz./A)	yes ³
BOLTON (RESTRICTED USE)	2.5 lb./gal. + 0.083 lb./gal.	emulsifiable concentrate	24	7 (5–9 fl.oz./A) 14 (9–18 fl.oz./A) 21 (>18 fl.oz./A)	yes ³
chlorpyrifos + lambda-cyhalothrin MoA Group 1B + MoA Group 3A					
COBALT ADVANCED (RESTRICTED USE)	2.5 lb./gal. + 0.129 lb./gal.	emulsifiable concentrate	24	7 (6–13 fl.oz./A) 14 (13–26 fl.oz./A) 21 (>26 fl.oz./A)	yes ³
chlorpyrifos + zeta-cypermethrin MoA Group 1B + MoA Group 3A					
STALLION BRAND	2.75 lb./gal.	liquid suspension	24	7	yes ¹

³This product is highly toxic to bees exposed to direct treatment on alfalfa. Do not apply if nearby bees are clustered outside of hives and bees are foraging in the treated area. Do not apply this product or allow it to drift to blooming crops if bees are visiting the treatment area.

Table 3. Insecticides Labeled for Use on Alfalfa (cont.)

Insecticide and Trade Name	A.I./ Formulated Product	Formulation	Restricted Entry Interval (hr)	Minimum Days from Last Application to Harvest (h) or Grazing (g)	Bee Hazard Restriction
cyfluthrin MoA Group 3A					
TOMBSTONE (RESTRICTED USE)	2 lb./gal.	emulsifiable concentrate	12	7	yes ¹
TOMBSTONE HELIOS	2 lb./gal.	emulsifiable concentrate	12	7	yes ¹
dimethoate MoA Group 1B					
CHEMINOVA DIMETHOATE 4E	4 lb./gal.	emulsifiable concentrate	48	10	yes ¹
DIMATE 4E	4 lb./gal.	emulsifiable concentrate	48	10	yes ¹
DIMETHOATE 400, others	4 lb./gal.	emulsifiable concentrate	48	10	yes ¹
DIMETHOATE 4EC	4 lb./gal.	emulsifiable concentrate	48	10	yes ¹
DIMETHOATE LV-4	4 lb./gal.	emulsifiable concentrate	48	10	yes ¹
flupyradifurone MoA Group 4D					
SIVANTO PRIME	1.67 lb./gal.	soluble liquid	4	7	yes ⁵
gamma-cyhalothrin MoA Group 3A					
DECLARE (RESTRICTED USE)	1.25 lb./gal.	microencapsulated suspension	24	7 (h), 1 (g)	yes ⁶
PROAXIS (RESTRICTED USE)	0.5 lb./gal.	microencapsulated suspension	24	7 (h), 1 (g)	yes ⁶
indoxacarb MoA Group 22A					
STEWARD EC	1.25 lb./gal.	emulsifiable concentrate	12	7	yes ¹
lambda-cyhalothrin MoA Group 3A					
GRIZZLY Z INSECTICIDE (RESTRICTED USE)	1 lb./gal.	emulsifiable concentrate	24	7 (h), 1 (g)	yes ⁶
WARRIOR II with ZEON TECHNOLOGY (RESTRICTED USE)	2.08 lb./gal.	capsule suspension	24	7 (h), 1 (g)	yes ⁶
KENDO (RESTRICTED USE)	1 lb./gal.	microencapsulated suspension	24	7 (h), 1 (g)	yes ⁶
LAMBDA-CY, AG, EC, 1EC (RESTRICTED USE)	1 lb./gal.	emulsifiable concentrate	24	7 (h), 1 (g)	yes ⁶
LAMBDA-CYHALOTHRIN 1EC (RESTRICTED USE)	1 lb./gal.	capsule suspension	24	7 (h), 1 (g)	yes ⁶
LAMBDASTAR (RESTRICTED USE)	1 lb./gal.	emulsifiable concentrate	24	7 (h), 1 (g)	yes ⁶
LAMBDASTAR 1CS (RESTRICTED USE)	1 lb./gal.	emulsifiable concentrate	24	7 (h), 1 (g)	yes ⁶
LAMBDASTAR PLUS (RESTRICTED USE)	2 lb./gal.	capsule suspension	24	7 (h), 1 (g)	yes ⁶
LAMBDA-T (RESTRICTED USE)	1 lb./gal.	capsule suspension	24	7 (h), 1 (g)	yes ⁶
LAMCAP (RESTRICTED USE)	1 lb./gal.	capsule suspension	24	7 (h), 1 (g)	yes ⁶
L-C INSECTICIDE (RESTRICTED USE)	1 lb./gal.	emulsifiable concentrate	24	7 (h), 1 (g)	yes ¹

¹This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops if bees are visiting the treatment area.

⁵Toxic to adult bees in laboratory studies via oral exposure; however, it is not toxic to bees through contact exposure. Field studies conducted with this product have shown no effects on honeybee colony development.

⁶Avoid application when bees are actively foraging by applying during the early morning or during the evening hours. Be aware of bee hazard resulting from a cool evening and/or morning dew. It may be advisable to remove bee shelters during and for 2 or 3 days following application. Avoid direct application to bee shelters. This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops if bees are visiting the treatment area.

Table 3. Insecticides Labeled for Use on Alfalfa (cont.)

Insecticide and Trade Name	A.I./ Formulated Product	Formulation	Restricted Entry Interval (hr)	Minimum Days from Last Application to Harvest (h) or Grazing (g)	Bee Hazard Restriction
lambda-cyhalothrin MoA Group 3A (cont.)					
PARADIGM INSECTICIDE (RESTRICTED USE)	1 lb./gal.	capsule suspension	24	7 (h), 1 (g)	yes ⁶
PROVINCE INSECTICIDE (RESTRICTED USE)	1 lb./gal.	capsule suspension	24	7 (h), 1 (g)	yes ⁶
PROVINCE II (RESTRICTED USE)	2.08 lb./gal.	capsule suspension	24	7 (h), 1 (g)	yes ⁶
RAVAGE (RESTRICTED USE)	1 lb./gal.	emulsifiable concentrate	24	7 (h), 1 (g)	yes ⁶
SILENCER (RESTRICTED USE)	1 lb./gal.	emulsifiable concentrate	24	7 (h), 1 (g)	yes ⁶
SILENCER VXN (RESTRICTED USE)	1 lb./gal.	capsule suspension	24	7 (h), 1 (g)	yes ⁶
PROVINCE II (RESTRICTED USE)	2.08 lb./gal.	capsule suspension	24	7 (h), 1 (g)	yes ⁶
GRIZZLY TOO (RESTRICTED USE)	2.08 lb./gal.	capsule suspension	24	7 (h), 1 (g)	yes ⁶
lambda-cyhalothrin + chlorantraniliprole MoA Group 3A + MOA Group 28					
BESIEGE (RESTRICTED USE)	0.42 + 0.83 lb./gal.	water suspension	24	7 (h), 1 (g)	yes ⁶
malathion MoA Group 1B					
MALATHION 5, 5E, 57EC, others	5 lb./gal.	emulsifiable concentrate	12	0	yes ⁷
MALATHION 8, others	8 lb./gal.	emulsifiable concentrate	12	0	yes ⁷
FYFANON MALATHION INSECTICIDE	5 lb./gal.	emulsifiable concentrate	12	0	yes ⁷
FYFANON ULV AG	9.9 lb./gal.	emulsifiable concentrate	12	0	yes ⁷
FYFANON 8 LB EMULSION	8 lb./gal.	emulsifiable concentrate	12	0	yes ⁷
methomyl MoA Group 1A					
ANNIHILATE LV (RESTRICTED USE)	2.4 lb./gal.	water soluble liquid	48	7	yes ¹
ANNIHILATE SP (RESTRICTED USE)	14.4 oz./lb.	water soluble bags	48	7	yes ¹
CORRIDA 29 SL (RESTRICTED USE)	2.4 lb./gal.	water soluble liquid	48	7	yes ¹
CORRIDA 90 WSP (RESTRICTED USE)	14.4 oz./lb.	water soluble bags	48	7	yes ¹
LANNATE LV (RESTRICTED USE)	2.4 lb./gal.	water soluble liquid	48	7	yes ¹

¹ This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops if bees are visiting the treatment area.

⁶ Avoid application when bees are actively foraging by applying during the early morning or during the evening hours. Be aware of bee hazard resulting from a cool evening and/or morning dew. It may be advisable to remove bee shelters during and for 2 or 3 days following application. Avoid direct application to bee shelters. This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops if bees are visiting the treatment area.

⁸ Avoid application when bees are actively foraging by applying in the early morning or during the evening hours. This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops if bees are visiting the treatment area.

Table 3. Insecticides Labeled for Use on Alfalfa (cont.)

Insecticide and Trade Name	A.I./ Formulated Product	Formulation	Restricted Entry Interval (hr)	Minimum Days from Last Application to Harvest (h) or Grazing (g)	Bee Hazard Restriction
methomyl MoA Group 1A (cont.)					
LANNATE SP (RESTRICTED USE)	14.4 oz./lb.	water soluble bags	48	7	yes ¹
NUDRIN LV (RESTRICTED USE)	2.4 lb./gal.	water soluble liquid	48	7	yes ¹
NUDRIN SP (RESTRICTED USE)	14.4 oz./lb.	water soluble packet	48	7	yes ¹
methoxyfenozide MoA Group 18					
INTREPID 2F	2 lb./gal.	liquid	4	3 (h), 0 (g)	no
TROUBADOUR 2F	2 lb./gal.	flowable liquid	4	7 (h), 0 (g)	no
permethrin MoA Group 3A					
ARCTIC 3.2EC (RESTRICTED USE)	3.2 lb./gal.	emulsifiable concentrate	12	0 (≤ 0.1 lb.a.i./A) 14 (> 0.1 lb.a.i./A)	yes ⁸
PERMASTAR AG	3.2 lb./gal.	emulsifiable concentrate	12	Same as above	yes ¹
PERMETHRIN (RESTRICTED USE)	3.2 lb./gal.	emulsifiable concentrate	12	Same as above	yes ¹
PERMETHRIN 3.2 AG (RESTRICTED USE)	3.2 lb./gal.	emulsifiable concentrate	12	Same as above	yes ⁸
PERMETHRIN 3.2 EC, others (RESTRICTED USE)	3.2 lb./gal.	emulsifiable concentrate	12	Same as above	yes ⁸
PERM-UP 3.2 EC (RESTRICTED USE)	3.2 lb./gal.	emulsifiable concentrate	12	Same as above	yes ⁸
POUNCE 25 WP (RESTRICTED USE)	4 oz./lb.	wettable powder	12	Same as above	yes ¹
STILETTO (RESTRICTED USE)	0.08 oz./lb.	pellet	12	0	yes ¹
phosmet MoA Group 1B					
IMIDAN 70-W	11.2 oz./lb.	water soluble bag	120	7	yes ⁹
s-methoprene MoA Group 7A					
EXTINGUISH PROFESSIONAL FIRE ANT BAIT	0.08 oz./lb.	bait	4	0	no
spinosad MoA Group 5					
ENTRUST SC	2 lb./gal.	soluble concentrate	4	3 (hay, fodder) 0 (grazing)	yes ¹⁰
zeta-cypermethrin MoA Group 3A					
MUSTANG MAXX INSECTICIDE (RESTRICTED USE)	0.8 lb./gal.	emulsifiable concentrate	12	3 (h, g) 7 (seed)	yes ¹
RESPECT INSECTICIDE OR RESPECT EC INSECTICIDE (RESTRICTED USE)	0.8 lb./gal.	emulsifiable concentrate	12	3 (g, h) 7 (seed)	yes ¹

¹This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops if bees are visiting the treatment area.

⁸Avoid application when bees are actively foraging by applying in the early morning or during the evening hours. This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops if bees are visiting the treatment area.

⁹Do not apply to alfalfa in the bloom period. This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops if bees are visiting the treatment area.

¹⁰This product is highly toxic to bees exposed to treatment and for 3 hours following treatment. Do not apply this pesticide to blooming, pollen-shedding, or nectar-producing parts of plants if bees may forage on the plants during this time period.

WEED CONTROL

Table 4. Alfalfa Herbicides

Herbicide (Trade Name)	Herbicide (Common Name)	REI/PHI (hr/d)	Rate/Acre Broadcast		Herbicide Group	Time of Application	Weeds Controlled	Comments
			Formulation	Active Ingredient				
PREPLANT OR PREPLANT INCORPORATED								
EPTAM	EPTC	12 hr./14 d	3.5	3.1 lb.	8	Apply just prior to planting and incorporate 3 inches deep immediately after application (within 30 minutes).	Controls many annual grasses and small-seeded broadleaf weeds and suppresses nutsedge.	Some temporary injury to alfalfa seedlings should be expected if conditions for germination and growth are not optimum. Alfalfa is sensitive to soil residues of atrazine. DO NOT use EPTAM on alfalfa if atrazine was applied.
Gramoxone SL	paraquat	12 hr./ 60 d	0.75-4.0 pt	0.19 - 1 lb a.i.	22	Apply prior to emergence to the crop.	Controls annual broadleaf and grasses.	Crop plants that are emerged will be killed. Coverage is necessary for adequate weed control. Seeding should be done for with a minimum amount of soil disturbance. Always apply a COC at 0.5% v/v or an NIS at 0.25% v/v.
Prowl H2O	pendimethalin	24 hr. / 28 d w < 2.1 qt or 50 d with higher	2.1 pt	0.95 lb	3	Apply with a minimum of two trifoliolate leaves.	Controls grasses and small-seeded broadleaves that have not emerged	Must be incorporated or activated by water because it must have soil to seed contact. Refer to the label for crop restrictions.
Treflan	trifluralin	12 hr. / 21 d	1 oz	0.5 lb.	3	Apply to established alfalfa during dormancy or semidormancy, or during the growing season immediately after a cutting.	Controls barnyardgrass, crabgrass, bromegrass, cupgrass, foxtail, juglerice, sandbur, wild barley, and canarygrass.	Does not control established weeds, so applications must be made prior to the expected time of weed germination. Mechanical incorporation, irrigation, or rainfall is needed to activate this herbicide. Do not apply more than 4 pints per acre per year.

Table 4. Alfalfa Herbicides

Herbicide (Trade Name)	Herbicide (Common Name)	REI/PHI (hr/d)	Rate/Acre Broadcast		Herbicide Group	Time of Application	Weeds Controlled	Comments
			Formulation	Active Ingredient				
POSTEMERGENCE SEEDLING ALFALFA								
Various	bromoxynil	24 hr. / 30 d	1.0-1.5 pt.	0.25 -0.375 lb.	6	Apply in the fall or spring to seedling alfalfa when majority of field has a minimum of 4 trifoliolate leaves.	Controls certain annual broadleaf weeds.	If applied when temperature exceeds 70 F for 3 days, crop injury may occur. See label for additives and amounts needed. Surfactant may increase alfalfa injury.
Various	2,4-DB 200 175	48 hr. / 60 d	1-3 qt or 4.33-6.5 pt	0.5-1.5 or 0.94-1.42	4	Apply after alfalfa has three or more true leaves when weeds are no more than 3 inches tall and temperatures is 60°F or above.	Does not control chickweed. See label for spraying precautions. Controls certain annual broadleaf weeds.	Does not control chickweed. See label for spraying precautions.
Extreme (FOR USE ON ROUNDUP READY ALFALFA VARIETIES ONLY)	glyphosate + imazethapyr	48 hr. / 30 d	2.2-4.4 pt.	0.047 -0.094 lb.	9 + 2	Apply to Seedling Roundup Ready Alfalfa only.	Controls broadleaf and grasses.	For optimum weed control, an NIS at 0.125% v/v and AMS at 2.5 lbs./A must be added to the spray solution. Allow a minimum of 7 days between sequential applications. Do not apply more than 3.0 pts./A of Extreme to Roundup Ready alfalfa during the last year of the stand.
Kerb SC	pronamide	24 hr. / 120 d	1.25-2 pt.	0.5-0.82 lb.	3	Apply to fall- seeded when temperatures are less than 55 F after seedlings are beyond the first true leaf.	Controls chickweed, annual grasses, and other winter annuals.	Kerb is a RESTRICTED USE PESTICIDE.
Poast (1.5 lb./gal) Poast plus (1.0 lb./ gal)	sethoxydim	12 hr. / 14 d (Cutting) 7d (Forage)	1.0 - 1.5 pt. 1.5-2.25 pt.	0.188-0.28 lb.	1	Apply over-the- top when annual grasses are small and actively growing.	Controls annual grasses and some perennial grasses	Use a minimum of 10 gallons of water per acre. DO NOT apply with any other pesticide as antagonism will most likely occur. Sethoxydim does not control nutgrass (nutsedges). DO NOT use more than 6.5 pts. of Poast or 9.75 pts. of Poast Plus per acre season. Add COC at 0.5-1.0% v/v.

Table 4. Alfalfa Herbicides

Herbicide (Trade Name)	Herbicide (Common Name)	REI/PHI (hr/d)	Rate/Acre Broadcast		Herbicide Group	Time of Application	Weeds Controlled	Comments
			Formulation	Active Ingredient				
POSTEMERGENCE SEEDLING ALFALFA (cont.)								
Pursuit 2EC	imazethapyr	4 hr. / 30 d	3.0-6.0 fl oz.	0.047-0.094 lb.	2	Apply when seedling alfalfa is in second trifoliolate but before it reaches 6 inches in height.	Controls broadleaf weeds.	Add a COC at 1.0% v/v or a NIS at 0.25% v/v. Can be applied in liquid fertilizer. See label for restrictions. Do NOT apply more than 6 ounces of Pursuit per acre per year. Lengthy plant back restrictions.
Raptor	imazamox	4 hr. / 0 d	4-6 fl oz.	0.031-0.047 lb.	2	Apply when seedling alfalfa is in second trifoliolate or larger but when weeds are 1 to 3 inches tall.	Controls broadleaf and some grass weeds. At higher rates, will control yellow and purple nutsedge.	Add a COC at 1.0% v/v or a NIS at 0.25% v/v. or an MSO at 1% v/v. Can be applied in liquid fertilizer. See label for restrictions. Do NOT apply more than 6 fluid ounces of Raptor per acre per year.
Select Max (.97 lb./gal) or Clethodim (various) (2 lb./gal.)	clethodim	24 hr. / 15 d	12-32 fl.oz. or 10-16 fl.oz (2 lb./gal.)	0.09-0.24 lb. or 0.16-0.25	1	Apply over the top of established alfalfa to control actively growing grasses	Controls annual grasses and perennial grasses. Does not control nutgrass (nutsedge).	See label about adding COC at 0.5% is needed for the generic clethodims. For Select Max, add either a COC (0.5% v/v) or an NIS (0.25% v/v) to spray mix. Do not tank mix with other herbicides as antagonism can occur.
Various* (FOR USE ON ROUNDUP READY ALFALFA VARIETIES ONLY)	glyphosate	4 hr. / 36 hr.	22-44 fl oz.	0.95-1.9	9	Apply from emergence to 5 days after cutting.	Controls annual grasses and perennial grasses THAT ARE NOT GLYPHOSATE RESISTANT.	See label to determine if a surfactant needs to be added.

Table 4. Alfalfa Herbicides

Herbicide (Trade Name)	Herbicide (Common Name)	REI/PHI (hr/d)	Rate/Acre Broadcast		Herbicide Group	Time of Application	Weeds Controlled	Comments
			Formulation	Active Ingredient				
POSTEMERGENCE SEEDLING ALFALFA (BETWEEN CUTTINGS)								
Pursuit 2EC	imazethapyr	4 hr. / 30 d	3.0-6.0 fl oz.	0.047-0.094 lb.	2	Apply between cuttings.	Controls broadleaf weeds.	Add a COC at 1.0% v/v or a NIS at 0.25% v/v. Can be applied in liquid fertilizer. See label for restrictions. Do NOT apply more than 6 ounces of Pursuit per acre per year. Lengthy plant back restrictions.
Various* (FOR USE ON ROUNDUP READY ALFALFA VARIETIES ONLY)	glyphosate	4 hr. / 36 hr.	22-44 fl oz.	0.95-1.9	9	Apply from emergence to 5 days after cutting.	Controls annual grasses and perennial grasses THAT ARE NOT GLYPHOSATE RESISTANT.	See label to determine if a surfactant needs to be added.
Gramoxone SL	paraquat	12 hr. / 30 d	1 pt.	0.25 lb.	22	Apply immediately after alfalfa has been removed for hay or silage. Do not treat more than 5 days after cutting.	Controls annual broadleaf and grasses.	Make 1-3 applications as needed during the growing season. These sprays may be applied in addition to dormant sprays. Alfalfa foliage present at the time of application will be burned.
POSTEMERGENCE-ESTABLISHED DORMANT ALFALFA (SECOND YEAR OR OLDER)								
Aim EC	carfentrazone-ethyl	12 hr / 21 d	0.5-2.5 oz.	0.008-0.04 lb	14	Apply during dormancy and between hay cutting in season.	Controls many annual broadleaf weeds.	Coverage is required for herbicide activity. Applications in season can be made from hay cutting up to 6 inches of new growth. Use an NIS at 0.25% v/v or COC at 0.5-1.0% v/v. Do not apply more than 2.5 oz/year.

Table 4. Alfalfa Herbicides

Herbicide (Trade Name)	Herbicide (Common Name)	REI/PHI (hr/d)	Rate/Acre Broadcast		Herbicide Group	Time of Application	Weeds Controlled	Comments
			Formulation	Active Ingredient				
POSTEMERGENCE-ESTABLISHED DORMANT ALFALFA (SECOND YEAR OR OLDER) (cont.)								
Various	glyphosate	4 hr. / 36 hr.	6 - 8 fl. oz. (5.5 lb/gal)	0.26 - 0.34 lb.	9	Apply in the spring when the alfalfa is still dormant after spring temperatures have warmed up enough to stimulate weed growth but prior to initiation of trifoliolate leaf expansion.	Controls annual grasses and perennial grasses THAT ARE NOT GLYPHOSATE RESISTANT.	Check label to determine if a surfactant needs to be added. Some labels state NOT to add AMS to dormant alfalfa application. Can apply only once per year.
Extreme (FOR USE ON ROUNDUP READY ALFALFA VARIETIES ONLY)	glyphosate + imazethapyr	48 hr. / 30 d	2.2-4.4 pt.	0.047 -0.094 lb.	9 + 2	Apply to Dormant or semi-dormant established Roundup Ready Alfalfa only.	Controls broadleaf and grasses.	For optimum weed control, an NIS at 0.125% v/v and AMS at 2.5 lbs./A must be added to the spray solution. Allow a minimum of 7 days between sequential applications. Do not apply more than 3.0 pts/A of Extreme to Roundup Ready alfalfa during the last year of the stand.
Gramoxone SL	paraquat	12 hr. / 60 d	1-2 pt. (2 lb/gal)	0.25 lb. - 0.58	22	Apply to well-established stands (at least 1 year old) after crop is dormant.	Controls annual broadleaf and grasses.	Do not apply if fall regrowth following last fall cutting is greater than 6 inches or if spring regrowth is greater than 2 inches.
Kerb SC	pronamide	24 hr. / 120 d	1.25-3.5 pt.	0.5-1.44 lb.	3	Apply in the fall or winter alfalfa.	Controls a wide range of grasses and some broadleaf weeds.	Apply when temperatures are less than 55 °F after seedlings are beyond the first true leaf.

Table 4. Alfalfa Herbicides

Herbicide (Trade Name)	Herbicide (Common Name)	REI/PHI (hr/d)	Rate/Acre Broadcast		Herbicide Group	Time of Application	Weeds Controlled	Comments
			Formulation	Active Ingredient				
POSTEMERGENCE-ESTABLISHED DORMANT ALFALFA (SECOND YEAR OR OLDER) (cont.)								
Sinbar	terbacil	12 hr. / N/A	0.5-1.5 lb.	0.4-1.2 lb.	5	Apply either in the fall after alfalfa becomes dormant or in the spring before new plant growth begins and before weed emergence and before alfalfa is 2 inches in height.	Control annual broadleaf and grasses	Do not exceed 6 pints per acre per application. Maximum rate allow per acre per year is 6 pints. See label for restrictions and uses of COC and NIS additives.
Metribuzin DF	metribuzin	12 hr. / 28 d	0.3 - 1.3 lb.	0.04 - 1.73 lb.	5	Apply when weeds are less than 2 inches tall or before weed foliage is 2 inches in diameter.	Controls certain annual grasses and broadleaf weeds	Crop injury may occur if crop is in stressed conditions, crop is treated within 12 months of seeding, or excessive rainfall or irrigation occur after application
Velpar L or Velpar DF	hexazinone	48 hr. / 30 d	1-6 pt or 0.3 - 2 lb.	0.25 - 1.5 lb.	5	Apply after alfalfa becomes dormant or before new growth exceeds 2 inches in height.	Controls broadleaf and some grasses including smutgrass	Make a single application after alfalfa becomes dormant or before new growth exceeds 2 inches in height. For dormant alfalfa, use an NIS at 0.25% v/v. DO NOT exceed 6 pints per acre per application. Maximum amount allowed per acre per year is 6 pints.
PREEMERGENCE-ESTABLISHED ALFALFA								
Chateau	flumioxazin	12 hr. / 25 d	1 - 4 oz.	0.032 - 0.128 lb	14	Apply to established alfalfa with a maximum amount of 6 inches of growth or less for PRE control.	Controls many broadleaf weeds and some annual grasses	DO NOT apply more than 4 oz. in a single application and 8 oz. over a growing season. Sequential application should be at least 60 d after first one.
Gramoxone SL	paraquat	12 hr./60 d	2.5 - 4.0 pt.	(0.63 - 1 lb)	5	Apply prior to emergence to the crop.	Controls annual broadleaf and grasses.	Crop plants that are emerged will be killed. Coverage is necessary for adequate weed control. Seeding should be done for with a minimum amount of soil disturbance. Always apply a COC at 0.5% v/v or an NIS at 0.25% v/v.

Table 4. Alfalfa Herbicides

Herbicide (Trade Name)	Herbicide (Common Name)	REI/PHI (hr/d)	Rate/Acre Broadcast		Herbicide Group	Time of Application	Weeds Controlled	Comments
			Formulation	Active Ingredient				
PREEMERGENCE-ESTABLISHED ALFALFA (cont.)								
Prowl H2O	pendimethalin	24 hr. / 28 d with <2.1 qt or 50 d with higher rates	1.1 - 4.2 qt	1.05 - 3.99 lb	3	Apply to alfalfa in the fall after last cutting during dormancy or the spring prior to 6 inches in growth.	Small-seeded broadleaves and grasses.	Provides residual weed control. Needs water for activation. Refer to label for crop rotation restrictions.
Sinbar	terbacil	12 hr. / N/A	0.5-4.0 lb.	0.4-1.2 lb.	5	Make a single application in the fall after alfalfa becomes dormant or in the spring before new plant growth.	Controls annual grasses and perennial grasses THAT ARE NOT GLYPHOSATE RESISTANT.	May use on alfalfa established 1 year or longer. Apply before emergence of weeds and before alfalfa exceeds 2 inches in height. Do not apply more than 1.5 lb. per year.
Solicam	norflurazon	12 hr. / 28 d	1.25-2.5 lb.	1.0-2.0 lb.	12	Apply to established alfalfa in spring or early fall to actively growing alfalfa following hay removal.	Controls annual broadleaf and grasses.	See label for restrictions. DO NOT apply to seedling alfalfa earlier than 5 months after emergence.
POSTEMERGENCE-ESTABLISHED ALFALFA								
Butyrac	2,4-DB	48 hr. / 60 d	2-3 qt.	1.0-1.5 lb.	4	Apply when weeds are no more than 3 inches tall and temperatures are 60 F or above.	Controls certain annual broadleaf weeds.	Does not control chickweed. See label for spraying precautions.
Extreme (FOR USE ON ROUNDUP READY ALFALFA VARIETIES ONLY)	glyphosate + imazethapyr	48 hr. / 30 d	2.2-4.4 pt.	0.047 -0.094 lb.	9 + 2	Apply to established Roundup Ready Alfalfa only.	Controls broadleaf and grasses.	For optimum weed control, an NIS at 0.125% v/v and AMS at 2.5 lbs./A must be added to the spray solution. Allow a minimum of 7 days between sequential applications. DO NOT apply more than 3.0 pts/A of Extreme to Roundup Ready alfalfa during the last year of the stand.

Table 4. Alfalfa Herbicides

Herbicide (Trade Name)	Herbicide (Common Name)	REI/PHI (hr/d)	Rate/Acre Broadcast		Herbicide Group	Time of Application	Weeds Controlled	Comments
			Formulation	Active Ingredient				
POSTEMERGENCE-ESTABLISHED ALFALFA (cont.)								
Various* (FOR USE ON ROUNDUP READY ALFALFA VARIETIES ONLY)	glyphosate	4 hr. / 36 hr.	22-44 fl oz.	0.95-1.9	9	Apply to actively growing weeds.	Controls annual grasses and perennial grasses THAT ARE NOT GLYPHOSATE RESISTANT.	See label for additive information. Glyphosate formulations differ with additives depending on the timing and the brand.
Pursuit 2EC	imazethapyr	4 hr. / 30 d	3.0-6.0 fl oz.	0.047-0.094 lb.	2	Apply to established alfalfa in the fall or in the spring to dormant or semi-dormant (less than 3 inches new growth).	Controls broadleaf weeds.	Add a COC at 1.0% v/v or a NIS at 0.25% v/v. Can be applied in liquid fertilizer. See label for restrictions. Do NOT apply more than 6 ounces of Pursuit per acre per year.
Raptor	imazamox	4 hr. / 20 d	4-6 fl oz.	0.031-0.047 lb.	2	Apply to established alfalfa in the fall or in the spring to dormant or semi-dormant (less than 3 inches new growth).	Controls broadleaf and some grass weeds. At higher rates, will control yellow and purple nutsedge.	Add a COC at 1.0% v/v or a NIS at 0.25% v/v. or an MSO at 1% v/v. Can be applied in liquid fertilizer. See label for restrictions. Do NOT apply more than 6 fluid ounces of Raptor per acre per year.
Select Max (.97 lb/gal) or Clethodim (various) (2 lb/gal)	clethodim	24 hr. / 15d	12 - 32 fl oz. or 10 - 16 fl. oz (2 lb/gal)	0.09-0.24 lb. or 0.16 - 0.25	1	Apply over the top of established alfalfa to control actively growing grasses.	Controls annual grasses and perennial grasses. Does not control nutgrass (nutsedge).	See label about adding COC at 0.5% is needed for the generic clethodims. For Select Max, add either a COC (0.5% v/v) or an NIS (0.25% v/v) to spray mix. Do not tank mix with other herbicides as antagonism can occur.

Table 4. Alfalfa Herbicides

Herbicide (Trade Name)	Herbicide (Common Name)	REI/PHI (hr/d)	Rate/Acre Broadcast		Herbicide Group	Time of Application	Weeds Controlled	Comments
			Formulation	Active Ingredient				
POSTEMERGENCE-ESTABLISHED ALFALFA (BETWEEN CUTTINGS)								
Chateau	flumioxazin	12 hr. / 25 d	1 - 4 oz.	0.032 - 0.128 lb	14	Apply to established alfalfa with a maximum amount of 6 inches of growth or less for PRE control	Controls many broadleaf weeds and some annual grasses.	DO NOT apply more than 4 oz. in a single application and 8 oz. over a growing season. Sequential application should be at least 60 d after first one.
Various* (FOR USE ON ROUNDUP READY ALFALFA VARIETIES ONLY)	glyphosate	4 hr. / 36 hr.	22-44 fl oz.	0.95-1.9 lb.	9	Apply to established bermudagrass, up to 5 days before cutting	Controls annual grasses and perennial grasses THAT ARE NOT GLYPHOSATE RESISTANT.	See label for additive information. Glyphosate formulations differ with additives depending on the timing and the brand.
Prowl H2O	pendimethalin	24 hr./28 d with <2.1 qt. or 50 d with higher rates	1.1-4.2 qt.	1.05-4.0 lb.	3	Apply in the fall or spring which has gone through a first cutting. Applications may also be made during winter dormancy. Make applications prior to 6 inches in regrowth.	Controls small-seeded broadleaves and grasses.	Soil contact is essential so applications made after 6 inches in height may result in poor weed control because of possible reduced coverage. Provides residual weed control. Needs water for activation. Refer to label for crop rotation restrictions.
Pursuit 2EC	imazethapyr	4 hr. / 30 d	3.0-6.0 fl oz.	0.047-0.094 lb.	2	Apply to established alfalfa before significant growth or regrowth (3 inches) occurs	Controls broadleaf weeds.	See label for approved adjuvants. Adjuvants must be added for POST applications.
Raptor	imazamox	4 hr. / 20 d	4-6 fl oz.	0.031-0.047 lb.	2	Apply to established alfalfa in the fall or in the spring to dormant or semi-dormant (less than 3 inches new growth)	Controls broadleaf and some grass weeds. At higher rates, will control yellow and purple nutsedge.	Add a COC at 1.0% v/v or a NIS at 0.25% v/v. or an MSO at 1% v/v. Can be applied in liquid fertilizer. See label for restrictions. Do NOT apply more than 6 fluid ounces of Raptor per acre per year.

Table 5. Weed Response to Alfalfa Herbicides

Herbicides	Treflan	2, 4-DB	Buctril	Gramoxone SL	Poast (1.5 lb./gal.) Poast plus (1.0 lb./gal.)	Prowl H ₂ O	Pursuit 2EC	Raptor	Select Max (.97 lb/gal) Clethodim (2 lb/gal)	Glyphosate	Glyphosate	Gramoxone SL
Application Timing	Preplant Incorporated	Postemergence on Seedling Alfalfa										
Site of Action Group												Postemergence Seedling Alfalfa (Between Cuttings)
Weeds												
GRASSES/SEDGES												
ANNUAL GRASSES	G-E	NC	NC	E	G	NC	F	G	E	E	E	E
ryegrass, Italian	G-E	NC	NC		G	NC	F	G	G-E	F-P*	F-P*	G
ANNUAL BROADLEAVES												
chickweed		P	F		NC	NC	G	G	NC	E	E	E
curly dock		P	NC		NC	NC	P	P	NC	G	G	E
purple deadnettle		P	F		NC	NC	F	F	NC	E	G	G
henbit		P	F		NC	NC	F	F	NC	E	G	G
johnsongrass, rhizome	NC	NC	NC		F	NC	F	F	E	F-G	F-G	F
johnsongrass, seedling	NC	NC	NC		E	NC	F-G	G	E	E	E	G
lambsquartars		P			NC	NC	F	G	NC	E	E	E
morningglory		G	G		NC	NC	G	G	NC	P	F	E
musk thistle	NC	F**	F		NC	NC	P	P	NC	F-G	F-G	F-G
nutsedge	NC	P	NC		NC	NC	P	F	NC	G-E	G-E	G-E
pigweed (not resistant Palmer)	G	F	G		NC	NC	G	G	NC	E	E	P-F*
plantain		P	G		NC	NC	P	P	NC	E	E	E
common ragweed		F	G		NC	NC	F	F	NC	E	E	E

* Glyphosate-resistant
**Fall application

1 - Will not control ALS-resistant ryegrass
2- Weeds must not be larger than 2 inches at time of application.

Table 5. Weed Response to Alfalfa Herbicides (cont.)

Herbicides	Glyphosate	Extreme	Prowl H ₂ O	Extreme	Pursuit	Raptor
Application Timing	Postemergence Established Dormant Alfalfa		Preemergence Established Alfalfa		Postemergence Established Alfalfa	
Site of Action Group						
Weeds						
GRASSES/SEDGES						
ANNUAL GRASSES	E	G	G	G	F	G
ryegrass, Italian	F-P*	G	G	G	F	G
ANNUAL BROADLEAVES						
chickweed	E	G	G	G	G	G
curly dock	G	F	P	F	P	P
purple deadnettle	G	G	F	G	F	F
henbit	G	G	G	G	F	F
johnsongrass, rhizome	F-G	G	P	G	F	F
johnsongrass, seedling	E	G	G	G	F-G	G
lambsquartars	E	G	G	G	F	G
morningglory	F	G	P	G	G	G
musk thistle	F-G	F	P	F	P	P
nutsedge	G-E	G	P	G	P	E
pigweed (not resistant Palmer)	E	G	G	G	G	G
plantain	E	F	P	F	P	P
common ragweed	E	G	P	G	F	F

* Glyphosate-resistant

**Fall application

1 - Will not control ALS-resistant ryegrass

2- Weeds must not be larger than 2 inches at time of application.

Weeds section prepared by Joyce A. Tredaway, Extension Specialist, Assistant Professor, Department of Crop, Soil, and Environmental Sciences, Auburn University



FOR MORE INFORMATION on pesticides, pesticide safety, or submitting samples for analysis, see the following publications in the IPM series:

IPM 1293, "Safety." Safety contact information; worker protection standards; the safe use, handling, and storage of pesticides

IPM 1294, "Submitting Samples." Procedures for submitting samples for diagnosis, analysis, and identification

IPM 1295, "General Pesticide Information." Federal and state restricted use pesticide lists; pesticides and water quality

IPM 1317, "Appendix." Pesticide guidelines for agronomic crops, including preharvest intervals; rain-free requirements; grazing restrictions; crop rotation guidelines; and the names, classifications, and toxicities of pesticides.

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For more information, contact your county Extension office. Visit www.aces.edu/directory.

Use pesticides **only** according to the directions on the label. Follow all directions, precautions, and restrictions that are listed. Do not use pesticides on plants that are not listed on the label

The pesticide rates in this publication are recommended **only** if they are registered with the Environmental Protection Agency or the Alabama Department of Agriculture and Industries. If a registration is changed or canceled, the rate listed here is no longer recommended. Before you apply **any** pesticide, check with your county Extension agent for the latest information.

Trade names are used **only** to give specific information. The Alabama Cooperative Extension System does not endorse or guarantee any product and does not recommend one product instead of another that might be similar.

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