

PASTURE AND HAY INSECT MANAGEMENT

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Insect pests of pastures, hay fields and some forage crops are often difficult to notice and may take growers by surprise. Scout these crops on a regular basis. For all pests listed, younger, smaller insects are the easiest to control! *Note individual product restrictions and consider control costs carefully.*

Insect resistance management: Repeated use of certain insecticides can lead to resistance in insect populations. Growers are strongly encouraged to rotate products with differing modes of action within a crop year. Consult your product labels and your local Extension Agent for resistance management strategies. Use the IRAC numbers – different numbers indicate differing modes of action!

Non-Grass Animal Feed (forage, fodder, straw and hay) Group, including alfalfa, various clovers and vetches, other forage legumes see the product labels

ARMYWORMS [True Armyworms (*Pseudaletia unipuncta*), Fall Armyworms (*Spodoptera frugiperda*), Yellowstriped Armyworm (*S. ornithogalli*), Southern Armyworm (*S. eridania*), and others]

General Comments: For best results apply materials used when larvae are less than ½ inch long. Use high spray volume; increase spray volume (*addition of water only*) for large worms and in hot, dry weather. If possible, cut hay before treatment. Apply as late in the day as possible. These species show some resistance to many pesticides. *Check for efficacy after application!*

Pesticide	Product/acre	REI	PHI	Comments
Beta-cyfluthrin <i>R</i> Baythroid XL	1.6 – 2.8 fl oz/ac	12 hr	7 d grazing and hay harvest	IRAC Group 3 insecticide Maximum 5.6 fl oz/cutting. Maximum application of 22.4 oz/acre for growing season. <i>Minimum five (5) days between applications.</i>
Carbaryl Sevin (various formulations, for example 50WP, 80S)	<i>See product label</i>	12 hr	7 d before harvest or grazing for alfalfa, clovers, birdsfoot trefoil 14 d for pasture	IRAC Group 1A insecticide NOTE: Carbaryl has not given acceptable control in some parts of the state. Results on fall armyworm should be carefully noted because of the potential for resistance in this species. See your county agent for local control history. Best to apply 24 – 48 hrs before expected rain because of potential product wash-off. See wash-off resistance information on label (if present.) Numerous formulations of Carbaryl are available. Consult label for use rates.

ARMYWORMS [True Armyworms (*Pseudaletia unipuncta*), Fall Armyworms (*Spodoptera frugiperda*), Yellowstriped Armyworm (*S. ornithogalli*), Southern Armyworm (*S. eridania*), and others] (cont)

Pesticide	Product/acre	REI	PHI	Comments
Chlorantraniliprole Prevathon	14-20 oz/ac	4 hr	0 d	IRAC Group 28 Insecticide Do not make more than 4 applications per year. Only one application per cutting. Do not apply more than 60 oz/A of Prevathon per year.
Chlorantraniliprole (Rynaxypyr) Coragen	3.5 – 5.0 oz/ac	4 hr	0 d	IRAC Group 28 Insecticide Protect surface waters with buffer zone; recommend apply 48 hrs before expected rainfall. Apply at egg-hatch or when newly hatched larvae are present before damaging populations develop. Maximum application of 15.4 oz/acre per crop. One (1) application per cutting. Maximum four (4) applications per acre per season.
Lambda-cyhalothrin R Karate, Silencer, others	2.56 – 3.84 oz/ac	24 hrs	1 d grazing 7 d hay harvest	IRAC Group 3 insecticide Do not apply more than 0.96 pts per acre per season. Thirty (30) day minimum retreatment interval if crop not harvested between treatments.
Karate Z	1.28 – 1.92 oz /ac	24 hrs	1 d grazing 7 d hay harvest	Do not apply more than 0.48 pts per acre per season. Thirty (30) day minimum retreatment interval if crop not harvested between treatments.
Lambda-cyhalothrin R + Chlorantraniliprole Besiege	6.0-9.0 oz/ac	24 hrs	1 d grazing 7 d harvest	IRAC Group 3 and 28 insecticide Do not exceed 31.0 oz/acre/year. Do not apply more than 10 oz/cutting. Apply a minimum of 10 GPA by ground.
Methomyl R Lannate LV Lannate SP Water soluble powder in water soluble bags	<i>Alfalfa</i> : 1.5 – 3.0 pts / ac <i>Alfalfa</i> : 0.5 – 1 lb / ac	48 hrs	<i>Alfalfa</i> : Last appl. 7 d before cutting or grazing	IRAC Group 1A insecticide <i>Read label carefully!</i> Lannate LV : <i>Alfalfa</i> - See label! Do not apply more than 12 pts per acre per crop, or make more than 10 applications Lannate SP : <i>Alfalfa</i> - See label! Do not apply more than 4 lbs per ac per crop or more than 10 applications per crop
Zeta-cypermethrin R Mustang Max Mustang Max EC Respect	2.8 – 4.0 oz / ac	12 hr	3 d grazing 3 d hay harvest	IRAC Group 3 insecticide <i>RUP: toxicity to fish & aquatic organisms. See label for buffer zones, other info. Minimum 7 days between applications</i> Maximum season total/ac for non-grass animal feeds (alfalfa, forage, fodder...) is: 12.0 oz /ac/season. Note label spray volume recommendations. See label for maximum use when applying both zeta-cypermethrin and cypermethrin products to the same crop within the same season.

GRASSHOPPERS

General Comments: Nymphs easier to kill than adults. May need to apply to grass and field edges.

Pesticide	Product/acre	REI	PHI	Comments
Beta-cyfluthrin R Baythroid XL	2.0 – 2.8 oz/ac	12 hr	7 d Pre-harvest/ pre-graze	IRAC Group 3 insecticide Maximum 5.6 fl oz/cutting. Maximum application of 22.4 oz/acre for growing season. <i>Minimum five (5) days between applications.</i>
Carbaryl Various Formulations	See Product Label	12 hr	7 d before harvest or grazing for alfalfa, clovers, birdsfoot trefoil 14 d for pasture	IRAC Group 1A insecticide Sevin 4F - <i>*Note labeled use: "Pastures and grass grown for seed."</i> Various formulations of Carbaryl are available. Consult label for proper use requirements.
Lambda-cyhalothrin R Karate, Silencer and others	2.56 – 3.84 oz/ac	24 hrs	1 d grazing 7 d hay harvest	IRAC Group 3 insecticide Do not apply more than 0.96 pts per acre per season. Thirty (30) day minimum retreatment interval if crop not harvested between treatments.
Karate Z	1.28-1.92 oz /ac	24 hrs	1 d grazing 7 d hay harvest	Do not apply more than 0.48 pts per acre per season. Thirty (30) day minimum retreatment interval if crop not harvested between treatments.
Dimethoate Dimethoate 2.67 Dimethoate 4EC	 0.75 – 1.5 pts/ac 0.5 – 1.0 pt/ac	48 hr	10 d for pasture or hay	IRAC Group 1B insecticide Do not apply when crop or weeds are blooming or bees are foraging Only one application per year Only one (1) application per cutting. Do not apply within 10 days of grazing or cutting
Zeta-cypermethrin R Mustang Max Mustang Max EC Respect	 2.8 – 4.0 oz /ac	12 hr	3 d grazing 3 d hay harvest	IRAC Group 3 insecticide <i>RUP: toxicity to fish & aquatic organisms. See label for buffer zones, other info.</i> <i>Minimum 7 days between applications</i> Maximum season total/ac for non-grass animal feeds (alfalfa, forage, fodder...) is: 12.0 oz /ac/season. Note label spray volume recommendations. See label for maximum use when applying both zeta-cypermethrin and cypermethrin products to the same crop within the same season.

For true armyworm and fall armyworm make applications late in the day. This reduces breakdown of your chemical by daylong exposure to sunlight and puts the most chemical on plants closest to when these species feed.

Grass Forage, Fodder and Hay Group and Grass Grown for Seed and Pasture and Rangeland
(see the labels)

ARMYWORMS [True Armyworms (*Pseudaletia unipuncta*), Fall Armyworms (*Spodoptera frugiperda*), Yellowstriped Armyworm (*S. ornithogalli*), Southern Armyworm (*S. eridania*), and others

General Comments: For best results apply materials used when larvae are less than ½ inch long (first and second instar larvae). Use high spray volume; increase spray volume (*addition of water only*) for large worms and in hot, dry weather. If possible, cut hay before treatment. If possible, apply late in the day. These species show some resistance to many pesticides. *Check for efficacy after application!*

Insect resistance management: Repeated use of certain insecticides can lead to resistance in insect populations. Applicators are encouraged to rotate products with differing modes of action within a crop year. Consult your local Extension Agent for resistance management strategies.

Pesticide	Product/acre	REI	PHI	Comments
Beta-cyfluthrin R Baythroid XL	First two instars true armyworm: 1.6 – 1.9 fl oz/ac First two instars of all other armyworms: 2.6 – 2.8 fl oz/ac	12 hr	0 d grazing and hay harvest	IRAC Group 3 insecticide Maximum application of 11.3 oz/acre for growing season for grazing or hay harvest. <i>Minimum five (5) days between applications.</i>
Carbaryl Sevin (various formulations)	See product label	12 hr	7 d before harvest or grazing for alfalfa, clovers, birdsfoot trefoil 14 d for pasture	IRAC Group 1A insecticide <i>NOTE: Carbaryl has not given acceptable control in some parts of the state. Results on fall armyworm should be carefully noted because of the potential for resistance in this species. See your county agent for local control history.</i> Best to apply 24 – 48 hrs before expected rain because of potential product wash-off. See wash-off resistance information on label (if present.). Numerous formulations of Carbaryl are available. Consult label for use rates.
Chlorantraniliprole Prevathon	14-20 oz/ac	4 hr	0 d	IRAC Group 28 Insecticide Do not make more than 4 applications per year. Only one application per cutting. Do not apply more than 60 oz/A of Prevathon per year.
Chlorantraniliprole (Rynaxypyr) Coragen	3.5 – 5.0 oz/ac	4 hr	0 d	IRAC Group 28 Insecticide Protect surface waters with buffer zone-recommend 100 ft.; recommend not apply less than 48 hrs before expected rainfall. Apply at egg-hatch or when newly hatched larvae are present before damaging populations develop. Maximum application of 15.4 oz/acre per crop. Minimum seven (7) days between treatments. Maximum four (4) applications per acre per season.

ARMYWORMS [True Armyworms (*Pseudaletia unipuncta*), Fall Armyworms (*Spodoptera frugiperda*), Yellowstriped Armyworm (*S. ornithogalli*), Southern Armyworm (*S. eridania*), and others (cont)]

Pesticide	Product/acre	REI	PHI	Comments
Diflubenzuron R Dimilin 2L	2.0 oz/ac	12 hrs	1 d hay harvest. 1 d grazing.	IRAC Group 15 insecticide Do not exceed 6 oz per acre per year. For maximum control apply to < ½ inch larvae. Use high spray volume – see label
Lambda-cyhalothrin R Karate, Silencer and Others	2.56 – 3.84 oz/ac	24 hrs	0 d grazing, 7 d hay harvest	IRAC Group 3 insecticide Do not apply more than 0.72 pts per acre per season. Thirty (30) day minimum retreatment interval if crop not harvested between treatments.
Karate Z	1.28-1.92 oz / ac	24 hrs	0 d grazing, 7 d hay harvest	Do not apply more than 0.36 pts per acre per season. Thirty (30) day minimum retreatment interval if crop not harvested between treatments.
Methomyl R Lannate LV Lannate SP <i>Water soluble powder in water soluble bags</i>	<i>Bermuda pasture:</i> 0.75 – 3.0 pts /ac <i>Bermuda pasture:</i> 0.25 – 1 lb /ac	48 hrs	<i>Bermuda pasture: Last appl. 7 d before feeding forage, grazing; 3 d cutting dry hay</i>	IRAC Group1A insecticide Lannate LV: <i>Bermuda pasture:</i> Do not apply more than 3 pts/ac per crop per year or 4 applications per crop. Lannate SP: <i>Bermuda pasture:</i> Do not apply more than 1lb per crop or make more than 4 applications per year.
Methoxyfenozide Intrepid	4.0-8.0 oz / ac	4 hrs	0 d grazing, 7 d hay harvest.	IRAC Group 18 insecticide No more than one (1) application per cutting. Do not apply more than 32 oz per year.
Spinosad Tracer Naturalyte	1-2 oz / ac	4 hrs	Allow spray to dry before grazing. 3 d hay harvest.	IRAC Group 5 insecticide Do not apply more than 6 oz per acre per season.
Zeta-cypermethrin R Mustang Max Mustang Max EC	2.8 – 4.0 oz / ac	12 hr	Grass forage & hay 0 d Grass straw & screenings 7 d	IRAC Group 3 insecticide <i>RUP: toxicity to fish & aquatic organisms. See label for buffer zones, other info.</i> Apply in sufficient water to ensure thorough coverage of foliage; increase water in hot dry, weather. <i>Minimum 7 days between applications for forage & hay, 17 days for straw, screenings, other. Do not spray livestock. Allow application to dry before letting livestock graze on treated area.</i> Maximum seasonal total/ac for grass forage, fodder, and hay group and grass grown for seed is: Hay : 17.2 oz / ac / season; Forage, straw & seed screenings: 21.5 oz /ac/season.

GRASSHOPPERS and CHINCH BUGS

General Comments: Nymphs easier to kill than adults. May need to apply to grass and field edges.

Pesticide	Product/acre	REI	PHI	Comments
Beta-cyfluthrin R Baythroid XL	2.6 – 2.8 oz/acre	12 hr	0 d grazing and hay harvest	IRAC Group 3 insecticide Maximum application of 11.3 oz/acre for growing season. <i>Minimum five (5) days between applications.</i>
Carbaryl Various formulations	See Product Label	12 hr	14 d	IRAC Group 1A insecticide Best to apply 24 – 48 hrs before expected rain because of potential product wash-off. See wash-off resistance information on label (if present.) Various formulations of Carbaryl are available. Consult label for proper use requirements.
Diflubenzuron R Dimilin 2L Dimilin 25W	1.0 – 2.0 oz/acre on early instars 1.0 – 2.0 oz/ac	12 hrs	1 d hay harvest. 1 d grazing.	IRAC Group 15 insecticide <i>Grasshoppers only.</i> Do not exceed 6 oz per acre per year. Use one application on early instar (2 nd – 4 th instar) nymphal stages. Use high rate for pastureland. Use high spray volume – see label. First application at early instar nymphs. Use high rate for pastures. See label for spray volume and addition of oil for hot/dry weather
Lambda-cyhalothrin R Karate, Silencer and others Karate Z	2.56 – 3.84 oz/acre 1.28-1.92 oz per acre	24 hrs	0 d grazing, 7 d hay harvest	IRAC Group 3 insecticide Do not apply more than 0.72 pts per acre per season. Thirty (30) day minimum retreatment interval if crop not harvested between treatments. Do not apply more than 0.36 pts per acre per season. Thirty (30) day minimum retreatment interval if crop not harvested between treatments.
Lambda-cyhalothrin R + Chlorantraniliprole Besiege	5.0-9.0 oz/acre	24 hrs	0 d grazing 7 day harvest	IRAC Group 3 and 28 insecticide Do not exceed 27.0 oz/acre/year. Do not apply more than 9 oz/cutting. Apply a minimum of 10 GPA by ground. Wait a minimum of 7 days between applications.
Zeta-cypermethrin R Mustang Max Mustang Max EC	2.8 – 4.0 oz / ac	12 hr	Grass forage & hay 0 d Grass straw & screenings 7 d	IRAC Group 3 insecticide <i>RUP: toxicity to fish & aquatic organisms.</i> See label for buffer zones, other info. Apply in sufficient water to ensure thorough coverage of foliage; increase water in hot dry, weather. <i>Minimum 7 days between applications for forage & hay, 17 days for straw, screenings, other. Do not spray livestock. Allow application to dry before letting livestock graze on treated area.</i> Maximum seasonal total/ac for grass forage, fodder, and hay group and grass grown for seed is: Hay: 17.2 oz / ac / season; Forage, straw & seed screenings: 21.5 oz /ac/season.

R = Restricted use; **REI** = re-entry interval; **PHI** = pre-harvest interval