

**Table 2.6-11. Suggested insecticides, rates, and restrictions for forage-crop insect control.**

- **R** after the insecticide name indicates that the compound has a restricted use label.
- **O** indicates that the pesticide is labeled for organic use. However, check with your organic certifier to be sure that the material is allowed for your organic system.
- For Certified Organic insect control materials, refer to the Organic Materials Review Institute materials list at [www.omri.org](http://www.omri.org) or call 514-343-7600 or check with your local certifier and see [www.ams.usda.gov/nop](http://www.ams.usda.gov/nop).
- Pesticide use can many times be avoided by using a combination of pest management methods. See Part I, Section 11, “Organic Crop Production,” and Part II, Section 1, “Pest Management” to learn about IPM programs and methods for organic production.
- **Most of these products are highly toxic to bees and many other beneficial insect species. See labels for details. Try to minimize use when crop is blooming and bees are likely to be present.**

Pest	Insecticides	Rate/A		Restrictions		Comments (Read the label for dosage, method, and limitations)
		Formulated	Active	Harvest (days)	Reentry (hours)	
Alfalfa Blotch Leafminer  Threshold: Control may be justified if 30% or more of the leaflets have a mine	cabaryl	Various formulations		7	12	Do not apply more than once per cutting. Highly toxic to bees.
	(Sevin)					
	<i>or</i>	2.0 to 2.8 oz	0.031 to 0.044 lb	7	12	Maximum application per cutting is 3.2 oz. Highly toxic to bees.
	cyfluthrin <b>R</b> (Baythroid 2)					
	<i>or</i>	1 to 2 pt	0.50 to 1 lb	14 (1 pt)	24	Do not make more than four applications per year or apply more than once per crop cutting. Registered for alfalfa. Highly toxic to bees.
	chlorpyrifos <b>R</b> (Lorsban 4E) (Nufos 4E) (Yuma 4E)			21 (>1 pt)		
	<i>or</i>	19 to 38 oz	0.37 to 0.74 lb chlorpyrifos 0.007 to 0.013 lb gamma-cyhalothrin	30	24	Labeled for alfalfa. Do not cut or graze treated alfalfa within 7 to 21 days, depending on rate used; see label for details. Do not make more than 4 applications per season. See label for further limitations on applying Cobalt and other chlorpyrifos-containing products.
	chlorpyrifos + gamma-cyhalothrin <b>R</b> (Cobalt)					
<i>or</i>	3.84 oz	0.015 lb	1 (forage)	24	Do not apply more than 0.015 lb ai per cutting (0.06 lb ai per acre). Highly toxic to bees.	
gamma-cyhalothrin <b>R</b> (Proaxis)			7 (hay)			
<i>or</i>	1.92 to 3.84 oz	0.03 lb	1 (forage)	24	Do not apply more than 0.03 lb ai per acre per cutting or more than 0.12 lb ai per acre per season. Highly toxic to bees. Avoid application when bees are actively foraging. Warrior II uses half the rate of Warrior.	
lambda-cyhalothrin <b>R</b> (Warrior and Warrior II) (Taiga Z)			7 (hay)			
<i>or</i>						

(continued)

**Table 2.6-11. Suggested insecticides, rates, and restrictions for forage-crop insect control (continued).**

Pest	Insecticides	Rate/A		Restrictions		Comments (Read the label for dosage, method, and limitations)	
		Formulated	Active	Harvest (days)	Reentry (hours)		
<b>Alfalfa Blotch Leafminer</b> continued	methomyl <b>R</b> (Lannate 90SP)	0.50 to 1 lb	0.45 to 0.90 lb	7	48	Do not graze livestock or use for livestock feed within 7 days of last application. Highly toxic to bees. Registered for alfalfa. See label for rates and restrictions.	
	(Lannate LV)	1.50 to 3 pt					
	or phosmet (Imidan 70W)	1.0 to 1.33 lb	0.70 to 0.93 lb	7	5 days	No more than one application per cutting. See label for other limitations. Do not apply to alfalfa during bloom period. Highly toxic to bees.	
<b>Alfalfa Weevil Larva</b> Threshold: See publication <i>A Pest Management Program for Alfalfa in Pennsylvania</i> . For stubble: two or more larvae per crown	carbaryl (Sevin)	Various formulations and rates		7	12	See label for specific uses, rates, and restrictions. Highly toxic to bees. Do not apply in bloom periods.	
	or cyfluthrin <b>R</b> (Baythroid 2)	1.6 to 2.8 oz	0.025 to 0.044 lb	7	12	Maximum application per cutting is 3.2 oz. Highly toxic to bees.	
	or chlorpyrifos <b>R</b> (Lorsban 4E) (Nufos 4E) (Yuma 4E)	1 to 2 pt	0.50 to 1 lb	14 (1 pt) 21 (>1 pt)	24	Do not make more than 4 applications per year or apply more than once per crop cutting. Registered for alfalfa and adult weevil control. Highly toxic to bees.	
	or chlorpyrifos + gamma-cyhalothrin <b>R</b> (Cobalt)	19 to 38 oz	0.37 to 0.74 lb chlorpyrifos 0.007 to 0.013 lb gamma-cyhalothrin	30	24	Labeled for alfalfa. Do not cut or graze treated alfalfa within 7 to 21 days, depending on rate used; see label for details. Do not make more than 4 applications per season. See label for further limitations on applying Cobalt and other chlorpyrifos-containing products. Highly toxic to bees.	
	or dimethoate	Many formulations and suppliers; see individual labels.					For reduction of larvae only. Do not apply to alfalfa in the bloom period. Make only one application per cutting. Highly toxic to bees if directly exposed to treatment. Registered for alfalfa.
	or gamma-cyhalothrin <b>R</b> (Proaxis)	2.56 to 3.84 oz	0.01 to 0.015 lb	1 (forage) 7 (hay)	24	Do not apply more than 0.015 lb ai per cutting (0.06 lb ai per acre). Highly toxic to bees.	
	or indoxacarb (Steward EC)	6.7 to 11.3 oz	0.065 to 0.11 lb	7	12	Do not apply more than 45 oz (0.44 lb ai) per acre per season. Make no more than one application per cutting. Highly toxic to bees.	
	or lambda-cyhalothrin <b>R</b> (Warrior and Warrior II) (Taiga Z)	1.28 to 3.84 oz	0.02 to 0.03 lb	1 (forage) 7 (hay)	24	Highly toxic to bees. Avoid application when bees are actively foraging. Do not apply more than 0.03 lb ai per acre per cutting or more than 0.12 lb ai per acre per season. Warrior II uses half the rate of Warrior.	
	or malathion	Many formulations are available; see the label for specific uses, rates, and restrictions.					Do not apply to alfalfa in bloom or to seed alfalfa. Malathion should be considered where very short-term control is needed. It is a relatively safe material. Registered for alfalfa, clover, and grass, among others. Can be used in new seedings of alfalfa sowed with small grains.
	or methomyl <b>R</b> (Lannate 90SP) (Lannate LV)	1.0 lb 3 pt	0.90 lb	7 (grazing)	48	Do not graze livestock or use for livestock feed within 7 days of last application. Highly toxic to bees. Registered for alfalfa. See labels for details on further restrictions.	
	or permethrin <b>R</b> (Artic 3.2) (Ambush 25WP) (Pounce 25WP)	4 to 12.8 oz	0.1 to 0.2 lb	14	12	See labels for specific rates. Do not apply more than 0.2 lb ai/cutting. Highly toxic to bees. Avoid applications when honey bees are foraging.	
	or phosmet (Imidan 70W)	1.0 to 1.33 lb		7	5 days	No more than one application per cutting. See label for other limitations. Highly toxic to bees. Do not apply to alfalfa during bloom period.	
or zeta-cypermethrin <b>R</b> (Mustang Max)	2.24 to 4.0 oz	0.014 to 0.025 lb	3	12	Highly toxic to bees, fish, and other aquatic organisms. Labeled for alfalfa, other legumes, and grass forages; useful for mixed stands. Maximum of 0.25 ai per acre per cutting or 0.075 lb ai per acre per season.		

(continued)

**Table 2.6-11. Suggested insecticides, rates, and restrictions for forage-crop insect control (continued).**

Pest	Insecticides	Rate/A		Restrictions		Comments (Read the label for dosage, method, and limitations)
		Formulated	Active	Harvest (days)	Reentry (hours)	
<b>Armyworms</b>	carbaryl (Sevin XLR plus)	1 to 1.5 pt		14	12	Make no more than two applications a year and 3.0 pints per acre per year. Highly toxic to bees. Labeled for alfalfa, pasture, birdsfoot trefoil, and clovers; see label for details.
	lambda-cyhalothrin <b>R</b> (Warrior and Warrior II) (Taiga Z)	1.28 to 3.84 oz	0.02 to 0.03 lb	1 (forage) 7 (hay)	24	Do not apply more than 0.03 lb ai per acre per cutting or more than 0.12 lb ai per acre per season. Highly toxic to bees; avoid application when bees are actively foraging. Warrior II uses half the rate of Warrior.
	or zeta-cypermethrin <b>R</b> (Mustang Max EC)	2.8 to 4.0 oz	0.0175 to 0.025 lb		12	Highly toxic to bees, fish, and other aquatic organisms. Labeled for alfalfa and other legumes, grasses, and a wide variety of other forages; useful for mixed stands; see label for details. Maximum of 0.25 ai per acre per cutting or 0.075 lb ai per acre per season.
<b>Black and Climbing Cutworms</b> Threshold: None established	azadirachtin <b>O</b> (Neemix 4.5)	0.25 to 1.0 pt		NA	12	Use a minimum of 30 gallons of water per acre during application. The compound interferes with an insect's ability to molt and kills larvae. May repel or deter feeding by the insect. May require multiple applications to provide adequate control.
	or <i>Bacillus thuringiensis</i> <b>O</b>	Numerous formulations				Most effective when larvae are still small. Do not enter the field without protective clothing until the spray has dried.
	carbaryl (Sevin)	Numerous formulations		7	12	See label for specific uses, rates, and restrictions. Highly toxic to bees. Do not apply in bloom periods.
	or cyfluthrin <b>R</b> (Baythroid 2)	0.8 to 1.6 oz	0.013 to 0.025 lb	7	12	Maximum application per cutting is 3.2 oz. Highly toxic to bees.
	or chlorpyrifos <b>R</b> (Lorsban 4E) (Nufos 4E) (Yuma 4E)	1 to 2 pt	0.50 to 1 lb	14 (1 pt) 21 (>1 pt)	24	Do not make more than four applications per year or apply more than once per crop cutting. Registered for all cutworm species on alfalfa. Highly toxic to bees.
	or chlorpyrifos + gamma- cyhalothrin <b>R</b> (Cobalt)	13 to 26 oz	0.25 to 0.51 lb chlorpyrifos 0.005 to 0.009 lb gamma-cyha- lothrin	30	24	Labeled for alfalfa. Do not cut or graze treated alfalfa within 7 to 21 days, depending on rate used; see label for details. Do not make more than 4 applications per season. See label for further limitations on applying Cobalt and other chlorpyrifos-containing products. Highly toxic to bees.
	or gamma-cyhalothrin <b>R</b> (Proaxis)	1.92 to 3.2 oz	0.0075 to 0.0125 lb	1 (forage) 7 (hay)	24	Labeled for alfalfa, sorghum. Do not apply more than 0.015 lb ai per cutting (0.06 lb ai per acre). Highly toxic to bees.
	or lambda-cyhalothrin <b>R</b> (Warrior and Warrior II) (Taiga Z)	0.96 to 3.2 oz	0.015 to 0.025 lb	1 (forage) 7 (hay)	24	Highly toxic to bees. Avoid application when bees are actively foraging. Do not apply more than 0.03 lb ai per acre per cutting or more than 0.12 lb ai per acre per season. Warrior II uses half the rate of Warrior.
	or permethrin <b>R</b> (Artic 3.2 EC) (Ambush 25WP) (Pounce 25WP)	2.0 to 12.8 oz	0.05 to 0.2 lb	14	12	See label for rates. Do not apply more than 0.2 lb ai/cutting. Avoid applications when honeybees are foraging; highly toxic to bees.
	or zeta-cypermethrin <b>R</b> (Mustang Max)	2.24 to 4.0 oz	0.14 to 0.025 lb	3	12	Highly toxic to bees, fish, and other aquatic organisms. Labeled for alfalfa, other legumes, and grass forages; useful for mixed stands. Maximum of 0.25 ai per acre per cutting or 0.075 lb ai per acre per season.
	<b>Cereal Rust Mite</b> (timothy mite)	carbaryl (Sevin XLR plus)	2 to 3 pt		30	12

(continued)

**Table 2.6-11. Suggested insecticides, rates, and restrictions for forage-crop insect control (continued).**

Pest	Insecticides	Rate/A		Restrictions		Comments (Read the label for dosage, method, and limitations)
		Formulated	Active	Harvest (days)	Reentry (hours)	
<b>Grasshoppers</b> Can be a problem under dry conditions; no threshold available	azadirachtin <i>O</i> (Neemix 4.5)	0.25 to 1.0 pt		NA	12	Use a minimum of 30 gallons of water per acre during application. The compound interferes with an insect's ability to molt and kills larvae. May repel or deter feeding by the insect. May require multiple applications to provide adequate control.
	<i>or</i>					
	carbaryl (Sevin)	Many formulations are available.		7	12	See label for specific uses, rates, and restrictions. Highly toxic to bees; do not apply in bloom periods.
	<i>or</i>					
	cyfluthrin <i>R</i> (Baythroid 2)	2.0 to 2.8 oz	0.031 to 0.044 lb	7	12	Maximum application per cutting is 3.2 oz. Highly toxic to bees.
	<i>or</i>					
	chlorpyrifos <i>R</i> (Lorsban 4E) (Nufos 4E) (Yuma 4E)	0.5 to 1.0 pt	0.25 to 0.5 lb	7 to 14	24	Do not make more than four applications per year or apply more than once per crop cutting. Registered for alfalfa. Highly toxic to bees.
	<i>or</i>					
	chlorpyrifos + gamma-cyhalothrin <i>R</i> (Cobalt)	7 to 13 oz	0.14 to 0.25 lb chlorpyrifos 0.003 to 0.005 lb gamma-cyhalothrin	30	24	Labeled for alfalfa. Do not cut or graze treated alfalfa within 7 to 21 days, depending on rate used; see label for details. Do not make more than 4 applications per season. See label for further limitations on applying Cobalt and other chlorpyrifos-containing products. Highly toxic to bees.
	<i>or</i>					
	dimethoate <i>or</i>	Many formulations and suppliers; see individual labels.				
gamma-cyhalothrin <i>R</i> (Proaxis)	2.56 to 3.84 oz	0.01 to 0.015 lb	1 (forage) 7 (hay)	24	Labeled for alfalfa and sorghum. Do not apply more than 0.015 lb ai per cutting (0.06 lb ai per acre). Highly toxic to bees.	
<i>or</i>						
lambda-cyhalothrin <i>R</i> (Warrior and Warrior II) (Taiga Z)	1.28 to 3.84 oz	0.02 to 0.03 lb	1 (forage) 7 (hay)	24	Do not apply more than 0.03 lb ai per acre per cutting or more than 0.12 lb ai per acre per season. Highly toxic to bees. Avoid application when bees are actively foraging. Warrior II uses half the rate of Warrior	
<i>or</i>						
malathion <i>or</i>	Many formulations are available. See the label.					Do not apply to alfalfa in bloom or to seed alfalfa. Malathion should be considered where very short-term control is needed. It is a relatively safe material. Registered for alfalfa, clover, and grass, among others. Can be used in new seedings of alfalfa sowed with small grains.
phosmet (Imidan 70W)	1.0 to 1.33 lb		7	5 days	No more than one application per cutting. See label for other limitations. Highly toxic to bees. Do not apply to alfalfa during bloom period.	
<i>or</i>						
zeta-cypermethrin <i>R</i> (Mustang Max)	2.8 to 4.0 oz	0.0175 to 0.025 lb	3	12	Highly toxic to bees, fish, and other aquatic organisms. Labeled for alfalfa, other legumes, and grass forages; useful for mixed stands. Maximum of 0.25 ai per acre per cutting or 0.075 lb ai per acre per season.	
<b>Lygus Bugs</b> Not usually a pest	azadirachtin <i>O</i> (Neemix 4.5)	0.25 to 1.0 pt		N/A	12	Use a minimum of 30 gallons of water per acre during application. The compound interferes with an insect's ability to molt and kills larvae. May repel or deter feeding by the insect. May require multiple applications to provide adequate control.
<i>or</i>						
carbaryl (Sevin)	Many formulations are available.		7	12	See label for specific uses, rates, and restrictions. Highly toxic to bees; do not apply in bloom periods.	
<i>or</i>						
cyfluthrin <i>R</i> (Baythroid 2)	1.6 to 2.8 oz	0.025 to 0.044 lb	7	12	Maximum application per cutting is 3.2 oz. Highly toxic to bees.	
<i>or</i>						
chlorpyrifos <i>R</i> (Lorsban 4E) (Nufos 4E) (Yuma 4E)	1 to 2 pt	0.50 to 1 lb	14 (1 pt) 21 (>1 pt)	24	Do not make more than four applications per year or apply more than once per crop cutting. Registered for alfalfa and adult weevil control. Highly toxic to bees.	
<i>or</i>						

(continued)

**Table 2.6-11. Suggested insecticides, rates, and restrictions for forage-crop insect control (continued).**

Pest	Insecticides	Rate/A		Restrictions		Comments (Read the label for dosage, method, and limitations)
		Formulated	Active	Harvest (days)	Reentry (hours)	
<b>Lygus Bugs</b> (continued)	chlorpyrifos + gamma-cyhalothrin <b>R</b> (Cobalt) <i>or</i>	19 to 38 oz	0.37 to 0.74 lb chlorpyrifos 0.007 to 0.013 lb gamma-cyhalothrin	30	24	Labeled for alfalfa. Do not cut or graze treated alfalfa within 7 to 21 days, depending on rate used; see label for details. Do not make more than 4 applications per season. See label for further limitations on applying Cobalt and other chlorpyrifos-containing products. Highly toxic to bees.
	dimethoate	Many formulations and suppliers. See individual labels.				For reduction of larvae only. Do not apply to alfalfa in the bloom period. Make only one application per cutting. Highly toxic to bees if directly exposed to treatment. Registered for alfalfa.
	gamma-cyhalothrin <b>R</b> (Proaxis) <i>or</i>	2.56 to 3.84 oz	0.01 to 0.015 lb	1 (forage) 7 (hay)	24	Labeled for alfalfa and sorghum. Do not apply more than 0.015 lb ai per cutting (0.06 lb ai per acre). Highly toxic to bees.
	lambda-cyhalothrin <b>R</b> (Warrior and Warrior II) (Taiga Z) <i>or</i>	1.28 to 3.84 oz	0.02 to 0.03 lb	1 (forage) 7 (hay)	24	Highly toxic to bees. Avoid application when bees are actively foraging. Do not apply more than 0.03 lb ai per acre per cutting or more than 0.12 lb ai per acre per season. Warrior II uses half the rate of Warrior.
	malathion <i>or</i>	Many formulations are available.				Do not apply to alfalfa in bloom or to seed alfalfa. Malathion should be considered where very short-term control is needed. It is a relatively safe material. Registered for alfalfa, clover, and grass among others. Can be used in new seedings of alfalfa sowed with small grains.
	methomyl <b>R</b> (Lannate 90SP) (Lannate LV) <i>or</i>	0.50 to 1.0 lb 1.50 to 3.0 pt	0.45 to 0.90 lb	7	48	Do not graze livestock or use for livestock feed within 7 days of last application. Highly toxic to bees. Registered for alfalfa. See labels for details on further restrictions.
	permethrin <b>R</b> (Artic 3.2) (Ambush 25WP) (Pounce 25WP) <i>or</i>	4 to 12.8 oz	0.1 to 0.2 lb	14	12	See labels for specific rates. Do not apply more than 0.2 lb ai/cutting. Highly toxic to bees. Avoid applications when honey bees are foraging.
	phosmet (Imidan 70W)	1.0 to 1.33 lb	0.70 to 0.93 lb	7	5 days	No more than one application per cutting. See label for other limitations. Highly toxic to bees. Do not apply to alfalfa during bloom period.
	zeta-cypermethrin <b>R</b> (Mustang Max)	2.24 to 4.0 oz	0.014 to 0.025 lb	3	12	Highly toxic to bees, fish, and other aquatic organisms. Labeled for alfalfa, other legumes, and grass forages; useful for mixed stands. Maximum of 0.25 ai per acre per cutting or 0.075 lb ai per acre per season.
	<b>Pea Aphid</b> Threshold: Control is 100 or more per sweep	cyfluthrin <b>R</b> (Baythroid 2) <i>or</i>	2.8 oz	0.044 lb	7	12
chlorpyrifos <b>R</b> (Lorsban 4E) (Nufos 4E) (Yuma 4E) <i>or</i>		1 to 2 pt	0.50 to 1 lb	14 (1 pt) 21 (>1 pt)	24	Do not make more than four applications per year or apply more than once per crop cutting. Registered for alfalfa. Highly toxic to bees.
chlorpyrifos + gamma-cyhalothrin <b>R</b> (Cobalt) <i>or</i>		13 to 26 oz	0.25 to 0.51 lb chlorpyrifos 0.005 to 0.009 lb gamma-cyhalothrin	30	24	Labeled for alfalfa. Do not cut or graze treated alfalfa within 7 to 21 days, depending on rate used; see label for details. Do not make more than 4 applications per season. See label for further limitations on applying Cobalt and other chlorpyrifos-containing products. Highly toxic to bees.
dimethoate <i>or</i>		Many formulations and suppliers; see individual labels.				For reduction of nymphs only. Do not apply to alfalfa in the bloom period. Make only one application per cutting. Highly toxic to bees if directly exposed to treatment. Registered for alfalfa.
gamma-cyhalothrin <b>R</b> (Proaxis) <i>or</i>		3.84 oz	0.015 lb	1 (forage) 7 (hay)	24	Labeled for alfalfa. Do not apply more than 0.015 lb ai per cutting (0.06 lb ai per acre). Highly toxic to bees.

(continued)

**Table 2.6-11. Suggested insecticides, rates, and restrictions for forage-crop insect control (continued).**

Pest	Insecticides	Rate/A		Restrictions		Comments (Read the label for dosage, method, and limitations)
		Formulated	Active	Harvest (days)	Reentry (hours)	
<b>Pea Aphid</b> (continued)	lambda-cyhalothrin <b>R</b> (Warrior and Warrior II) (Taiga Z) <i>or</i>	1.92 to 3.84 oz	0.03 lb	1 (forage) 7 (hay)	24	Highly toxic to bees. Avoid application when bees are actively foraging. Do not apply more than 0.03 lb ai per acre per cutting or more than 0.12 lb ai per acre per season. Warrior II uses half the rate of Warrior.
	malathion	Many formulations are available; see the label for specific uses, rates, and restrictions.				Do not apply to alfalfa in bloom or to seed alfalfa. Malathion should be considered where very short-term control is needed. It is a relatively safe material. Registered for alfalfa, clover, and grass among others. Can be used in new seedings of alfalfa sowed with small grains.
	<i>or</i> methomyl <b>R</b> (Lannate 90SP) (Lannate LV)	0.5 to 3.0 lb 1.5 to 3.0 pt	0.45 to 0.90 lb	7	48	Do not graze livestock or use for livestock feed within 7 days of last application. Highly toxic to bees. Registered for alfalfa. See labels for details on further restrictions.
	<i>or</i> permethrin <b>R</b> (Artic 3.2) (Ambush 25WP) (Pounce 25WP)	2 to 12.8 oz	0.1 to 0.2 lb	14	12	Do not apply more than 0.2 lb ai/cutting. Avoid applications when honey bees are foraging; highly toxic to bees. See labels for specific rates.
	<i>or</i> phosmet (Imidan 70W)	1.0 to 1.33 lb	0.70 to 0.93 lb	7	5 days	No more than one application per cutting. See label for other limitations. Highly toxic to bees. Do not apply to alfalfa during bloom period.
	<i>or</i> zeta-cypermethrin <b>R</b> (Mustang Max)	2.24 to 4.0 oz	0.014 to 0.025 lb	3	12	Highly toxic to bees, fish, and other aquatic organisms. Labeled for alfalfa and other legumes, grass forages-useful for mixed stands. Maximum of 0.25 ai per acre per cutting or 0.075 lb ai per acre per season.
	<b>Potato Leafhopper</b> Threshold: See publication A <i>Pest Management Program for Alfalfa in Pennsylvania</i>	azadirachtin <b>O</b> (Neemix 4.5) <i>or</i>	0.25 to 1.0 pt		N/A	12
carbaryl (Sevin) <i>or</i>		Many formulations are available.				See label for specific uses, rates, and restrictions. Highly toxic to bees; do not apply in bloom periods.
cyfluthrin <b>R</b> (Baythroid 2) <i>or</i>		0.8 to 1.6 oz	0.013 to 0.025 lb	7	12	Maximum application per cutting is 3.2 oz. Highly toxic to bees.
chlorpyrifos <b>R</b> (Lorsban 4E) (Nufos 4E) (Yuma 4E) <i>or</i>		0.5 to 1.0 pt	0.25 to 0.50 lb	7 (0.5 pt) 14 (1 pt)	24	Do not make more than four applications per year or apply more than once per crop cutting. Registered for alfalfa. Highly toxic to bees.
chlorpyrifos + gamma-cyhalothrin <b>R</b> (Cobalt) <i>or</i>		7 to 13 oz	0.14 to 0.25 lb chlorpyrifos 0.003 to 0.005 lb gamma-cyhalothrin	30	24	Labeled for alfalfa. Do not cut or graze treated alfalfa within 7 to 21 days, depending on rate used; see label for details. Do not make more than 4 applications per season. See label for further limitations on applying Cobalt and other chlorpyrifos-containing products.
dimethoate <i>or</i>		Many formulations and suppliers; see individual labels.				For reduction of nymphs only. Do not apply to alfalfa in the bloom period. Make only one application per cutting. Highly toxic to bees if directly exposed to treatment. Registered for alfalfa.
gamma-cyhalothrin <b>R</b> (Proaxis) <i>or</i>		1.92 to 3.20 oz	0.0075 to 0.0125 lb	1 (forage) 7 (hay)	24	Labeled for alfalfa. Do not apply more than 0.015 lb ai per cutting (0.06 lb ai per acre). Highly toxic to bees.
indoxacarb (Steward EC) <i>or</i>		9.2 to 11.3 oz	0.09 to 0.11 lb	7	12	Suppression only. Do not apply more than 45 oz (0.44 lb ai) per acre per season. Make no more than one application per cutting. Highly toxic to bees.
lambda-cyhalothrin <b>R</b> (Warrior and Warrior II) (Taiga Z) <i>or</i>		0.96 to 3.2 oz	0.015 to 0.025 lb	1 (forage) 7 (hay)	24	Highly toxic to bees. Avoid application when bees are actively foraging. Do not apply more than 0.03 lb ai per acre per cutting or more than 0.12 lb ai per acre per season. Warrior II uses half the rate of Warrior.

(continued)

**Table 2.6-11. Suggested insecticides, rates, and restrictions for forage-crop insect control (continued).**

Pest	Insecticides	Rate/A		Restrictions		Comments (Read the label for dosage, method, and limitations)	
		Formulated	Active	Harvest (days)	Reentry (hours)		
<b>Potato Leafhopper</b> (continued)	malathion	Many formulations are available; see the label for specific uses, rates, and restrictions.				Do not apply to alfalfa in bloom or to seed alfalfa. Malathion should be considered where very short-term control is needed. It is a relatively safe material. Registered for alfalfa, clover, and grass, among others. Can be used in new seedings of alfalfa sowed with small grains.	
	<i>or</i>						
	permethrin <b>R</b> (Artic 3.2) (Ambush 25WP) (Pounce 25WP)	3.2 to 12.8 oz	0.05 to 0.2 lb	14	12		Do not apply more than 0.2 lb ai/cutting. Highly toxic to bees. Avoid applications when honey bees are foraging. See labels for specific rates.
	<i>or</i>						
	phosmet (Imidan 70W)	1.0 to 1.33 lb	0.70 to 0.93 lb	7	5 days	No more than one application per cutting. See label for other limitations. Highly toxic to bees. Do not apply to alfalfa during bloom period.	
	zeta-cypermethrin <b>R</b> (Mustang Max)	2.24 to 4.0 oz	0.014 to 0.025 lb	3	12	Highly toxic to bees, fish, and other aquatic organisms. Labeled for alfalfa, other legumes, and grass forages; useful for mixed stands. Maximum of 0.25 ai per acre per cutting or 0.075 lb ai per acre per season.	
<b>Slugs</b> Threshold: None	metaldehyde (Deadline M-Ps) (Metarex)	Different formulations are available; see the label for specific uses, rates, and restrictions.		0	12	See comments in corn section Table 2.2-20. Primarily a problem in no-till fall seedings but can occur in spring seedings.	
<b>Spittlebug</b> Threshold: Spray applications are not profitable unless there are one or more spittle masses per stem by mid-May	cyfluthrin <b>R</b> (Baythroid 2)	0.8 to 1.6 oz	0.013 to 0.025 lb	7	12	Maximum application per cutting is 3.2 oz. Highly toxic to bees.	
	<i>or</i>						
	chlorpyrifos <b>R</b> (Lorsban 4E) (Nufos 4E) (Yuma 4E)	1 to 2 pt	0.50 to 1 lb	14 (1 pt) 21 (>1 pt)	24	Do not make more than four applications per year or apply more than once per crop cutting. Registered for alfalfa and adult weevil control. Highly toxic to bees.	
	<i>or</i>						
	chlorpyrifos + gamma-cyhalothrin <b>R</b> (Cobalt)	19 to 38 oz	0.37 to 0.74 lb chlorpyrifos 0.007 to 0.013 lb gamma-cyhalothrin	30	24	Labeled for alfalfa. Do not cut or graze treated alfalfa within 7 to 21 days, depending on rate used; see label for details. Do not make more than 4 applications per season. See label for further limitations on applying Cobalt and other chlorpyrifos-containing products.	
	<i>or</i>						
	gamma-cyhalothrin <b>R</b> (Proaxis)	2.56 to 3.84 oz	0.01 to 0.015 lb	1 (forage) 7 (hay)	24	Labeled for alfalfa. Do not apply more than 0.015 lb ai per cutting (0.06 lb ai per acre). Highly toxic to bees.	
	<i>or</i>						
	lambda-cyhalothrin <b>R</b> (Warrior and Warrior II) (Taiga)	1.28 to 3.84 oz	0.02 to 0.03 lb	1 (forage) 7 (hay)	24	Highly toxic to bees. Avoid application when bees are actively foraging. Do not apply more than 0.03 lb ai per acre per cutting or more than 0.12 lb ai per acre per season. Warrior II uses half the rate of Warrior.	
	<i>or</i>						
	malathion	Many formulations are available. See the label for specific uses, rates, and restrictions.				Do not apply to alfalfa in bloom or to seed alfalfa. Malathion should be considered where very short-term control is needed. It is a relatively safe material. Registered for alfalfa, clover, and grass among others. Can be used in new seedings of alfalfa sowed with small grains.	
<i>or</i>							
permethrin <b>R</b> (Artic 3.2EC) (Ambush 25WP) (Pounce 25WP)	4 to 12.8 oz	0.1 to 0.2 lb	14	12	Do not apply more than 0.2 lb ai/cutting. See labels for specific rates. Highly toxic to bees. Avoid applications when honey bees are foraging.		
<i>or</i>							
	phosmet (Imidan 70W)	1.0 to 1.33 lb	0.70 to 0.93 lb	7	5 days	No more than one application per cutting. See label for other limitations. Highly toxic to bees. Do not apply to alfalfa during bloom period.	
	zeta-cypermethrin <b>R</b> (Mustang Max)	2.24 to 4.0 oz	0.014 to 0.025 lb	3	12	Highly toxic to bees, fish, and other aquatic organisms. Labeled for alfalfa, other legumes, and grass forages; useful for mixed stands. Maximum of 0.25 ai per acre per cutting or 0.075 lb ai per acre per season.	