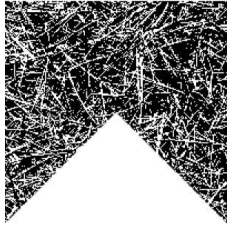




Commercial Ornamentals

Insect Control Recommendations for 2011



INSECT CONTROL Woody Ornamentals

Commercial Woody Ornamentals Insect Control*

Insect	Insecticide and Formulation**	Amount per 100 Gallons Water or as Specified	Comments***
Aphids			
	acephate ORTHENE TT&O	0.33 lb.	DO NOT apply Orthene to huckleberry, Balm of Gilead, cottonwood, Lombardy poplar, or Viburnum suspensum. Phytotoxicity may occur on flowering crabapple varieties listed on label. Read label. REI-24 hours MOA-group 1B
	ORTHENE TT&O SPRAY 97	0.25 lb.	
	acetamiprid TRISTAR	---	
	azadirachtin AZATIN XL ORNAZIN	---	Complete coverage is important, but avoid excessive runoff. Use fine spray. Azadirachtin can also be applied as a drench. Azatin REI-4 hours Ornazin REI-12 hours MOA-group unknown
	bifenthrin TALSTAR S ONYXPRO	0.8-4 oz./10 gal.	Talstar S and Onyxpro are RESTRICTED USE pesticides. DO NOT use Onyxpro in greenhouses. REI-12 hours MOA-group 3
	<i>Beauveria bassiana</i> BOTANIGARD and WP	---	Wait 48 hours before applying fungicides. REI-4 hours MOA-group M
	carbaryl SEVIN SL Various formulations	1 qt.	Carbaryl may damage Virginia and sand pines. REI-12 hours MOA-group 1A

* Check the product label before purchase; read carefully for use directions, sites registered, rates, application frequency, re-entry, and phytotoxicity information. No endorsement is intended of products included or criticism of those excluded.

**Some insecticides are negatively affected by the pH of the spray solution, especially pH values above 7.0. For most insecticides the optimum spray solution pH is 4 to 6. These values can be achieved by using a buffering adjuvant. (Pesticides containing fixed copper—for example, copper sulfate, copper hydroxide, Bordeaux mixture, and lime or lime sulfur—should not be acidified.)

***REI = Re-entry Interval. MOA= Mode of Action. To delay the possibility of insecticide resistance, it is important to rotate among pesticides with different modes of action (MOA). Thus spraying DeltaGard followed by Decathlon would not rotate insecticide MOAs because they are both in group 3; however, spraying Orthene 97 followed by DeltaGard would rotate insecticide MOAs since Orthene 97 is in group 1 and DeltaGard is in group 3.

Insect	Insecticide and Formulation	Amount per 100 Gallons Water or as Specified	Comments
Commercial Ornamentals: Insect Control—Woody Ornamentals			
Aphids (cont.)			
	chlopyrifos DURSBAN formulations	See label.	Dursban is a RESTRICTED USE pesticide. DO NOT use on azaleas, camellias, or roses. REI-12 hours MOA-group 1B
	clothianidin ARENA 50WDG ARENA 0.25G	---	Not for use in woody plant production. MOA-group 4A
	cyfluthrin DECATHLON 20WP TEMPO Various formulations	See label. See label.	Tempo is not labeled for agriculture/nursery use. Tempo 20WSP for golf courses is a RESTRICTED USE pesticide. REI-12 hours MOA-group 3
	cyfluthrin + imidacloprid DISCUS	Spray: 50 fl.oz. See label for drench rates.	REI-12 hours MOA-group 3 and 4A
	deltamethrin DELTAGUARD GC 5SC DELTAGUARD T&O 5SC	---	Deltaguard GC products are RESTRICTED USE pesticides. REI-12 hours MOA-group 3
	diazinon formulations	See label.	DO NOT spray on ferns, gardenias, or hibiscus. Many insecticides containing diazinon are RESTRICTED USE pesticides. REI-12 hours MOA-group 1A
	dimethoate CYGON 2E DIMETHOATE Other formulations	See label.	See plant use list on label. DO NOT use on crape myrtle or Burford or Chinese hollies. Do not mix with insecticidal oils. For outdoor nursery use only. Cannot be used in shade houses. Do not use on plants intended for use as propagation stock. REI-48 hours MOA-group 1A
	dinotefuran SAFARI	Spray: 4-8 oz. Drench: 12-24 oz.	REI-12 hours MOA-group 4A
	fenpropathrin TAME	---	Tame is a RESTRICTED USE pesticide. Label recommends tank mixing with acephate. REI-24 hours MOA-group 3
	fluvalinate MAVRIK 2F	2-5 oz.	REI-12 hours MOA-group 3
	flonicamid ARIA	---	Some pansy cultivars may be sensitive. Aria is labeled for use only in greenhouses and interiorscapes. REI-12 hours MOA-group 9B

Insect	Insecticide and Formulation	Amount per 100 Gallons Water or as Specified	Comments
Commercial Ornamentals: Insect Control—Woody Ornamentals			
Aphids (cont.)			
	horticultural oils, such as ULTRA-FINE OIL	See label.	See label for specific use conditions. DO NOT use on all evergreens. REI-4 hours MOA-group M
	imidacloprid MARATHON 1% G MARATHON 60WSP MARATHON II MERIT 75 WP or WSP See also DISCUS	Plants in containers: one application per crop cycle Outdoor ornamentals grown in beds: 40 lb./A/yr.	Plants must be actively growing at application; do not overwater. Marathon products are labeled for commercial nursery/greenhouse use. Merit is for landscape use, including interior plantscapes. Read labels. REI-12 hours MOA-group 4A
	lambda-cyhalothrin SCIMITAR CG and CS	1.5-5 fl.oz.	Lambda-cyhalothrin is a RESTRICTED USE pesticide. Scimitar CS is not registered for agricultural/nursery use. REI-24 hours MOA-group 3
	malathion Various formulations	See label.	REI-12 hours MOA-group 1B
	methiocarb MESUROL 75W	---	Mesurol 75W is a RESTRICTED USE pesticide. Performance may be reduced when the spray solution has a pH greater than 7. Handlers must be checked every 2 hours when using this product. REI-24 hours MOA-group 1A
	neem oil TRIACT 70	1-2 gal.	REI-4 hours MOA-group M
	permethrin Various formulations	See label.	All permethrin formulations for outdoor nursery use are RESTRICTED USE pesticides. REI-12 hours MOA-group 3
	potassium salts of fatty acids (insecticidal soaps) M-PEDE Insecticidal soap	See label. 2 gal.	REI-12 hours MOA-group M
	pymetrozine ENDEAVOR	---	REI-12 hours MOA-group 9A
	pyrethrins PYRETH-IT	2-16 oz.	Buffer solution to pH of 5.5 to 7.0. REI-12 hours MOA-group 3
	s-kinoprene ENSTAR II	5-10 fl.oz.	REI-4 hours MOA-group 7A
	thiamethoxam FLAGSHIP	2-4 oz. chemigation or drench: 8 oz./A	Flagship is a contact and systemic insecticide that moves in the leaf when sprayed or systemically throughout the plant when applied as a drench. With proper precautions, it can be applied through chemigation systems. DO NOT exceed 8 ounces per acre per year or crop, whichever is shorter. REI-12 hours MOA-group 4A

Insect	Insecticide and Formulation	Amount per 100 Gallons Water or as Specified	Comments
Commercial Ornamentals: Insect Control—Woody Ornamentals			
Bark Beetles			
	bifenthrin TALSTAR S ONYX	0.8-4 oz./10 gal.	Talstar S is a RESTRICTED USE pesticide. Do not use Onyz in nurseries and greenhouses. REI-12 hours MOA-group 3
	carbaryl SEVIN SL Various formulations	1 qt.	Carbaryl may damage Virginia and sand pines. REI-12 hours MOA-group 1A
	chlorpyrifos DURSBAN formulations	See label.	See label for treatment of pine beetles and shothole borers. Many chlorpyrifos formulations are RESTRICTED USE pesticides. REI-24 hours MOA-group 1B
	cypermethrin DEMON MAX	---	For landscape use only MOA-group 3
	permethrin Various formulations	---	All permethrin formulations for outdoor nursery use are RESTRICTED USE pesticides. REI-12 hours MOA-group 3
Borers			
<i>Coleopteran and Lepidopteran</i>			
	azadirachtin AZATIN XL PLUS	10-16 fl.oz.	REI-4 hours MOA-group group unknown
	bifenthrin TALSTAR S ONYX Various formulations	0.8-4 oz./10 gal.	Talstar S is a RESTRICTED USE pesticide. Do not use Onyz in nurseries and greenhouses. REI-12 hours MOA-group 3
	chlorpyrifos DURSBAN formulations	See label.	Insecticides with the active ingredient chlorpyrifos are RESTRICTED USE pesticides. REI-24 hours MOA-group 1B
	cyfluthrin + imidacloprid DISCUS	---	See label for drench applications rates and instructions. REI-12 hours MOA-group 3 and 4A
	cypermethrin DEMON MAX	50 fl.oz.	For landscape use only. Apply as protectant to bark of trees. MOA-group 3
	imidacloprid MARATHON 1% G MARATHON 60 WSP MARATHON II MERIT 75 WP or WSP See also DISCUS	Plants in containers: one application/crop cycle. Outdoor ornamentals grown in beds: 40 lb./A/yr.	See label for drench application rates and instructions. Marathon products are labeled for commercial nursery/greenhouse use. Merit is for landscape use, including interior plantscapes. REI-12 hours MOA-group 4A
	permethrin Various formulations	---	All permethrin formulations for outdoor nursery use are RESTRICTED USE pesticides. REI-12 hours MOA-group 3

Insect	Insecticide and Formulation	Amount per 100 Gallons Water or as Specified	Comments
Commercial Ornamentals: Insect Control—Woody Ornamentals			
Caterpillars (Armyworms, Bagworms, Loopers, Tent Caterpillars, Webworms)			
	acephate ORTHENE PRO 75 ORTHENE TT&O ORTHENE TT&O SPRAY 97	0.33-1 lb. 0.33-1 lb. 0.25-0.75 lb.	Orthene may be phytotoxic to some flowering crabapples. See label. REI-24 hours MOA-group 1B
	acetamiprid TRISTAR	---	REI-24 hours MOA-group 4A
	azadirachtin AZATIN XL and XL PLUS ORNAZIN	---	Complete coverage important but avoid excessive runoff. Use fine spray Azatin REI-4 hours Ornazin REI-12 hours MOA-group unknown
	<i>Bacillus thuringiensis</i> formulations such as DIPEL	---	<i>B.t.</i> formulations are most effective on younger caterpillars. Spray tent caterpillar webs late in the day. REI-4 hours MOA-group 11
	bifenthrin TALSTAR S ONYX Various formulations	0.8-4 oz./10 gal.	Talstar S is a RESTRICTED USE pesticide. Do not use Onyz in nurseries and greenhouses. REI-12 hours MOA-group 3
	carbaryl SEVIN SL Various formulations	1 qt.	Carbaryl may damage Virginia and sand pines. REI-12 hours MOA-group 1A
	chlorpyrifos DURSBAN formulations	See label.	See label rates for specific pests. Many chlorpyrifos formulations are RESTRICTED USE pesticides. REI-24 hours MOA-group 1B
	cryolite KRYOCIDE	8-24 lb./A	REI-12 hours MOA-group unknown
	cyfluthrin DECATHLON 20WP TEMPO Various formulations	See label.	Tempo is not labeled for agriculture/nursery use. Tempo 20WSP for golf courses is a RESTRICTED USE pesticide. REI-12 hours MOA-group 3
	cyfluthrin + imidacloprid DISCUS	50 fl.oz.	REI-12 hours MOA-group 3 and 4A
	cypermethrin DEMON MAX	50 fl.oz.	For landscape use only. Apply as protectant to bark of trees. MOA-group 3
	deltamethrin DELTAGUARD GC 5SC DELTAGUARD T&O 5SE	---	Deltaguard GC products are RESTRICTED USE pesticides. REI-12 hours MOA-group 3

Insect	Insecticide and Formulation	Amount per 100 Gallons Water or as Specified	Comments
Commercial Ornamentals: Insect Control—Woody Ornamentals			
Caterpillars (Armyworms, Bagworms, Loopers, Tent Caterpillars, Webworms) (cont.)			
	diazinon formulations	See label.	DO NOT spray on ferns, hibiscus, or gardenias. Many insecticides containing diazinon are RESTRICTED USE pesticides. REI-12 hours MOA-group 1B
	diflubenzuron DIMILIN 25W	See label.	Dimilin is a RESTRICTED USE pesticide. REI-12 hours MOA-group 15
	fluvalinate MAVRIK 2F	2-5 oz.	REI-12 hours MOA-group 3
	horticultural oils, such as ULTRA-FINE OIL	See label.	See label for specific use conditions. DO NOT use on all evergreens. REI-4 hours MOA-group M
	lambda-cyhalothrin SCIMITAR CG and CS	1.5-5 fl.oz.	Lambda-cyhalothrin is a RESTRICTED USE pesticide. Scimitar CS is not registered for agricultural/nursery use. REI-24 hours MOA-group 3
	malathion Various formulations	See label.	REI-12 hours MOA-group 1B
	novaluron PEDESTAL	6-8 fl.oz.	For use in nurseries and greenhouses. REI-12 hours MOA-group 15
	permethrin Various formulations	---	All permethrin formulations for outdoor nursery use are RESTRICTED USE pesticides. REI-12 hours MOA-group 3
	phosmet IMIDAN 70W	12-16 oz.	For professional use only REI-1 to 13 days MOA-group 1B
	potassium salts of fatty acids (insecticidal soaps) M-PEDE Insecticidal soap	See label. 2 gal.	REI-12 hours MOA-group M
	spinosad CONSERVE SC	---	REI-4 hours MOA-group 5
	tebufenozide CONFIRM	4.2-16.7 fl.oz.	Use with appropriate spray adjuvant to improve deposition and weatherability. REI-4 hours MOA-group 18

Insect	Insecticide and Formulation	Amount per 100 Gallons Water or as Specified	Comments
Commercial Ornamentals: Insect Control—Woody Ornamentals			
Lace Bugs			
	acephate ORTHENE PRO 75	0.33 lb.	Treat when nymphs are present in early summer. Direct spray to leaf undersurfaces.
	ORTHENE TT&O	0.33 lb.	REI-24 hours
	ORTHENE TT&O SPRAY 97	0.25 lb.	MOA-group 1B
	acetamiprid TRISTAR	---	REI-24 hours MOA-group 4A
	bifenthrin TALSTAR S	0.8-4 oz./10 gal.	Talstar S is a RESTRICTED USE pesticide. Do not use Onyz in nurseries and greenhouses.
	ONYX Various formulations		REI-12 hours MOA-group 3
	carbaryl SEVIN SL	1 qt.	Carbaryl may damage Virginia and sand pines. REI-12 hours
	Various formulations		MOA-group 1A
	chlorpyrifos DURSBAN	See label.	Many chlorpyrifos formulations are RESTRICTED USE pesticides. See label rates for specific pests. REI-24 hours
	Various formulations		MOA-group 1B
	cyfluthrin DECATHLON 20WP	See label.	Tempo is not labeled for agriculture/nursery use. Tempo 20WSP for golf courses is a RESTRICTED USE pesticide.
	TEMPO Various formulations		REI-12 hours MOA-group 3
	cyfluthrin + imidacloprid DISCUS	---	See label for drench application rates and instructions. REI-12 hours MOA-group 3 and 4A
	deltamethrin DELTAGUARD GC 5SC	---	Deltaguard GC products are RESTRICTED USE pesticides. REI-12 hours
	DELTAGUARD T&O 5SC		MOA-group 3

Insect	Insecticide and Formulation	Amount per 100 Gallons Water or as Specified	Comments
Commercial Ornamentals: Insect Control—Woody Ornamentals			
Lace Bugs (cont.)			
	diazinon formulations	See label.	DO NOT spray on ferns, hibiscus, or gardenias. Many insecticides containing diazinon are RESTRICTED USE pesticides. REI-12 hours MOA-group 1B
	fenprothrin TAME 2.4EC	See label.	Tame is a RESTRICTED USE pesticide. REI-24 hours MOA-group 3
	horticultural oils, such as ULTRA-FINE OIL	See label.	See label for specific use conditions. DO NOT use on all evergreens REI-4 hours MOA-group M
	imidacloprid MARATHON 1% G MARATHON 60 WSP MARATHON II MERIT 75 WP or WSP See also DISCUS	Plants in containers: one application/crop cycle. Outdoor ornamentals grown in beds: 40 lb./A/yr.	See label for drench application rates and instructions. Marathon products are labeled for commercial nursery/greenhouse use. Merit is for landscape use, including interior plantscapes. REI-12 hours MOA-group 4A
	lambda-cyhalothrin SCIMITAR CG and CS	1.5-5 fl.oz.	Lambda-cyhalothrin is a RESTRICTED USE pesticide. Scimitar CS is not registered for agricultural/nursery use. REI-24 hours MOA-group 3
	malathion Various formulations	See label.	REI-12 hours MOA-group 1B
	permethrin Various formulations	---	All permethrin formulations for outdoor nursery use are RESTRICTED USE pesticides. REI-12 hours MOA-group 3
	potassium salts of fatty acids (insecticidal soaps) M-PEDE Insecticidal soap	See label. 2 gal.	REI-12 hours MOA-group M
	thiamethoxam FLAGSHIP	2-4 oz.	Flagship is a contact and systemic insecticide that moves in the leaf when sprayed or systemically throughout the plant when applied as a drench. With proper precautions, Flagship can be applied through chemigation systems. DO NOT exceed 8 ounces of chemical per acre per year or crop, whichever is shorter. REI-12 hours MOA-group 4A

Insect	Insecticide and Formulation	Amount per 100 Gallons Water or as Specified	Comments
Commercial Ornamentals: Insect Control—Woody Ornamentals			
Leaf Beetles (Elm Leaf Beetle, Flea Beetle, and Strawberry Rootworm)			
	acephate		
	ORTHENE PRO 75	1 lb.	REI-24 hours
	ORTHENE TT&O	1 lb.	MOA-group 1B
	ORTHENE TT&O SPRAY 97	0.75 lb.	
	acetamiprid		REI-24 hours
	TRISTAR	---	MOA-group 4A
	bifenthrin		Talstar S is a RESTRICTED USE pesticide.
	TALSTAR S	1.2-4 fl.oz./10 gal.	REI-12 hours MOA-group 3
	carbaryl		REI-12 hours
	SEVIN	See label.	MOA-group 1A
	Various formulations		
	chlorpyrifos		DO NOT use on azaleas, camellias, or roses.
	DURSBAN formulations	See label.	REI-12 hours MOA-group 1B
	cryolite		REI-12 hours
	KRYOCIDE	8-24 lb./A	MOA-group unknown
	cyfluthrin		Tempo is not labeled for agriculture/nursery use.
	DECATHLON 20WP	See label.	Tempo 20WSP for golf courses is a RESTRICTED USE pesticide.
	TEMPO		REI-12 hours
	Various formulations		MOA-group 3
	deltamethrin	---	Deltaguard GC products are RESTRICTED USE pesticides. Deltagard T&O is not labeled for agricultural use.
	DELTAGUARD GC 5SC		REI-12 hours
	DELTAGUARD T&O 5SC		MOA-group 3
	dimethoate		See plant use list on label. DO NOT use dimethoate on crapemyrtle or Burford or Chinese hollies. Do not mix with insecticidal oils. For outdoor nursery use only. Cannot be used in shade houses. Do not use on plants intended for use as propagation stock.
	CYGON 2E	See label.	REI-48 hours
	DIMETHOATE		MOA-group 1B
	Other formulations		
	horticultural oils, such as		Labeled for leaf beetle larvae. See label for specific use conditions. DO NOT use on all evergreens.
	ULTRA-FINE OIL	See label.	REI-4 hours
	OMNI OIL 6E		MOA-group M
	imidacloprid		See label for drench application rates and instructions. Marathon products are labeled for commercial nursery/greenhouse use. Merit is for landscape use, including interior plantscapes.
	MARATHON 1% G	Plants in containers: one application/crop cycle.	REI-12 hours
	MARATHON 60 WSP	Outdoor ornamentals	MOA-group 4A
	MARATHON II	grown in beds: 40	
	MERIT 75 WP or WSP	lb./A/yr.	
	See also DISCUS		

Insect	Insecticide and Formulation	Amount per 100 Gallons Water or as Specified	Comments
Commercial Ornamentals: Insect Control—Woody Ornamentals			
Leaf Beetles (Elm Leaf Beetle, Flea Beetle, and Strawberry Rootworm) (cont.)			
	permethrin Various formulations	---	All permethrin formulations for outdoor nursery use are RESTRICTED USE pesticides. REI-12 hours MOA-group 3
	phosmet IMIDAN 70W	12-16 oz.	For professional use only. Labeled for Elm leaf beetle larvae and Japanese beetles. REI-1 to 13 days MOA-group 1B
	spinosad CONSERVE SC	---	REI-4 hours MOA-group 5
Leafhoppers and Spittlebugs			
	acephate ORTHENE PRO 75 ORTHENE TT&O ORTHENE TT&O SPRAY 97	1 lb. 1 lb. 0.75 lb.	REI-24 hours MOA-group 1B
	acetamiprid TRISTAR	---	REI-24 hours MOA-group 4A
	azadirachtin AZATIN XL and XL PLUS ORNAZIN	---	Complete coverage important but avoid excessive runoff. Use fine spray Azatin REI-4 hours Ornazin REI-12 hours MOA-group unknown
	bifenthrin TALSTAR S ONYX Various formulations	0.8-4 oz./10 gal.	Talstar S is a RESTRICTED USE pesticide. Do not use Onyz in nurseries and greenhouses. REI-12 hours MOA-group 3
	buprofezin TALUS	12 oz.	REI-12 hours MOA-group 16
	carbaryl SEVIN SL Various formulations	1 qt.	Carbaryl may damage Virginia and sand pines. REI-12 hours MOA-group 1A
	chlorpyrifos DURSBAN formulations	See label.	Treat if adults are numerous and leaf discoloration or mottling occurs. DO NOT use chlorpyrifos on azaleas or camellias. Many chlorpyrifos formulations are RESTRICTED USE pesticides. REI-24 hours MOA-group 1B
	cyfluthrin DECATHLON 20WP TEMPO Various formulations	See label.	Tempo is not labeled for agriculture/nursery use. Tempo 20WSP for golf courses is a RESTRICTED USE pesticide. REI-12 hours MOA-group 3

Insect	Insecticide and Formulation	Amount per 100 Gallons Water or as Specified	Comments
Commercial Ornamentals: Insect Control—Woody Ornamentals			
Leafhoppers and Spittlebugs (cont.)			
	cyfluthrin + imidacloprid DISCUS	---	See label for drench application rates and instructions. REI-12 hours MOA-group 3 and 4A
	deltamethrin DELTAGUARD GC 5SC DELTAGUARD T&O 5SC	---	Deltaguard GC products are RESTRICTED USE pesticides. REI-12 hours MOA-group 3
	diazinon formulations	See label.	Many insecticides containing diazinon are RESTRICTED USE pesticides. DO NOT spray on ferns, hibiscus, or gardenias. REI-12 hours MOA-group 1B
	dimethoate CYGON 2E DIMETHOATE Other formulations	See label.	See plant use list on label. DO NOT use dimethoate on crapemyrtle or Burford or Chinese hollies. Do not mix with insecticidal oils. For outdoor nursery use only. Cannot be used in shade houses. Do not use on plants intended for use as propagation stock. REI-48 hours MOA-group 1B
	fenprothrin TAME 2.4EC	See label.	REI-24 hours MOA-group 3
	fluvalinate MAVRIK 2F	2-5 oz.	REI-12 hours MOA-group 3
	horticultural oils, such as ULTRA-FINE OIL OMNI OIL 6E	See label.	Labeled for leaf beetle larvae. See label for specific use conditions. DO NOT use on all evergreens. REI-4 hours MOA-group M
	imidacloprid MARATHON 1% G MARATHON 60 WSP MARATHON II MERIT 75 WP or WSP See also DISCUS	Plants in containers: one application/crop cycle. Outdoor ornamentals grown in beds: 40 lb./A/yr.	See label for drench application rates and instructions. Marathon products are labeled for commercial nursery/greenhouse use. Merit is for landscape use, including interior plantscapes. REI-12 hours MOA-group 4A
	lambda-cyhalothrin SCIMITAR CG and CS	1.5-5 fl.oz.	Lambda-cyhalothrin is a RESTRICTED USE pesticide. Scimitar CS is not registered for agricultural/nursery use. REI-24 hours MOA-group 3
	neem oil TRIACT 70	1-2 gal.	REI-4 hours MOA-group M
	permethrin Various formulations	---	All permethrin formulations for outdoor nursery use are RESTRICTED USE pesticides. REI-12 hours MOA-group 3

Insect	Insecticide And Formulation	Amount Per 100 Gallons Water Or As Specified	Comments
Commercial Ornamentals: Insect Control—Woody Ornamentals			
Leafhoppers and Spittlebugs (cont.)			
	phosmet IMIDAN 70W	12-16 oz.	For professional use only REI-1 to 13 days MOA-group 1B
	potassium salts of fatty acids (insecticidal soaps) M-PEDE Insecticidal soap	See label. 2 gal.	REI-12 hours MOA-group M
	thiamethoxam FLAGSHIP	4 oz.	Flagship is a contact and systemic insecticide that moves in the leaf when sprayed or systemically throughout the plant when applied as a drench. Flagship can be applied with proper precautions through chemigation systems. DO NOT exceed 8 ounces of product per acre per year or crop, whichever is shorter. REI-12 hours MOA-group 4A
Leafminers			
	abamectin AVID 0.15EC FLORA-MEK 0.15EC	8 fl.oz.	See label for specific use directions. REI-12 hours MOA-group 6
	acephate ORTHENE TT&O	0.33-0.66 lb.	REI-24 hours MOA-group 1B
	acetamiprid TRISTAR	---	REI-24 hours MOA-group 4A
	azadirachtin AZATIN XL and XL PLUS ORNAZIN	---	Complete coverage important but avoid excessive runoff. Use fine spray. Azatin REI-4 hours Ornazin REI-12 hours MOA-group unknown
	bifenthrin TALSTAR S ONYX Various formulations	0.8-4 oz./10 gal.	Talstar S is a RESTRICTED USE pesticide. Do not use Onyz in nurseries and greenhouses. REI-12 hours MOA-group 3
	carbaryl SEVIN SL Various formulations	1 qt.	Carbaryl may damage Virginia and sand pines. REI-12 hours MOA-group 1A
	chlorpyrifos DURSBAN 50W	2 lb.	DO NOT use Dursban on azaleas, camellias, or roses. Dursban 50W is a RESTRICTED USE pesticide. REI-24 hours MOA-group 1B
	cyfluthrin + imidacloprid DISCUS	---	See label for application rates and instructions. REI-12 hours MOA-group 3 and 4A

Insect	Insecticide and Formulation	Amount per 100 Gallons Water or as Specified	Comments
Commercial Ornamentals: Insect Control—Woody Ornamentals			
Leafminers (cont.)			
	cyromazine CITATION	2.66 oz.	Labeled for dipterous leafminers only. REI-12 hours MOA-group 17
	deltamethrin DELTAGUARD GC 5SC DELTAGUARD T&O 5SC	---	Deltaguard GC products are RESTRICTED USE pesticides. REI-12 hours MOA-group 3
	diazinon Various formulations	See label.	Many insecticides containing diazinon are RESTRICTED USE pesticides. DO NOT spray on ferns, hibiscus, or gardenias. REI-12 hours MOA-group 1B
	diflubenzuron DIMILIN 25W	See label.	Dimilin is a RESTRICTED USE pesticide. Labeled for lepidopterous leafminers ONLY . REI-12 hours MOA-group 15
	dimethoate CYGON 2E DIMETHOATE Various formulations	1.5 pt.	See plant use list on label. DO NOT use on crapemyrtle, Burford or Chinese hollies. Do not mix with insecticidal oils. For outdoor nursery use only. Cannot be used in shade houses. Do not use on plants intended for use as propagation stock. REI-48 hours MOA-group 1B
	dinotefuran SAFARI	Spray: 4-8 oz. Drench: 12-24 oz.	REI-12 hours MOA-group 4A
	imidacloprid MARATHON 1% G MARATHON 60 WSP MARATHON II MERIT 75 WP or WSP See also DISCUS	Plants in containers: one application/crop cycle. Outdoor ornamentals grown in beds: 40 lb./A/yr.	See label for drench application rates and instructions. Marathon products are labeled for commercial nursery/greenhouse use. Merit is for landscape use, including interior plantscapes. REI-12 hours MOA-group 4A
	lambda-cyhalothrin SCIMITAR CG and CS	1.5-5 fl.oz.	Lambda-cyhalothrin is a RESTRICTED USE pesticide. Scimitar CS is not registered for agricultural/nursery use. Labeled for use as an adulticide. REI-24 hours MOA-group 3
	novaluron PEDESTAL	6-8 fl.oz.	For population suppression ONLY . Observe resistance management restrictions. REI-12 hours MOA-group 15
	permethrin Various formulations	---	All permethrin formulations for outdoor nursery use are RESTRICTED USE pesticides. REI-12 hours MOA-group 3

Insect	Insecticide and Formulation	Amount per 100 Gallons Water or as Specified	Comments
Commercial Ornamentals: Insect Control—Woody Ornamentals			
Leafminers (cont.)			
	phosmet IMIDAN 70W	12-16 oz.	For professional use only. Labeled for birch and magnolia leafminers. REI-1 to 13 days MOA-group 1B
	potassium salts of fatty acids (insecticidal soaps) M-PEDE Insecticidal soap	See label. 2 gal.	REI-12 hours MOA-group M
	pyriproxyfen DISTANCE IGR	8-12 fl.oz.	Labeled for spotted tentiform leafminer ONLY . REI-12 hours MOA-group 7C
	spinosad CONSERVE SC	---	Conserve is labeled for dipterous leafminers ONLY . Adding a non-ionic spray adjuvant has been shown to increase efficacy. REI-4 hours MOA-group 5
	trichlorfon DYLOX 80	20-30 oz.	For landscape use only. Labeled for dipterous leafminers. MOA-group 1B
Mites			
	abamectin AVID 0.15EC FLORA-MEK 0.15EC	4 fl.oz.	Label includes two-spotted spidermites, southern red mites, cyclamen and broad mites, and rust and bud mites among others. REI-12 hours MOA-group 6
	acequinocyl SHUTTLE	6.4-12.8 fl.oz.	Label includes spruce spidermites and two-spotted spidermites. DO NOT mix with pesticides containing the active ingredient fosetyl (e.g., Aliette). REI-12 hours MOA-group 20B
	bifenazate FLORAMITE	2-4 oz.	Label includes two-spotted spidermites, southern red mites, and Lewis mites among others. REI-12 hours MOA-group unknown
	bifenthrin TALSTAR S	See label.	Talstar S is a RESTRICTED USE pesticide. REI-12 hours MOA-group 3
	chlorpyrifos DURSBAN formulations	See label.	DO NOT use chlorpyrifos on azaleas, camellias, or roses. Many chlorpyrifos formulations are RESTRICTED USE pesticides. REI-24 hours MOA-group 1B

Insect	Insecticide and Formulation	Amount per 100 Gallons Water or as Specified	Comments
Commercial Ornamentals: Insect Control—Woody Ornamentals			
Mites (cont.)			
	clofentezine OVATION	---	Label includes two-spotted spidermites, European red mites, Pacific spidermites, yellow spidermites, McDaniel spidermites. REI-12 hours MOA-group 10A
	dicofol KELTHANE 35WP KELTHANE 50WSP	1-1.33 lb.	Applicators must be in enclosed cabs or cockpits. Not to be used in residential areas. Label includes two-spotted spidermites, cyclamen mites, and broad mites among others. REI-12 hours MOA-group unknown
	etoxazole TETRASAN 5WDG	8-16 oz.	Labeled for control of spidermites, including citrus red mites, European red mites, Lewis spidermites, Pacific spidermites, southern red mites, spruce spider mite, two-spotted spidermites. REI-12 hours MOA-group 10B
	fenbutatin-oxide PROMITE	---	Promite is a RESTRICTED USE pesticide. Handlers must be checked every 2 hours when using this product. Label includes spruce spidermites, <i>oligonychus</i> spp. (e.g., southern red mites), and two-spotted spidermites. REI-48 hours MOA-group 12
	hexyiathox HEXYGON	---	Hexygon kills eggs and immature mites. The eggs produced by adult female mites that come into contact with treated surfaces will be inviable. Label includes two-spotted spidermites and southern red mites among others. REI-12 hours MOA-group 10A

Insect	Insecticide and Formulation	Amount per 100 Gallons Water or as Specified	Comments
Commercial Ornamentals: Insect Control—Woody Ornamentals			
Mites (cont.)			
	horticultural oil, such as ULTRA-FINE OIL	2-3 gal.	See label. REI-4 hours MOA-group M
	methiocarb MESUROL 75W	---	Mesuro 75W is a RESTRICTED USE pesticide. Performance may be reduced when the spray solution has a pH greater than 7. Handlers must be checked every 2 hours when using this product. REI-24 hours MOA-group 1A
	milbemectin ULTIFLORA	8-16 oz.	Ultiflora is a RESTRICTED USE pesticide. Labeled for spidermites and red mites. Maximum rate of application is 128 fluid ounces of Ultiflora per acre per year REI-12 hours MOA-group 6
	potassium salts of fatty acids (insecticidal soaps) M-PEDE INSECTICIDAL SOAP	See label. 2 gal.	REI-12 hours MOA-group M
	pyridaben SANMITE	---	Label includes broad mites, southern red mites, and two-spotted spidermites among others. REI-12 hours MOA-group 21A
	spinosad CONSERVE SC	---	Control of spidermites in certain research trials has been variable. Adding a non-ionic spray adjuvant has shown increased efficacy. REI-4 hours MOA-group 5
	spiromesifen JUDO	2-4 fl.oz.	Label includes two-spotted spidermites, southern red mites, Lewis mites, spruce spidermites, cyclamen mites, and broad mites among others. REI-12 hours MOA-group 23

Insect	Insecticide and Formulation	Amount per 100 Gallons Water or as Specified	Comments
Commercial Ornamentals: Insect Control—Woody Ornamentals			
Scale Insects			
	acephate ORTHENE PRO 75 ORTHENE TT&O ORTHENE TT&O SPRAY 97	0.66-1 lb. 0.66-1 lb. 0.5 lb.	Have scale identified in order to treat during crawler stage. REI-24 hours MOA-group 1B
	azadirachtin AZATIN XL and XL PLUS ORNAZIN	---	Complete coverage important but avoid excessive runoff. Use fine spray. Azatin REI-4 hours Ornazin REI-12 hours MOA-group unknown
	bifenthrin TALSTAR S ONYX Various formulations	0.8-4 oz./10 gal.	Talstar S is a RESTRICTED USE pesticide. Do not use Onyz in nurseries and greenhouses. REI-12 hours MOA-group 3
	buprofezin TALUS	14 oz.	REI-12 hours MOA-group 16
	calcium polysulfide Lime Sulfur	12-12.5 gal.	Lime sulfur is a dormant spray.
	carbaryl SEVIN 50 WP Various formulations	2 lb.	Apply only to those plants listed on the label. Apply during crawler stage. Repeat application in 10 to 14 days. MOA-group 1A
	chlorpyrifos DURSBAN Various formulations	See label.	DO NOT use chlorpyrifos on azaleas, camellias, or roses. Many chlorpyrifos formulations are RESTRICTED USE pesticides. REI-24 hours MOA-group 1B
	cyfluthrin DECATHLON 20WP TEMPO Various formulations	See label.	Tempo is not labeled for agriculture/nursery use. Tempo 20WSP for golf courses is a RESTRICTED USE pesticide. REI-12 hours MOA-group 3
	cyfluthrin + imidacloprid DISCUS	---	See label for application rates and instructions. REI-12 hours MOA-group 3 and 4A
	deltamethrin (Crawler stage) DELTAGARD GC 5SC DELTAGARD T&O 5SC	4-8 fl.oz.	Deltagard GC 5SC is a RESTRICTED USE pesticide. REI-12 hours MOA-group 3
	diazinon Various formulations	See label.	Many insecticides containing diazinon are RESTRICTED USE pesticides. DO NOT spray diazinon on ferns, hibiscus, or gardenias. REI-12 hours MOA-group 1B
	dimethoate CYGON 2E DIMETHOATE Other formulations	See label.	Apply only to those plants listed on the label. DO NOT use on crapemyrtle or Burford or Chinese hollies. Do not mix with insecticidal oils. For outdoor nursery use only. Cannot be used in shade houses. Do not use on plants intended for use as propagation stock. REI-48 hours MOA-group 1B

Insect	Insecticide and Formulation	Amount per 100 Gallons Water or as Specified	Comments
Commercial Ornamentals: Insect Control—Woody Ornamentals			
Scale Insects (cont.)			
	dinotefuran SAFARI	Spray: 4-8 oz. Drench: 12-24 oz.	REI-12 hours MOA-group 4A
	horticultural oil, such as SUNSPRAY ULTRA-FINE OIL	See label.	Use as a dormant spray before budbreak or during growing season as specified on label. REI-4 hours MOA-group M
	imidacloprid MARATHON 1G MARATHON 60 WSP MARATHON II MERIT 75 WP or WSP	See label.	Marathon products are labeled for commercial nursery/greenhouse use. Merit is for landscape use, including interior landscapes. REI-12 hours MOA-group 4A
	lambda-cyhalothrin SCIMITAR CG and CS	1.5-5 fl.oz.	Lambda-cyhalothrin is a RESTRICTED USE pesticide. Scimitar CS is not registered for agricultural/nursery use. REI-24 hours MOA-group 3
	malathion Various formulations	See label.	REI-12 hours MOA-group 1B
	methidathion SUPRACIDE 25W	2 lbs.	Supracide 25W is a RESTRICTED USE pesticide. REI-2 to 14 days MOA-group 1B
	neem oil TRIACT 70	1-2 gal.	REI-4 hours MOA-group M
	pyriproxyfen DISTANCE IGR	8-12 fl.oz.	REI-12 hours MOA-group 7C
	soap M-PEDE 49 EC	4-8 qt.	REI-12 hours MOA-group M
	thiamethoxam FLAGSHIP	2-4 oz.	Flagship is a contact and systemic insecticide that moves in the leaf when sprayed or systemically throughout the plant when applied as a drench. Flagship can be applied with proper precautions through chemigation systems. DO NOT exceed 8 ounces of product per acre per year or crop, whichever is shorter. REI-12 hours MOA-group 4A

Insect	Insecticide and Formulation	Amount per 100 Gallons Water or as Specified	Comments
Commercial Ornamentals: Insect Control—Woody Ornamentals			
Slugs and Snails			
	iron phosphate SLUGGO-AG	24-44 lb./A	REI-0 hours
	metaldehyde DEADLINE Various bait formulations	---	REI-12 hours
	methiocarb MESUROL 75W	---	Mesuro 75W is a RESTRICTED USE pesticide. Performance may be reduced when the spray solution has a pH greater than 7. Handlers must be checked every 2 hours when using this product. REI-24 hours MOA-group 1A
	phosmet IMIDAN 70W	12-16 oz.	For professional use only REI-1 to 13 days MOA-group 1B
Thrips			
	abamectin AVID 0.15EC FLORA-MEK 0.15EC	8 fl.oz.	For suppression of pest populations. REI-12 hours MOA-group 6
	acephate ORTHENE PRO 75 ORTHENE TT&O ORTHENE TT&O SPRAY 97	0.66 lb. 0.66 lb. 0.5-1 lb.	Check labels for specific use information. REI-24 hours MOA-group 1B
	acetamiprid TRISTAR	---	REI-24 hours MOA-group 4A
	azadirachtin AZATIN XL and XL PLUS ORNAZIN	---	Complete coverage important but avoid excessive runoff. Use fine spray Azatin REI-4 hours Ornazin REI-12 hours MOA-group unknown
	<i>Beauveria bassiana</i> BOTANIGARD BOTANIGARD WP	---	Wait 48 hours before applying fungicides. REI-4 hours MOA-group M

Insect	Insecticide and Formulation	Amount per 100 Gallons Water or as Specified	Comments
Commercial Ornamentals: Insect Control—Woody Ornamentals			
Thrips (cont.)			
	bifenthrin TALSTAR S ONYX Various formulations	8-40 oz.	Talstar S is a RESTRICTED USE pesticide. Do not use Onyz in nurseries and greenhouses. REI-12 hours MOA-group 3
	carbaryl SEVIN 50 WP Various formulations	2 lb.	Apply only to those plants listed on the label. Apply when crawler stage is present. Repeat application in 10-14 days. MOA-group 1A
	chlorpyrifos DURSBAN Various formulations	See label.	DO NOT use chlorpyrifos on azaleas, camellias, or roses. Many chlorpyrifos formulations are RESTRICTED USE pesticides. REI-24 hours MOA-group 1B
	cyfluthrin DECATHLON 20WP TEMPO Various formulations	1.9 oz. 1.2 oz.	Tempo is not labeled for agriculture/nursery use. Tempo 20WSP for golf courses is a RESTRICTED USE pesticide. REI-12 hours MOA-group 3
	cyfluthrin + imidacloprid DISCUS	---	See label for application rates and instructions. REI-12 hours MOA-group 3 and 4A
	diazinon Various formulations	See label.	Many insecticides containing diazinon are RESTRICTED USE pesticides. DO NOT spray on ferns, hibiscus, or gardenias. REI-12 hours MOA-group 1B
	dinotefuran SAFARI	Spray: 4-8 oz. Drench: 12-24 oz.	REI-12 hours MOA-group 4A
	flonicamid ARIA	---	Some pansy cultivars may be sensitive. Aria is labeled for use only in greenhouses and interiorscapes. Only suppresses thrips in flowers. REI-12 hours MOA-group 9B
	horticultural oils, such as SUNSPRAY ULTRA-FINE OIL	See label.	Use as a dormant spray before budbreak or during growing season as specified by labels. REI-4 hours MOA-group M
	imidacloprid MARATHON 1% G MARATHON 60 WSP MARATHON II MERIT 75 WP or WSP	See label.	Marathon products are labeled for commercial nursery/greenhouse use. Merit is for landscape use, including interior landscapes. REI-12 hours MOA-group 4A
	lambda-cyhalothrin SCIMITAR CG and CS	1.5-5 fl.oz.	Lambda-cyhalothrin is a RESTRICTED USE pesticide. Scimitar CS is not registered for agricultural/nursery use. REI-24 hours MOA-group 3

Insect	Insecticide and Formulation	Amount per 100 Gallons Water or as Specified	Comments
Commercial Ornamentals: Insect Control—Woody Ornamentals			
Thrips (cont.)			
	methiocarb MESUROL 75W	---	Mesurool 75W is a RESTRICTED USE pesticide. Performance may be reduced when the spray solution has a pH greater than 7. Handlers must be checked every 2 hours when using this product. REI-24 hours MOA-group 1A
	novaluron PEDESTAL	6-8 fl.oz.	Resistance management restrictions. REI-12 hours MOA-group 15
	permethrin Various formulations	---	All permethrin formulations for outdoor nursery use are RESTRICTED USE pesticides. REI-12 hours MOA-group 3
	potassium salts of fatty acids (insecticidal soaps) M-PEDE INSECTICIDAL SOAP	See label. 2 gal.	REI-12 hours MOA-group M
	spinosad CONSERVE SC	---	REI-4 hours MOA-group 5
Whiteflies			
	abamectin AVID 0.15EC FLORA-MEK 0.15EC	8 fl.oz.	For suppression of pest populations. REI-12 hours MOA-group 6
	acetamiprid TRISTAR	---	REI-24 hours MOA-group 4A
	azadirachtin AZATIN XL ORNAZIN	10-18 oz.	Complete coverage is important but avoid excessive runoff. Use fine spray. Azatin REI-4 hours Ornazin REI-12 hours MOA-group unknown
	<i>Beauveria bassiana</i> BOTANIGARD BOTANIGARD WP	---	Wait 48 hours before applying fungicides. REI-4 hours MOA-group M
	bifenthrin TALSTAR S	0.6-1.6 oz./10 gal.	Talstar S is a RESTRICTED USE pesticide. REI-12 hours MOA-group 3
	buprofezin TALUS	6 oz.	REI-12 hours MOA-group 16
	carbaryl SEVIN 50 WP Various formulations	2 lb.	Apply only to those plants listed on the label. Apply when crawler stage is present. Repeat application in 10 to 14 days. MOA-group 1A
	chlorpyrifos DURSBAN Various formulations	See label.	Many chlorpyrifos formulations are RESTRICTED USE pesticides. MOA-group 1B

Insect	Insecticide and Formulation	Amount per 100 Gallons Water or as Specified	Comments
Commercial Ornamentals: Insect Control—Woody Ornamentals			
Whiteflies (cont.)			
	clothianidin ARENA	Spray: 2-4 oz. See label for drench rates.	REI-12 hours MOA-group 4A
	cyfluthrin DECATHLON 20WP TEMPO Various formulations	See label.	Tempo is not labeled for agriculture/nursery use. Tempo 20WSP for golf courses is a RESTRICTED USE pesticide. REI-12 hours MOA-group 3
	cyfluthrin + imidacloprid DISCUS	---	See label for application rates and instructions. REI-12 hours MOA-group 3 and 4A
	diazinon DIAZINON 4E Various formulations	1 pt.	Many insecticides containing diazinon are RESTRICTED USE pesticides. DO NOT spray diazinon on ferns, hibiscus, or gardenia. REI-12 hours MOA-group 1B
	diflubenzuron DIMILIN 25W	See label.	Dimilin is a RESTRICTED USE pesticide. REI-12 hours MOA-group 15
	dimethoate 5 LB DIMETHOATE DIMETHOATE 4E Other formulations	See label.	See plant use list on label. DO NOT use dimethoate on crapemyrtle or Burford or Chinese hollies. Do not mix with insecticidal oils. For outdoor nursery use only. Cannot be used in shade houses. Do not use on plants intended for use as propagation stock. REI-48 hours MOA-group 1B
	dinotefuran SAFARI	Spray: 4-8 oz. Drench: 12-24 oz.	REI-12 hours MOA-group 4A
	fenpropathrin TAME 2.4EC	5.33-10.67 oz.	Tame is a RESTRICTED USE pesticide. REI-24 hours MOA-group 3
	flonicamid ARIA	---	Some pansy cultivars may be sensitive. Labeled for use only in greenhouses and interiorscapes. Suppression of silverleaf whiteflies. REI-12 hours MOA-group 9B
	fluvalinate MAVRIK	2-10 fl.oz.	REI-12 hours MOA-group 3
	horticultural oil, such as SUNSPRAY ULTRA-FINE OIL	2-3 gal.	See label for use instructions for control of immature whiteflies. REI-4 hours MOA-group M
	imidacloprid MARATHON 1% G MARATHON 60 WSP MARATHON II MERIT 75 WP or WSP	Plants in containers: one application per crop cycle. Outdoor ornamentals grown in beds: 40 lb./A/year	Plants must be actively growing at application; do not overwater following application. Marathon products are labeled for commercial nursery/greenhouse use. Merit is for landscape use, including interior plantscapes. REI-12 hours MOA-group 4A

Insect	Insecticide and Formulation	Amount per 100 Gallons Water or as Specified	Comments
Commercial Ornamentals: Insect Control—Woody Ornamentals			
Whiteflies (cont.)			
	insecticidal soaps	---	See label for use instructions. REI-12 hours MOA-group M
	lambda-cyhalothrin SCIMITAR CG and CS	1.5-5 fl.oz.	Lambda-cyhalothrin is a RESTRICTED USE pesticide. Scimitar CS is not registered for agricultural/nursery use. REI-24 hours MOA-group 3
	malathion Various formulations	See label.	REI-12 hours MOA-group 1B
	neem oil TRIACT 70	1-2 gal.	REI-4 hours MOA-group M
	novaluron PEDESTAL	6-8 fl.oz.	Resistance management restrictions. REI-12 hours MOA-group 15
	permethrin Various formulations	---	All permethrin formulations for outdoor nursery use are RESTRICTED USE pesticides. REI-12 hours MOA-group 3
	pymetrozine ENDEAVOR	---	REI-12 hours MOA-group 9A
	pyrethrins PYRENONE	2-12 fl.oz.	REI-12 hours MOA-group 3
	pyriproxyfen DISTANCE IGR	8-12 fl.oz.	REI-12 hours MOA-group 7C
	spiromesifen JUDO	2-4 fl.oz.	REI-12 hours MOA-group 23
	thiamethoxam FLAGSHIP	2-4 oz. Chemigation or Drench: 8 oz./A	Flagship is a contact and systemic insecticide that moves in the leaf when sprayed or systemically throughout the plant when applied as a drench. With proper precautions, it can be applied through chemigation systems. DO NOT exceed 8 ounces of Flagship per acre per year or crop, whichever is shorter. REI-12 hours MOA-group 4A

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For more information, contact your county Extension office. Visit <http://www.aces.edu/counties> or look in your telephone directory under your county's name to find contact information.

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.

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