

TREES

FOREST TREE INSECT CONTROL

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TREE	INSECT	INSECTICIDE AND FORMULATION	AMOUNT PER 100 GALLONS ¹	COMMENTS
Any	Aphids	acephate (Orthene TTO 97 ²)	1/4 lb. (4 oz) per 100 gallons	Orthene can damage red maples during periods of rapid growth. Use according to label directions
		imidacloprid (Merit 75WSP)	Soil Drench or Soil Injection: 1-2 oz per 30 cumulative inches of trunk diameter (D.B.H.)	See label for application instructions
Any	Bagworm	acephate (Orthene TTO 97 ²)	1/4 lb. (4 oz) per 100 gallons	Orthene can damage red maples during periods of rapid growth
		Bacillus thuringiensis (Dipel, Thuricide, Biotrol, Bactur, etc.)	Use according to label directions	Treat when bagworms are small and repeat in 10 days if necessary
		carbaryl (Sevin SL)	1 quart per acre or per 100 gallons	Various other carbaryl formulations are available, follow label directions
		tebufenozide (Con firm 2F)	4 - 8 oz (0.06 - 0.12 lbs AI) per acre	Apply to early instar larvae. Uniform coverage is essential. Do not apply more than 16 fl oz per year per acre. Follow label directions.
Any	Borers	There are currently no labeled chemicals that provide effective control.		
Any	Caterpillars (various)	acephate (Orthene TTO 97 ²)	1/2 lb. (8 oz) per 100 gallons	Apply according to label directions
		Bacillus thuringiensis (Dipel, Thuricide, Biotrol, Bactur, etc.)	Use according to label directions	Eastern tent caterpillars & webworms: Treat when small webs are noticed. Webs can often be removed by hand and caterpillars destroyed.
		carbaryl (Sevin SL)	1 quart per acre or per 100 gallons	Various other carbaryl formulations are available, follow label directions.
		diflubenzuron (Dimilin 4L)	1 - 2 oz per acre	Certain target pests and restrictions apply. See label for directions and limitations.
		Pyrethrins (Pyrenone, Pyrellin)	Use according to label directions	
		tebufenozide (Con firm 2F)	4 - 8 oz (0.06 - 0.12 lbs AI) per acre	Apply to early instar larvae. Uniform coverage is essential. Do not apply more than 16 fl oz per year per acre. Follow label directions
Any	Foliar feeding beetles	acephate (Orthene TTO 97 ²)	1 lb. (16 oz) per 100 gallons	Apply as beetles or larvae first begin to appear.
		carbaryl (Sevin SL)	1 quart per acre or per 100 gallons	Various other carbaryl formulations are available, follow label directions.
Any	Lace bugs	acephate (Orthene TTO 97 ²)	1/4 lb. (4 oz) per 100 gallons	Apply according to label directions as the insects begin to appear.
		carbaryl (Sevin SL)	1 quart per acre or per 100 gallons	Various other carbaryl formulations are available, follow label directions.
		imidacloprid (Merit 75WSP)	Soil Drench or Soil Injection: 1-2 oz per 30 cumulative inches of trunk diameter (D.B.H.)	See label for application instructions
		Pyrethrins (Pyrenone, Pyrellin)	Use according to label directions	

FOREST TREE INSECT CONTROL (continued)

TREE	INSECT	INSECTICIDE AND FORMULATION	AMOUNT PER 100 GALLONS ¹	COMMENTS
Any	Scales	acephate (Orthene TTO 97 ²)	1/2 lb. (8 oz) per 100 gallons	Apply as crawlers begin to appear. Repeat applications at 2 week interval may be necessary. Follow label directions.
		carbaryl (Sevin SL)	1 quart per acre or per 100 gallons	Various other carbaryl formulations are available, follow label directions.
		Superior Oil 70 sec.	1 - 2 gal.	Oils are used in both dormant season and a s horticultural oils during the growing season. Some trees are susceptible to oil injury. Follow label direction on rates and application cautions. Use other insecticides when crawlers are active.
Boxelder	Boxelder bug	acephate (Orthene TTO 97 ²)	3/4 lb. (12 oz) per 100 gallons	Apply according to label directions as the insects begin to appear.
		carbaryl (Sevin SL)	1 quart per acre or per 100 gallons	Various other carbaryl formulations are available, follow label directions.
		Pyrethrins (Pyrenone, Pyrellin)	Use according to label directions	
Elm	Elm bark beetle	Prevent - keep trees growing vigorously. Remove broken branches and weak trees which serve as breeding sites. No effective chemical controls are available.		
Hemlock	Hemlock woolly adelgid and Elongate Hemlock scale <i>Florina externa</i>	dinotefuran (Safari 20 SG)	Soil Drench or Soil Injection or Trunk Spray: 1.05 - 4.2 oz per 10 inches diameter at breast height (dbh). For multi-stem trunks, base rate on cumulative diameter at breast height.	FIFRA Section 24(c) Special Local Need Label. For optimal results, apply when hemlocks are actively taking up water from soil. Do not apply to frozen or saturated soil. In actively transpiring trees, control may begin within as little as 2-3 weeks after a soil drench, soil injection or trunk spray. Soil Injection: Space injection holes evenly around trunk within 2 feet of trunk. Make at least 4 injections per tree. Apply to root zone in top 1-4 inches of soil. For low volume injectors (e.g. Kioritz), apply 1-2 fl oz of solution per in dbh. Soil Drench: Apply to soil within 2 feet of trunk in sufficient water to adequately moisten root zone. Rake back any heavy organic matter prior to application. Trunk Spray: Evenly spray trunk and root flare between 0 and 4.5 feet above soil line. Apply 2-3 fl oz spray solution per inches dbh, or just to the point of runoff. Combination with a surfactant may improve penetration on large trees with thick bark. USE RESTRICTIONS AND PRECAUTIONS: Do not apply more than 2.7 lb of Safari 20 SG (=0.54 lb ai) per acre per year. One (1) level teaspoon contains 2.4 grams and one cup (8 fl oz) contains 4.0 oz Safari 20 SG.
		imidacloprid (Merit 75WSP)	Soil Drench or Soil Injection: 1-2 oz per 30 cumulative inches of trunk diameter (D.B.H.)	
Hickory	Foliar feeding beetles	Cut and remove infested trees during dormancy. No effective chemical controls are available.		
	Twig girdler	Keep trees vigorous and free of injury. Good sanitation is the key to management of pine bark beetles. See www.barkbeetles.org/pbb/pbbpub.html .		
Pine	Black turpentine beetle	Keep trees vigorous and free of injury. Good sanitation is the key to management of pine bark beetles. See www.barkbeetles.org/pbb/pbbpub.html .		
		bifenthrin (Onyx)	1.0 to 2.0 pints (0.25 to 0.5 lbs AI) per 100 gallons	For use on ornamental trees and application only by pest control operators or commercial applicators. Make applications of the spray mixture in water with a hydraulic sprayer to the trunk of the tree in the spring of the year or when a threat of infestation is evident from nearby infested trees. Apply spray directly to the main trunk from the base of the tree to at least half way into the live crown. Spray until the bark is thoroughly wetted (usually 1-4 gallons of spray per tree). Repeat application may be necessary; do not apply more than 0.2 lbs of AI of this product per acre. Follow label directions.

FOREST TREE INSECT CONTROL (continued)

TREE	INSECT	INSECTICIDE AND FORMULATION	AMOUNT PER 100 GALLONS ¹	COMMENTS
Pine	Ips engraver beetles and Southern pine beetle	Keep trees vigorous and free of injury. Good sanitation is the key to management of pine bark beetles. See www.barkbeetles.org/pbb/pbbpub.html .		
		bifenthrin (Onyx)	1.0 to 2.0 pints (0.25 to 0.5 lbs AI) per 100 gallons	For use on ornamental trees and application only by pest control operators or commercial applicators. Make applications of the spray mixture in water with a hydraulic sprayer to the trunk of the tree in the spring of the year or when a threat of infestation is evident from nearby infested trees. Apply spray directly to the main trunk from the base of the tree to at least half way into the live crown. Spray until the bark is thoroughly wetted (usually 1-4 gallons of spray per tree). Repeat application may be necessary; do not apply more than 0.2 lbs of AI of this product per acre. Follow label directions.
Pine	Nantucket pine tip moth and other tip moths	acephate (Orthene TTO2)	3/4 lb (12 oz) per 100 gallons	Timing of application is important . Consult your local farm advisor or county extension agent. Repeat applications will be required for subsequent generations.
		carbaryl (Sevin SL)	1 quart per acre or per 100 gallons	Various other carbaryl formulations are available, follow label directions.
		diflubenzuron (Dimilin 4L)	6.4 - 12 oz per acre	Certain target pests and restrictions apply. See label for directions and limitations.
		esfenvalerate (Asana XL 0.66 EC)	5.8 - 9.6 oz (0.03 - 0.05 AI) per 100 gallons	Treat in early spring when growth starts and repeat monthly as needed. Controls are usually not justified on trees grown for lumber. Asana XL registered only for conifer seed orchards and forest tree nurseries.
		lambda-cyhalothrin (Karate with Zeon Technology or Warrior with Zeon Technology)	1.28 - 2.56 oz (0.02 - 0.04 AI) per acre	Do not apply more than 7.68 fl oz per acre per season.
		permethrin (Pounce 25 WP)	6.4 - 12.8 oz (0.1 - 0.2 AI) per acre	Begin application when the adults appear and repeat at 5 to 7 day intervals or as needed throughout the season.
		tebufenozide (Con firm 2F)	0.12 lbs AI (8 oz) per acre	Apply to early instar larvae after new foliage flush at approximately 25% shoot expansion. Uniform coverage is essential. Do not apply more than 16 fl oz per year per acre. Follow label directions.
Pine	sawflies	diflubenzuron (Dimilin 4L)	2 - 4 oz per acre	Certain target pests and restrictions apply. See label for directions and limitations.
		esfenvalerate (Asana XL 0.66 EC)	5.8 - 9.6 oz (0.03 - 0.05 AI) per 100 gallons	
		imidacloprid (Merit 75WSP)	Soil Drench or Soil Injection: 1-2 oz per 30 cumulative inches of trunk diameter (D.B.H.)	For use only in and around industrial and commercial buildings, and residential areas and state, national, and private wooded and forested areas. See label for application instructions
		lambda-cyhalothrin (Karate with Zeon Technology or Warrior with Zeon Technology)	1.28 - 2.56 oz (0.02 - 0.04 AI) per acre	Do not apply more than 7.68 fl oz per acre per season.
Pine	Pine weevils	permethrin (Pounce 25 WP)	5.8 - 9.6 fl oz (0.03 - 0.05 AI) per 100 gal	Spray in sufficient gallonage to obtain good coverage of entire tree.
		phosmet (Imidan)	2 1/2 lbs per 5 gallons water (4 % sol.)	Use as a top dip for seedlings prior to transplanting into the field. The use of an extender is highly recommended. Five (5) gal. solution should treat approximately 10,000 trees.

¹ Always check and follow label directions and restrictions before applying any insecticide.

² Orthene 75 Turf, Tree and Ornamental