

# Nursery FACTSHEET



Ministry of  
Agriculture

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## Pesticides Registered for use in Nurseries

The pesticides listed in this section are registered to control pests of ornamental nursery crops. Please refer to the Berry, Tree Fruit, and Vegetable Production Guides for pesticide recommendations for bearing fruit crops and other edible crops.

The pesticides are listed in alphabetical order by active ingredient. It is not the purpose of this guide to list all formulations. The applicator must select the correct formulation for the crop and pest to be managed. **Note:** all formulations listed may not be available from local suppliers.

Efforts were made to ensure the pesticide tables are correct, however always refer to the label since it is the primary source for information on safety, rates and application methods.

☠ is used to indicate products that are very toxic and need to be used with greater caution.

### 1) Pesticides Registered to Manage Bacterial Diseases

Active Ingredient	Trade Name	Group <sup>1</sup>	REI <sup>2</sup> (hrs)	Uses
<b>Bacterial Blight / Canker</b>				
<i>Bacillus subtilis</i>	Rhapsody ASO	-	-	<i>Aglaonema, Delphinium</i> , geranium grown in greenhouses and outdoor nurseries (suppression)
copper octanoate	Cueva	M1	4	greenhouse and outdoor ornamentals
copper oxychloride	Copper Spray	M	48	<i>Corylus, Forsythia, Juglans, Prunus, Rosa, Syringa</i>
kasugamycin	Kasumin	24	12	<i>Juglans, Prunus</i> (cherry)
<b>Crown Gall</b>				
<i>Agrobacterium radiobacter</i>	Dygal	-	-	preventive dip for susceptible woody plants
<b>Fire Blight</b>				
<i>Aureobasidium pullulans</i>	Blossom Protect	-	-	woody Rosaceae ornamentals and pome fruit (bearing and non-bearing)
copper octanoate	Cueva	M1	4	greenhouse and outdoor ornamental shrubs and flowering plants
copper oxychloride	Copper Spray	M	48	apple, <i>Cotoneaster</i> , crabapple, <i>Crataegus, Cydonia, Pyrus, Sorbus</i>
kasugamycin	Kasumin	24	12	<i>Amelanchier</i> , pome fruit, <i>Rubus</i>
<i>Pantoea agglomerans</i>	BlightBan, Bloomtime Biol.	-	4	<i>Amelanchier</i> , caneberries, pome fruit nursery stock (suppression)
<i>Pseudomonas fluorescens</i>	BlightBan	-	-	apple, pear (suppression)
streptomycin sulphate	Streptomycin	25	24	apple, pear

<sup>1</sup> Resistance management group

<sup>2</sup> Pesticide labels prohibit re-entry into treated crops until after the restricted entry interval (REI). The minimum REI is listed in hours; a longer REI may be required for some crop activities (pruning, thinning). An REI of "dried" permits entry once the treated surfaces have dried.

## 2) Pesticides Registered to Manage Fungal Diseases

Active Ingredient	Trade Name	Group <sup>1</sup>	REI <sup>2</sup> (hrs)	Uses
<b>Botrytis Blight and Storage Moulds</b>				
azoxystrobin	Heritage MAXX	11	12	greenhouse and outdoor ornamentals
<i>Bacillus subtilis</i>	Rhapsody ASO	-	-	greenhouse and outdoor ornamentals (suppression)
BLAD polypeptide	PROBLAD Plus	-	-	outdoor ornamentals
captan	Captan, Maestro	M	96	<i>Aster, Camellia, Chrysanthemum, Dahlia, Rosa, Syringa</i>
chlorothalonil	Daconil	M	12/48	conifers, <i>Dianthus, geranium, Iris, Lilium, Rosa, Statice</i>
chlorothalonil	Bravo	M	48	conifers
copper, elemental	Phyton 27	M	48/24	<i>Fuchsia, Hibiscus, Primula, Rosa</i>
fenhexamid	Decree	17	-	outdoor and greenhouse ornamentals
fludioxonil	Medallion	12	12	outdoor and greenhouse ornamentals
iprodione	Rovral	2	-	ornamentals, and container and bareroot conifer seedlings (spruce, fir, hemlock, cedar) in greenhouses and nurseries
thiophanate-methyl	Senator	1	-	greenhouse potted ornamentals
trifloxystrobin	Compass	11	12	greenhouse and outdoor ornamental bedding plants, including geranium and hosta (suppression)
<b>Damping-off, Stem and Bulb Rot</b>				
<i>Bacillus subtilis</i>	Rhapsody ASO	-	-	suppress <i>Rhizoctonia</i> on greenhouse & outdoor ornamentals
captan	Captan, Maestro	M	96	azalea, <i>Begonia, Chrysanthemum, Dianthus, Iris</i>
captan	Captan, Maestro	M	96	roses, shrubs, trees, flowers
etr Diazole	Truban ⚠	14	12	container and bed-grown <i>Arctostaphylos, Ceanothus, Chrysanthemum, Rhamnus, Rhododendron</i>
folpet	Folpan	M	-	azalea
iprodione	Rovral	2	-	<i>Rhizoctonia</i> on <i>Celosia, Salvia</i>
metalaxyl	Subdue MAXX	4	24	<i>Artemisia, aster, Begonia, Chrysanthemum, daisy, Dianthus, Digitalis, Gaillardia, geranium, Hedera, Phlox, Primula, Salvia</i> in containers or beds in greenhouses and outdoor nurseries, and conifers grown in seedbeds and plug-plantings
<i>Streptomyces griseoviridis</i>	Mycostop	-	-	to suppress <i>Fusarium, Pythium, Phytophthora</i> on potted greenhouse ornamentals
<i>Trichoderma harzianum</i>	Trianum	-	-	to suppress <i>Pythium</i> on ornamentals
trifloxystrobin	Compass	11	12	<i>Rhizoctonia solani</i> on seedlings of <i>Alyssum, azalea, bamboo, Begonia, Chrysanthemum, daisy, Delphinium, Dianthus, dusty miller, Hedera, Hemerocallis, Hosta, Ligustrum, Liriope, Nandina, peach, Phlox, Pittosporum, Raphiolepis indica, Rosa, Semperivium, Syringa, Verbena</i> grown in field nurseries, greenhouses and landscapes
<b>Downy Mildew</b>				
azoxystrobin	Heritage MAXX	11	12	greenhouse and outdoor ornamentals
copper sulphate	Copper 53W	M	48	roses
cyazofamid	Torrent	21	12	outdoor and greenhouse ornamentals
dimethomorph	Acrobat	40	12	greenhouse ornamentals (azalea, begonia, <i>Chrysanthemum, Dianthus, Iberis, periwinkle, Phlox, Rosa, stocks</i> ) and outdoor-grown ornamentals, herbaceous perennials
fluopicolide	Presidio, Fluopicolide	43	12	field and container-grown greenhouse and outdoor ornamentals
phosphorous acid	Confine Extra	33	dried	field and greenhouse ornamentals

## 2) Pesticides Registered to Manage Fungal Diseases (Cont'd)

Active Ingredient	Trade Name	Group <sup>1</sup>	REI <sup>2</sup> (hrs)	Uses
<b>Leaf Spots and Blights</b>				
azoxystrobin	Heritage MAXX	11	12	to manage <i>Alternaria</i> , anthracnose, <i>Cercospora</i> (suppression) on greenhouse and outdoor ornamentals
<i>Bacillus subtilis</i>	Rhapsody ASO	-	-	to suppress black spot on <i>Rosa</i> in greenhouses and outdoor nurseries
captan	Captan, Maestro	M	96	to manage <i>Septoria</i> on <i>Chrysanthemum</i> , leaf spots on <i>Dianthus</i> , and black spot on <i>Rosa</i>
chlorothalonil	Daconil	M	12/48	Phytophthora blight on azalea and <i>Pieris</i>
chlorothalonil	Daconil	M	12/48	Buckeye, <i>Chrysanthemum</i> , <i>Cornus</i> , crabapple, <i>Crataegus</i> , <i>Dianthus</i> , <i>Euonymus</i> , <i>Fraxinus</i> , <i>Gladiolus</i> , horsechestnut, <i>Hydrangea</i> , <i>Iris</i> , <i>Ligustrum</i> , <i>Photinia</i> , <i>Pieris</i> , <i>Populus</i> , <i>Prunus laurocerasus</i> , <i>Quercus</i> , <i>Rosa</i> , <i>Statice</i> , sycamore
citric & lactic acids	Cyclone	-	dried	black spot on greenhouse roses
copper, elemental	Phyton 27	M	48/24	<i>Dianthus</i> , dusty miller, <i>Rosa</i> (black spot)
copper octanoate	Cueva	M1	4	manage <i>Corynespora</i> , black spot and <i>Cercospora</i> on greenhouse and outdoor ornamentals
copper oxychloride	Copper Spray	M	48	arborvitae, cedar, fir, <i>Juniperus</i> , <i>Picea</i> , <i>Pinus</i>
copper sulphate	Copper 53W	M	48	roses
cyazofamid	Torrent	21	12	outdoor and greenhouse ornamentals
dimethomorph	Acrobat	40	12	container and field nursery ornamentals that are hosts of <i>Phytophthora ramorum</i>
fludioxonil	Medallion	12	12	to manage <i>Alternaria</i> , Boxwood blight and <i>Rhizoctonia</i> on outdoor and greenhouse ornamentals
folpet	Folpan	M	24	to manage <i>Septoria</i> on <i>Chrysanthemum</i> , alternaria on <i>Dianthus</i> and <i>Malus</i> , and <i>Didymellina</i> on <i>Iris</i>
fosetyl-al	Aliette Ornamental	U	12	greenhouse, container and field-grown ornamentals that are hosts of <i>Phytophthora ramorum</i>
mancozeb	Dithane, Manzate, Penncozeb	M	24	to manage <i>Phytophthora ilicis</i> on <i>Ilex</i>
mancozeb	Dithane, Manzate, Penncozeb	M	-	to manage keithia blight and coryneum tip-blight on arborvitae and <i>Juniperus</i> , alternaria on <i>Fraxinus</i> , and other leaf spots of <i>Quercus</i> , sycamore, <i>Crataegus</i> , <i>Hedera</i>
metalaxyl	Subdue MAXX	4	24	woody ornamentals grown in greenhouses and field nurseries that are susceptible to <i>Phytophthora ramorum</i>
myclobutanil	Eagle	3	288	black spot on <i>Rosa</i>
myclobutanil	Nova	3	12	to manage anthracnose and <i>Septoria</i> on <i>Cornus</i>
sulphur	Kumulus	M	24	<i>Amelanchier</i> , <i>Prunus</i> (peaches, plums)
thiophanate-methyl	Senator	1	-	greenhouse potted ornamentals to manage <i>Marssonina</i> and <i>Septoria</i> on aspen and <i>Populus</i> , and black spot on <i>Rosa</i>
trifloxystrobin	Compass	11	12	boxwood blight of <i>Buxus</i>
trifloxystrobin	Flint	11	12	Delphinella shoot blight on Christmas trees (fir, <i>Picea</i> )
triforine	Funginex	3	48	to manage black spot on outdoor roses
phosphorous acid	Confine Extra	33	dried	to control <i>Phytophthora</i> spp. (except <i>P. ramorum</i> , <i>P. cryptogeta</i> ) on field and greenhouse ornamentals
propiconazole	Banner MAXX	3	12	to manage anthracnose on <i>Acer</i> and <i>Cornus</i> , and black spot of <i>Rosa</i>
propiconazole	Topas	3	12	to manage keithia blight of <i>Thuja plicata</i>

## 2) Pesticides Registered to Manage Fungal Diseases (Cont'd)

Active Ingredient	Trade Name	Group <sup>1</sup>	REI <sup>2</sup> (hrs)	Uses
<b>Needlecast</b>				
chlorothalonil	Daconil, Bravo	M	12/48	conifers ( <i>Pseudotsuga</i> , <i>Picea</i> , <i>Pinus</i> )
mancozeb	Dithane, Manzate, Penncozeb	M	-	<i>Pinus</i> , <i>Pseudotsuga</i>
propiconazole	Banner MAXX	3	12	fir, <i>Picea</i>
trifloxystrobin	Flint	11	96	fir, <i>Picea</i>
<b>Nematodes</b>				
oxamyl	Vydate L ♂	1A	-	
<b>Powdery Mildew</b>				
azoxystrobin	Heritage MAXX	11	12	greenhouse and outdoor ornamentals
<i>Bacillus subtilis</i>	Rhapsody ASO	-	-	greenhouse and outdoor ornamentals (suppression)
chlorothalonil	Daconil	M	12/48	<i>Viburnum</i>
citric & lactic acids	Cyclone	-	dried	greenhouse ornamentals including cut flowers (suppression)
copper, elemental	Phyton 27	M	-	<i>Begonia</i> , <i>Cornus</i> , <i>Hydrangea</i> , <i>Monarda</i> , <i>Phlox</i> , <i>Rosa</i> , <i>Verbena</i>
copper octanoate	Cueva	M1	4	greenhouse and outdoor ornamentals
copper sulphate	Copper 53W	M	48	roses
cyprodinil + fludioxonil	Palladium	9 + 12	12	outdoor ornamentals (except <i>Rosa</i> ) (suppression)
folpet	Folpan	M	24	asters, <i>Chrysanthemum</i> , <i>Phlox</i> , <i>Rosa</i>
myclobutanil	Nova	3	12	<i>Althea</i> , <i>Aster</i> , azalea, <i>Chrysanthemum</i> , <i>Cornus</i> , crabapple, <i>Euonymus</i> , <i>Ligustrum</i> , <i>Lonicera</i> , <i>Phlox</i> , <i>Prunus</i> (nectarines, peaches, sour cherries), <i>Pyrus</i> , <i>Rhododendron</i> , <i>Rosa</i> , <i>Syringa</i>
myclobutanil	Eagle	3	288	outdoor-grown <i>Rosa</i>
potassium bicarbonate	MilStop	-	4	greenhouse and field grown <i>Cornus</i> , <i>Hydrangea</i> , <i>Monarda</i> , <i>Phlox</i>
propiconazole	Banner MAXX	3	12	azalea, <i>Rhododendron</i> , <i>Rosa</i>
<i>Reynoutria sachalinensis</i> extract	Regalia Maxx	P5	dried	container and field-grown ornamentals in greenhouses and outdoor nurseries (suppression)
sulphide sulphur	Lime Sulphur	M	48	<i>Malus</i> , peaches, <i>Pyrus</i>
sulphur	Kumulus	M	24	<i>Malus</i> , <i>Prunus</i> (peaches, sour cherries), <i>Pyrus</i> , <i>Vitis</i>
thiophanate-methyl	Senator	1	-	greenhouse and outdoor ornamentals
trifloxystrobin	Compass	11	12	greenhouse and outdoor bedding plants and shrubs
triforine	Funginex	3	48	outdoor roses and ornamentals
<b>Root and Crown Rot Caused by <i>Cylindrocladium</i></b>				
copper, elemental	Phyton 27	M	48/24	azalea, miniature roses
<b>Root, Stem and Crown Rot Caused by <i>Fusarium</i> and <i>Rhizoctonia</i></b>				
azoxystrobin	Heritage MAXX	11	12	<i>Rhizoctonia</i> on greenhouse and outdoor ornamentals
<i>Bacillus subtilis</i>	Rhapsody ASO	-	-	to control <i>Rhizoctonia</i> on greenhouse & outdoor ornamentals
fludioxonil	Medallion	12	12	to control <i>Fusarium</i> , <i>Rhizoctonia</i> , <i>Thielaviopsis</i> on outdoor and greenhouse ornamentals
<i>Streptomyces griseoviridis</i>	Mycostop	-	-	to suppress <i>Fusarium</i> on potted greenhouse ornamentals
thiophanate-methyl	Senator	1	-	greenhouse potted ornamentals
<i>Trichoderma harzianum</i>	Rootshield	-	-	greenhouse and outdoor ornamentals (suppression)
<i>Trichoderma harzianum</i>	Trianum	-	-	to suppress <i>Fusarium</i> on ornamentals

## 2) Pesticides Registered to Manage Fungal Diseases (Cont'd)

Active Ingredient	Trade Name	Group <sup>1</sup>	REI <sup>2</sup> (hrs)	Uses
<b>Root, Stem and Crown Rot Caused by <i>Fusarium</i> and <i>Rhizoctonia</i> (Cont'd)</b>				
trifloxystrobin	Compass	11	12	to manage <i>Rhizoctonia solani</i> on azalea, bamboo, <i>Chrysanthemum</i> , <i>Delphinium</i> , <i>Dianthus</i> , dusty miller, <i>Hedera</i> , <i>Hemerocallis</i> , <i>Hosta</i> , <i>Ligustrum</i> , <i>Liriope</i> , <i>Nandina</i> , peach, <i>Phlox</i> , <i>Pittosporum</i> , <i>Raphirolepis indica</i> , <i>Rosa</i> , <i>Sempervivum</i> , <i>Syringa</i> , <i>Verbena</i> grown in field nurseries and greenhouses
<b>Root Rot Caused by <i>Phytophthora</i> and <i>Pythium</i></b>				
azoxystrobin	Heritage MAXX	11	12	<i>Pythium</i> on greenhouse and outdoor ornamentals
<i>Bacillus subtilis</i>	Rhapsody ASO	-	-	greenhouse and outdoor ornamentals
cyazofamid	Torrent	21	12	outdoor and greenhouse ornamentals
etridiazole	Truban ⚠	14	12	container and bed-grown <i>Chrysanthemum</i> , geranium, <i>Rhododendron</i> and some bedding plants
fluopicolide	Presidio, Fluopicolide	43	12	to suppress <i>Phytophthora</i> on field and container grown outdoor ornamentals
fosetyl-al	Aliette Ornamental	U	-	greenhouse-grown azalea and bedding plants ( <i>Begonia</i> , <i>Celosia</i> , geranium, <i>Salvia</i> , <i>Vinca</i> )
metalaxyl	Subdue MAXX	4	24	<i>Artemisia</i> , aster, <i>Begonia</i> , <i>Chrysanthemum</i> , <i>Dianthus</i> , <i>Digitalis</i> , geranium, <i>Hedera</i> , <i>Phlox</i> , <i>Primula</i> , <i>Salvia</i> , <i>Verbena</i> , <i>Vinca</i> in greenhouses and outdoor nurseries, and conifers grown in seedbeds and plug-plantings
phosphate	Phostrol	33	12	to suppress <i>Phytophthora</i> on greenhouse and outdoor bedding plants and potted plants
phosphorous acid	Confine Extra	33	dried	field and greenhouse ornamentals
propamocarb hydrochloride	Previcur	28	24	outdoor and greenhouse grown azalea, geranium, <i>Ilex</i> , <i>Rhododendron</i>
<i>Streptomyces griseoviridis</i>	Mycostop	-	-	to suppress <i>Pythium</i> , <i>Phytophthora</i> in potted greenhouse ornamentals
<i>Trichoderma harzianum</i>	Rootshield	-	-	to suppress <i>Pythium</i> in greenhouse & outdoor ornamentals
<b>Rusts</b>				
azoxystrobin	Heritage MAXX	11	12	greenhouse and outdoor ornamentals
boscalid + pyraclostrobin	Pristine	7 + 11	72	ornamental pear, serviceberry
chlorothalonil	Daconil	M	12/48	<i>Althea</i> , crabapple, <i>Crataegus</i> , geranium, <i>Hydrangea</i> , <i>Mahonia</i>
copper octanoate	Cueva	M1	4	greenhouse and outdoor shrubs and flowering plants
mancozeb	Dithane, Manzate, Penncozeb	M	-	to manage pear trellis rust of juniper, and cedar apple and quince rusts on <i>Malus</i>
myclobutanil	Nova	3	-	<i>Althea</i> , <i>Amelanchier</i> , aster, <i>Chrysanthemum</i> , crabapple, <i>Crataegus</i> , <i>Dianthus</i> , <i>Fraxinus</i> , <i>Iris</i> , <i>Juniperus</i> , <i>Phlox</i> , <i>Pyrus</i> , <i>Rosa</i>
myclobutanil	Eagle	3	288	outdoor-grown <i>Juniperus</i>
propiconazole	Topas	3	12	<i>Amelanchier</i>
trifloxystrobin	Compass	11	12	outdoor ornamental shrubs in the Malvaceae family
<b>Sirococcus Blight</b>				
chlorothalonil	Daconil, Bravo	M	12/48	conifers

<sup>1</sup> Resistance management group

<sup>2</sup> Pesticide labels prohibit re-entry into treated crops until after the restricted entry interval (REI). The minimum REI is listed; a longer REI may be required for some crop activities (pruning, thinning). An REI of "dried" permits entry once the treated surfaces have dried. If two REIs are stated (e.g. 48/24), they refer to the REI for outdoor and greenhouse applications, respectively.

### 3) Pesticides Registered to Manage Insects and Mites

Biological control agents are not included in the tables. Refer to Chapter 5, Integrated Pest Management, of the *Nursery Production and Pest Management Guide* for information on beneficial organisms.

Active Ingredient	Trade Name	Group <sup>1</sup>	REI <sup>2</sup> (hrs)	Uses
<b>Aphids and Adelgids</b>				
acephate	Orthene 75% SP	1B	12 <sup>3</sup>	<i>Acer</i> , arborvitae, <i>Aster</i> , azalea, <i>Berberis</i> , <i>Betula</i> , <i>Buxus</i> , <i>Calendula</i> , <i>Cotoneaster</i> , <i>Crataegus</i> , <i>Deutzia</i> , dusty miller, <i>Euonymus</i> , fir, <i>Fraxinus</i> , <i>Hibiscus</i> , <i>Hydrangea</i> , ivy, <i>Ligustrum</i> , <i>Mahonia</i> , <i>Nandina</i> , <i>Philadelphus</i> , <i>Photinia</i> , <i>Pittosporum</i> , <i>Platanus</i> , plum, <i>Populus</i> , <i>Primula</i> , <i>Pyracantha</i> , <i>Quercus</i> , quince, <i>Rosa</i> , <i>Salix</i> , <i>Salvia</i> , <i>Spirea</i> , <i>Syringa</i> , <i>Tilia</i> , <i>Viburnum</i> , <i>Wisteria</i>
acephate	ACECAP 97 Ⓢ	1B	72	<i>Betula</i> , <i>Picea</i> , <i>Pinus</i> , <i>Quercus</i> , <i>Ulmus</i>
acetamiprid	TriStar 70 WSP	4	12	Christmas trees, and outdoor & greenhouse ornamentals
<i>Beauveria bassiana</i>	Botanigard	-	4	greenhouse ornamentals
<i>Beauveria bassiana</i>	Bio-ceres G WP	-	dried	ornamentals
carbaryl	Sevin T&O	1A	312 to 672	rose, elm leaf, Cooley spruce and Eastern spruce gall aphids on <i>Acer</i> , arborvitae, azalea, <i>Betula</i> , <i>Buxus</i> , <i>Chrysanthemum</i> , <i>Cornus</i> , <i>Dianthus</i> , <i>Gladiolus</i> , <i>Hydrangea</i> , <i>Ilex</i> , <i>Juniperus</i> , <i>Pinus</i> , <i>Quercus</i> , <i>Rosa</i> , <i>Syringa</i> , <i>Ulmus</i>
chlorpyrifos	Dursban Ⓢ	3	48	<i>Acer</i> , <i>Betula</i> , cherry, <i>Fagus</i> , <i>Liriodendron</i> , <i>Picea</i> , <i>Pinus</i> , plum, <i>Quercus</i> , <i>Salix</i> , <i>Spirea</i> , <i>Tilia</i> , <i>Ulmus</i> , <i>Viburnum</i> grown in greenhouses and nurseries
dimethoate	Cygon 480-ORN, Lagon 480 E	1B	12 to 168	outdoor-grown arborvitae, <i>Betula</i> , <i>Camellia</i> , <i>Dianthus</i> , <i>Euonymus</i> , <i>Hemerocallis</i> , <i>Iris</i> , <i>Juniperus</i> , <i>Pinus mugo</i> , <i>P. resinosa</i> , <i>P. sylvestris</i> , <i>Rosa</i>
dimethoate	Lagon 480 E	1B	12	Christmas trees ( <i>Abies balsamea</i> , mugho pine, <i>Picea</i> , red pine, Scots pine, <i>Tsuga</i> )
flonicamid	Beleaf 50SG	29	12	greenhouse and outdoor ornamentals (excluding conifers)
imidacloprid	Intercept 60 WP, Merit 60 WP	4	12	drench for container-grown greenhouse ornamentals
kinoprene	Enstar	7	12	greenhouse ornamentals
malathion	Malathion 85E	1B	72/48	outdoor ornamentals and greenhouse <i>Chrysanthemum</i> , <i>Dianthus</i> , <i>Rosa</i>
malathion	Malathion 25W	1B	-	outdoor and greenhouse-grown ornamentals
mineral oil	Landscape Oil Ⓢ	-	12	<b>Summer spray:</b> to control hemlock woolly adelgid on <i>Picea jezoensis</i> , <i>Picea polita</i> , <i>Tsuga</i>
permethrin	Ambush 500 EC, Pounce 384 EC	3	dried	deciduous trees and shrubs
pymetrozine	Endeavor 50WG	9B	12	greenhouse and outdoor ornamentals, and Christmas trees to control balsam twig aphid
pyrethrin	Doktor Doom 6%	3	dried	ornamentals
pyrethrin	Pyganic Crop Protection EC	3	12	<i>Rosa</i>
salts of fatty acids	Insecticidal Soap	-	-	outdoor and greenhouse-grown ornamentals
salts of fatty acids + pyrethrins	Trounce	3	-	greenhouse and interior plantings, shrubs and trees
thiamethoxam	Actara 25 WG	4	12	outdoor ornamentals



### 3) Pesticides Registered to Manage Insects and Mites (Cont'd)

Active Ingredient	Trade Name	Group <sup>1</sup>	REI <sup>2</sup> (hrs)	Uses
<b>Beetles, leaf</b>				
acephate	ACECAP 97 ♂	1B	72	<i>Ulmus</i>
acephate	Orthene 75% SP	1B	12 <sup>3</sup>	<i>Salix, Ulmus</i>
carbaryl	Sevin T&O	1A	312 to 672	flea beetles and elm & willow leaf beetles on <i>Acer</i> , arborvitae, azalea, <i>Betula</i> , <i>Buxus</i> , <i>Chrysanthemum</i> , <i>Cornus</i> , <i>Dianthus</i> , <i>Hydrangea</i> , <i>Ilex</i> , <i>Juniperus</i> , <i>Pinus</i> , <i>Quercus</i> , <i>Rosa</i> , <i>Syringa</i> , <i>Ulmus</i>
spinosad	Conserve, Entrust, Success	5	dried	leaf beetles (such as elm & willow leaf beetles) on outdoor ornamentals
<b>Bark Beetles and Borers</b>				
acephate	ACECAP 97 ♂	1B	72	emerald ash borer in <i>Fraxinus</i>
chlorpyrifos	Dursban ♂	3	48	<i>Betula</i> , locust, <i>Salix</i> , <i>Sorbus</i> , <i>Syringa</i> in greenhouses & nurseries
dimethoate	Cygon 480-ORN, Lagon 480 E	1B	12	outdoor-grown <i>Iris</i>
<i>Steinernema carpocapsae</i>	Millenium	-	-	containerized nursery ornamentals
<b>Caterpillars and Moths</b>				
acephate	ACECAP 97 ♂	1B	72	spruce budworm and coneworm on fir, <i>Picea</i> ; elm spanworm on <i>Acer</i> , <i>Castanea</i> , <i>Fagus</i> , <i>Juglans</i> , <i>Quercus</i> , <i>Tilia</i> , <i>Ulmus</i> ; tent caterpillar on cherry; gypsy moth and leafshredder on <i>Quercus</i>
acephate	Orthene 75% SP	1B	12	<i>Acer</i> , <i>Alnus</i> , arborvitae, <i>Aster</i> , <i>Betula</i> , <i>Calendula</i> , cedar, cherry, <i>Crataegus</i> , cypress, <i>Dahlia</i> , fir, <i>Fraxinus</i> , geranium, <i>Ilex</i> , <i>Juniperus</i> , <i>Picea</i> , <i>Pinus</i> , <i>Platanus</i> , plum <i>Populus</i> , <i>Pyracantha</i> , <i>Quercus</i> , <i>Rhus</i> , <i>Rosa</i> , <i>Salix</i> , <i>Spiraea</i> , <i>Tilia</i> , <i>Tsuga</i> , <i>Ulmus</i>
<i>Bacillus thuringiensis</i>	BioProtec CAF	11	-	tree nurseries and greenhouse ornamentals
<i>Bacillus thuringiensis</i>	Dipel 2X DF & WP	11	-	tent caterpillar, skeletonizer and spruce budworm on ornamental trees, and leafroller on <i>Rosa</i> and cabbage looper on <i>Chrysanthemum</i>
carbaryl	Sevin T&O	1A	312 to 672	<i>Acer</i> , arborvitae, azalea, <i>Betula</i> , <i>Buxus</i> , <i>Chrysanthemum</i> , <i>Cornus</i> , <i>Dianthus</i> , <i>Hydrangea</i> , <i>Ilex</i> , <i>Juniperus</i> , <i>Pinus</i> , <i>Quercus</i> , <i>Rosa</i> , <i>Syringa</i> , <i>Ulmus</i>
chlorpyrifos	Dursban ♂	3	48	tent caterpillars and skeletonizers on <i>Betula</i> , and <i>Fraxinus</i> grown in greenhouses and nurseries
dimethoate	Cygon 480-ORN, Lagon 480 E	1B	12	European pine shoot moth on outdoor-grown <i>Pinus mugo</i> , <i>P. resinosa</i> , <i>P. sylvestris</i>
dimethoate	Lagon 480 E	1B	12	European pine shoot moth and spruce budworm on Christmas trees ( <i>Abies balsamea</i> , mugho pine, <i>Picea</i> , red pine, Scots pine, <i>Tsuga</i> )
malathion	Malathion 85E	1B	72/48	European pine shoot moth, tent caterpillars and spruce budworm on outdoor ornamentals
permethrin	Ambush 500 EC, Pounce 384 EC	3	dried	spruce budworm and tussock moth on conifers, tent caterpillars and webworms on deciduous trees and shrubs, and cutworms on seedling tree nurseries
phosmet	Imidan 50-WP ♂	1B	72	tent caterpillar on deciduous trees ( <i>Acer</i> , <i>Betula</i> , <i>Cornus</i> , <i>Crataegus</i> , <i>Fagus</i> , <i>Fraxinus</i> , <i>Quercus</i> , <i>Salix</i> , <i>Ulmus</i> )
pyrethrin	Doktor Doom 6%	3	dried	ornamentals
salts of fatty acids + pyrethrins	Trounce	3	-	greenhouse and interior plantings
spinosad	Conserve, Entrust, Success	5	dried	tent caterpillars on outdoor ornamentals



### 3) Pesticides Registered to Manage Insects and Mites (Cont'd)

Active Ingredient	Trade Name	Group <sup>1</sup>	REI <sup>2</sup> (hrs)	Uses
<b>Caterpillars and Moths (Cont'd)</b>				
tebufenozide	Confirm 240F	18	12	codling moth on crabapple trees
tebufenozide	Confirm 240F	18	12	greenhouse ornamentals
trichlorfon	Dylox Ⓜ	1B	-	cutworms and webworms on ornamentals, and spruce budworm on balsam fir and spruce Christmas trees
<b>Fungus Gnats</b>				
<i>Bacillus thuringiensis</i> subspecies <i>israelensis</i>	VectoBac* 600L	11	-	apply as a drench to greenhouse ornamental plantings
cyromazine	Citation 75WP	17	12	greenhouse ornamentals
diflubenzuron	Dimilin 25% WP	15	12	container-grown plants
<i>Steinernema feltiae</i>	Nemasys	-	-	nursery
<b>Lace Bugs</b>				
acephate	Orthene 75% SP	1B	12	azalea, <i>Cotoneaster</i> , <i>Fraxinus</i> , <i>Platanus</i> , <i>Pyracantha</i> , <i>Quercus</i> , <i>Rhododendron</i>
carbaryl	Sevin T&O, XLR Plus	1A	312 to 672	<i>Acer</i> , arborvitae, azalea, <i>Betula</i> , <i>Buxus</i> , <i>Chrysanthemum</i> , <i>Cornus</i> , <i>Dianthus</i> , <i>Hydrangea</i> , <i>Ilex</i> , <i>Juniperus</i> , <i>Pinus</i> , <i>Quercus</i> , <i>Rosa</i> , <i>Syringa</i> , <i>Ulmus</i>
dimethoate	Cygon 480-ORN, Lagon 480 E	1B	48	outdoor-grown azalea
malathion	Malathion 85E	1B	72/48	outdoor ornamentals
<b>Leafhoppers</b>				
acephate	Orthene 75% SP	1B	12	<i>Acer</i> , Boston ivy, <i>Calendula</i> , <i>Dahlia</i>
acetamiprid	TriStar70 WSP	4	12	outdoor and greenhouse ornamentals
carbaryl	Sevin T&O	1A	312 to 672	<i>Acer</i> , arborvitae, azalea, <i>Betula</i> , <i>Buxus</i> , <i>Chrysanthemum</i> , <i>Cornus</i> , <i>Dianthus</i> , <i>Hydrangea</i> , <i>Ilex</i> , <i>Juniperus</i> , <i>Pinus</i> , <i>Quercus</i> , <i>Rosa</i> , <i>Syringa</i> , <i>Ulmus</i>
chlorpyrifos	Dursban Ⓜ	3	48	ornamentals grown in greenhouses and nurseries
dimethoate	Cygon 480-ORN, Lagon 480 E	1B	48	outdoor-grown <i>Rosa</i>
malathion	Malathion 85E	1B	72/48	outdoor ornamentals
pyrethrin	Doktor Doom 6%	3	dried	ornamentals
thiamethoxam	Actara 25 WG	4	12	outdoor ornamentals
<b>Leafminers and Needle Miners</b>				
abamectin	Avid 1.9% EC	6	dried	greenhouse-grown ornamentals
acephate	Orthene 75% SP	1B	12	<i>Alnus</i> , <i>Aster</i> , <i>Betula</i> , <i>Deutzia</i> , <i>Ilex</i> , locust, <i>Picea</i> , <i>Quercus</i> , <i>Syringa</i>
acephate	ACECAP 97 Ⓜ	1B	72	<i>Betula</i> , <i>Pinus</i>
acetamiprid	TriStar 70 WSP	4	12	outdoor and greenhouse ornamentals
carbaryl	Sevin T&O	1A	672	<i>Betula</i> , <i>Buxus</i>
cyromazine	Citation 75WP	17	12	greenhouse ornamentals
dimethoate	Cygon 480-ORN, Lagon 480 E	1B	12 to 360	outdoor-grown azalea, <i>Betula</i> , <i>Buxus</i> , cedar, <i>Ilex</i> , <i>Syringa</i> , <i>Tsuga</i>
dimethoate	Lagon 480 E	1B	12	spruce needle miner on Christmas trees ( <i>Abies balsamea</i> , mugho pine, <i>Picea</i> , red pine, Scots pine, <i>Tsuga</i> )
malathion	Malathion 85E	1B	72/48	outdoor ornamentals
phosmet	Imidan 50-WP Ⓜ	1B	72	<i>Betula</i>

### 3) Pesticides Registered to Manage Insects and Mites (Cont'd)

Active Ingredient	Trade Name	Group <sup>1</sup>	REI <sup>2</sup> (hrs)	Uses
<b>Leafminers and Needle Miners (Cont'd)</b>				
spinetoram	Delegate	5	12	serpentine leafminer on aspen ( <i>Populus</i> spp.)
trichlorfon	Dylox Ⓢ	1B	-	flowers, shrubs, trees
<b>Lygus Bugs</b>				
cypermethrin	Ripcord 400 EC, Mako	3	12	conifer seedlings in nurseries
flonicamid	Beleaf 50SG	29	12	drench on greenhouse-grown herbaceous ornamentals
malathion	Malathion 85E	1B	72/48	outdoor ornamentals
thiamethoxam	Actara 25 WG	4	12	outdoor ornamentals (suppression)
trichlorfon	Dylox Ⓢ	1B	-	flowers, shrubs, trees
<b>Mealybugs</b>				
acephate	Orthene 75% SP	1B	12	azalea, <i>Camellia</i> , <i>Hedera</i> , <i>Taxus</i> , <i>Wisteria</i>
carbaryl	Sevin T&O	1A	312 to 672	<i>Acer</i> , arborvitae, azalea, <i>Betula</i> , <i>Buxus</i> , <i>Chrysanthemum</i> , <i>Cornus</i> , <i>Dianthus</i> , <i>Hydrangea</i> , <i>Ilex</i> , <i>Juniperus</i> , <i>Pinus</i> , <i>Quercus</i> , <i>Rosa</i> , <i>Syringa</i> , <i>Ulmus</i>
chlorpyrifos	Dursban Ⓢ	3	48	ornamentals grown in greenhouses and nurseries
dimethoate	Cygon 480-ORN, Lagon 480 E	1B	12	outdoor-grown <i>Buxus</i> , <i>Taxus</i>
kinoprene	Enstar	7	12	greenhouse ornamentals (suppression)
malathion	Malathion 85E	1B	72/48	outdoor ornamentals and greenhouse <i>Chrysanthemum</i> , <i>Dianthus</i> , <i>Rosa</i>
malathion	Malathion 25W	1B	-	outdoor and greenhouse-grown ornamental trees, shrubs, flowers
mineral oil	Landscape Oil Ⓢ	-	12	<b>Summer spray:</b> ornamental shade trees, evergreens, hardy shrubs, and greenhouse ornamentals
mineral oil	Purespray Green	-	12	<b>Summer spray:</b> ornamental trees, evergreens, hardy shrubs
salts of fatty acids	Insecticidal Soap	-	-	ornamental and shade trees
salts of fatty acids + pyrethrins	Trounce	3	-	greenhouse and interior plantings, shrubs and trees
spirotetramat	Kontos	23	12	field and container-grown outdoor ornamentals, except conifers
<b>Midges</b>				
acephate	Orthene 75% SP	1B	12	<i>Rosa</i>
dimethoate	Cygon 480-ORN, Lagon 480 E	1B	12	outdoor-grown <i>Juniperus</i>
spirotetramat	Movento 240 SC	23	12	balsam gall midge on field-grown Christmas trees
<b>Mites</b>				
abamectin	Avid 1.9% EC	6	-	spider mites on greenhouse ornamentals
acephate	Orthene 75% SP	1B	12	spider mites on arborvitae, azalea, <i>Callistemon</i> , <i>Camellia</i> , cypress, <i>Dahlia</i> , fir, <i>Gleditsia</i> , <i>Hemerocallis</i> , <i>Hydrangea</i> , <i>Ilex</i> , <i>Juniperus</i> , <i>Pachysandra</i> , <i>Phlox</i> , <i>Picea</i> , <i>Pinus</i> , <i>Quercus</i> , <i>Rosa</i> , <i>Tsuga</i> , <i>Viburnum</i>
acephate	ACECAP 97 Ⓢ	1B	72	bladdergall mite on <i>Acer</i>
acequinocyl	Kanemite 15 SC	20B	12	2-spot and spruce spider mites on field-grown nursery crops
acequinocyl	Shuttle 15 SC	20B	12	2-spot and spruce spider mites on greenhouse ornamentals
bifenazate	Floramite SC	un	12	2-spot spider mites on outdoor ornamentals and conifers

### 3) Pesticides Registered to Manage Insects and Mites (Cont'd)

Active Ingredient	Trade Name	Group <sup>1</sup>	REI <sup>2</sup> (hrs)	Uses
<b>Mites (Cont'd)</b>				
carbaryl	Sevin T&O	1A	312 to 672	eriophyid mites on <i>Acer</i> , arborvitae, azalea, <i>Betula</i> , <i>Buxus</i> , <i>Chrysanthemum</i> , <i>Cornus</i> , <i>Dianthus</i> , <i>Hydrangea</i> , <i>Ilex</i> , <i>Juniperus</i> , <i>Pinus</i> , <i>Quercus</i> , <i>Rosa</i> , <i>Syringa</i> , <i>Ulmus</i>
chlorpyrifos	Dursban Ⓜ	3	48	arborvitae, <i>Juniperus</i> grown in greenhouses and nurseries
clofentezine	Apollo SC	10	12	2-spot spider mites on outdoor deciduous nursery stock (including <i>Caragana</i> , <i>Clematis</i> , <i>Crataegus</i> , <i>Euonymus</i> , <i>Hedera</i> , <i>Malus</i> , <i>Potentilla</i> , <i>Prunus</i> , <i>Pyrus</i> , <i>Ribes</i> , <i>Rosa</i> , <i>Salix</i> , <i>Ulmus</i> ) and herbaceous perennials
dimethoate	Cygon 480-ORN, Lagon 480 E	1B	12 to 288	outdoor-grown azalea, arborvitae, <i>Buxus</i> , <i>Camellia</i> , cedar, <i>Dianthus</i> , <i>Ilex</i> , <i>Juniperus</i> , <i>Rosa</i> , <i>Taxus</i>
dimethoate	Lagon 480 E	1B	12	Christmas trees ( <i>Abies balsamea</i> , mugho pine, <i>Picea</i> , red pine, Scots pine, <i>Tsuga</i> )
etoxazole	TetraSan 5WDG	10B	12	greenhouse ornamentals
fenbutatin-oxide	Vendex 50W	12	12	2-spot and spruce spider mites on greenhouse & outdoor nursery stock
fenpyroximate	Fenpyroximate 5SC, FujiMite	21	12	broad, spider and cyclamen mites on greenhouse ornamentals
malathion	Malathion 85E	1B	72/48	outdoor ornamentals and greenhouse <i>Chrysanthemum</i> , <i>Dianthus</i> , <i>Rosa</i>
malathion	Malathion 25W	1B	-	outdoor and greenhouse ornamentals
mineral oil	Landscape Oil Ⓜ	-	12	<b>Dormant or summer spray:</b> ornamental plants, shade trees and shrubs (see label for specific crops) <b>Summer spray:</b> greenhouse ornamentals
mineral oil	Purespray Green	-	12	<b>Summer spray:</b> red spider mites on ornamental shade trees, evergreens, hardy shrubs <b>Dormant spray:</b> European red mites and spruce spider mites on <i>Berberis</i> , <i>Betula</i> , <i>Cornus</i> , <i>Crataegus</i> , <i>Ilex</i> , <i>Ligustrum</i> , <i>Malus</i> , <i>Picea</i> , <i>Pinus</i> , <i>Platanus</i> , <i>Prunus</i> , <i>Sorbus</i> , <i>Ulmus</i>
mineral oil	Superior 70 Oil Ⓜ	-	12	<b>Dormant spray:</b> crabapple, <i>Berberis</i> , <i>Crataegus</i> , <i>Malus</i> , <i>Picea</i> , <i>Pinus</i> , <i>Prunus</i> , <i>Sorbus</i> , <i>Ulmus</i> ; see label for use precautions
pyridaben	DYNO-Mite, Sanmite	21	12	greenhouse and outdoor-grown ornamentals
salts of fatty acids	Insecticidal Soap	-	-	outdoor and greenhouse-grown ornamentals
salts of fatty acids + pyrethrins	Trounce	3	-	greenhouse and interior plantings, shrubs and trees
spiromesifen	Forbid 240 SC	23	12	outdoor and greenhouse ornamentals
spirotetramat	Kontos	23	12	outdoor field and container ornamentals, except conifers
<b>Psyllids</b>				
acephate	Orthene 75% SP	1B	12	<i>Alnus</i> , <i>Celtis</i> , <i>Ilex</i> , <i>Rhus</i> , <i>Salix</i>
carbaryl	Sevin T&O	1A	312 to 672	<i>Acer</i> , arborvitae, azalea, <i>Betula</i> , <i>Buxus</i> , <i>Chrysanthemum</i> , <i>Cornus</i> , <i>Dianthus</i> , <i>Hydrangea</i> , <i>Ilex</i> , <i>Juniperus</i> , <i>Pinus</i> , <i>Quercus</i> , <i>Rosa</i> , <i>Syringa</i> , <i>Ulmus</i>
mineral oil	Landscape Oil Ⓜ	-	12	<b>Dormant spray:</b> pear psylla
pyrethrin	Doktor Doom 6%	3	dried	ornamentals
salts of fatty acids	Insecticidal Soap	-	-	ornamental and shade trees
salts of fatty acids + pyrethrins	Trounce	3	-	greenhouse and interior plantings

### 3) Pesticides Registered to Manage Insects and Mites (Cont'd)

Active Ingredient	Trade Name	Group <sup>1</sup>	REI <sup>2</sup> (hrs)	Uses
<b>Sawflies</b>				
acephate	Orthene 75% SP	1B	12	pear slugs on shade trees, ornamentals, shelterbelts and sawflies on <i>Betula</i> , <i>Fraxinus</i> , <i>Larix</i> , <i>Picea</i> , <i>Pinus</i> , <i>Salix</i>
acetamiprid	TriStar 70 WSP	4	12	European pine sawfly on outdoor and greenhouse ornamentals
carbaryl	Sevin T&O	1A	672 & 312	<i>Pinus</i> , <i>Rosa</i>
chlorpyrifos	Dursban Ⓜ	3	48	European and red-headed pine sawflies on conifers, <i>Sorbus</i>
dimethoate	Cygon 480-ORN, Lagon 480 E	1B	12	red and black-headed pine sawfly larvae on outdoor-grown <i>Pinus mugo</i> , <i>P. resinosa</i> , <i>P. sylvestris</i>
malathion	Malathion 85E	1B	72/48	outdoor ornamentals
nucleopolyhedro virus	ABIETIV	-	-	balsam fir sawfly larvae on field-grown conifers, Christmas trees
permethrin	Ambush 500 EC, Pounce 384 EC	3	dried	coniferous trees and shrubs
salts of fatty acids	Insecticidal Soap	-	-	outdoor and greenhouse-grown ornamentals
salts of fatty acids + pyrethrins	Trounce	3	-	rose and pear slugs on shrubs and trees
spinosad	Conserve, Entrust, Success	5	dried	conifer sawfly larvae on outdoor ornamentals
<b>Scales</b>				
acephate	Orthene 75% SP	1B	12	<i>Abelia</i> , <i>Acer</i> , azalea, <i>Buxus</i> , <i>Camellia</i> , <i>Celtis</i> , <i>Cotoneaster</i> , cypress, <i>Euonymus</i> , fir, <i>Forsythia</i> , <i>Hibiscus</i> , <i>Ilex</i> , laurel, <i>Magnolia</i> , <i>Morus</i> , <i>Nandina</i> , <i>Pinus</i> , <i>Pyracantha</i> , <i>Quercus</i> , <i>Rosa</i> , <i>Salix</i> , <i>Syringa</i> , <i>Tsuga</i> , <i>Ulmus</i> , <i>Wisteria</i> , <i>Yucca</i>
carbaryl	Sevin T&O	1A	312 to 672	<i>Acer</i> , arborvitae, azalea, <i>Betula</i> , <i>Buxus</i> , <i>Chrysanthemum</i> , <i>Cornus</i> , <i>Dianthus</i> , <i>Hydrangea</i> , <i>Ilex</i> , <i>Juniperus</i> , <i>Pinus</i> , <i>Quercus</i> , <i>Rosa</i> , <i>Syringa</i> , <i>Ulmus</i>
chlorpyrifos	Dursban Ⓜ	3	48	ornamentals grown in greenhouses and nurseries
dimethoate	Cygon 480-ORN, Lagon 480 E	1B	12 to 288	outdoor-grown <i>Camellia</i> , <i>Euonymus</i> , <i>Ilex</i> , <i>Quercus</i> , <i>Taxus</i>
dimethoate	Lagon 480 E	1B	12	Christmas trees ( <i>Abies balsamea</i> , mugho pine, <i>Picea</i> , red pine, Scots pine, <i>Tsuga</i> )
malathion	Malathion 85E	1B	72/48	oyster shell and pine needle scale on outdoor ornamentals
mineral oil	Landscape Oil Ⓜ	-	12	<b>Dormant or summer spray:</b> ornamental plants, shade trees and shrubs (see label for specific crops) <b>Summer spray:</b> greenhouse ornamentals
mineral oil	Purespray Green	-	12	<b>Summer spray:</b> ornamental trees, evergreens, hardy shrubs <b>Dormant spray:</b> <i>Acer</i> , <i>Berberis</i> , <i>Betula</i> , <i>Cornus</i> , <i>Crataegus</i> , <i>Fraxinus</i> , <i>Gleditsia</i> , <i>Ilex</i> , <i>Ligustrum</i> , <i>Liriodendron</i> , <i>Malus</i> , <i>Pachysandra</i> , <i>Picea</i> , <i>Pinus</i> , <i>Platanus</i> , <i>Prunus</i> , <i>Quercus</i> , <i>Salix</i> , <i>Sorbus</i> , <i>Syringa</i> , <i>Ulmus</i> ; see label for use precautions
mineral oil	Superior 70 Oil Ⓜ	-	12	<b>Dormant spray:</b> <i>Acer</i> , crabapple, <i>Berberis</i> , <i>Crataegus</i> , <i>Fraxinus</i> , <i>Gleditsia</i> , <i>Liriodendron</i> , <i>Malus</i> , <i>Pachysandra</i> , <i>Picea</i> , <i>Pinus</i> , <i>Prunus</i> , <i>Quercus</i> , <i>Salix</i> , <i>Syringa</i> , <i>Ulmus</i> ; see label for use precautions
salts of fatty acids	Insecticidal Soap	-	-	outdoor and greenhouse-grown ornamentals
salts of fatty acids + pyrethrins	Trounce	3	-	soft scale crawlers on greenhouse and interior plantings, shrubs and trees

### 3) Pesticides Registered to Manage Insects and Mites (Cont'd)

Active Ingredient	Trade Name	Group <sup>1</sup>	REI <sup>2</sup> (hrs)	Uses
<b>Spittlebugs</b>				
acephate	Orthene 75% SP	1B	12	<i>Juniperus, Rosa</i>
chlorpyrifos	Dursban Ⓜ	3	48	ornamentals grown in greenhouses and nurseries
<b>Stink Bugs</b>				
thiamethoxam	Actara 25 WG	4	12	for brown marmorated stink bug on outdoor ornamentals
trichlorfon	Dylox Ⓜ	1B	-	flowers, shrubs, trees
<b>Thrips</b>				
acephate	Orthene 75% SP	1B	12	<i>Aster, Calendula, daisy, Hemerocallis, Rosa, Salvia, Yucca</i>
<i>Beauveria bassiana</i>	Botanigard	-	4	greenhouse ornamentals
<i>Beauveria bassiana</i>	Bio-ceres G WP	-	dried	ornamentals
carbaryl	Sevin T&O	1A	312 to 672	<i>Acer, arborvitae, azalea, Betula, Buxus, Chrysanthemum, Cornus, Dianthus, Hydrangea, Ilex, Juniperus, Pinus, Quercus, Rosa, Syringa, Ulmus</i>
chlorpyrifos	Dursban Ⓜ	3	48	ornamentals grown in greenhouses and nurseries
dimethoate	Cygon 480-ORN, Lagon 480 E	1B	12 to 168	outdoor-grown <i>Dianthus, Gladiolus, Hemerocallis, Iris, Rosa</i>
flonicamid	Beleaf 50SG	29	12	greenhouse ornamentals
malathion	Malathion 85E	1B	72/48	outdoor ornamentals and greenhouse-grown <i>Chrysanthemum, Dianthus, Rosa</i>
malathion	Malathion 25W	1B	-	outdoor and greenhouse ornamentals
<i>Metarhizium anisopliae</i>	Met52	-	-	container-grown ornamentals (includes forest seedlings) in greenhouses and outdoor nurseries (suppression)
mineral oil	Landscape Oil Ⓜ	-	12	foliar spray or cutting/plant dip for greenhouse ornamentals
<i>Paecilomyces fumosoroseus</i>	NOFLY WP	-	-	greenhouse ornamentals
pyrethrin	Doktor Doom 6%	3	dried	ornamentals
spinosad	Conserve, Entrust, Success	5	dried	western flower thrips on outdoor ornamentals
spirotetramat	Kontos	23	12	outdoor field and container ornamentals, except conifers
<i>Steinernema feltiae</i>	Nemasys	-	-	nursery
<b>Weevils</b>				
carbaryl	Sevin T&O	1A	312 to 672	<i>Acer, arborvitae, azalea, Betula, Buxus, Chrysanthemum, Cornus, Dianthus, Hydrangea, Ilex, Juniperus, Pinus, Quercus, Rosa, Syringa, Ulmus</i>
dimethoate	Cygon 480-ORN, Lagon 480 E	1B	120	sitka spruce weevil on outdoor-grown <i>Picea</i>
<i>Heterorhabditis bacteriophora</i>	Beneficial Nematode	-	-	nursery and landscape
lambda-cyhalothrin	Lambda-cyhalothrin CS	3	-	outdoor ornamentals
<i>Metarhizium anisopliae</i>	Met52	-	-	container-grown outdoor and greenhouse ornamentals, including forest seedlings
permethrin	Ambush 500EC, Pounce 384EC	3	dried	strawberry root weevil in conifer seedlings (cedar, <i>Juniperus, Picea, Pinus, Taxus</i> ) grown in forest nursery greenhouses
<i>Steinernema carpocapsae</i>	Millenium	-	-	container nursery ornamentals

### 3) Pesticides Registered to Manage Insects and Mites (Cont'd)

Active Ingredient	Trade Name	Group <sup>1</sup>	REI <sup>2</sup> (hrs)	Uses
<b>Whiteflies</b>				
acephate	Orthene 75% SP	1B	12	azalea, <i>Camellia</i> , <i>Berberis</i> , <i>Lantana</i> , <i>Ligustrum</i> , <i>Mahonia</i> , <i>Rosa</i> , <i>Salvia</i> , <i>Viburnum</i>
acetamiprid	TriStar 70 WSP	4	12	outdoor and greenhouse ornamentals
<i>Beauveria bassiana</i>	Botanigard	-	4	greenhouse ornamentals
<i>Beauveria bassiana</i>	Bio-ceres G WP	-	dried	ornamentals
buprofezin	Talus, Applaud	16	12	greenhouse ornamentals
chlorpyrifos	Dursban Ⓜ	3	48	ornamentals grown in greenhouses and nurseries
dimethoate	Cygon 480-ORN	1B	48	outdoor-grown azaleas
fenpyroximate	Fenpyroximate 5SC, FujiMite	21	12	greenhouse ornamentals (suppression)
flonicamid	Beleaf 50SG	29	12	greenhouse ornamentals
imidacloprid	Intercept 60 WP, Merit 60 WP	4	12	drench for container-grown greenhouse ornamentals
kinoprene	Enstar	7	12	greenhouse ornamentals
malathion	Malathion 85E	1B	72/48	greenhouse-grown <i>Chrysanthemum</i> , <i>Dianthus</i> , <i>Rosa</i>
malathion	Malathion 25W	1B	-	greenhouse ornamental trees, shrubs, flowers
mineral oil	Landscape Oil Ⓜ	-	12	foliar spray or cutting/plant dip on greenhouse ornamentals; <b>Summer spray:</b> ornamental trees, evergreens, and hardy shrubs
mineral oil	Purespray Green	-	12	<b>Summer spray:</b> ornamental trees, evergreens, hardy shrubs
<i>Paecilomyces fumosoroseus</i>	NOFLY WP	-	-	greenhouse ornamentals
pymetrozine	Endeavor 50WG	9B	12	greenhouse ornamentals
pyriproxyfen	Distance	7	12	greenhouse ornamentals
pyrethrin	Doktor Doom 6%	3	dried	ornamentals
pyridaben	DYNO-Mite or Sanmite	21	12	greenhouse-grown ornamentals
salts of fatty acids	Insecticidal Soap	-	-	outdoor and greenhouse-grown ornamentals
salts of fatty acids + pyrethrins	Trounce	3	-	greenhouse and interior plantings
spiromesifen	Forbid 240 SC	23	12	outdoor and greenhouse ornamentals
spirotetramat	Kontos	23	12	field and container-grown outdoor ornamentals, except conifers
<b>White Grubs</b>				
carbaryl	Sevin T&O	1A	312 to 672	Japanese and June beetles on <i>Acer</i> , arborvitae, azalea, <i>Betula</i> , <i>Buxus</i> , <i>Chrysanthemum</i> , <i>Cornus</i> , <i>Dianthus</i> , <i>Hydrangea</i> , <i>Ilex</i> , <i>Juniperus</i> , <i>Pinus</i> , <i>Quercus</i> , <i>Rosa</i> , <i>Syringa</i> , <i>Ulmus</i>
chlorantraniliprole	Acelepryn	28	dried	Japanese beetle on outdoor and greenhouse ornamentals
<i>Heterorhabditis bacteriophora</i>	Beneficial Nematode	-	-	nursery and landscape
imidacloprid	Intercept 60 WP, Merit 60 WP	4	12	drench to control European chafer and Japanese beetle larvae in container and field-grown nursery stock

<sup>1</sup> Resistance management group

<sup>2</sup> Pesticide labels prohibit re-entry into treated crops until after the restricted entry interval (REI). The minimum REI is listed; a longer REI may be required for some crop activities (pruning, thinning). An REI of 'dried' permits entry once the treated surfaces have dried. If two REIs are stated (e.g. 48/24), they refer to the REI for outdoor and greenhouse applications, respectively.

<sup>3</sup> The REI for trees is 72 hours



## 4) Pesticides Registered to Control Weeds

### a. Non-selective control of emerged weeds

Active Ingredient	Trade Name	Group <sup>1</sup>	REI <sup>2</sup> (hrs)	Activity	Uses <sup>3</sup>
acetic acid	EcoClear, Munger Hort. Vinegar, Serene	-	12	contact	to control annual weeds and top growth suppression of perennial weeds in non-crop areas, including in greenhouses
amitrole	Amitrol	11	96	systemic	to control broadleaf weeds and grasses in spruce nursery stock
fatty acids	Safer's De-Moss, Moss-Aside	-	dried	contact	to control moss, algae, lichens, liverwort around nurseries and in greenhouses
fatty acids	Safer's Topgun	-	dried	contact	to control annual and suppress perennial weeds in plant nurseries and greenhouses
fatty acids	Fireworxx	-	-	contact	to control weeds in non-crop areas or as a directed spray around outdoor ornamentals
glyphosate	Credit, Roundup	9	12	systemic	apply prior to planting and crop emergence, or as a directed spray in established tree plantings of <i>Abies</i> , <i>Acer</i> , <i>Caragana</i> , <i>Eleagnus</i> , <i>Fraxinus</i> , <i>Juniperus</i> , <i>Picea</i> , <i>Pinus</i> , <i>Populus</i> , <i>Prunus</i> , <i>Salix</i> , <i>Sorbus</i> , <i>Syringa</i> , <i>Taxus</i> , <i>Ulmus</i>
paraquat	Gramoxone ⚠	22	24	contact	apply as a directed spray to control weeds between rows of established nursery stock

### b. Selective control of emerged weeds

Active Ingredient	Trade Name	Group <sup>1</sup>	REI <sup>2</sup> (hrs)	Activity	Uses <sup>3</sup>
carfentrazone-ethyl	Aim EC	14	12	contact	apply as a directed spray to manage sucker growth and root sprouts on field-grown woody ornamentals, such as <i>Malus</i> , <i>Prunus</i> and <i>Sorbus</i>
clopyralid	Lontrel	4	12	systemic	to control weeds in non-cropland areas and apply as a directed spray to control vetch in <i>Abies balsamea</i> Christmas tree plantations and <i>Malus</i> trees
fluazifop-p-butyl	Venture	1	12	systemic	to control annual and perennial grasses in many newly transplanted or established non-grassy plants in forest and ornamental nurseries [The label includes a list of plants that can be safely sprayed over-the-top; a directed spray is advised for all other crops.]
hexazinone	Velpar DF	5	48	root absorbed & contact activity	broadcast spray for selective weed control in <i>Abies balsamea</i> , <i>Picea</i> (black, white and Colorado blue) and <i>Pinus</i> (red and scotch) Christmas tree plantations
oxyfluorfen	Goal ⚠	14	12	contact	to control young broadleaf weeds (up to 4-leaf stage) in conifers grown in the field and small containers
<i>Phoma macrostoma</i>	Bio-Phoma	-	-	contact	provides pre- and post-emergent control of broadleaf weeds in field and container ornamentals
triclopyr	Garlon XRT	4	12	systemic	directed spray to control woody and broadleaved weeds in Christmas tree plantations

### c. Selective control of weeds prior to emergence

Active Ingredient	Trade Name	Group <sup>1</sup>	REI <sup>2</sup> (hrs)	Uses <sup>3</sup>
chlorthal	Dacthal	3	12	to control grassy and broadleaf weeds on recently transplanted and established nursery stock
dichlobenil	Casoron	20	12	to control grasses and broadleaf weeds in established field plantings of nursery stock, and container-grown <i>Juniperus chinensis</i> , <i>J. horizontalis</i> and <i>Thuja occidentalis</i>
dimethenamid-P	Frontier Max	15	24	directed spray to control annual grasses and certain broadleaf weeds in container and field grown nursery stock
indaziflam	Specticle FLO	29	12	selective, residual control of broadleaf and grass weeds in field-grown ornamentals
indaziflam	Specticle G	29	dried <sup>4</sup>	selective, residual control of broadleaf and grass weeds in container-grown ornamentals
isoxaben	Gallery	21	12	to control select broadleaf weeds in conifer bareroot and container nursery stock, and in containerized ornamentals grown in nurseries
napropamide	Devrinol	15	12	to control weed emergence on specific container-grown ornamentals, and field-grown nursery stock (ornamental and forestry)
oxadiazon	Ronstar	14	-	to control select annual broadleaf and grassy weeds in woody ornamentals grown in containers
pendimethalin	Prowl H <sub>2</sub> O	3	24	to control annual grasses and certain broadleaf weeds in field, liner and container-grown outdoor ornamentals, and conifers for field production, including Christmas trees
propyzamide	Kerb	15	24	to control certain perennial and most annual grasses, and chickweed on specific ornamentals (established) and container-grown nursery stock
simazine	Princep, Simadex Simazine, Simazine 480	5	12	to control annual grass and broadleaf seedlings on established nursery stock and Christmas trees; Princep is labeled for use on select ornamentals grown in containers
s-metolachlor	Dual II Magnum	15	12	to control germinating grass seedlings on outdoor ornamentals (woody and herbaceous), including container-, field- and liner-grown plants
trifluralin	Bonanza, Rival, Treflan	3	12	incorporate prior to transplanting woody nursery stock and perennials, or use in established woody nursery stock; Treflan G is registered for use on a limited number of ornamentals grown in containers

<sup>1</sup> Resistance management group

<sup>2</sup> Pesticide labels prohibit re-entry into treated crops until after the restricted entry interval (REI). The minimum REI is listed; a longer REI may be required for some crop activities (pruning, thinning). An REI of “dried” permits entry once the treated surfaces have dried. If two REIs are stated (e.g. 48/24), they are REIs for outdoor and greenhouse applications, respectively.

<sup>3</sup> Some herbicides are labeled for use on a select group of ornamental plants. Refer to the label for information on which ornamental plants may be treated with a specific herbicide. Most herbicides are not labeled for use in a greenhouse; check the label before applying a herbicide in a greenhouse.

<sup>4</sup> Do not re-enter treated areas until granules are thoroughly watered-in and the treated soil has dried.