

# ORNAMENTALS

## COMMERCIAL GROUNDS MAINTENANCE INSECT CONTROL

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**Pollinator Protection:** There is growing concern for the health of pollinators in general. Flowering plants in the landscape provide a major portion of the food resources for these beneficial insects in urban and suburban areas. Care should be taken to minimize the chance of harming pollinators with insecticide applications by avoiding application when honeybees, in particular, are active. When possible, treating in late afternoon or evening, or before plants are in bloom where

possible, will reduce risks to bees and other pollinating insects. Broad-spectrum contact insecticides (pyrethroids, etc.) are extremely toxic to most pollinators and should be used with caution around flowering plants. Neonicotinyl insecticides (*imidacloprid*, *thiamethoxam*, *acetamiprid*, *clothianidin*, *dinotefuran*) may be translocated to blooms in some circumstances and also require caution. Read labels carefully.

PEST	INSECTICIDE	MOA	AMOUNT/100 GAL WATER	REMARKS AND PRECAUTIONS
Aphids	<i>acetamiprid</i> Tristar 30 SG	4A		
	<i>afidopyropen</i> Ventigra	9D	1.4 fl oz—aphids 4.8–7.0 fl oz all others	
	<i>clothianidin</i> Arena 50 WDG	4A	0.63–1.26 oz	
	<i>dinotefuran</i> Safari 20 SG, Zylam	4A	4–8 oz	Granular formulations are also available.
	<i>flupyradifurone</i> Altus	4D	7.0–10.5 oz	
	<i>imidacloprid</i> Merit, generic	4A	Follow label directions.	Many brands and several formulations are available. Read labels carefully.
	<i>Isaria fumorosea</i> Preferal	UN	14–28 oz	
	Oils		2–4 oz	
	<i>pyrifluquinazon</i> Rycar	UN	2.4–3.2 oz 2–2.75 oz	
	Soaps		See label	Do not use soaps on Japanese maple.
Azalea leaf miner	<i>abamectin</i> Avid 0.15 lb/gal EC	6	8 fl oz	
	<i>acetamiprid</i> Tristar 30SG	3A	6.7–8 oz	
	Various pyrethroids	3		See note below.
Bagworm	<i>acephate</i> Orthene TTO 75% SP	1B	1 lb/A	
	<i>Bacillus thurengiensis</i> Dipel 2X	11A	4 oz/A	
	<i>chlorantraniliprole</i> Acelepryn		1–16 oz	

NOTE: A number of pyrethroid materials are available in a variety of formulations for use as broad-spectrum contact insecticides. Common names include *bifenthrin*, *cyfluthrin*, *cypermethrin*, *deltamethrin*, *lambda-cyhalothin*, *tralomethrin*, *permethrin*. Active ingredients are listed on the label.

PEST	INSECTICIDE	MOA	AMOUNT/100 GAL WATER	REMARKS AND PRECAUTIONS
	<i>spinosad</i> Conserve SC	5	22 oz	
	<i>cyantraniliprole</i> Mainspring	28	1–8 oz	
	Various pyrethroids	3		See note.
Bark Beetles	<i>bifenthrin</i> Onyx	3	6.4–3.2 oz	Spray all trunk surfaces when adults are active. Healthy trees are usually not attacked.
	<i>permethrin</i> Astro 3.2 lb/gal EC	3	1–2 qt	
	<i>clothianidin</i> Arena 50WG	4A	2 oz	
	<i>imidacloprid</i> Merit, etc.	4A	See label	
	<i>thiamethoxam</i>	4A	4–8 oz	
	Various pyrethroids	3		See note.
Borers (dogwood borer, flatheaded apple tree borer etc.)	<i>bifenthrin</i> Astro 3.2 lb/gal EC Onyx	3	1–2 qt	Treat when adults are present and laying eggs on trees.
	<i>chlorantraniliprole</i> Acelepryn		4–32 oz	For clearwing borers only.
	<i>imidacloprid</i> Merit, others		See label	For flat-headed borers.
	<i>permethrin</i> Astro 3.2 lb/gal EC	3	6.4–32 oz	

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## COMMERCIAL GROUNDS MAINTENANCE INSECT CONTROL

PEST	INSECTICIDE	MOA	AMOUNT/100 GAL WATER	REMARKS AND PRECAUTIONS
Boxwood leafminer	<i>acephate</i> Orthene 9.4% EC			
	<i>acetamiprid</i> Tristar 30SG		4.69 qt 2 lb	Use any of these materials in early spring when adults are active.
	<i>dimethoate</i> (Cygon) Tristar 30SG	1B	Consult label 6.7–8 oz	Use systemics when larvae are present in mines.
	Various pyrethroids	3	2 lb	
Boxwood Psyllid	<i>acetamiprid</i> Tristar 30SG	4A	6.7–8 oz	
	<i>clothianidin</i> Arena 50WDG	4A	2 oz	
	<i>imidacloprid</i> Merit, etc.	4A	Consult label	Treat when young psyllids are present (early spring) and repeat treatment as needed.
	Oils (horticultural)		Consult label	
	Soaps (insecticidal)		Consult label	
	Various pyrethroids	3		See note below.
Caterpillars azalea caterpillar, fall webworm, tent caterpillars, greenstriped mapleworm	“Bt” ( <i>kurstaki</i> )	11	Consult label	Treat when larvae are small.
	<i>chlorantraniliprole</i> Acelepryn	28	1–16 oz	
	<i>spinosad</i> Conserve SC	5	22 oz	
	<i>cyantraniliprole</i> Mainspring	28	1–8 oz 0.01–0.08 oz	
	Insecticidal soaps		Consult label	
	Oils (horticultural)		Consult label	
	Various pyrethroids	3		
Cottony Maple Scale	See SCALE INSECT section.			Spray infested trees thoroughly when crawlers are present (early summer). Follow with a second application in 14–21 days if crawlers are still present. Do not apply Isotox or Orthene to red or sugar maples.

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PEST	INSECTICIDE	MOA	AMOUNT/100 GAL WATER	REMARKS AND PRECAUTIONS
Eastern tent caterpillars	See CATERPILLARS section.			Eggs hatch about the time buds break in the spring. Treat when webs are first noticed. Apply treatments to foliage of plant where caterpillars are feeding.
Euonymus scale	See SCALE INSECT section.			Use dormant oil in late fall or early spring. Time application of other materials when crawlers are present. First generation crawlers appear in early spring.
Fall webworm	See CATERPILLARS section.			Treat when webs first appear. Spray must penetrate into the interior of the webs to be effective.
Fire Ants	<b>BAIT TREATMENTS</b>			<p>The most effective method for control of ants over a broad area is the use of a broadcast bait two times per year (spring/fall) coupled with individual mound treatments as needed.</p> <p><b>Broadcast Bait Treatments—</b> Broadcast baits when ants are actively foraging for food (typically, warm, dry days in spring and fall). Some baits work within 48 hours (Advion, Siesta), others may take a month or more. Avoid applying baits just before or after irrigation or rain.</p> <p><b>Individual Mound Treatments—</b> <b>Do not disturb mounds before treatment.</b> <i>Drenches:</i> Drench mounds when queen and brood are located close to soil surface on warm, dry days. Generally, it takes 1-2 gallons of water to drench a fire ant mound effectively. <i>Granules:</i> Scatter granules around the edge of the nest, not on top.</p>
	<i>abamectin</i> Award II	6	1–3 Tbsp/mound or 1–1.5 lb/A	
	<i>hydromethylnon</i> Amdro	20A	5 Tbsp/mound or 1–1.5 lb/A	
	<i>indoxacarb</i> Advion	22A	4 Tbsp/mound or 1.5 lb/A	
	<b>MOUND DRENCH TREATMENTS</b>			
	<i>acephate</i> Orthene TTO 75WP, generic	1B	1 oz/5 gal	
	<i>acephate</i> Orthene 97, others		0.75 oz/5 gal	
	<i>bifenthrin</i> Talstar GC Flowable, generic	3	1 tsp/gal	
	<i>deltamethrin</i> DeltaGard GC 5SC	3	<b>RUP</b> 1.5 fl oz/gal	
	<i>imidacloprid + bifenthrin</i> Allectus SC (landscape turf only)	4A + 3	0.33 fl oz /gal	
	<i>imidacloprid + bifenthrin</i> Allectus GC SC (golf course and sod farms only)	4A + 3	<b>RUP</b> 0.33 fl oz /gal	
<i>lambda-cyhalothrin</i> Scimitar CS (landscape turf only)	3	0.5 fl oz /2.5 gal		
<i>metflumizone</i> Siesta	22B	2–4 Tbsp/mound 1.5 lb/A		

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PEST	INSECTICIDE	MOA	AMOUNT/100 GAL WATER	REMARKS AND PRECAUTIONS
Fire Ants (continued)	<b>MOUND DRENCH TREATMENTS (continued)</b>			
	<i>permethrin</i> Astro, others (landscape turf only)	3	1.6 fl oz /gal	
	<i>lambda-cyhalothrin</i> Scimitar GC	3	0.5 fl oz/2.5 gal	
	<i>spinosad</i> Conserve	5	0.1 fl oz/gal	
	<b>DRY MOUND TREATMENTS</b>			** Follow with 1–2 gallons of water for best results.
	<i>acephate</i> Orthene TTO 75WP	1B	1-2 tsp/mound	
	<i>cyfluthrin</i> Bayer Fire Ant Killer	3	1 tsp /mound	
	<i>deltamethrin</i> DeltaGard G (landscape turf only)	3	2 Tbsp/mound **	
	<i>deltamethrin</i> Bengal Ultra Dust Fire Ant Killer (0.05%)	3	<b>RUP</b> 1 Tbsp/mound	
	<i>imidacloprid + bifenthrin</i> Allectus G (landscape turf only)	4A + 3	4 oz/mound**	
	<i>imidacloprid + bifenthrin</i> Allectus GC (golf course and sod farms only)	4A + 3	<b>RUP</b> 4 oz/mound **	
Terro Fire Ant Killer (0.05%)		1 Tbsp/mound		
<b>BROADCAST TREATMENTS</b>				
<i>bifenthrin</i> Talstar GC Flowable, others	3	0.5 fl oz/1000 sq ft	Only products containing fipronil are likely to give long term control of fire ants. Others listed provide relief from surface activity for a few weeks at most.	

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PEST	INSECTICIDE	MOA	AMOUNT/100 GAL WATER	REMARKS AND PRECAUTIONS
Fire Ants (continued)	BROADCAST TREATMENTS (continued)			
	<i>cyfluthrin</i> Tempo SC Ultra, others (landscape turf only)	3	8 mL/1000 sq ft	
	<i>cyfluthrin</i> Tempo WP GC (golf course and sod farms only)	3	1 packet/7,800 sq ft	
	<i>cyfluthrin</i> Tempo WP Ultra, others (landscape turf only)	3	5–10 g (1–2 scoops)/ 1000 sq ft	
	<i>deltamethrin</i> DeltaGard G DeltaGard T&O 5SC (landscape turf only) DeltaGard GC 5SC	3	1.5 fl oz/gal 1.5 fl oz/gal 1.5 fl oz/gal	
	<i>fipronil</i> TopChoice, Quali-Pro Fipronil 0.0143, 0.1		See label for rates and restrictions.	
	<i>fipronil + bifenthrin + lambda-cyhalothrin</i> Taurus Trio	2B + 3A	2lb/1000 sq ft	REI 24 H (sod farms). Until material has been watered in (landscapes and other sites).
	<i>imidacloprid + bifenthrin</i> Allectus GC (landscape turf only)	4A + 3	1.7–2.9 lb/1000 sq ft	
	<i>imidacloprid + bifenthrin</i> Allectus GC SC	4A + 3	<b>RUP</b> 1.32–1.6 5 fl oz /1000 sq ft	
	<i>lambda-cyhalothrin</i> Scimitar GC, others	3	7 mL/1000 sq ft	
<i>lambda-cyhalothrin</i> Scimitar CS, others (landscape turf only)	3	7 mL/1000 sq ft		
Hemlock woolly adelgid	<i>acetamiprid</i> Tristar 30SG		6.7–8 oz	
	<i>dinotefuran</i> Safari 20 SG, Zylam		Follow label	Foliar, drench, and soil injection may be effective.
	<i>imadacloprid</i> Merit 75WP		Follow label	
	<i>thiamethoxam</i> Flagship 25WG		Follow label	
Holly leaf miner	<i>acetamiprid</i> Tristar 30SGr	4A	6.7–8 oz	Use a non-systemic insecticide on the foliage in early to mid-April to control the adults.
	<i>bifenthrin</i> Talstar, others	3	0.5–1 fl oz/1000 sq ft	Use one of the systemic materials once larvae have entered leaves. Do not apply Cygon to Burford Holly
	<i>lambda-cyhalothrin</i> Scimitar 9.52% WP	3	2.4–4.8 oz	

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PEST	INSECTICIDE	MOA	AMOUNT/100 GAL WATER	REMARKS AND PRECAUTIONS
Lace bug	<i>acephate</i> Orthrene, etc.	1B	Consult label	Treat when lace bug nymphs are first seen. Repeat as needed to protect foliage.
	<i>acetamiprid</i> Tristar 30SG	4A	6.7–8 oz	
	<i>flupyradifurone</i> Altus	4D	10.5–14.0 oz	
	<i>imidacloprid</i> (various brand names)	4A	See label for rates and application instructions.	
Mealybug	<i>acephate</i> Orthene	1B	2/3 lb	If the mealybugs have dense cottony masses, additional applications may be needed at 10–14 day intervals for control. Other <i>bifenthrin</i> formulations are available.
	<i>acetamiprid</i> Tristar	4A	2.7 oz	
	<i>afidopyropen</i> Ventigra	9D	1.4 fl oz—aphids 4.8–7.0 fl oz—all others	
	<i>bifenthrin</i> Talstar One, others	3	0.25–0.50 fl oz/1000 sq ft	
	<i>buprofezin</i> Talus	16	0.71 lb	
	<i>clothianidin</i> Arena 5 OWDG	4A	0.9–1.26 oz	
	<i>dinotefuran</i> Safari 20 SG, Zylam	4A	4.8 oz	
	<i>flupyradifurone</i> Altus	4D	10.5–14 oz	
	<i>imidacloprid</i> various brand names	4A	See label for rates and application instructions.	
	<i>Isaria fumorosea</i> Preferal	UN	14–28 oz	
	Insecticidal soaps		1–2 gal	
	Oils		1–3 gal	
	<i>pyrifluquinazon</i> Rycar	UN	2.4–3.2 oz 0.025–0.0275 oz	
	Rhododendron Borer	<i>bifenthrin</i> Onyx	3	
<i>permethrin</i> Astro 3.2 lb/gal EC		3	1–2 qt	
	<i>imidacloprid</i> various brand names including Merit	4A		See note below.
	Insecticidal soaps		1–2 gal	
	Various pyrethroids	3		

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PEST	INSECTICIDE	MOA	AMOUNT/100 GAL WATER	REMARKS AND PRECAUTIONS
Scales	<i>acetamiprid</i> Tristar 3 OSG	4A	2.7–5.3	Refer to each species for the times that crawlers are emerging and settling. Contact insecticides are most effective if timed for crawlers. Oil applications are effective in reducing populations of soft scales. Armored scales, which overwinter in the egg stage are generally less susceptible to dormant oil sprays.
	<i>buprofezin</i> Talus	16	0.86 lb	
	<i>dinotefuran</i> Safari 20 SG, Zylam	4A	4–8 oz	Granular formulations are also available.
	<i>imidacloprid</i> Merit, etc.	4A		Refer to each species for the times that crawlers are emerging and settling. Contact insecticides are most effective if timed for crawlers. Oil applications are effective in reducing populations of soft scales. Armored scales, which overwinter in the egg stage are generally less susceptible to dormant oil sprays.
	Insecticidal soaps		1–2 gal	
	Oils		1–3 gal	
	<i>pyriproxifen</i> Distance IGR	7C	8–12 oz	
	<i>thiamethoxam</i> Meridian	4A	See label	
Southern Pine Beetle	See BARK BEETLES section.			Spray trunk surface when adults are active.
Spider mites (southern red mite, spruce spider mite, twospotted spider mite)	<i>abamectin</i> Avid, others	6	4 oz	Many spider mites attack ornamentals and perennials. Proper identification is important in determining control timing. Spruce spider mite and southern red mite are more prevalent in fall and early spring. Two-spotted spider mite and boxwood spider mite are most prevalent during hot, dry weather. Spider mite control usually requires a spray program that involves 2–3 applications at 7–10 day intervals.  Do not use Avid on conifers.
	<i>fenazaquin</i> Magus	21A	12–24 oz	
	<i>hexythiazox</i> Hextgon DF	10A	1–2 oz (named species)	
	Insecticidal soaps		2.4–4.8 oz	
	Oils			
	<i>spiromesifen</i> Forbid	23	2–4 oz	
Slugs and snails	Bug-Geta 3.25% B		1 lb/1000 sq ft	Apply when leaf damage is first noticed and reapply as needed.
	Deadline Ornamental Mini-pellets B		0.25 lb/1000 sq ft	
	Mesurol 75% WP		2 lb	Mesurol is highly toxic and a Restricted Use Pesticide.
	<i>metaldehyde</i> Deadline Bullets 4% B		0.25 lb/1000 sq ft	
	Slug-Geta 2% B		1 lb/1000 sq ft	

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PEST	INSECTICIDE	MOA	AMOUNT/100 GAL WATER	REMARKS AND PRECAUTIONS
Thrips	<i>acetamiprid</i> Tristar 30SG	4A	3.5 Tbsp	Treat foliage and flowers when thrips are detected. It is often necessary to repeat the application at 7–10 day intervals to control heavy infestations.
	<i>imidacloprid</i> Merit, others	4A	Consult label	
	Oils (horticultural)		1 qt	
	<i>spinosad</i> Conserve SC	5	22 oz	
Twolined Spittlebug	Orthene 9.4% EC Merit	4A	4.69 qt	Two generations per year in Georgia. Treat when spittle masses appear in turf to avoid problems with adult feeding on ornamentals.
	Various pyrethroids	1B	See label	See note below.
Whitefly	<i>acephate</i> Orthene, etc.	1B	Consult label	
	<i>acetamiprid</i> Tristar 3 0SG	4A	2.7–5.3	
	<i>afidopyropen</i> Ventigra	9D	1.4 fl oz—aphids 4.8–7.0 fl oz—all others	
	<i>clothianidin</i> Arena, Celero	4A	3–4 oz	Treat when whiteflies are first noticed and repeat as needed.
	<i>dinotefuran</i> Safari 20 SG, Zylam	4A	See label	
	<i>pyriproxifen</i> Distance IGR	7C	6–8 oz	
	<i>imidacloprid</i> Merit, others	4A	Follow label directions	
	<i>Isaria fumorosea</i> Preferal	UN	14–28 oz	
	<i>pyrifluquinazon</i> Rycar	UN	2.4–3.2 oz 0.025–0.0275 oz	
	Oils		1–3 gal	
	Insecticidal soaps		1–2 gal	
	<i>flupyradifurone</i> Altus	4D	10.5–14.0 oz	
	<i>spiromesifen</i> Forbid	23	2–4 oz	

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NOTE: The following pesticides are labeled for the uses listed, however, there are different formulations of particular compounds and you must make sure the pesticide used is properly labeled. All pesticides must be handled and applied in strict accordance with the label on the pesticide container. The plant which is being damaged and the site where the plant is located (greenhouse) must be listed on the label. The pests a compound is registered for are also listed on the label. The pesticides below are listed by common name and by a formulation name that is used as an example of the formulations available. Many insecticides are now off patent and there are new trade names available for these active ingredients. There are also mixtures of active ingredients plus synergists available that are not listed. For example, there are several formulations of pyrethrum combined with other active ingredients and synergists available in spray concentrates, aerosols, and space release canisters for the control of several pests. Some chemicals are labeled for use in low volume spray equipment. Proper rates must be determined by applying the proper amount of active ingredient for the area treated. The rates given below are for high volume spray equipment. Many insects are developing resistance to pesticides available on the market. Practice resistance management and rotate the insecticides used to manage a pest. With most pesticides, you should rotate the compounds used at least once during a generation time for that insect. In addition, it is desirable to rotate mode of action of compounds used. A guide to rotating modes of action is the Insecticide Resistance Action Committee

(IRAC) classification of the different mode of action sites and a letter for sub-groups. In resistance management rotations of these number/letter codes can be used to determine which compounds are different modes of action. These are listed in the table under the column heading “Mode of Action No.”

Some of the insecticides listed are extremely toxic. Handle with caution and use protective equipment required by the label. A minimum interval between application and reentry has been established. Make sure that the proper reentry period for the insecticide has been observed before allowing people without labeled, prescribed personal protective equipment to enter the treated area. These are listed in the table under the column heading “REI.”

Phytotoxicity (damage to the plant as the result of the application of a chemical) is an important consideration in controlling pests of ornamentals. Phytotoxicity is generally expressed as damage to the leaves, flowers, or stems and is observed as “burn” (browning of tissue), “chlorosis” (yellowing or bleaching of tissue), or modification of growth by deformation or stunting. There are many species and cultivars of ornamental plants with varying sensitivity to chemicals. Other environmental conditions, such as your particular growing conditions, will also affect phytotoxicity. You are encouraged to evaluate a pesticide for phytotoxicity on a few plants under your particular conditions before treating all plants.

COMMERCIAL GREENHOUSE INSECT CONTROL

PLANT	INSECT OR MITE	INSECTICIDE	AMOUNT/100 GAL WATER	REI/PHI (Days or Hours)	MOA	REMARKS
(Many flower and foliage plants)	Aphids	<i>abamectin</i> Avid 0.15EC	8 oz	12 H/ —	6	Apply as needed and repeat application at 7 day intervals or as necessary. Do not apply more than 16 fl oz/A. Use in sufficient water to obtain uniform plant coverage. Phytotoxicity has been observed in certain species of ferns.
		<i>acephate</i> Orthene TT&O 75 WSP, Pro 75 PT 1300 12% TT&O 97	½–¾ lb  Aerosol 8 oz	24 H/ —	1B	<b>Caution:</b> Phytotoxicity has occurred on the following plants: <i>Blechnum gibbum</i> , <i>Cissus antarctica</i> , <i>Ficus triangularis</i> , <i>Fittonia verschaffeltii</i> , <i>Maranta leuconeura kerchoveana</i> , <i>Pachystachya lutea</i> , <i>Placetranthus australis</i> , <i>Polypodium aureus</i> , <i>Polystichum</i> , <i>Pteris ensiformis</i> , <i>Tolmiea menziesii</i> . Before treating large plantings treat only a few plants and observe 2 weeks for varietal phytotoxicity.
		<i>acetamiprid</i> TriStar 70WSP TriStar 30SG	1 soluble bag 1.3 oz	24 H/— 12 H/—	4A	Apply as a full coverage foliar spray. The use of a non-ionic spreader-sticker adjuvant may improve control.
		<i>afidopyropen</i> Ventigra	1.4 fl oz—aphids 4.8–7.0 fl oz—all others		9D	
		<i>azadirachtin</i> Azatin 3.0 % XL, Align-XL Neemazad 4.5 EC Ornazin 3%	10–16 oz  2.25–4.5 oz 8 oz	4 H/— 12 H/— 12 H/—	18B	Must get full coverage for control but avoid excess runoff. Use fine spray; can also be applied as drench. Addition of 0.5–1% non-phytotoxic oil will enhance efficiency.
		<i>Beauveria bassiana</i> Naturalis-O BotaniGard ES Velifer	30–10 fl oz 16–32 fl oz 3–13 fl oz	4 H/— 12 H/— 12 H/0 H		Wait 48 hrs before applying fungicides.
		<i>bifenthrin</i> Talstar T&O or Attain 10 WP 7.9% 0.67 F Attain	6–32 oz 25–50 fl oz 8–40 oz aerosol	12 H/ —	3A	Apply as a full coverage foliage spray.
		<i>cyfluthrin</i> Decathlon 2E 20WP	1–2 oz 1.9 oz	12 H/ —	3A	Good coverage is necessary to provide the most effective control. Addition of a spreader/sticker may enhance control of insects on some plants.
		<i>dinotefuran</i> Safari 20 SG	0.5–1 lb for foliar 0.75–1.5 lb for drench	12 H/ —	4A	For drench, apply 4 fl oz finished solution per 6" pot. See label for ebb and flood rates.

PLANT	INSECT OR MITE	INSECTICIDE	AMOUNT/100 GAL WATER	REI/PHI (Days or Hours)	MOA	REMARKS
(Many flower and foliage plants) (continued)	Aphids (continued)	<i>fenpropathrin</i> Tame 2.4EC	10% oz	24 H/ —	3A	
		<i>flonicamid</i> 50 WDG Aria 0.7 oz package	1–3 packets (0.7–2.1 oz)	12 H/ —	9C	Repeat application every 7–28 days as necessary.
		<i>imidacloprid</i> Merit, others			4A	Follow label directions.
		<i>Isaria fumorosea</i> Preferal	14–28 oz		UN	
		<i>pyrifluquinazon</i> Rycar	2.4–3.2 oz	12 H/ —	UN	
		<i>tolfenpyrad</i> Hachi-Hachi SC	21–32 oz	12 H/ —	21A	
		<i>flupyradifurone</i> Altus	7.0–10.5 oz	4 H/ —	4D	Don't apply more than 28 fl oz per year. Do not mix with Group 3 fungicides.
	Armyworms	<i>acetamiprid</i> TriStar 30SG	2.7–5.3 oz	12 H/ —	4A	Apply as a full coverage foliage spray. The use of a non-ionic spreader-sticker adjuvant may improve control.
		<i>cyantraniliprole</i> Mainspring	1–8 oz 0.01–0.08 oz	4 H/ —	28	
		<i>dinotefuran</i> Safari 20 SG	0.5–1 lb for foliar 0.75–1.5 lb for drench	12 H/ —	4A	For drench apply 4 fl oz finished solution per 6" pot. See label for ebb and flood rates.
		<i>lambda-cyhalothrin</i> Scimitar GC	1.5–5 oz	24 H/ —	3A	
		<i>methiocarb</i> Mesurol 75WP	0.5–1 lb	24 H/ —	1A	Apply during early evening when foliage is dry. Keep greenhouse closed at least 2–4 hours.
		<i>novaluron</i> Pedestal 10%SC	6–8 fl oz	12 H/ —	15	Do not apply more than once every 30 days nor more than 2 applications per crop. Do not apply to poinsettias.
		<i>pyrethrum</i> X-clude Pyrenone, Natural Plus	See Remarks	12 H/ —	3A	Follow label directions.
		<i>pyridalyl</i> Overture 35WP	8 oz	12 H/ —	UN	2 oz soluble packets. Do not get wet.
		<i>tebufenozide</i> Confirm T/O	4–8 fl oz	4 H/ —	18A	For best results, begin applications when larvae are first observed or at first sign of feeding.
		<i>thiamethoxam</i> Flagship 25WG	2–4 oz	12 H/ —	4A	

**COMMERCIAL GREENHOUSE INSECT CONTROL**

PLANT	INSECT OR MITE	INSECTICIDE	AMOUNT/100 GAL WATER	REI/PHI (Days or Hours)	MOA	REMARKS	
(Many flower and foliage plants) <i>(continued)</i>	Broad and Clycamen Mite	<i>abamectin</i> Avid 15EC	4 oz	12 H/ —	6	Apply as needed and repeat as necessary.	
		<i>chlorfenapyr</i> Pylon	2.6–5.2 fl oz	12 H/ —	13		
		<i>pyridaben</i> Sanmite 75WP	2–4 oz	12 H/ —	21A		
		<i>sulfur</i> elemental sulfur	Follow label	12 H/ —		Do not tank mix with oils.	
	Cabbage looper	<i>azadirachtin</i> Azatin Neemazad Ornazin 3%	10–16 oz	4 H/—	18B	Must get full coverage for control but avoid excess runoff. Use fine spray; can also be applied as drench. Spray when pests first appear.	
			2.25–4.5 fl oz	12 H/—			
			8 oz	12 H/—			
		<i>Bacillus thuringiensis</i> Dipel, Thuricide, MVP, Sok-Bt, Biobit	1–4 qt	4 H/ —	11B2		Follow manufacturer's suggestions.
		<i>chlorfenapyr</i> Pylon	2.6–6.4 fl oz	12 H/ —	13		
		Insecticidal Soap M-Pede Olympic	1–2% (1–2 gal)	12 H/ —			Repeat spray weekly for 2 or 3 weeks. Thoroughly wet both surfaces of infested leaves. Use soft water when possible.
<i>pyrethrum</i> X-clude Pyrenone		Aerosol 2–12 oz/A	12 H/ —	3A	Follow label directions.		
<i>pyridalyl</i> Overture 35WP		8 oz	12 H/ —	UN	2 oz soluble packets. Do not get wet.		
<i>spinosad</i> Conserve SC	6 fl oz	4 H/ —	5				
<i>tebufenozide</i> Confirm T/O	4–8 fl oz	4 H/ —	18A	For best results, begin applications when larvae are first observed or at first sign of feeding.			
Cutworm	<i>Bacillus thuringiensis</i> Dipel, Thuricide, MVP, Sok-Bt, Biobit	1–4 qt	4 H/ —	11B2	Follow manufacturer's suggestions.		
		<i>cyantraniliprole</i> Mainspring	1–8 oz	12 H/ —	28		
		<i>cyfluthrin</i> Decathlon 2EC 20WP	1–2 oz 1.3 oz	12 H/ —	3A	(see aphids)	

PLANT	INSECT OR MITE	INSECTICIDE	AMOUNT/100 GAL WATER	REI/PHI (Days or Hours)	MOA	REMARKS
(Many flower and foliage plants)  (continued)	Cutworm (continued)	<i>lambda-cyhalothrin</i> Scimitar GC	1.5–5 oz	24 H/ —	3A	
		<i>spinosad</i> Conserve SC	6 fl oz	4 H/ —	5	
		<i>tebufenozide</i> Confirm T/O	4–8 fl oz	4 H/ —	18A	For best results, begin applications when larvae are first observed or at first sign of feeding.
	Fungus gnats	<i>acetamiprid</i> TriStar 30SG	2.7–5.3 oz	12 H/ —	4A	Apply as a directed spray to thoroughly wet the upper 0.5–1 inch of soil medium.
		<i>azadirachtin</i> Azatin 3.0% E	8 oz	4 H/ —	18B	
		<i>Bacillus thuringiensis</i> H-14 Gnatrol	1–8 pt 0.5–4 pt	4 H/ —	11B2	Apply as a soil drench or spray for larvae. Thoroughly wet the first 3–4 cm of soil. Under benches should also be treated.
		<i>chlorfenapyr</i> Pylon	5.2–10 fl oz	12 H/ —	13	
		<i>cyromazine</i> Citation 75WP	Follow label	12 H/ —	17	
		diflubenzuron (Adept) 25W	Follow label	12 H/ —	15	Do not use on poinsettias, Reiger begonias, and hibiscus.
		<i>dinotefuran</i> Safari 20 SG	0.75–1.5 lb	12 H/ —	4A	Drench by applying 4 fl oz finished solution per 6" pot. See label for ebb and flood rates.
		<i>kinoprene</i> Enstar II 5EC	1 oz/5 gal	4 H/ —	7A	Drench by submersion in solution until no more air bubbles escape.
		<i>pyriproxyfen</i> Distance	2–6 fl oz (see comments)	12 H/ —	7C	New supplemental label changes rates to a 2 oz drench and 3–6 oz drench.
		<i>resmethrin</i> 2EC resmethrin PT 1200	1–2 pt aerosol	12 H/ —	3A	Spray soil surface until thoroughly wet. Repeat at 10 day intervals, if necessary. Aerosol for adults only.
		<i>Steinernema feltiae</i> Entonem, NemaShield, Nemasys, ScanMask	Follow label	4 H/ —		Apply when small larvae first appear. Moisture and temperature are critical.
<i>thiamethoxam</i> Flagship 25WG	Follow label for drench	12 H/ —	4A	Drench may take 1–2 weeks for activity, do not leach for 7 days.		
Leafminer	<i>abamectin</i> Avid, generic 0.15EC	8 oz	12 H/ —	6	Apply as needed and repeat application at 7-day intervals or as necessary. Do not apply more than 16 fl oz or less than 8 fl oz/A. Use in sufficient water to obtain uniform plant coverage. Phytotoxicity has been observed on certain species of ferns.	

**COMMERCIAL GREENHOUSE INSECT CONTROL**

PLANT	INSECT OR MITE	INSECTICIDE	AMOUNT/100 GAL WATER	REI/PHI (Days or Hours)	MOA	REMARKS
(Many flower and foliage plants) (continued)	Leafminer (continued)	<i>acephate</i> Orthene TT& O 75 WSP, Pro 75 PT 1300 12% TT&O 97	0.33–0.75 lb Aerosol 8 oz	24 H/ —	1B	See phytotoxicity warning for aphids.
		<i>acetamiprid</i> TriStar 30SG	6.7–8 oz	12 H/ —	4A	Rotate with other insecticides. Apply as a full coverage foliar spray. The use of a non-ionic spreader-sticker adjuvant may improve control.
		<i>afidopyropen</i> Ventigra	1.4 fl oz—aphids 4.8–7.0 fl oz—all others	12 H/ —	9D	
		<i>azadirachtin</i> Azatin 3% E Neemazad Ornazin 3%	10–16 oz 2.25–4.5 fl oz 10 oz	4 H/— 12 H/— 12 H/—	18B	Must get full coverage for control but avoid excess runoff. Use fine spray; can also be applied as drench. Spray early. Make 2 applications in rotation with adulticides such as pyrethroids.
		<i>cyromazine</i> Citation 75WP	2.66 oz/A	12 H/ —	17	Apply to wet in minimum of 100 gal of water when stippling first appears.
		<i>dinotefuran</i> Safari 20 SG	0.5–1 lb for foliar 0.75–1.5 lb for drench	12 H/ —	4A	For drench apply 4 fl oz finished solution per 6" pot. See label for ebb and flood rates.
		<i>lambda-cyhalothrin</i> Scimitar GC	1.5–5 oz	24 H/ —	3A	Use for adults only.
		<i>novaluron</i> Pedestal 10% SC IGR	6–8 fl oz	12 H/ —	15	
		<i>permethrin</i> Pounce 3.2EC	20 fl oz	24 H/ —	3A	Registered for use on chrysanthemums.
		<i>thiamethoxam</i> Flagship 24WG	4–8 oz	12 H/ —	4A	
		<i>spinosad</i> Conserve SC	22 fl oz	4 H/ —	5	
	Leafroller	<i>acephate</i> Orthene TT&O 75 WSP, Pro 75 PT 1300 12% TT&O 97	½–¾ lb Aerosol 8 oz	24 H/ —	1B	See phytotoxicity warning for aphids.
		<i>cyantraniliprole</i> Mainspring	1–8 oz	4 H/ —	28	
		<i>cyfluthrin</i> Decathlon 2EC 20WP	1–2 oz 1.9 oz	12 H/ —	3A	See aphids.
		<i>pyrethrum</i> X-clude Pyrenone, Natural Plus	Aerosol 2–12 oz/A	12 H/ —	3A	Follow label directions.

PLANT	INSECT OR MITE	INSECTICIDE	AMOUNT/100 GAL WATER	REI/PHI (Days or Hours)	MOA	REMARKS
(Many flower and foliage plants) <i>(continued)</i>	Mealybug	<i>acephate</i> Orthene TT & O 75 WSP, Pro 75 PT 1300 12% TT&O 97	1/3–2/3 lb  Aerosol 8 oz	24 H/ —	1B	See phytotoxicity warning for aphids.
		<i>acetamiprid</i> TriStar 70WSP TriStar 3 OSG	2–4 soluble bags 2.7 oz	24 H/— 12 H/—	4A	Tank mix with surfactant or pyrethroid may improve control of adults. Apply as a full coverage foliage spray. The use of a non-ionic spreader-sticker adjuvant may improve control.
		<i>afidopyropen</i> Ventigra	1.4 fl oz—aphids; 4.8–7.0 fl oz—all others	12 H/—	9D	
		<i>azadirachtin</i> Azatin Neemazad Ornazin 3%	10–16 oz 2.25–4.5 oz 8 oz	4 H/— 12 H/— 12 H/—	18B	Must get full coverage for control but avoid excess runoff. Use fine spray. Can also be applied as drench. Addition of 0.5–1% non-phytotoxic oil will enhance efficacy.
		<i>Beauveria bassiana</i> Naturalis-O Velifer	30–100 fl oz 3–13 fl oz	4 H/— 12 H/0 H		Wait 48 hours before applying a fungicide.
		<i>bifenthrin</i> Talstar T&O or Attain 10WP 7.9% 67F (Attain)	8–40 oz 25–50 fl oz 8–40 oz aerosol	12 H/ —	3A	Apply as a full coverage foliar spray.
		<i>cyfluthrin</i> Decathlon 2EC	1–2 oz	12 H/ —	3A	(See aphids).
		<i>dinotefuran</i> Safari 20 SG	0.5–1 lb for foliar 0.75–1.5 lb for drench	12 H/ —	4A	For drench apply 4 fl oz finished solution per 6" pot. See label for ebb and flood rates.
		<i>fenpropathrin</i> Tame 2.4EC	10% oz	24 H/ —	3A	
		<i>flonicamid</i> 50 WDG Aria 0.7 oz package	3–6 packets (2.1–4.3 oz)	12 H/ —	9C	Repeat application every 7–28 days as necessary.
		<i>flupyradifurone</i> Altus	10.5–14.0 oz	4 H/ —	4C 5	Don't apply more than 28 fl oz per year. Do not mix with Group 3 fungicides.
		<i>fluvalinate</i> Mavrik 2EC	2–5 oz	12 H/ —	3A	
		Horticultural oils Sunspray ultrafine Saf-T-Side	1–2% (1–2 gal)	4 H/ —		Care must be taken because some plants are sensitive to oils. Thorough coverage is necessary, but do not over-apply and get excessive runoff. Use fine spray.
		<i>imidacloprid</i> Many generic formulations and names	Follow label	12 H/ —	4A	
		Insecticidal Soap M-Pede Olympic	1–2% (1–2 gal)	12 H/ —		Repeat spray after 2 or 3 days. Thoroughly wet both surfaces of infested leaves. Use soft water whenever possible.



**COMMERCIAL GREENHOUSE INSECT CONTROL**

PLANT	INSECT OR MITE	INSECTICIDE	AMOUNT/100 GAL WATER	REI/PHI (Days or Hours)	MOA	REMARKS	
(Many flower and foliage plants) (continued)	Mealybug (continued)	<i>Isaria fumorosea</i> Preferal	14–28 oz		UN		
		<i>kinoprene</i> Enstar II 5EC	6–20 oz	4 H/ —	7A	See aphid. Registered for root mealybug.	
		<i>methiocarb</i> Mesuro 75 WP	0.5–1 lb	24 H/ —	1A		
		<i>pyrifluquinazon</i> Rycar	2.4–3.2 oz	12 H/ —	UN		
		<i>spirotetramat</i> Kontos 2F	1.7 fl oz	24 H/ —	23	See label for drench instructions.	
		<i>thiamethoxam</i> Flagship 25WG Flagship 0.22G	4–8.5 oz Follow label	12 H/ —	4A	Medium treatment may take 1–2 weeks for activity. Do not leach for 7 days.	
	Slugs and Snails	<i>metaldehyde</i> Deadline B 15D	Follow label		24 H/ —		
		<i>methiocarb</i> Mesuro 75 WP	2 lb		24 H/ —	1A	Spray plants and foliage until wet. Do not use in conjunction with foliar fertilizer.
	Spider Mite	<i>abamectin</i> Avid, generic .15EC	4 oz		12 H/ —	6	Apply as needed and repeat as necessary.
		<i>acequinocyl</i> Shuttle 15 SC	6.4–12.8 fl oz		12 H/ —	20B	Do not apply through any type of irrigation. Wetting agent can be used.
		<i>Beauveria bassiana</i> Velifer	3–13 fl oz		12 H/ 0 H		
		<i>cyflumetofen</i> Sultan	13.7 fl oz		12 H/ —	25	No more than 2 applications per crop cycle.
		<i>bifenazate</i> Floramite	2–4 oz		12 H/ —	UN	Do not apply in successive applications. Use at least 2 alternative products between Floramite treatments.
		<i>chlorfenapyr</i> Pylon	2.6–5.2 fl oz		12 H/ —	13	
		<i>clofentezine</i> Ovation	2 oz		12 H/ —	10A	Limited number of plants (see label).
		<i>etoxazole</i> TetraSan 5WDG	8–16 oz		12 H/ —	10B	Limited to 2 applications per crop cycle.
		<i>fenazaquin</i> Magus	12–24 oz		12 H/ —	21	
		<i>fenbutatin-oxide</i> Vendex 50WP	8–16 oz		48 H/ —	12B	Do not add oil to spray solution.
		<i>fenpyrozimate</i> Akari 5 SC	16–24 fl oz		12 H/ —	21A	

PLANT	INSECT OR MITE	INSECTICIDE	AMOUNT/100 GAL WATER	REI/PHI (Days or Hours)	MOA	REMARKS
(Many flower and foliage plants) (continued)	Spider Mite (continued)	<i>fluvalinate</i> Mavrik 2E	2–5 oz	12 H/ —	3A	
		<i>hexythiazox</i> Hexygon DF	1–2 oz	12 H/ —	10A	
		horticultural oil Sunspray ultrafine, Saf-T-Side, Triact	1–2 gal	4 H/ —		
		Insecticidal Soap M-Pede Olympic	1–2% (1–2 gal)	12 H/ —		Repeat spray weekly for 2 or 3 weeks. Thoroughly wet both surfaces of infested leaves. Use soft water whenever possible.
		<i>pyridaben</i> Sanmite 75WP	2–4 oz	12 H/ —	21A	
		<i>spinosad</i> Conserve SC	22 fl oz	4 H/ —	5	
		<i>spiromesifen</i> Judo 4 F, Savate	1–4 oz	12 H/ —	23	Effective on nymphal and egg stages.
		<i>spirotetramat</i> Kontos 2F	1.7 fl oz	24 H/ —	23	See label for drench instructions.
	Thrips	<i>abamectin</i> Avid, generic 0.15EC	8 oz	12 H/ —	6	Apply as needed and repeat application at 7 day intervals or as necessary. Do not apply more than 16 fl oz or less than 8 fl oz/A. Use in sufficient water to obtain uniform plant coverage. Phytotoxicity has been observed in certain species of ferns.
		<i>acetamiprid</i> TriStar 30SG	4–8 oz	12 H/ —	4A	Apply as a full coverage foliage spray. The use of a non-ionic spreader-sticker adjuvant may improve control.
		<i>acephate</i> Orthene TT&O 75 WSP, Pro 75 PT 1300 12% TT & O 97	1/3–2/3 lb  Aerosol 8 oz	24 H/ —	1B	Aerosol may also be used for aphid control. See phytotoxicity warning for aphids.
		<i>azadirachtin</i> Azatin 3% E neemazad 4.5% Ornazin 3%	12–16 oz 2.25–4.5 oz 8 oz	4 H/— 12 H/— 12 H/—	18B	Must get full coverage for control but avoid excess runoff. Use fine spray; can also be applied as drench. Addition of 0.5–1% non-phytotoxic oil will enhance efficacy.
		<i>Beauveria bassiana</i> Naturalis-O BotaniGard ES Velifer	30–100 fl oz 32–64 fl oz 3–13 fl oz	4 H/— 12 H/— 12 H/0 H		
		<i>chlorfenapyr</i> Pylon	10–20 fl oz	12 H/ —	13	

**COMMERCIAL GREENHOUSE INSECT CONTROL**

PLANT	INSECT OR MITE	INSECTICIDE	AMOUNT/100 GAL WATER	REI/PHI (Days or Hours)	MOA	REMARKS
(Many flower and foliage plants) (continued)	Thrips (continued)	<i>cyfluthrin</i> Decathlon 2EC 20WP	1–2 oz 1.9 oz	12 H/ —	3A	(See aphids)
		<i>dinotefuran</i> Safari 20 SG	4–8 oz for foliar, 12–24 oz for drench	12 H/ —	4A	Suppression only. For drench apply 4 fl oz of finished solution per 6" pot. See label for ebb and flood rates.
		<i>flonicamid</i> 50 WDG Aria 0.7 oz. package	3–4 packets (2.1–2.9 oz)	12 H/ —	9C	Repeat application every 7–28 days as necessary.
		<i>fluvalinate</i> Mavrik 2E	2–5 oz	12 H/ —	3A	Not for western flower thrips.
		<i>imidacloprid</i> Marathon 1G, 60WP	9–15 oz/1000 sq ft	12 H/ —	4A	Use 60WP as drench.
		Insecticidal Soap M-Pede Olympic	1–2% (1–2 gal)	12 H/ —		Repeat spray weekly for 2 or 3 weeks. Thoroughly wet both surfaces of infested leaves. Use soft water whenever possible.
		<i>lambda-cyhalothrin</i> Scimitar GC	1.5–5 oz	24 H/ —	3A	
		<i>novaluron</i> Pedestal 10%SC	6–8 fl oz	12 H/ —	15	Do not apply more than once every 30 days nor make more than 2 applications per crop. Do not apply to poinsettias.
		<i>pyrethrum</i> X-clude, Natural Plus Pyrenone	aerosol 2–12 oz/A	12 H/ —	3A	Follow label directions.
		<i>pyridalyl</i> Overture 35WP	8 oz	12 H/ —	un	2 oz soluble packets. Do not get wet.
		<i>spinosad</i> Conserve SC	6 fl oz	4 H/ —	5	
		<i>thiamethoxam</i> Flagship 25WG	4–8.5 oz	12 H/ —	4A	For leaf feeding thrips.
		<i>tolfenpyrad</i> Hachi-Hachi SC	14–28 oz	12 H/ —	21A	
	Whitefly	<i>abamectin</i> Avid, generic 0.15EC	8 fl oz	12 H/ —	6	For suppression of pests, young must be contacted by spray.
		<i>acephate</i> Orthene TT & O 75 WSP, Pro 75 PT 1300 12% TT&O 97	½–¾ lb  Aerosol 8 oz	24 H/ —	1B	See phytotoxicity warning for aphids.
		<i>acetamiprid</i> TriStar 70WSP TriStar 30SG	2–4 soluble bags 2.7–5.3 oz	24 H/— 12 H/—	4A	Tank mixing with surfactant or pyrethroid may improve control of adults. Apply as a full coverage foliage spray. The use of a non-ionic spreader-sticker adjuvant may improve control.
		<i>afidopyropen</i> Ventigra	1.4 fl oz—aphids 4.8–7.0 fl oz—all others	12 H/ —	9D	

PLANT	INSECT OR MITE	INSECTICIDE	AMOUNT/100 GAL WATER	REI/PHI (Days or Hours)	MOA	REMARKS
(Many flower and foliage plants) (continued)	Whitefly (continued)	<i>azadirachtin</i> Azatin 3% E Neemazad Ornazin 3%	10–16 oz 2.25–4.5 oz 10 oz	4 H/— 12 H/— 12 H/—	18B	Must get full coverage for control but avoid excess runoff. Use fine spray. Can also be applied as drench. Ensure good coverage to top and bottom of leaves.
		<i>Beauveria bassiana</i> Naturalis-O BotaniGard ES Velifer	30–100 fl oz 16–32 fl oz 3–13 fl oz	4 H/— 12 H/— 12 H/0 H		
		<i>bifenthrin</i> Talstar T&O or Attain 10WP 7.9% Attain	6–32 oz 25–50 fl oz aerosol	12 H/ —	3A	Apply as a full coverage foliar spray.
		<i>cyfluthrin</i> Decathlon 2E	1–2 oz	12 H/ —	3A	(See aphids).
		<i>dinotefuran</i> Safari 20 SG	0.25–0.5 lb for foliar 0.75–1.5 lb for drench	12 H/ —	4A	For drench, apply 4 fl oz finished solution per 6" pot.
		<i>fenpropathrin</i> Tame 2.4EC	5.33–10.66 oz/100 gal	24 H/ —	3A	
		<i>fenvalerate</i> Pydrin 2.4EC	5–10 oz	12 H/ —	3A	
		<i>flonicamid</i> 50 WDG Aria 0.7 oz package	4–6 packets (2.9–4.3 oz)	12 H/ —	9C	Repeat application every 7–28 days as necessary.
		<i>fluvalinate</i> Mavrik 2E	2–5 oz	12 H/ —	3A	
		Horticultural oils Sunspray ultrafine Saf-T-Side	1–2% (1–2 gal)	4 H/ —		Care must be taken because some plants are sensitive to oils. Thorough coverage is necessary but do not over-apply and get excessive runoff. Use fine spray.
		<i>imidacloprid</i> Marathon 1G, 60WP Marathon II, Others	9–15 oz/1000 sq ft 1.7 fl oz	12 H/ —	4A	Use 60WP as drench. <i>Imidacloprid</i> is also available as a generic product under many names. Also available as Corectect tablets.
		Insecticidal Soap M-Pede Olympic	1–2% (1–2 gal)	12 H/ —		Thoroughly wet both surfaces of infested leaves. Use soft water whenever possible.
		<i>Isaria fumorosea</i> Preferal	14–28 oz	4H/ —	UN	
		<i>kinoprene</i> Enstar II 5EC	6–20 oz	4 H/ —	7A	(See aphids).
		<i>lambda-cyhalothrin</i> Scimitar GC	1.5–5 oz	24 H/ —	3A	

**COMMERCIAL GREENHOUSE INSECT CONTROL**

PLANT	INSECT OR MITE	INSECTICIDE	AMOUNT/100 GAL WATER	REI/PHI (Days or Hours)	MOA	REMARKS
(Many flower and foliage plants) (continued)	Whitefly (continued)	<i>novaluron</i> Pedestal 10%SC	6–8 fl oz	12H/ —	15	Do not apply more than once every 30 days nor make more than 2 applications per crop. Do not apply to poinsettias.
		<i>pymetrozine</i> Endeavor 50WG	2.5–5 oz	12 H/ —	9B	
		<i>pyridaben</i> Sanmite 75WP	2–4 oz	12 H/ —	21A	
		<i>pyrifluquinazon</i> Rycar	1.6–3.2 oz	12 H/ —	UN	
		<i>pyriproxifen</i> Distance	6–8 fl oz	12 H/ —	7C	Target crawlers. Apply no more than 2 times/crop cycle. Do not apply to poinsettias.
		<i>pyrethrum</i> X-clude, Pyrenone, Natural Plus	aerosol 2–12 oz/A	12 H/ —	3A	Follow label direction.
		<i>resmethrin</i> SBP-1382 2E PT 1200	1 pt aerosol	12 H/ —	3A	Use on begonia, fuchsia, salvia, poinsettia, coleus, chrysanthemum, geranium, petunias, aster, calendula, marigolds, roses, azalea, and ivy.
		<i>spiromesifen</i> Judo 4F	1–4 oz	12 H/ —	23	Effective on nymphal and egg stages.
		<i>spirotetramat</i> Kontos 2F	1.7 fl oz	24 H/ —	23	See label for drench instructions.
		<i>flupyradifurone</i> Altus	10.5–14.0 oz	4 H/ —	4D	Don't apply more than 28 fl oz per year. Do not mix with Group 3 fungicides.
	<i>thiamethoxam</i> Flagship 25WG Flagship 0.22G	4–8.5 oz Follow label	12 H/ —	4A	Medium treatment may take 1–2 weeks for activity. Do not leach for 7 days.	
	Broad and Clycamen Mite	<i>abamectin</i> Avid 0.15EC	4 oz	12 H/ —	6	Apply as needed and repeat as necessary.
		<i>chlorfenapyr</i> Pylon	2.6–5.2 fl oz	12 H/ —	13	
		<i>pyridaben</i> Sanmite 75WP	2–4 oz	12 H/ —	21A	
		<i>sulfur</i> elemental sulfur	Follow label	12 H/ —		Do not tank mix with oils.

## COMMERCIAL GREENHOUSE AND FIELD PRODUCTION WEED CONTROL

HERBICIDE	MOA	AMOUNT OF FORMULATION PER ACRE	POUNDS ACTIVE INGREDIENT PER ACRE	REI (Hours)	REMARKS AND PRECAUTIONS
<b>PREEMERGENCE</b> <sup>1, 2, 3, 4</sup> <b>HERBACEOUS FLOWERING PLANTS</b>					
<i>napropamide</i> Devrinol 2G Devrinol 50DF	15	100–150 lb 8–12 lb	2–4	12 H	Good at controlling several annual grasses and broadleaf weeds. Can be used over-the-top on many established bedding plants (see label).
<i>pendimethalin</i> Pendulum 3.3 EC Pendulum AquaCap 3.8 ACS Pendulum 2 GR Corral 2.68 GR	3	3.6–7.2 pt 2.1–4.2 qt 75–100 lb 76–114 lb	1.4–3 2–4 1.5–2 2–3	24 H	Apply to established plantings to control annual grass and certain broadleaf weeds. On most bedding plants, do not apply within 4 weeks of transplanting. See label for details. <b>DO NOT</b> use in greenhouses.
<i>trifluralin</i> Treflan 5G	3	80 lb	4	12 H	Do not apply to seeded beds or to non-rooted plants or use in greenhouses. Refer to label for soil texture restrictions. Use the Treflan products registered for ornamental use (several companies market the 5G formulation and all have different labels).
<b>POSTEMERGENCE: CONTROL OF ANNUAL AND PERENNIAL GRASSES</b>					
<i>fluazifop-P</i> Ornamec 0.5 lb /gal.	1	2.3–3 qt	0.25–0.38	12 H	Apply postemergence over-the-top to actively growing grasses that are not drought stressed. Refer to label to determine best rate for the species/size of grass you are trying to control. Refer to label to determine if a surfactant should be added to the spray mix. If so, consider the use of a non-ionic surfactant, as oil type adjuvants tend to cause more damage to desirable plant foliage. <b>DO NOT</b> apply these herbicides to ornamental grasses. Foliage of some ornamental flower species can be damaged by <i>fluazifop</i> .
Fusilade II 2 lb /gal.		1–1.5 pt	0.25–0.38		
<i>clethodim</i> Envoy Plus 0.97 lb /gal	1	17–34 fl oz	0.12–0.25	24 H	
<i>fenoxaprop</i> Acclaim Extra 0.57 lb /gal.	1	1.2–2.4 pt	0.09–0.17	24 H	
<i>sethoxydim</i> Segment 1 lb /gal.	1	2.25–3.75 pt	0.28–0.47	121 H	
<b>POSTEMERGENCE: AREAS ADJACENT TO ORNAMENTALS</b>					
<i>glufosinate</i> Finale 1 lb/gal	10	3–6 qt	0.75–1.5	12 H	Controls a wide range of broadleaf weeds and grasses. <b>DO NOT</b> permit spray to contact foliage or green stems of desirable ornamentals.
<i>glyphosate</i> Various trade names and formulations available	9	See label	See label	4–12 H	Controls a wide range of broadleaf weeds and grasses. <b>DO NOT</b> permit spray to contact foliage or green stems of desirable ornamentals or turfgrasses. <b>DO NOT</b> use Roundup Pro in greenhouses with desirable vegetation or when air circulation/ventilation systems are running. Use caution when spraying <i>glyphosate</i> around greenhouse air intakes. Small air borne spray droplets can enter greenhouses through air intakes causing damage to plant materials in greenhouse.

## ANNUAL FLOWERS AND HERBACEOUS PERENNIALS

HERBICIDE	MOA	AMOUNT OF FORMULATION PER ACRE	POUNDS ACTIVE INGREDIENT PER ACRE	REI (Hours)	REMARKS AND PRECAUTIONS
<b>PREEMERGENCE: FOR USE IN GREENHOUSES, LATHHOUSES, AND SHADE STRUCTURES.</b>					
<i>flumioxazin</i> BroadStar 0.25GR SureGuard 51WDG	14	150 lb 8–12 oz	0.375 0.25–0.38	12 H	Provides excellent control of many annual weeds. Great in combination with <i>glyphosate</i> . Can be used in a greenhouse / shade structure as long as desirable plants are not in greenhouse.
<i>indaziflam</i> Merengo 0.622 lbs/gal 0.224 GR	29	9–18.5 fl oz 200–400 lb pr	0.0437–0.087 44.8–89.6	12 H	Controls a wide range of annual weeds in select woody ornamentals. Provides one of the longest preemergence weed control windows of any preemergence herbicide. Great in combination with <i>glyphosate</i> . Cannot be used with desirable plants in greenhouse.
<b>POSTEMERGENCE: FOR USE IN GREENHOUSES, LATHHOUSES, AND SHADE STRUCTURES.</b>					
<i>diquat</i> Reward 2 lb/gal	22	1–2 qt/100 gal of water	1–2	24 H	Do not allow spray drift to contact desirable plants. Post-emergent applications provide contact kill of most herbaceous plant material. Add surfactant to mixture. Poor on perennials with rhizomes or tubers.
<i>fluazifop-P</i> Ornamec 0.5 lb/gal	1	2.3–3 qt	0.25–0.38	12 H	Only controls annual and perennial grasses. Apply postemergence over-the-top to actively growing grasses, which are not drought-stressed, according to plant size limitations shown on the label. A surfactant is required for both products (add surfactant so that the final spray solution is 0.25% v/v surfactant (0.5 oz surfact/gallon). <b>DO NOT</b> apply these herbicides to ornamental grasses. Foliage of some ornamental flower species can be damaged by <i>fuazifop</i> (see label). <b>For spot spraying use 0.75 oz of Fusilade II (plus 0.5 oz of a non-ionic surfactant) per gallon of water.</b>
Fusilade II 2 lb/gal		1–1.5 pt	0.25–0.38		
<i>glufosinate</i> Finale 1 lb/gal	10	3–6 qt	0.75–1.5	12 H	May be used to control emerged weeds in greenhouses and shadehouses. Air circulation fans must be turned off during application. Avoid spray droplet drift and direct contact with foliage and green stems of ornamentals. Poor on perennials with rhizomes or tubers.
<i>glyphosate</i> Various trade names and formulations available	9	See label	See label	4–12 H	Controls a wide range of broadleaf weeds and grasses. <i>Glyphosate</i> is systemic, and will move throughout treated plant. Good on most difficult weeds (i.e. yellow and purple nutsedge). Can be used in greenhouses that do not contain desirable vegetation. <b>DO NOT</b> use <i>glyphosate</i> in greenhouses when air circulation/ventilation systems are running. Not all formulations of <i>glyphosate</i> are labeled for this application. Check label for compliance. <b>USE ONLY A BRAND RECOMMENDED FOR THIS USE!</b>
<i>Potassium salts of fatty acids</i> Various trade names are available	NC	See label	See label	See label	Provides postemergence, contact control of mosses, algae, liverworts, and lichens inside greenhouses, on growing containers and benches. Do not allow spray to contact foliage of desirable ornamentals. Poor on perennials with rhizomes or tubers.
<i>Sodium chloride</i> Rock Salt	NC	10 lb/100 sq ft	10 lb/100 sq ft	0 H	Provides both pre and postemergence control of weeds under the greenhouse benches. Can be used to spot treat small weeds (1/8–1/4 cup NaCl preplant). No restriction on plant materials in greenhouse at time of treatment. Gloves are recommended if treatments are applied by hand. Care should be taken when using NaCl, as product is mobile, and can move (leach) to property surrounding the greenhouse, and damage sensitive plants or contaminate water supplies.
<i>Sodium chlorate + Sodium metaborate</i> Barespot	NC	870–1740 (2–4 lb/100 sq ft)	683–1396	See label	Can be used under greenhouse benches to control unwanted vegetation. Also provides a short period of pre-emergent weed control. Apply granular herbicide anytime when actively growing plants can be seen. Product can be used in a greenhouse when desirable plants are present.

1. All preemergent herbicides require a rain or irrigation event in order for herbicide activation to occur (approximately 0.5–1" of water). If no rain event occurs and no supplemental watering is provided after a pre-emergent herbicide application, weed control can be extremely poor.
2. Most preemergent herbicides will only control germinating weed seed. Generally, they will not control weeds after they have become established (1st or 2nd true leaf), and most preemergent herbicides will not control weeds coming from vegetative structures (i.e. yellow and purple nutsedge).

3. As long as the treated area remains undisturbed; most preemergent herbicides will provide weed control for 2–4 months in most growing mediums.
4. Do not apply preemergence herbicides to seeded beds or to non-rooted plants.

# COMMERCIAL INTERIOR PLANTSCAPES INSECT CONTROL

Shimat Joseph, Associate Professor, Entomology  
Will Hudson, Extension Entomologist

Note: People without proper application protective clothing must not enter treated area until plants are dry or as stipulated on the label. If possible, remove infested plants from living and eating areas prior to spray application. Place plants outdoors or in an area not likely to come in contact with people, pets,

or food while spraying and while plants are wet. In most situations plants can be returned to original location when they are dry. If plants cannot be removed follow label precautions.

PLANTS	INSECT OR MITE	INSECTICIDE AND FORMULATION	AMOUNT/100 GAL WATER	AMOUNT PER GALLON	MOA	COMMENTS
Many (flower and foliage. Check label.)	Aphid	<i>afidopyropen</i> Ventigra	1.4 fl oz—aphids 4.8–7.0 fl oz—all others		9D	
		<i>Beauveria bassiana</i> Botani Gard ES	0.5–1 lb	0.08–1.6 oz		
		<i>cyfluthrin</i> Decathlon	1.3–1.9 oz		3A	Follow label directions.
		<i>flonicamid</i> Aria 50 WDG	1–6 packets (0.7–4.3 oz)		9C	Repeat application every 7–28 days as necessary.
		<i>fluvalinate</i> Mavrik	4–10 oz		3A	Follow label directions.
		<i>horticultural oil</i> Sunspray ultrafine, Saf-T-Side, Triact 90EC	1–2%	1–2%		Thorough coverage is necessary, spray must contact pest to be effective.
		<i>imidacloprid</i> Merit, Marathon, many other names			4A	Per label directions.
		<i>insecticidal soap</i> M-Pede	1–2%	1–2%		Thorough coverage is necessary, spray must contact pest to be effective. Repeat spray 3 times at 5–7 day interval. Soap could make floor slippery.
		<i>Isaria fumorosea</i> Preferal	14–28 oz	0.14–0.28 oz	UN	
		<i>kinoprene</i> Enstar 5E	6–10 oz		7A	Follow label directions.
		Naturalis-O	30–100 fl oz	0.30–1 fl oz		
		<i>pymetrozine</i> Endeavor	2–5 oz		9B	Follow label directions.
		<i>pyriproxyfen</i> Distrance	6–8 fl oz	0.02 oz (0.6 ml)	7C	Follow label directions.
		<i>spirotetramat</i> Kontos 2F	1.7 fl oz		23	Follow label directions.
		Scale	<i>cyfluthrin</i> Decathlon	1.3–1.9 oz	¼ tsp	3A
	<i>dinotefuran</i> Safari 20 SG			0.5–1 tsp	5A	Also effective on armored scale.
	<i>horticultural oils</i> Sunspray ultrafine, Saf-T-Side, Triact 90EC		1–2%	1–2%		Care must be taken because some plants are sensitive to oils. Thorough coverage is necessary but do not over apply. Use fine spray.
	<i>imidacloprid</i> Marathon, Others				4A	Follow label. Many names and formulations are available.



**COMMERCIAL INTERIOR PLANTSCAPES INSECT CONTROL**

PLANTS	INSECT OR MITE	INSECTICIDE AND FORMULATION	AMOUNT/100 GAL WATER	AMOUNT PER GALLON	MOA	COMMENTS	
Many (flower and foliage. Check label.)	Scale (continued)	<i>insecticidal soap</i> M-Pede	1–2%	1–2%		Thorough coverage necessary. Spray must contact pest to be effective. Soap could make floor slippery.	
		<i>pyrethrum</i> PT 1600 A or Pyrenone	aerosol			Follow label directions.	
		<i>pyrifluquinazon</i> Rycar	6.4 oz	0.064 oz	UN		
		<i>pyriproxyfen</i> Distance	8–12 fl oz	0.02 oz (0.6 ml)	7C	Follow label directions.	
		<i>spirotetramat</i> Kontos 2F	1.7 fl oz		23	Follow label directions.	
	Fungus gnats	<i>Bacillus thuringiensis</i> Gnatrol	16–32 oz 64–128 oz	1–2 tsp 4–8 tsp	11A	For light infestation. For heavy infestation. Follow label directions.	
		<i>cryomazine</i> Citation 75% WP	2.66 oz		17	Follow label directions.	
		<i>diflubenzuron</i> Adept 25WSB	16–24 oz	0.04–0.08 (1–2 grams)	15	Follow label directions.	
		<i>kinoprene</i> Enstar AQ	16–32 fl oz		7A	Follow label directions.	
		<i>pyriproxyfen</i> Distance	3–6 fl oz	0.02 (0.6 ml)	7C	Follow label directions.	
		<i>Steinernema feltiae</i> Various brand names				Apply according to supplier's directions.	
	Mealybug	<i>afidopyropen</i> Ventigra	1.4 fl oz—aphids 4.8–7.0 fl oz—all others			9D	
		<i>Beauveria bassiana</i> Botani Gard ES	0.5–1 lb	0.08–1.6 oz			
		<i>clothianidin</i> Celero 16 WSG	2–4 oz			4A	Apply as a full coverage foliar spray or a drench.
		<i>cyfluthrin</i> Decathlon	1.3–1.9 oz			3A	Follow label directions.
		<i>dinotefuran</i> Safari 20 SG		0.5–1 tsp		5A	Also effective on armored scale.
		<i>flonicamid</i> Aria 50 WDG	1–6 packets (0.7–4.3 oz)			9C	Repeat application every 7–28 days as necessary.
		<i>horticultural oils</i> Sunspray ultrafine, Saf-T-Side, Triact 90EC	1–2%	1–2%			Care must be taken because some plants are sensitive to oils. Thorough coverage is necessary but do not over apply. Use fine spray.
		<i>imidacloprid</i> Many brands and formulations				4A	Follow label directions.

PLANTS	INSECT OR MITE	INSECTICIDE AND FORMULATION	AMOUNT/100 GAL WATER	AMOUNT PER GALLON	MOA	COMMENTS
Many (flower and foliage. Check label.)	Mealybug (continued)	<i>insecticidal soap</i> M-Pede	1–2%	1–2%		Thorough coverage necessary, spray must contact pests to be effective. Repeat spray 3 times at 10–14 day intervals. Soap could make floor slippery.
		<i>Isaria fumorosea</i> Preferal	14–28 oz	0.14–0.28 oz	UN	
		<i>kinoprene</i> Enstar AQ	16–32 fl oz	0.16–0.32 fl oz	7A	Follow label directions.
		<i>pyriproxyfen</i> Distance	8–12 fl oz	0.02 (0.6 ml)	7C	Follow label directions.
		<i>pyrethrum</i> PT 1600 A or Pyrenone	aerosol		3A	Follow label directions.
		<i>spirotetramat</i> Kontos 2F	1.7 fl oz		23	Follow label directions.
	Mites	<i>bifenazate</i> Floramite	2–4 oz	0.002–0.004 oz	UN	Follow label directions.
		<i>cyflumetofen</i> Sultan	13.7 oz	0.137	25	
		<i>fenazaquin</i> Magus	12–24 oz	0.12–0.24 oz	21A	
		<i>fenproximate</i> Akari 5SC	16–24 oz	0.16–0.24 oz (4.527 ml)	21A	Follow label directions.
		<i>insecticidal soap</i> M-Pede	1–2%	1–2%		Thorough coverage necessary, spray must contact pest to be effective. Repeat spray 3 times at 5–7 day intervals. Soap could make floor slippery.
		Naturalis-O	30–100 fl oz	0.30–1 fl oz		
		<i>pyrethrum</i> PT 1600 A or Pyrenone	aerosol		3A	Follow label directions.
	Thrips	<i>azadirachtin</i> Azatin			UN	Follow label directions.
		<i>Beauveria bassiana</i> Botani Gard ES	1–2 lb	1.6–3.2 oz		
		<i>cyfluthrin</i> Decathlon	1.3–1.9 oz		3A	Follow label directions.
		<i>flonicamid</i> Aria 50 WDG	1–6 packets (0.7–4.3 oz)		9C	Repeat application every 7–28 days as necessary.
		<i>insecticidal soap</i> M-Pede	1–2%	1–2%		
		Naturalis-O	30–100 fl oz	0.30–1 fl oz		

**COMMERCIAL INTERIOR PLANTSCAPES INSECT CONTROL**

PLANTS	INSECT OR MITE	INSECTICIDE AND FORMULATION	AMOUNT/100 GAL WATER	AMOUNT PER GALLON	MOA	COMMENTS
Many (flower and foliage. Check label.)	Whitefly	<i>afidopyropen</i> Ventigra	1.4 fl oz—aphids 4.8–7.0 fl oz—all others		9D	
		<i>azadirachtin</i> Azatin			UN	Follow label directions.
		<i>Beauveria bassiana</i> Botani Gard ES	0.5–1 lb	0.08–1.6 oz		
		<i>cyfluthrin</i> Decathlon 20WP	1.3–1.9 oz		3A	Follow label directions.
		<i>diflubenzuron</i> Adept 25WSB	16–24 oz	0.04–0.08 oz (1–2 grams)	15	Follow label directions.
		<i>dinotefuran</i> Safari 20 SG		0.5–1 tsp	5A	Also effective on armored scale.
		<i>flonicamid</i> Aria 50 WDG	1–6 packets (0.7–4.3 oz)		9C	Repeat application every 7–28 days as necessary.
		<i>horticultural oils</i> Sunspray ultrafine, Saf-T-Side, Triact 90EC	1–2%	1–2 oz		Care must be taken because some plants are sensitive to oils. Thorough coverage is necessary but do not over apply. Use fine spray.
		<i>imidacloprid</i> Many brands			4A	Follow label directions.
		<i>insecticidal soap</i> M-Pede	1–2%	1–2%		Thorough coverage necessary, spray must contact pest to be effective. Repeat spray 3 times at 5–7 day intervals. Soap could make floor slippery.
		<i>Isaria fumorosea</i> Preferal	14–28 oz	0.14–0.28 oz	UN	
		<i>kinoprene</i> Enstar AQ	16–32 fl oz	0.16–0.32 fl oz	7A	
		Naturalis-O	30–100 fl oz	0.30–1 fl oz		
		<i>pymetrozine</i> Endeavor	2–5 oz		9B	Follow label directions.
		<i>pyrethrum</i> PT 1600 A or Pyrenone	aerosol		3A	Follow label directions.
<i>pyriproxyfen</i> Distance	6–8 fl oz	0.02 oz (0.6 ml)	7C	Follow label directions.		
<i>spirotetramat</i> Kontos 2F	1.7 fl oz		23	Follow label directions.		

# ORNAMENTALS WEED RESPONSE TO HERBICIDES

Mark A. Czarnota, Extension Horticulturist—Weed Science

TIME OF APPLICATION	DICHLORBENIL	DIMETHENAMID	FLUMIOXAZIN	INDAZIFLAM	ISOXABEN	NORFLURAZON	OXADIAZON	SIMAZINE	ORYZALIN
	PREEMERGENCE								
<b>PERENNIAL WEEDS (control of plants)</b>									
bahiagrass		P	P	P	P	P	P	P	P
bermudagrass		P	P	P	P	P	P	P	P
dallisgrass		P	P	P	P	P	P	P	P
nutsedge, purple	G	P	P	P	P	P	P	P	P
nutsedge, yellow	G	F	P	P	P	P	P	P	P
tall fescue		P	P	P	P	P	P	P	P
wild garlic / wild onion	G	P	P	P	P	P	P	P	P
<b>ANNUAL GRASSES (control of plants from seed with pre-herbicides, control of plant with post-herbicides)</b>									
annual bluegrass	G	G	E	E	P-F	E	G	G	E
crabgrass	G	G	E	E	P-F	G	G	G	E
goosegrass	G	G	E	E	P	G	E		E
<b>ANNUAL SMALL SEEDED BROADLEAF WEEDS (control of plants from seed with pre-herbicides, control of plant with post-herbicides)</b>									
bittercresses		E	E	E	G	G	G	F	G
common chickweed	G	E	E	E	E	G	G	E	G
deadnettle	G			E		G		G	G
dodder	E			E					
henbit	G		E	E	E	F	G	E	G
hop clovers	G			E	G		G	E	
knotweed	G		E	E		G	G	E	G
lespedeza	G			E	F		G	E	
Morningglories	F	F	G	E	G	F	F	G	F
mustards	G	G	G	E	F		E	E	P
niruri / phyllanthus		E	E	E	E	G	G	G	G
spurge	G	E	E	E	E	G	F	E	G
woodsorrel	G	E	E	E	E	P-F	E	E	G

Key to Response Symbols: E—Excellent Control (> 90%); G—Good Control (70–90%); F—Fair Control (50–70%); P—Poor Control (< 50%)

If no symbol is given, weed response is unknown.

**ORNAMENTALS WEED RESPONSE TO HERBICIDES**

TIME OF APPLICATION	DICHLORBENIL	DIMETHENAMID	FLUMIOXAZIN	INDAZIFLAM	ISOXABEN	NORFLURAZON	OXADIAZON	SIMAZINE	ORYZALIN
	PREEMERGENCE								
PERENNIAL BROADLEAF WEEDS (control of plants from seed with pre-herbicides, control of plant with post-herbicides)									
clovers	G	G	E	G	G		G	E	G
dandelion	G		E	G	G		G	G	G
dichondra	P (labeled)		E						
docks	G		E		G				
Florida betony	E					P			
mallow			E	G		G	G	G	G
mouseear chickweed	G		E	G			G	G	G
mugwort	E								
pennywort	G								
plantain			G	G	G		G		G

TIME OF APPLICATION	OXYFLUORFEN	PRODIAMINE	TRIFLURALIN	CLETHODIM	CLOPYRALID	DIQUAT	FLUAZIFOP	GLUFOSINATE
	PREEMERGENCE			POSTEMERGENCE				
PERENNIAL WEEDS (control of plants)								
bahiagrass	P	P	P	G	P	P	G	P
bermudagrass	P	P	P	G-E	P	P	G-E	P
dallisgrass	P	P	P	G	P	P	G	P
nutsedge, purple	P	P	P	P	P	P	P	P
nutsedge, yellow	P	P	P	P	P	P	P	P
tall fescue	P	P	P	G	P	P	F	P
wild garlic	P	P	P	P	P	P	P	P
ANNUAL GRASSES (control of plants from seed with pre-herbicides, control of plant with post-herbicides)								
annual bluegrass	G	E	G	E	P	G	E	G
crabgrass	G	E	E	E	P	G	E	G
goosegrass	G	G	G	E	P	G	E	G

Key to Response Symbols: E—Excellent Control (> 90%); G—Good Control (70–90%); F—Fair Control (50–70%); P—Poor Control (< 50%)  
 If no symbol is given, weed response is unknown.

TIME OF APPLICATION	OXYFLUORFEN	PRODIAMINE	TRIFLURALIN	CLETHODIM	CLOPYRALID	DIQUAT	FLUAZIFOP	GLUFOSINATE
	PREEMERGENCE			POSTEMERGENCE				
<b>ANNUAL SMALL-SEEDED BROADLEAF WEEDS</b> (control of plants from seed with pre-herbicides, control of plant with post-herbicides)								
bittercresses	G	G	G	P		G	P	G
common chickweed	G	G	G	P		G	P	E
deadnettle		G	G	P		G	P	G
dodder		P		P			P	
henbit	G	G	G	P		G	P	E
knotweed				P			P	E
lespedeza	G	G	G	P	E	F	P	F
morningglories		G	F	P		G	P	P
mustards	G	F	F	P		G	P	G
niruri / phyllanthus	G	G	P	P		G	P	G
spurge	G	G	G	P		G	P	G
woodsorrel	G	G	F	P		G	P	G
<b>PERENNIAL BROADLEAF WEEDS</b> (control of plants from seed with pre-herbicides, control of plant with post-herbicides)								
clovers	G	E	WG	P	E	F	P	F
dandelion	G	G	G	P	G	G	P	P
dichondra				P	P		P	
docks	G	G	G	P	G	P	P	G
Florida betony				P	P	P	P	P
mallow	G	G	G	P		G	P	G
mouseear chickweed	G	G	G	P		G	P	G
mugwort				P	E	G	P	P
pennywort				P	G	G	P	P
plantain	G	G	G	P	P	G	P	F

Key to Response Symbols: E—Excellent Control (> 90%); G—Good Control (70–90%); F—Fair Control (50–70%); P—Poor Control (< 50%)  
If no symbol is given, weed response is unknown.

## ORNAMENTALS WEED RESPONSE TO HERBICIDES

TIME OF APPLICATION	GLYPHOSATE	HALOSULFURON	PARAQUAT	PELARGONIC ACID	SETHOXYDIM	SULFOSULFURON	TRICLOPYR
	POSTEMERGENCE						
<b>PERENNIAL WEEDS (control of plants)</b>							
bahiagrass	G	P	P	P	G	P	P
bermudagrass	G	P	P	P	G	P	P
dallisgrass	E	P	P	P	P	P	P
nutsedge, purple	G	E	P-F	P	P	E	P
nutsedge, yellow	G	E	P-F	P	P	E	P
tall fescue	E	P	P	P	G	G-E	P
wild garlic	G	G	P		P		
<b>ANNUAL GRASSES (control of plants from seed with pre-herbicides, control of plant with post-herbicides)</b>							
annual bluegrass	E	P	E	G	P-F	P	P
crabgrass	G	P	G	G	E	P	P
goosegrass	E	P	F-G	F	E	P	P
<b>ANNUAL SMALL-SEEDED BROADLEAF WEEDS (control of plants from seed with pre-herbicides, control of plant with post-herbicides)</b>							
bittercrosses	G		E	F	P		G
common chickweed	E		E	G	P		G
deadnettle	G		E	G	P		G
dodder	E				P		
henbit	E		E	G	P		G
knotweed	E		E	G	P		G
lespedeza	E			F	P		G
morningglories	G		F-G	F	P		G
mustards	E		E	G	P		G
niruri / phyllanthus	E		E		P		G
spurge	E		E	G	P		G
woodsorrel	E		E	G	P	F-G	G

Key to Response Symbols: E—Excellent Control (> 90%); G—Good Control (70–90%); F—Fair Control (50–70%); P—Poor Control (< 50%)

If no symbol is given, weed response is unknown.

TIME OF APPLICATION	GLYPHOSATE	HALOSULFURON	PARAQUAT	PELARGONIC ACID	SETHOXYDIM	SULFOSULFURON	TRICLOPYR
	POSTEMERGENCE						
PERENNIAL BROADLEAF WEEDS (control of plants from seed with pre-herbicides, control of plant with post-herbicides)							
clovers	F			P-F	P		G
dandelion	E	G		P	P		G
dichondra	E				P		G
docks	E				P		G
Florida betony	G				P		G
mallow	E			F	P		G
mouseear chickweed	E			G	P		G
mugwort	E			F	P		F
pennywort	E				P		G
plantain	E				P		G

Key to Response Symbols: E—Excellent Control (> 90%); G—Good Control (70–90%); F—Fair Control (50–70%); P—Poor Control (< 50%)

If no symbol is given, weed response is unknown.



# COMMERCIAL PLANT PRODUCTION INSECT CONTROL

Shimat Joseph, Associate Professor, Entomology  
Will Hudson, Extension Entomologist

ORNAMENTALS

(INCLUDES FLOWERS, SHRUBS, AND GROUND COVERS)

Always follow label directions and precautions when handling pesticides. Many insecticides are phytotoxic under certain conditions. Acephate may injure American elm, flowering crabapple, sugar maple, red maple, cottonwood, redbud and weigelia. Repeat applications of *acephate* may also injure hibiscus, gloxinia, philodendron, and salvia. Do not use *chlorpyrifos* on azalea, camellia, rose, or variegated ivy. *Demeton* may injure cibotium fern and croft lily. *Diazinon* may

injure ferns, gardenia, hibiscus, papaya pilea, and poinsettia. Do not use *dimethoate* on any plant not listed on the label. *Malathion* may injure ferns, virburnum, and *canaertii* juniper. Slight injury by *malathion* may occur on Boston ivy, maidenhair fern, small leaf spirea, white pine, and maple. Oils may damage the foliage of some shrubs.

PLANT	INSECT OR MITE	INSECTICIDE	AMOUNT/100 GAL WATER	MOA	COMMENTS
ANY	Aphid	<i>acephate</i> Orthene TTO, others	¾ lb	1B	
		<i>acetamiprid</i> Tristar 3 OSG	See label	4A	
		<i>afidopyropen</i> Ventigra	1.4 fl oz—aphids 4.8–7.0 fl oz—all others	9D	
		<i>clothianidin</i> Arena 5 OWDG	See label	4A	Arena can also be applied to the root zone. See label.
		<i>dinotefuran</i> Safari 20 SG	4–8 oz	4A	
		<i>horticultural oils</i>	2 gal		
		<i>imidacloprid</i> Marathon, others		4A	See label for rates. Many names and formulations available.
		<i>pymetrozine</i> Endeavor WG	2.5–5 oz	9B	
		<i>pyrifluquinazon</i> Rycar	2.4–3.2 oz 0.25–0.32 oz	UN	
		<i>spinetoram + sulfoxaflor</i> XXpire	2–2.75 oz 0.20–0.0275 oz	5 + 4C	
		<i>spirotetramat</i> Kontos 2F	1–8 oz	23	
		<i>thiamethoxam</i> Flagship 25WG	2 oz	4A	
		Asian Ambrosia Beetle		<i>bifenthrin</i> onyx	1–2 pts
<i>permethrin</i> Pounce, Astro, others	Follow label			3A	Other pyrethroids are also effective. Apply when beetles are first active in spring, and at 10–14 day intervals until green-up is complete.
Bagworm		<i>chlorantraniliprole</i> Acelepryn	1–16 oz	28	
		<i>acephate</i> Orthene TTO, Pro75	¾ lb	1B	

NOTE: A number of pyrethroid materials are available in a variety of formulations for use as broad-spectrum contact insecticides. Common names include *bifenthrin*, *cyfluthrin*, *cypermethrin*, *deltamethrin*, *lambda-cyhalothin*, *tralomethrin*, *permethrin*. Active ingredients are listed on the label.

PLANT	INSECT OR MITE	INSECTICIDE	AMOUNT/100 GAL WATER	MOA	COMMENTS
ANY	Bagworm (continued)	<i>Bacillus thuringiensis</i> Dipel 3.2 WP, others	0.5–1 lb	11	
		<i>cyantraniliprole</i> Mainspring	1–8 oz 0.01–0.08 oz	28	
		<i>tebufenozide</i> Confirm 2E	4–8 oz	18	
		Various pyrethroids		3A	
	Bark Beetles, Woodboring Beetles	<i>bifenthrin</i> onyx	See label	3A	
		<i>imidacloprid</i> Marathon, others	See label	4A	For flat-headed borers.
		<i>permethrin</i> Astro, Pounce	See label	3A	
	Foliage Feeding Beetles	<i>acephate</i> (Orthene TTO, Pro75)	1 lb	1B	Apply when damage is first detected. Pyrethroids also effective for foliage feeders.
		<i>cyantraniliprole</i> Mainspring	1–8 oz 0.01–0.08 oz	28	See note below.
		<i>cyclaniliprole</i> Sarisa	16.4–27 oz	28	
		Various pyrethroids		3A	
	Borers (Various)	<i>chlorantraniliprole</i> Acelepryn	4–32 oz	28	For clearwing borers only.
		<i>bifenthrin</i> onyx	See label	3A	Spray to drench bark. Repeat as per label to protect damaged trees from further attack.
		<i>imidacloprid</i> Marathon	See label	4A	<i>Imidacloprid</i> is effective only for flat-headed borers. Other neonicotinyl insecticides are also effective for flat-headed borers.
		<i>permethrin</i> Astro, Pounce	See label	3A	Rate varies by type of borer targeted.
	Caterpillars (various)	<i>chlorantraniliprole</i> Acelepryn	1–16 oz	28	
		<i>Bacillus thuringiensis</i> Dipel 3.2 WP Thuricide HP Sok-Bt	0.5–1 lb 0.5–1 lb 0.5–1 lb	11	Most effective when larvae are small. Repeat in 10–14 days if reinfestation or extended egg hatch occurs. See label for rates.
		<i>cyantraniliprole</i> Mainspring	1–8 oz 0.01–0.08 oz	28	

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COMMERCIAL PLANT PRODUCTION INSECT CONTROL

PLANT	INSECT OR MITE	INSECTICIDE	AMOUNT/100 GAL WATER	MOA	COMMENTS	
ANY	Caterpillars (various) (continued)	<i>cyclaniliprole</i> Sarisa	16.4–27 oz	28		
		<i>cyclaniliprole + flonicamid</i> Pradia	10–17.5 oz	28 + 29		
		<i>methoxyfenozide</i> Intrepid 2F	4–16 oz	18		
		<i>pyrethroids</i> Decathlon, Scimitar, Deltaguard, others	6 fl oz	3A		
		<i>spinosad</i> Conserve SC	4–8 oz	5		
	Imported Fire Ants	<i>hydrymethylnon</i> Amdro (bait)			20A	<b>Bait Treatments</b> Broadcast baits at rate of 1–1.5 lb/A. Apply when ants are actively foraging for food.
		<i>metaflumizone</i> Siesta (bait)			22B	
		<i>abamectin</i> Ascend, Award II, others (bait)			6	
		<i>pyriproxifen</i> Distance (bait)			7C	
		<i>methoprene</i> Extinguish (bait)			7A	
		<i>bifenthrin</i> Talstar One, Talstar 0.2% G,others	0.5–1 oz 2.3–4.6 lb	3A	<b>Broadcast Treatments</b> Follow label directions for rate. Fipronil 0.1% is not for home lawns.	
		<i>fipronil</i> Quali-Pro Fipronil 0.0143, Quali-Pro Fipronil 0.1, Chipco Choice		2B		
		<i>fipronil + bifenthrin + lambda-cyhalothrin</i> Taurus Trio	2lb/1000 sq ft	2B + 3A		Until material has been watered in (landscapes and other sites).
			<i>acephate</i> Orthene TTO, Pro75		2 tsp/mound	1B
	<i>Various pyrethroids</i>				3A	
	Japanese Beetle Adults	<i>acetamiprid</i> Tristar 3 OSG		4–8 oz	4A	
		<i>clothianidin</i> Arena		2 oz	4A	

NOTE: A number of pyrethroid materials are available in a variety of formulations for use as broad-spectrum contact insecticides. Common names include *bifenthrin*, *cyfluthrin*, *cypermethrin*, *deltamethrin*, *lambda-cyhalothin*, *tralomethrin*, *permethrin*. Active ingredients are listed on the label.

PLANT	INSECT OR MITE	INSECTICIDE	AMOUNT/100 GAL WATER	MOA	COMMENTS	
ANY	Japanese Beetle Adults (continued)	<i>cyantraniliprole</i> Mainspring	1–8 oz 0.01–0.08 oz	28		
		<i>imidacloprid</i> Marathon, etc.	See label	4A		
		<i>thiamethoxam</i> Flagship	See label	4A		
	Lace Bug	<i>acephate</i> Orthene TTO, Pro75			1B	
		<i>acetamiprid</i> Tristar	1 pack		4A	
		<i>clothianidin</i> Celero	3–4 oz		4A	
		<i>dimethoate</i> Cygon, De-fend Rebelate 23.4 EC	1.5 pt ½ lb		1B	Apply only to those plants listed on the label.
		<i>imidacloprid</i> Marathon, others			4A	See label.
		<i>pyrifluquinazon</i> Rycar	2.4–3.2 oz 0.025–0.032		UN	
		<i>spinetoram + sulfoxaflor</i> XXpire	2–2.75 oz 0.02–0.0275 oz		6 + 4C	
		<i>thiamethoxam</i> Flagship	See label		4A	
		Mites	<i>abamectin</i> AVID, others	4 oz		6
	<i>acequinocyl</i> Shuttle		6.4–12.8 oz		20B	
	<i>bifenazate</i> floramite		2–4 oz		UN	
	<i>clofentezine</i> Ovation SC				10A	
	<i>cyflumetofen</i> Sultan		13.7 oz 0.137 oz		25	
	<i>etoxazole</i> Tetrasan		8–16 oz		10B	Shadehouses and lathhouses only.
	<i>fenpyroximate</i> Akari		16–24 oz		21A	
	Hexythiazox Hexygon		1–2 oz		10A	
	Horticultural oils		1–2 gal			
	<i>spiromesifen</i> Savate		2–4 oz		23	

NOTE: A number of pyrethroid materials are available in a variety of formulations for use as broad-spectrum contact insecticides. Common names include *bifenthrin*, *cyfluthrin*, *cypermethrin*, *deltamethrin*, *lambda-cyhalothin*, *tralomethrin*, *permethrin*. Active ingredients are listed on the label.

COMMERCIAL PLANT PRODUCTION INSECT CONTROL

PLANT	INSECT OR MITE	INSECTICIDE	AMOUNT/100 GAL WATER	MOA	COMMENTS
ANY	Scales	<i>acephate</i> Orthene TTO, Pro75	⅓ lb	1B	Work granules into soil or water thoroughly. Follow label directions.
		<i>acetamiprid</i> TriStar	2.7–5.3 oz	4A	
		<i>dimethoate</i> Cygon 23.4 EC	1.5 pt	1B	
		<i>dinotefuran</i> Safari 20 SG	4–8 oz	4A	
		<i>horticultural oils</i>	1–2 gal		
		<i>imidacloprid</i> Marathon, others	See label	4A	<i>Imidacloprid</i> is not effective on armored (hard) scales.
		pyrifluquinazon Rycar	2.4–3.2 oz 0.25–0.32 oz	UN	
		<i>pyriproxyfon</i> Distance	8–12 oz	7C	
		<i>spinetoram</i> + <i>sulfoxaflor</i> XXpire	2–2.75 oz 0.02–0.0275 oz	5 + 4C	
		<i>spirotetramat</i> Kontos 2F	1–8 oz	23	
		<i>thiamethoxam</i> Flagship	See label	4A	<i>Thiamethoxam</i> for soft scales only.
		Slug, Snail	Mesurool 75W	4 lb	
	Methiocarb Grandslam 75WP		0.5–1 lb	1A	
Spittle Bug	<i>acephate</i> Orthene TTO, Pro75	⅓ lb	1A		
	<i>imidacloprid</i> Marathon, other brands	See label	4A	See note below. See label for rates.	
	<i>Various pyrethroids</i>		3A		

NOTE: A number of pyrethroid materials are available in a variety of formulations for use as broad-spectrum contact insecticides. Common names include *bifenthrin*, *cyfluthrin*, *cypermethrin*, *deltamethrin*, *lambda-cyhalothin*, *tralomethrin*, *permethrin*. Active ingredients are listed on the label.

PLANT	INSECT OR MITE	INSECTICIDE	AMOUNT/100 GAL WATER	MOA	COMMENTS
ANY	Thrips	<i>acephate</i> Orthene TTO, Pro75		1B	
		<i>dimethoate</i> 23.4 EC		1B	
		<i>imidacloprid</i> Various brand names		4A	
		<i>spinosad</i> Conserve SC	6 oz	5	
	Whitefly	<i>acephate</i> Orthene TTO, Pro75	⅓ lb	1B	
		acetamiprid Tristar	1 pack	4A	
		<i>afidopyropen</i> Ventigra	1.4 fl oz—aphids 4.8–7.0 fl oz—others	9D	
		<i>clothianidin</i> Arena 50WDG	2 oz	4A	
		<i>endosulfan</i> Thiodan 3EC, 50 WP	1.5 pt 1 lb	2A	See label for rates.
		<i>dinotefuran</i> Safari 20 SG	4–8 oz	4A	
		<i>flonicamid</i> Aria	1–3 packets	9C	Greenhouse use only.
		<i>horticultural oils</i>	1–2 gal		
		<i>insecticidal soap</i> M-Pede	1 gal		
		<i>pymetrozine</i> Endeavor	2.5–5 oz	9B	
		<i>pyrifluquinazon</i> Rycar	2.4–3.2 oz 0.25–0.32 oz	UN	
		<i>pyriproxifen</i> Distance	6–12 oz	7C	
		<i>spinetoram + sulfoxaflor</i> XXpire	2–2.75 oz 0.02–0.0275 oz	5 + 4C	
		<i>spiromesifin</i> Savate	2–4 oz	23	
		<i>thiamethoxam</i> Flagship	See label	4A	

NOTE: A number of pyrethroid materials are available in a variety of formulations for use as broad-spectrum contact insecticides. Common names include *bifenthrin*, *cyfluthrin*, *cypermethrin*, *deltamethrin*, *lambda-cyhalothin*, *tralomethrin*, *permethrin*. Active ingredients are listed on the label.

## COMMERCIAL NURSERY PRODUCTION WEED CONTROL

HERBICIDE	MOA	BROADCAST RATE/ACRE		REI (Hours)	REMARKS AND PRECAUTIONS
		AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT		
<b>PREPLANT FUMIGATION</b>					
<i>dazomet</i> Basamid 99GR	27	350 lb	347	48–120 H	For best results apply at soil temperatures of 54–64° F. Do not apply at soil temperatures less than 43° F or more than 103° F. Uniformly apply granules to freshly tilled, moist soil with a suitable granular applicator. Activity is reduced at low soil temperatures and at low soil moisture levels. After application seal the soil by watering or by tarp (refer to Basamid label). Aerate soil by cultivation 7–12 days after application. After aeration delay planting 3–7 days, depending on soil temperature, to ensure that no gaseous residues are present. A germination test with radish seeds can be conducted to ensure that harmful residues are not present (see label). Do not apply within 3–4 feet of growing plants or closer than the dripline of trees.
<b>PREEMERGENCE<sup>1, 2, 3, 4</sup></b>					
<i>dichlobenil</i> Casoron GR Casoron CS	20	100–150 lb 1.4–4.3 gal	4–6 2–6	12 H	Apply from late fall-early spring. Controls a broad spectrum of weeds, including Florida betony and mugwort. Irrigate immediately after application or incorporate into the top 0.5" of the soil. Should be applied between November 15 and February 15. <b>DO NOT</b> apply until 4 weeks after transplanting.
<i>dimethenamid-P</i> Tower 6L	15	21–32 oz	0.98–1.5	12 H	Provides broad spectrum control of many broadleaf and grass weeds. In most cases, needs a tank mix partner ( <i>proflam</i> , <i>pendimethalin</i> , etc.). Good rotational product, and safe on a wide array of herbaceous and woody ornamentals. Newly planted ornamentals need to be established before application. Provides some yellow nutsedge control.
<i>dimethenamid-P</i> + <i>pendimethalin</i> Freehand 1.75G	15 + 3	100–200 lb	1.75–3.5	12 H	Provides broad spectrum control of many broadleaf and grass weeds. Good rotational product and safe on a wide array of herbaceous and woody ornamentals.
<i>flumioxazin</i> BroadStar 0.25GR SureGuard 51WDG	14	150 lb 8–12 oz	0.375 0.25–0.38	12 H	Provides excellent control of many annual weeds. Broadstar may be used over-the-top of many containerized ornamentals (see label). SureGuard can be used as a post directed spray to containerized and field grown ornamentals (trees) that have been established for at least 1 year. SureGuard can also be applied over-the-top of select conifers (see label for precautions and tolerant species)
<i>indaziflam</i> Merengo 0.622 lbs/gal 0.224 GR	29	9–18.5 fl oz 200–400 lb pr	0.0437–0.087 44.8–89.6	12 H	Controls a wide range of annual weeds in select woody ornamentals. Provides one of the longest preemergence weed control windows of any preemergence herbicide. Do not apply any more than 400 lb pr/A in a 12 month period. Do not allow granules applied "over-the-top" to remain in contact with foliage. If the granules should be in contact with the foliage after an application, wash off affected foliage. Do not use Marengo G on ornamentals where granules may become trapped in developing leaves or in meristematic areas (e.g. whorls of grasses and perennials such as hosta). Do not apply Marengo G to plants less than 5" in height or ornamentals breaking bud.
<i>isoxaben</i> Gallery 75DF	21	0.66–1.33 lb	0.5–1	12 H	Controls a wide variety of annual broadleaf weeds. <b>DO NOT</b> apply to newly-transplanted ornamentals until the soil has settled and no cracks are present. <b>DO NOT</b> apply to bedding plants.
<i>isoxaben dithiopyr</i> Crew 0.75G	21 + 3	100–200 lb pr	0.5–1.0 0.25– 0.5	12 H	Provides good pre-emergent control of most annual grasses and small seed broadleaf weeds. Also provides early post-emergent control of some annual grasses up to 3 tillers. Use on transplants after soil in containers is settled.

HERBICIDE	MOA	BROADCAST RATE/ACRE		REI (Hours)	REMARKS AND PRECAUTIONS
		AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT		
<b>PREEMERGENCE<sup>1,2,3,4</sup> (continued)</b>					
<i>isoxaben</i> + <i>trifluralin</i> Snapshot 2.5TG	21 + 3	100–200 lb	0.5–1 + 2–4	12 H	Controls a wide range of annual weeds in certain woody ornamentals, trees, and groundcovers. <b>DO NOT</b> apply to newly planted ornamentals until the soil has firmly settled and no cracks are present. Not recommended for applications to bedding plants. Groundcovers should be established and well-rooted prior to application. Apply 0.5" of irrigation water, or uniformly incorporate into the soil to a depth of 1–2", if rainfall is not received within 3 days of application.
<i>S-metholachlor</i> Pennant Magnum 7.62L	15	1.3–2.6 pt	1.2–2.5	24 H	Refer to label for specific species recommendations. Apply to established ornamentals or newly transplanted ornamentals after the soil has settled around roots. <b>DO NOT</b> make more than 2 applications per year. <b>DO NOT</b> apply to seedbeds, cutting beds, or unrooted cuttings. For over-the-top applications, follow with sufficient irrigation to wash spray residues from the ornamental foliage.
<i>oxadiazon</i> various trade names are available Ronstar 3G	14	100–200 lb	2–4	12 H	<b>DO NOT</b> apply to wet foliage or under conditions in which granules will collect on leaves. Good at controlling Oxalis ( <i>Oxalis spp.</i> ) and Bittercress ( <i>Cardamine spp.</i> ) species from seed.
<i>pendimethalin</i> Corral 2.68GR	3	76–114 lb	2.0–3.0	24 H	Apply to ornamentals only after established soil has settled around plants. See label for a list of tolerant plants.
<i>oxadiazon</i> + <i>prodiamine</i> RegalStar 1.2GR	14 + 3	200 lb	2.4	24 H	Apply to ornamentals only after established soil has settled around plants. See restrictions in Ronstar remarks and precautions. See label for a list of tolerant plants.
<i>oxyfluorfen</i> + <i>oxadiazon</i> Regal O-O, 3GR	14 + 14	100 lb	2 + 1	24 H	See label for a list of tolerant plants. Apply before weed emergence. <b>DO NOT</b> apply when ornamentals are breaking dormancy or growing rapidly. Do not apply to wet foliage.
<i>pendimethalin</i> + <i>oxyfluorfen</i> OH-2 2GR	3 + 14	100 lb	1 + 2	24 H	See label for a list of tolerant plants. Apply before weed emergence. <b>DO NOT</b> apply when ornamentals are breaking dormancy or growing rapidly. Do not apply to wet foliage.
<i>pendimethalin</i> Pendulum 3.3EC Pendulum AquaCap 3.8ACS Pendulum 68GR	3	3.6–7.2 pt 2.1–4.2 qt 75–100 lb 76–114 lb	1.4–3 2–4 1.5–2 2–3	24 H	Labeled in certain woody ornamentals and ground covers. Apply to established or newly planted ornamentals after the soil has firmly settled around the roots. <b>DO NOT</b> apply to seedbeds.



**WOODY ORNAMENTALS: COMMERCIAL NURSERY PRODUCTION WEED CONTROL**

HERBICIDE	MOA	BROADCAST RATE/ACRE		REI (Hours)	REMARKS AND PRECAUTIONS
		AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT		
<b>PREEMERGENCE<sup>1, 2, 3, 4</sup> (continued)</b>					
<i>oxyfluorfen</i> + <i>prodiamine</i> Biathlon 2.75 GR	14 + 3	100 lb	2.75	24 H	Good herbicide at controlling a broad spectrum of annual grasses and broadleaf weeds from seed. Do not apply to wet foliage.
<i>prodiamine</i> Barricade 65DG Barricade 4L RegalKade 0.5G	3	1–2.3 lb 21–48 oz 300 lb	0.65–1.5 0.65–1.5 1.51	12 H	Controls annual grasses and certain broadleaf weeds. Apply to established plantings or to new transplants after soil has firmly settled around the roots and no cracks are present.
<i>prodiamine</i> + <i>isoxben</i> Gemini 0.65 GR Gemini 3.7SC	3 + 21	100–200 lb 21.75–56.5	0.4–0.8 0.25–0.5	12 H	Controls a broad spectrum of annual broadleaf and grass weeds in container, field grown, and landscape ornamentals. See label for a list of tolerant ornamentals.
<i>simazine</i> Princep 4L Princep Caliber 90DF various trade names of both formulations are available	5	2–3 qt 2.2–4.4 lb	2–3  2–3	12 H	Controls a broad spectrum of annual broadleaf and grass weeds. Junipers are especially tolerant of <i>simazine</i> . <b>DO NOT</b> apply for at least 1 year after transplanting. Spectrum of weeds controlled by <i>simazine</i> can be greatly enhanced by including tank mix partners such as Gallery or Surflan.
<b>POSTEMERGENCE GRASS CONTROL</b>					
<i>clethodim</i> Envoy Plus 0.97L	1	12–32 fl oz	0.11–0.24	24 H	Apply postemergence to actively growing grasses that are not drought stressed according to plant size limitations shown on the label. Apply with surfactant as specified on the label. <b>DO NOT</b> add surfactant or crop oil concentrate to Vantage. Ornamental grasses may be injured or killed if sprayed. Refer to label for information on over-the-top or directed applications.
<i>fenoxaprop</i> Acclaim Extra 0.57L	1	1.2–2.4 pt	0.09–0.17	24 H	
<i>fluazifop-p</i> Fusilade II 2 lb/gal Ornamec 0.5 lb/gal	1	1–1.5 pt  2–3 qt	0.25–0.38  0.25–0.38	12 H	
<i>sethoxydim</i> Segment 1 lb/gal	1	1.1–1.9 qt	0.28–0.47	12 H	

HERBICIDE	MOA	BROADCAST RATE/ACRE		REI (Hours)	REMARKS AND PRECAUTIONS
		AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT		
<b>DIRECTED SPRAYS</b>					
<i>bentazon</i> Basagran T/O 4L Lescogran 4L	6	1.5–2 pt	0.75–1	48 H	Apply as a directed spray toward the base of shrubs and trees. Basagran T/O may also be used over-the-top of English ivy, pachysandra, and liriopse. For other ornamentals, avoid contact of foliage with spray. A crop oil concentrate at 2 pt/A is recommended for the control of yellow nutsedge and certain broadleaf weeds (see label). Rainfall or irrigation within 8 hours of application may decrease control.
<i>diquat</i> Reward 2L	22	1–2 qt	0.5–1	24 H	Controls most annual grass and broadleaf weeds. <b>DO NOT</b> permit spray to contact foliage or green stems of desirable ornamentals. Poor on well-established perennials with extensive underground storage origins (Florida betony, bermudagrass, nutsedge, glufosinate etc.).
<i>glufosinate</i> Finale 1L	10	3–6 qt	0.75–1.5	12 H	Controls most grass and broadleaf weeds. Poor on well-established perennials with extensive underground storage origins (Florida betony, bermudagrass, nutsedge, etc.). Use as a directed spray to control weeds in row middles of woody ornamentals. May also be used between and around containers and as a site preparation treatment for new plantings. <b>DO NOT</b> permit spray to contact foliage or green stems of desirable ornamentals.
<i>glyphosate</i> various trade names and formulations are available.	9	See label.	See label.	4-12 H	Controls most grass and broadleaf weeds. <b>DO NOT</b> allow spray mist to contact ornamental foliage, green bark or base of thin bark plants (i.e. Crapemyrtle), or stumps of cuts sucker or severe injury could occur. <i>Glyphosate</i> is very water soluble and can be mixed with many pre-emergent herbicides. Refer to <i>glyphosate</i> label for compatibility information.
<i>halosulfuron</i> Manage 75DF Sedge Hammer 75DF Prosedge	2	0.67–1.33 oz	0.031–0.062	12 H	Apply as a post-directed application to control yellow and purple nutsedge in established woody ornamentals. Apply with a nonionic surfactant at 0.5% v/v. <b>DO NOT</b> allow the spray to contact the foliage of desirable woody ornamentals. Wait 3 months after transplanting before application. On areas scheduled to be planted in woody ornamentals wait 4 weeks between application and transplanting.
<i>paraquat</i> Gramoxone Inteon 2SL various formulations available	22	1.3–4 pt (varies by formulation, check label)	0.25–1 (varies with formulation, check label)	12 H	Apply as directed spray to control annual weeds in ornamental trees. <b>DO NOT</b> allow spray to contact green stems or foliage of ornamentals. Add a nonionic surfactant. <b>ALL PARAQUAT HERBICIDES ARE RESTRICTED USE HERBICIDES.</b>
<i>potassium salts of fatty acids</i> (Scythe) various trade names are available.	NC	See label	See label	See label	Provides post-emergent contact control of mosses, algae, liverworts and lichens inside greenhouses, on growing containers and benches. Do not allow spray to contact foliage of desirable ornamentals.
<i>sulfosulfuron</i> (Certainty)	2	1.25–2.0 oz	0.058–0.0937	12 H	Provides postemergence control of many difficult weeds including ground ivy, Johnsongrass, pennywort, wild garlic, yellow and purple nutsedge. Can be used over-the-top of select ornamentals such as: Asiatic jasmine, azalea, boxwood, holly, juniper, English ivy, and others. See label for full list of tolerant ornamentals.

1. All pre-emergent herbicides require a rain or irrigation event in order for herbicide activation to occur (approximately 0.5–1" of water). If no rain event occurs and no supplemental watering is provided after a preemergent herbicide application, weed control can be extremely poor or totally fail.
2. Most preemergent herbicides will only control germinating weed seed. Generally, preemergent herbicides will not control weeds after they have become established (1st or 2nd true leaf), and most preemergent herbicides will not control weeds coming from vegetative structures (i.e. yellow and purple nutsedge).
3. As long as the treated area remains undisturbed, most preemergent herbicides will provide weed control for 2–4 months in most growing mediums.
4. Do not apply preemergence herbicides to seeded beds or to non-rooted plants or in greenhouses.

COMMERCIAL NURSERY PRODUCTION ROOTING COMPOUND

CROP	CHEMICALS	PRODUCT	ACTIVE INGREDIENT (CONCENTRATION)	REMARKS
All Nursery Stock	IBA ( <i>indole 3-Butyric acid</i> ) KIBA ( <i>potassium indole 3-Butyric acid</i> ) NAA ( <i>naphthaleneacetic acid</i> ) Cytokinin	<b>LIQUID FORMULATIONS</b>		<b>Note:</b> These growth regulators are used to induce rooting during vegetative propagation of nursery stock. IBA is the most common active ingredient in these products. Some products contain combinations of active ingredients. Powder formulations are used without dilution. Water soluble products are dissolved in water at the concentration desired and used like the liquid formulations. Liquid formulations are diluted to match the growth stage of cuttings being propagated. Strengths are discussed interchangeably as either percentage (%) or part per million (ppm). To convert percent to parts per million multiply by 10,000 (e.g. 1% = 10,000 ppm active ingredient). Easy to root plants such as crapemyrtle and softwood cuttings require 1000–2,000 ppm (0.1–0.2%); moderately hard to root plants such as holly and semi-hardwood cuttings require 3,000–5,000 ppm (0.4–0.8%); hard to root plants like many deciduous trees and coniferous evergreens and hardwood cuttings may require 6,000–10,000 ppm or more. The base of cuttings are dipped in the solution for 5 seconds. As the hemp industry grows, many new rooting compounds have been released specific for Cannabis spp. These products are not covered in this table, as this table specifically addresses ornamental crops.
		GRO-Root Xtra	IBA (0.85%) Kinetin (0.15%)	
		GRO-Root Gel	IBA (0.45%) NAA (0.01%)	
		Rootech Cloning Gel	IBA (0.55%)	
		420 Rooting Gel	0.20% IBA	
		Atami B'Cuzz Root-Aid Gel	IBA (0.54%)	
		Clonex Rooting Gel	IBA (0.31%)	
		Dip 'n Grow	IBA (1%) NAA (0.5%)	
		EZ-Grow Prime	1.00% IBA, 0.25% Kinetin, 0.30% Salicylic Acid, 0.30% Vitamin B1, 0.30% Vitamin C	
		EZ-Root Gel	0.50% IBA, 0.25% NAA	
		EZ Clone Rooting Compound	0.03% IBA + B1 (Thiamine)	
		Ferti-lome Root Stimulator and Starter Solution	IBA (0.004%) + 4-10-3 fertilizer.	
		Green Light Root Stimulator and Starter Solution	IBA (0.004%)	
		Gro-Root Gel	0.45% IBA, 0.01% NAA, 0.002% Vitamin B1, 0.002% Vitamin C, 0.002% Salicylic Acid, 0.001% Humic Acid, 0.001% Protein Hydrolysate, 0.001% Yucca Extract	
		Hormex Liquid Concentrate	NAA (0.24%) + B-1 (0.25%)	
		K-L-N Dyna-Gro Concentrate	0.07% IBA, 0.10% NAA	
		Radiate	IBA (0.85%) Cytokinin (0.15%)	
Vita Grow Ready to Use Rooting Compound	IBA (0.13%) + NAA (0.08%)			
Woods Rooting Compound	IBA (1.03%) + NAA (0.66%)			

WOODY ORNAMENTALS: COMMERCIAL NURSERY PRODUCTION ROOTING COMPOUND

CROP	CHEMICALS	PRODUCT	ACTIVE INGREDIENT (CONCENTRATION)	REMARKS
All Nursery Stock	IBA ( <i>indole 3-Butyric acid</i> ) KIBA ( <i>potassium indole 3-Butyric acid</i> ) NAA ( <i>naphthaleneacetic acid</i> ) Cytokinin	<b>POWDER FORMULATIONS</b>		<p><b>Note:</b> These growth regulators are used to induce rooting during vegetative propagation of nursery stock. IBA is the most common active ingredient in these products. Some products contain combinations of active ingredients. Powder formulations are used without dilution. Water soluble products are dissolved in water at the concentration desired and used like the liquid formulations. Liquid formulations are diluted to match the growth stage of cuttings being propagated. Strengths are discussed interchangeably as either percentage (%) or part per million (ppm). To convert percent to parts per million multiply by 10,000 (e.g. 1% = 10,000 ppm active ingredient). Easy to root plants such as crapemyrtle and softwood cuttings require 1000–2,000 ppm (0.1–0.2%); moderately hard to root plants such as holly and semi-hardwood cuttings require 3,000–5,000 ppm (0.4–0.8%); hard to root plants like many deciduous trees and coniferous evergreens and hardwood cuttings may require 6,000–10,000 ppm or more. The base of cuttings are dipped in the solution for 5 seconds. As the hemp industry grows, many new rooting compounds have been released specific for Cannabis spp. These products are not covered in this table, as this table specifically addresses ornamental crops.</p>
		FastRoot	0.1% IBA	
		EZ-Gro Rooting Powder (Soft Cuttings)	0.10% IBA, 0.01% Humic Acid, 0.01% Protein Hydrolysate, 0.01% Yucca Extract, 0.002% Vitamin B1, 0.002% Vitamin C, 0.002% Salicylic Acid	
		EZ-Gro Rooting Powder (Medium Cuttings)	0.30% IBA, 0.01% Humic Acid, 0.01% Protein Hydrolysate, 0.01% Yucca Extract, 0.002% Vitamin B1, 0.002% Vitamin C, 0.002% Salicylic Acid	
		Ferti-lome Rooting Powder	IBA (0.1%)	
		Garden Safe TakeRoot	IBA (0.1%)	
		Hormex Rooting Powder #1	IBA (0.1%)	
		Hormex Rooting Powder #16	IBA (1.6%)	
		Hormex Rooting Powder #3	IBA (0.3%)	
		Hormex Rooting Powder #30	IBA (3%)	
		Hormex Rooting Powder #8	IBA (0.8%)	
		Hormodin Powder #1	IBA (0.1%)	
		Hormodin Powder #2	IBA (0.3%)	
		Hormodin Powder #3	IBA (0.8%)	
		Rhizopon AA#1	IBA (0.1%)	
		Rhizopon AA#2	IBA (0.3%)	
		Rhizopon AA#3	IBA (0.8%)	
		Snip N' Dip	IBA (0.1%)	
		Supernatural Rootburst	IBA (0.8%)	
		RootBoost	IBA (0.1%)	
		<b>WATER SOLUBLE TABLETS, SALTS, OR POWDERS</b>		
Hortus (water soluble salt)	IBA (2%)			
Grow More Rapid Root (WSP)	IBA (0.3%)			
Rhizopon AA Water Soluable Tablets (WST)	IBA (2%)			

## COMMERCIAL GROUNDS MAINTENANCE WEED CONTROL

HERBICIDE	MOA	AMOUNT OF FORMULATION / GAL PER 1000 SQ FT	REI	REMARKS AND PRECAUTIONS
<b>PREEMERGENCE<sup>1,2,3</sup></b>				
<i>dimethenamid-P</i> Tower 6L	15	4.8–0.73 oz	12 H	Provides broad spectrum control of many broadleaf and grass weeds. In most cases, needs a tank mix partner ( <i>proflam</i> , <i>pendimethalin</i> , etc.). Good rotational product, and safe on a wide array of herbaceous and woody ornamentals. Newly planted ornamentals need to be established before application. Provides some yellow nutsedge control.
<i>dimethenamid-P</i> + <i>pendimethalin</i> Freehand 1.75G	15 + 3	2.3–4.6 lb	12 H	Provides broad spectrum of many broadleaf and grass weeds. Good rotational product and safe on a wide array of herbaceous and woody ornamentals. Provides some nutsedge control.
<i>dichlobenil</i> Casoron 4G Casoron CS	20	2.3–3.4 lb 4.2–12.6 oz	12 H	Apply from late fall to early spring (November 15–February 15). Good product for controlling non-seed bearing plants, such as Bracken fern ( <i>Pteridium aquilinum</i> ), winter annuals, such as Florida betony ( <i>Stachys floridana</i> ), and mugwort ( <i>Artemisia vulgaris</i> ). Irrigate immediately after application or incorporate into the top 0.5" of the soil. <b>DO NOT</b> apply until 4 weeks after transplanting.
<i>flumioxazin</i> BroadStar 0.25GR SureGuard 51WDG	14	3.4 lb 0.18–0.27 oz	12 H	Provides excellent control of many annual weeds. Broadstar may be used over-the-top of many containerized ornamentals (see label). SureGuard can be used as a post directed spray to containerized and field grown ornamentals (trees) that have been established for at least one year. SureGuard can also be applied over-the-top of select conifers (see label for precautions and tolerant species).
<i>indaziflam</i> Specticle 0.0224 GR Specticle 0.622 FIO	29	2.3–4.6 lb 6–18.5 fl oz	12 H	Controls a wide range of annual weeds in select woody ornamentals. Provides one of the longest preemergence weed control windows of any preemergence herbicide. Do not apply any more than 9.2 lb pr/1000 sq ft or 0.8 fl oz/1000 sq ft in a 12-month period.
<i>indaziflam</i> Specticle Total 1.958 L 0.008 lb gal <i>indaziflam</i> <i>glyphosate</i> 1.87 lb gal <i>glyphosate</i> <i>diquat</i> 0.08 lb gal <i>diquat</i>	29 + 9 + 22	16 oz	12 H	Provides both pre and postemergence control on weeds growing in the landscape. Thoroughly wet entire area that you want to protect from future weeds. Subsequent applications can be applied 4 months after initial herbicide application. Water-in within 2 hours after application. If treated area is disturbed after herbicide application, future weed control will be reduced.
<i>isoxaben</i> Gallery 75DF		0.25–0.5 oz	12 H	Apply as a fall or spring treatment to control a wide variety of annual broadleaf weeds. <b>DO NOT</b> apply to newly-transplanted ornamentals until the soil has settled and no cracks are present. <b>DO NOT</b> apply to bedding plants. Gallery should be tank-mixed with other labeled herbicides to improve grass control.
<i>isoxaben</i> + <i>dithiopyr</i> Crew 0.75G	21 + 3	2.3-4.6 lb	12 H	Provides good pre-emergent control of most annual grasses and small seed broadleaf weeds. Also provides early post-emergent control of some annual grasses up to 3 tillers. Use on transplant after soil in containers is settled.
<i>isoxaben</i> + <i>trifluralin</i> Snapshot 2.5TG	21 + 3	2.3–4.6 lb	12 H	Controls a wide range of annual weeds in certain woody ornamentals, trees and groundcovers. <b>DO NOT</b> apply to newly planted ornamentals until the soil has firmly settled and no cracks are present. Not recommended for applications to bedding plants. Groundcovers should be established and well-rooted prior to application. Apply 0.5" of irrigation water, or uniformly incorporate into the soil to a depth of 1–2" if rainfall is not received within 3 days of application.

HERBICIDE	MOA	AMOUNT OF FORMULATION / GAL PER 1000 SQ FT	REI	REMARKS AND PRECAUTIONS
<b>PREEMERGENCE<sup>1,2,3</sup> (continued)</b>				
<i>metholachlor</i> Pennant Magnum 7.62L	15	0.5–1 fl oz	24 H	Controls selected annual weeds and provides suppression of yellow nutsedge. Apply to established or to newly transplanted ornamentals after the soil has firmly settled around the roots. Use the low rate on coarse textures soils. For over-the-top applications, remove Pennant spray residues or granules with overhead irrigation. <b>DO NOT</b> use on seedbeds or cutting beds. Spectrum of weed control can be enhanced when combined with a tank mix partner such as Gallery or Surflan.
<i>oxadiazon</i> Ronstar 2G	3 + 14	2.3–4.6 lb	12 H	Apply to newly planted and established ornamentals. <b>DO NOT</b> apply to wet foliage or under conditions in which granules will stick to the leaves. <b>DO NOT</b> incorporate into the soil. Rainfall or irrigation immediately after application will remove granules from the foliage and aid in weed control.
<i>oxadiazon</i> + <i>prodiamine</i> RegalStar 1.2G	14	4.5 lb	24 H	Apply to ornamentals only after established soil has settled around plants. See restrictions in Ronstar remarks and precautions. See label for a list of tolerant plants.
<i>oxyfluorfen</i> + <i>oxadiazon</i> Regal O-O 3G	14 + 14	2.3 lb	24 H	Refer to label for specific ornamental species recommendations. Apply before weed emergence. <b>DO NOT</b> apply to wet foliage.
<i>pendimethalin</i> Pendulum 3.3 EC Pendulum AquaCap 3.8 ACS Pendulum 2 GR Corral 2.68 GR	3	1.3–2.6 oz 0.7–1.5 oz 1.7–2.3 oz 1.7–2.6 oz	24 H	Controls annual grasses and certain annual broadleaf weeds in woody ornamentals and groundcovers. Apply to established or newly planted ornamentals after the soil has firmly settled around the roots and no cracks are present. <b>DO NOT</b> apply to seedbeds.
<i>prodiamine</i> Barricade 65DG Barricade 4L RegalKade 0.5G	3	0.4–0.8 oz 21–48 oz 6.8 lb	12 H	Controls annual grasses and certain annual broadleaf weeds in woody ornamentals and groundcovers. Apply to established or newly transplanted ornamentals after the soil has firmly settled around the roots and no cracks are present.
<i>prodiamine</i> + <i>isoxben</i> Gemini 0.65 GR, Gemini 3.7SC	3 + 21		12 H	Controls a broad spectrum of annual broadleaf and grass weeds in container, field grown, and landscape ornamentals. See label for a list of tolerant ornamentals.
<i>simazine</i> Princep Liquid 4L Princep 90DF	5	1.5–2.2 fl oz 0.8–1.2 oz	12 H	Controls annual broadleaf weeds and annual grasses. Junipers have excellent tolerance to simazine. <b>DO NOT</b> apply for at least 1 year after transplanting.
<i>trifluralin</i> Treflan 5G	3	1.8 lb	12 H	Apply prior to planting and to established plants. Optimum weed control is obtained when rainfall or irrigation occurs within a few hours of application. <b>DO NOT</b> apply Treflan 5G to ornamentals with wet foliage. <b>DO NOT</b> apply to seeded beds or to non- rooted plants. Use a Treflan product that is registered for ornamental use.

## WOODY ORNAMENTALS: COMMERCIAL GROUNDS MAINTENANCE WEED CONTROL

HERBICIDE	MOA	AMOUNT OF FORMULATION / GAL PER 1000 SQ FT	REI	REMARKS AND PRECAUTIONS
<b>POSTEMERGENCE</b>				
<i>clopyralid</i> Lontrel 3L	4	0.1–0.5 fl oz	12 H	Controls a wide range of broadleaf weeds, and is particularly good at controlling legume (clovers) and aster (thistle) type weeds. Can be applied over the top on several juniper and pine species as well as other select ornamentals (see label).
<b>POSTEMERGENCE GRASS CONTROL</b>				
<i>clethodim</i> Envoy Plus 0.97L	1	0.3–0.7 fl oz	24 H	Apply postemergence to actively-growing grasses that are not drought stressed. Apply with 0.25% v/v nonionic surfactant. <b>DO NOT</b> use a crop oil concentrate. <i>Clethodim</i> will not control broadleaf weeds or sedges.
<i>fenoxaprop</i> Acclaim Extra 0.57L	1	0.5–0.9 fl oz	24 H	Apply postemergence to actively growing grasses that are not drought stressed. Add surfactant if spray volume is greater than 60 GPA. Refer to label for recommended list of ornamentals for over-the-top or directed applications. <i>Fenoxaprop</i> will not control broadleaf weeds or nutsedges.
<i>fluazifop-P</i> Fusilade II 2 L Ornamec 0.5L	1	0.4–0.6 fl oz 1.5–2.2 fl oz	12 H	Apply postemergence to actively growing grasses that are not drought stressed. Refer to label for surfactant recommendations, and ornamentals tolerant to over-the-top applications. <i>Fluazifop</i> will not control broadleaf weeds or nutsedges.
<i>sethoxydim</i> Segment 1L	1	0.8–1.4 fl oz	12 H	Apply postemergence to actively growing weedy grasses that are not drought stressed. <b>DO NOT</b> add a crop oil concentrate or surfactant to Segment. Segment will not control broadleaf weeds or nutsedge(s).
<b>AREAS ADJACENT TO ORNAMENTALS (POSTEMERGENCE)</b>				
<i>bentazon</i> Basagran T/O 4L, Lescogran 4L	6	0.6–0.75 fl oz		Apply as a directed spray toward the base of ornamental trees and shrubs. May be applied over-the-top of pachysandra, liriopse, and English ivy. For other ornamentals, avoid spray contact with the foliage. A crop oil concentrate is recommended for the control of yellow nutsedge and certain broadleaf weeds (see label). Rainfall or irrigation within 8 hours may decrease weed control.
<i>diquat</i> Reward 2L	22	0.7–1.4 fl oz	24 H	Apply only as a directed spray to control emerged weeds. <i>Diquat</i> is a contact herbicide that will provide only top kill of perennial weeds. Poor on well-established perennials with extensive underground storage origins (Florida betony, bermudagrass, nutsedge, etc.). <b>DO NOT</b> allow spray mist to contact ornamental foliage or severe injury will occur. Apply with 0.125% v/v (nonionic) surfactant.
glufosinate Finale 1L	10	2.2–4.4 fl oz	12 H	Controls most grass and broadleaf weeds. Poor on well-established perennials with extensive underground storage origins (Florida betony, bermudagrass, nutsedge, etc.). Use as a directed spray around trees and woody ornamentals. <b>DO NOT</b> permit spray to contact foliage or green stems of desirable ornamentals
<i>glyphosate</i> Various trade names and formulations are available	9	See label.	4–12 H	Apply Roundup Pro to control most emerged weeds. Glyphosate is systemic, and will move throughout treated plant. Good on most difficult weeds (i.e. yellow and purple nutsedge). <b>DO NOT</b> allow spray mist to contact ornamental foliage, green bark, base of thin bark plants (i.e. Crape myrtle), or stumps of cuts sucker or severe injury could occur. Avoid applications to drought stressed weeds.
<i>halosulfuron</i> SedgeHammer 75DF Manage 75DF Prosedge	2	0.9 g/1 gal, plus surfactant (spray sedge until runoff)		Apply as a post-directed application to control yellow and purple nutsedge in established woody ornamentals. Apply with 0.33 fl oz of nonionic surfactant/gallon of water. <b>DO NOT</b> allow the spray to contact foliage of desirable woody ornamentals. Wait 3 months after transplanting before application. On areas scheduled to be planted in woody ornamentals wait 4 weeks between application and transplanting.
<i>potassium salts of fatty acids</i> (Scythe and other trade names are available)	26	See label	12 H	Apply Scythe to kill most emerged weeds. <b>DO NOT</b> allow spray mist to contact ornamental foliage or severe injury will occur. Avoid application to drought stressed weeds. Scythe is poor on well-established perennial weeds with extensive underground storage systems (Florida betony, bermudagrass, nutsedge, etc.). Also provides post-emergent control of mosses, algae, liverworts, and lichens inside greenhouses, on growing containers and benches. Do not allow spray to contact foliage of desirable ornamentals.
<i>sulfosulfuron</i> Certainty	2	0.8–1/6g/1 gal, plus surfactant (spray sedge until runoff)	12 H	Provides postemergence control of many difficult weeds including ground ivy, Johnsongrass, pennywort, wild garlic, yellow and purple nutsedge. Can be used over the top of select ornamentals such as: Asiatic jasmine, azalea, boxwood, holly, juniper, English ivy, and others. See label for full list of tolerant ornamentals.

1. All preemergent herbicides require a rain or irrigation event in order for herbicide activation to occur (approximately 0.5–1" of water). If no rain event occurs and no supplemental watering is provided after a preemergent herbicide application, weed control can be extremely poor or totally fail.
2. Most preemergent herbicides will only control germinating weed seed. Generally, preemergent herbicides will not control weeds after they have become established (1st or 2nd true leaf), and

most preemergent herbicides will not control weeds coming from vegetative structures (i.e. yellow and purple nutsedge).

3. As long as the treated area remains undisturbed, most preemergent herbicides will provide weed control for 2–4 months in most growing mediums

## COMMERCIAL GROUNDS MAINTENANCE PLANT GROWTH REGULATORS

TRADE NAME	AMOUNT OF FORMULATION	RATE (FL OZ/GAL)	REMARKS
<i>dikegulac sodium</i> Atrimmec	1.67 lb/gal	0.33–4 oz	Atrimmec is a systemic plant growth regulator that enhances lateral branching, and should limit the amount of pinching and pruning required. Growth regulator effect is limited to sprayed branches. Plants must be healthy and well rooted before treating. Remove all flower buds, flowers, and long shoots before pruning. If plants are heavily pruned, at least 2 pair of fully expanded leaves should remain on each shoot before treating with Atrimmec. <b>DO NOT</b> trim or hand pinch after application as this will interfere with Atrimmec activity. Cuttings take from Atrimmec treated plants root and grow normally. Two to three treatments per season are usually required. See label for a list of approved ornamentals, and spray rates recommended on those plants. Suppression of flower and fruit can also be achieved on olive, privet, multiflora rose, and Japanese holly (see label for rates and timing of application)
<i>ethephon</i> Florel	2 lb/gal	6 oz to 2 qt/20 gal	Can be used to remove mistletoe from conifers and deciduous trees (use at 1 pt–2 qt/20 gallons). Make application to deciduous trees when dormant. Two applications may be necessary to remove mistletoe. Also, can be used to remove undesirable fruit form ornamentals. Apply when flowers are in full bloom (non-red fruited crabapple varieties). Spray foliage before fruit sizes on olives and female Ginkgo trees. Make sure to add a non-ionic surfactant to the spray solution. Some foliage drop is to be expected after application.
<i>flurprimidol</i> Cutless	0.0033 lb ai/lb pr	3.5–20.9 lb /1000 sq ft	Cutless growth regulator will shorten internode length of many ornamental plants, and limit the amount of pruning and trimming that is necessary. Plants treated with Cutless will have darker green foliage, increased plant density and compact growth. Use Cutless on well-established plants that are actively growing. Apply 3.5–20.9 lb/1000 sq ft, using a rotor or air assisted applicator. Can be used for containerized ornamentals (see label for application directions). Time Cutless applications after pruning or trimming. For aggressive growing ornamentals, prune or shape 5–7 days after application. Repeat applications every 2–6 months. <b>DO NOT</b> use Cutless on plants from which fruits, nuts, or other plant parts will be used for human consumption. <b>DO NOT</b> use on annual bedding plants or areas to be used for annual bedding plants. For plants not listed on label, user should perform small trials to determine best use rates. <b>DO NOT</b> apply more than 909 lb/A/12-month period.
<i>mefluidide</i> Embark 2-S Embark	2 lb/gal 0.2 lb/gal	0.6 6.5	Apply to specific ornamentals/groundcovers (see label) to reduce pruning and trimming for up to 8 weeks. Application should be made to healthy, actively growing plants 7–14 days after pruning. Once plant resumed active growth, pruning, and repeat application may be made. <b>DO NOT</b> apply to stressed, diseased plants, <b>DO NOT</b> apply to plants grown in containers. <b>DO NOT</b> irrigate with 8 hours of application, and <b>DO NOT</b> treat if a rainfall is expected within 8 hours of treatment. Keep concentrate and spray solutions out of lakes, streams, and ponds.
<i>ethyl inaphthaleneacetate</i> Tre-Hold Spout Inhibitor A-112 Sucker Stopper RTU	1 lb/gal 1.2 oz/gal	10 Ready-to-use	Tre-Hold is a growth regulator that inhibits sprout and sucker growth. Household interior white latex paint can be substituted for equal amount of water. Substitute white latex paint for water from 15–60 fl oz, higher rates for better sun scaled protection. Prune in dormant season or when new shoot growth is 6–12". After proper pruning, apply treatment solution with brush, small hand-held sprayer or back-pack sprayer. Treat all pruned areas where sprout or sucker inhibition is desired. Apply Sucker Stopper to recently pruned ornamentals to prevent suckers and sprouts (i.e. Crapemyrtle, ornamental pears, etc.)
<i>paclobutrazol</i> Trim-tect	0.72 lb/gal	1.5–13 oz	Inhibits the production of gibberellins and cell elongation at the terminal shoots. Can be used on a wide range of herbaceous and woody ornamentals. Can be used as a soil/basal drench or foliar spray. Make application after pruning.
<i>uniconazole</i> Sumagic		0.5–50 PPM	Although mainly used for greenhouse grown bedding plants, florist azaleas, and poinsettias; Sumagic can be used on woody landscape ornamentals to decrease the size of internode length and make plant heights more uniform as well as increase flower numbers. Applications should be applied 2 weeks following a spring pruning. For most woody ornamentals, 50m PPM sprays are recommended (i.e. crape myrtle, pyracantha, and other woody ornamentals).



# STERILIZATION AND PASTEURIZATION OF SOIL, GROUND BEDS, AND POTTING MIXES FOR GREENHOUSES AND COMMERCIAL NURSERIES

Jean L. Williams-Woodward—Extension Plant Pathologist

FOR SOILS, SOIL IN PLANT BEDS, AND/OR POTTING MIXES

MATERIAL	RATE OF USE	APPLICATION	RELATIVE EFFECTIVENESS					USE/REMARK
			WEEDS	NEMATODE	INSECTS	BACTERIA	FUNGI	
aerated steam	145–160°F for 30 min.	Same as steam.	Good	Good	Good	Good	Good	All crops. All pests.
steam	Heat soil 6 inches deep to 180–200°F for 30 min	Perforated pipes on or in soil, cover with tarp.	Good	Good	Good	Good	Good	All crops. All pests.
<i>dazomet</i> Basamid G	Rates vary. See label. For soilborne pathogens: 10–13 oz/100 sq ft	See label and follow application restrictions.	Good	Good	Fair	Good	Good	All crops. All pests. Restricted Use pesticide. Restricted entry for 5 days. Application with handheld equipment is prohibited. Long waiting period in cold soils.
<i>metam sodium</i> Vapam HL	Read Label	Read and follow label directions and use precautions.	Good	Good	Fair	Fair	Good	Restricted Use pesticide. NOT for use in greenhouses or other enclosed structures. Applicators must have certified applicator training. All crops, all pests. Long waiting period after fumigating in cold soil (under 60°F).
dry heat	180°F for 30 min.	Place small quantities in oven.	Fair	Good	Good	Good	Good	
solarization	140°F, 4–8 hr/day for 7 days	Cover pots, benches, tools, and shallow soil with plastic tarp. Or, close greenhouse during hot, sunny days in summer for at least 1 week.	Fair–Poor	Fair	Good	Fair	Good	Greenhouse must reach 140°F or higher each day. Remove debris and heat-sensitive materials. Keep greenhouse and contents moist.

# DISINFECTION OF CONTAINERS, BENCHES, AND SURFACES IN GREENHOUSES AND COMMERCIAL NURSERIES

Jean L. Williams-Woodward—Extension Plant Pathologist

FOR CONTAINERS, POTS, FLATS, BENCHES, AND OTHER SURFACES

MATERIAL AND BRAND NAME	RATE OF USE	APPLICATION	RELATIVE EFFECTIVENESS					USE/REMARK
			NEMATODE	ALGAE	BACTERIA	FUNGI	VIRUSES	
<i>alcohol</i> grain, rubbing, wood, Lysol Disinfectant Spray 70–100%	Full strength. Lysol is RTU—read label.	Dip, swab or spray; do not rinse. 10 min for pots, flats, surfaces. Tools can be dipped for 10 sec.	Fair	Fair	Good	Good	Good	Items that are being treated should be clean of dirt and debris. Temperature should be above 60°F.
<i>chlorine dioxide</i> Selectocide	100 ppm/10 min or 50 ppm/20 min for non-porous surfaces. See label for disease control.	Apply by mop, sponge, or sprayer to wet for allotted time. May be applied through irrigation lines.	Poor	Good	Good	Good	Fair	See Technical Bulletin for product contact times and concentrations are application-specific.
<i>hydrogen dioxide</i> (or <i>peroxide</i> ) <i>peroxyacetic acid</i> ZeroTol 2.0, SaniDate 5.0, Oxidate 2.0	0.5–2.5 fl oz/gal water for clean non-porous surfaces and tools. Read labels as rates and directions for products vary.	Dip, swab, or spray; do not rinse. Contact time of 1–10 min needed.	Poor	Excellent	Good	Good	Poor	Sweep and remove all plant and soil debris prior to use. Must be used in neutral pH (~7.0) water. Very corrosive; eye/skin irritant. Must be stored in cool location.
<i>phenolics</i> Lysol Concentrate Disinfectant, Pheno-Cen Spray Disinfectant	1.25 fl oz/gal water. Mix well. Pheno-Cen Spray is RTU.	Dip tools for 10 sec and allow to dry. Do not rinse. 10 min for pots, equipment, surfaces.	Poor	Fair	Excellent	Good	Good	There are lots of Lysol formulations; they are NOT the same. Make sure product contains 5.5% <i>O-benzyl-p-chlorophenol</i> . Wear gloves; concentrate harmful to eyes/skin.
<i>quaternary ammonium</i> Triathlon, Phisan 20, GreenShield, KleenGrow	1 tsp–1 Tbsp/gal. See label; varies with surface.	Dip or swab to keep wet for at least 10 minutes. Do not rinse. Allow to air dry.	Poor	Good	Good	Good	Fair	Not effective on wood or porous surfaces. Effective on non-porous surfaces (floors, walls, metal benches, pots, tools).
<i>sodium carbonate peroxyhydrate</i> Green Clean	15 lb over 1000 sq ft bed or bench weekly; ½–½ tsp/8–10" pot; bi-weekly curative rate.	Evenly distribute over bed, bench or surface of pot. Apply to wet surfaces and rinse granules off foliage to prevent burn.	Poor	Excellent	Fair	Good	Poor	Apply to wet surfaces. Activated by moisture. Rinse from foliage. Undiluted granules will cause burn on non-target plants.
<i>sodium hypochlorite</i> 8.25% Clorox, Commercial bleach	10% concentration.	Dip 1–10 seconds, brush, spray, let drain, do not rinse. Best to soak object 10 min.	Poor	Good	Good	Good	Fair	Change solution at least every two hours. Alkaline water (pH > 6.8) reduces effectiveness. Chlorine is toxic to some plants.
solarization	140°F, 4–8 hr/day for 7 days.	Place cleaned items on sunny driveway, cover tightly with clear plastic.	Fair	Good	Fair	Good	Poor	Remove debris from containers and surfaces. Keep surfaces moist.
steam and aerated steam	Heat object to 180°F for 30 min; 140°F for at least 30 min.	Loosely stack objects and cover with tarp to seal.	Good	Good	Good	Good	Poor	Plastic containers can become brittle after repeated treatment.

# ORNAMENTALS AND SHADE TREE DISEASE CONTROL

Jean L. Williams-Woodward, Extension Plant Pathologist

**INSTRUCTIONS:** There are two sections for disease control recommendations for ornamentals: **Part A** and **Part B**.

**Part A** is a listing of fungicides labeled for use on ornamentals for specific diseases. It is organized alphabetically according to plant disease common name or pathogen. Fungicides labeled to control the disease and their labeled rate are provided in the table. Not all information in the fungicide label is duplicated within this table. Refer to the fungicide label or **Part B: Plant Use Index** (see p. 248) to determine if the product is labeled for use on a particular plant.

Other information presented in the tables includes: fungicide mode of action (MOA), whether product is contact or systemic, restricted entry interval (REI), general application rates, and remarks/ restrictions. For fungicide resistance management, rotate, or tank mix products with different MOA numerical codes. General application rates are provided as a guide only. Always refer to the fungicide label for specific instructions, special rates, and timing of application.

## PART A: LISTING OF FUNGICIDES

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Alternaria leaf spot	<i>azoxystrobin</i> Heritage Heritage SC	11	Systemic 1–8 oz/100 gal 2.0–15.3 fl oz/100 gal	4 H	Repeat every 7–28 days. Apply at the first sign of disease. Use lower rates and shorter intervals under light to moderate disease pressure. Use higher rates and shorter intervals under high disease pressure. Rotate after 2–3 applications with non-strobilurin (QoI) fungicide. Do NOT apply to Flowering Cherry, Crabapple, Privet (Ligustrum), Leatherleaf fern, or ferns grown for cut foliage.
	<i>azoxystrobin + benzovindiflupyr</i> Mural	11 + 7	Contact/Systemic 4–7 oz/100 gal	12 H	Do NOT apply to apple or crabapple or leatherleaf fern or ferns grown for cut foliage. Apply at 7–21-day intervals.
	<i>Bacillus subtilis</i> QST 713 strain Cease, Rhapsody	BM02	Contact 2–8 qt/100–300 gal/A 4 qt/100 gal/A (typical)	4 H	Make applications on a 3–10-day schedule. Typical interval of 7 days. Shorten under severe disease pressure.
	<i>Captan</i> Captan 50WP	M4	Contact 2 lb/100 gal (Carnation)	48 H	Begin applications at first sign of disease. Repeat applications at 7–10-day intervals.
	<i>chlorothalonil + thiophanate methyl</i> Spectro 90WDG	M5 + 1	Contact/Systemic 1–2 lb/100 gal 0.75–1.5 lb/100 gal	24 H	<b>Do not use with mist blowers or high pressure spray equipment in greenhouses.</b> May discolor flowers/bracts. Minimum 7-day re-treatment interval. Do not exceed 2.15 lbs/acre of product.
	<i>chlorothalonil</i> Daconil Zn Daconil Ultrex Daconil Weatherstik + many other formulations	M5	Contact 2 pt/100 gal 1.4 lb/100 gal 1.375 pt/100 gal See product label for rates.	12 H	Re-apply at 7–14-day intervals. <b>Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts. Do not combine with pesticides, surfactants, or fertilizers in spray tank.</b>
	<i>copper hydroxide</i> CuPRO 5000 Nu-Cop 50 DF Nu-Cop HB Champ WG	M1	Contact 1.5–2 lb/A (1.5 Tbsp/1000 sq ft) 1.0 lb/100 gal 0.5 lb/100 gal 0.5 lb/100 gal	24–48 H (check label)	<b>Do not apply in spray solutions having pH less than 6.5. Do not tank mix with Aliette or other phosphite/phosphate fungicides.</b> Begin application at the first sign of disease and repeat at 7–14-day intervals.
	<i>copper hydroxide + mancozeb</i> Junction	M1 + M3	Contact 1.5–3.5 lb/100 gal	48 H	<b>Do not apply in spray solutions having pH less than 6.5.</b> Re-apply at 7–14-day intervals.
	<i>copper salts of fatty and rosin acids</i> Camelot O	M1	Contact 0.5–2 gal/100 gal/A	4 H	<b>Discoloration of blooms may occur. Do not spray just before or during bloom periods.</b> Apply at 7–10-day intervals.

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Alternaria leaf spot (continued)	<i>cyprodinil + fludioxonil</i> Palladium	9 + 12	Systemic/Contact 2–6 oz/100 gal	12 H	Begin applications prior to the onset of disease, and repeat applications at 7–14-day intervals if conditions remain favorable for disease development.
	<i>difenoconazole + pydiflumetofen</i> Postiva	3 + 7	Systemic/Contact 10–28 fl oz/100 gal	12 H	Apply preventively as foliar spray at 7–14-day intervals. Use higher rate and shorter interval under severe disease pressure or when conditions are conducive to disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
	<i>fludioxonil</i> Medallion WDG Spirato GHN	12	Contact 1–2 oz/100 gal 1–2 fl oz/100 gal	12 H	Re-apply at 7–14-day intervals. Application to impatiens at seedling stage may cause stunting and/or chlorosis.
	<i>fluoxastrobin</i> Fame SC	11	Systemic 1–4 oz/100 gal	12 H	Under light disease pressure, use lower rates (1–2 oz/100 gal) on a 7–14-day interval or the higher rates (3–4 oz/100 gal) on a 14–28-day interval. Under high disease pressure, use the higher rates on a 7–14-day interval.
	<i>fluopyram + trifloxystrobin</i> Broadform	7 + 11	Systemic 4–8 fl oz/100 gal	12 H	Apply at 7–14-day intervals. Under high disease pressure, use higher rate and shorter interval. <b>Do not use on leatherleaf fern.</b>
	<i>fluxapyroxad + pyraclostrobin</i> Orkestra Intrinsic	7 + 11	Contact/Systemic 4–6 fl oz/100 gal	12 H	DO NOT apply to Ninebark or Wintercreeper. Apply at 7–14-day intervals. Use preventively. Begin when conditions are favorable for fungal infection, prior to or at the first sign of disease.
	<i>iprodione</i> OHP Chipco 26019 Chipco 26019 FLO Iprodione Pro 2SE	2	Contact 1–2.5 lb/100 gal 1–2.5 qt/100 gal 1–2.5 qt/100 gal	12 H	<b>Do not use on Spathiphyllum or as a drench on Impatiens or Pothos.</b> Re-apply at 7–14-day intervals.
	<i>iprodione + thiophanate methyl</i> 26/36	2 + 1	Contact + Systemic 33–84 fl oz/100 gal	12 H	Spray plants to ensure thorough coverage. Repeat at 7–14-day intervals. Do not make more than 4 applications/crop/year. Do not use on <i>Spathiphyllum</i> or New Guinea Impatiens. Provides good Alternaria control.
	<i>mancozeb</i> Dithane 75DF Fore 80WP Mancozeb DG Protect DF	M3	Contact 1–2 lb/100 gal 1.5 lb/100 gal 1.5 lb/100 gal 1–2 lb/100 gal	24 H	Addition of a spreader sticker will improve performance. Do not use Fore on Pachysandra.  Repeat application on 7–10-day intervals.
	<i>mefentrifluconazole</i> Avelyo	3	Systemic 3–5 fl oz/100 gal	12 H	Apply preventively as foliar and crown directed spray at 7–14-day intervals when conditions are favorable for disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
	<i>polyoxin D Zn salt</i> Affirm WDG	19	Systemic 0.5 lb/100 gal	4 H	Apply as full coverage foliar spray every 7–10 days. Apply prior to disease development and when conditions are conducive for disease.
<i>propiconazole</i> Banner Maxx II Propiconazole Strider	3	Systemic 5–8 fl oz/100 gal 5–8 fl oz/100 gal 5–8 fl oz/100 gal	12 H	<b>Do not apply to African violets, begonias, Boston fern, or geranium. Do not use in greenhouses.</b> Apply every 14–21 days when conditions are favorable for disease development. Spray todrip.	
<i>potassium bicarbonate</i> MilStop		Contact 1.25–5 lb/100 gal	1 H	Apply by increasing 0.25 lb/application not to exceed 5 lb. Repeat applications at 1–2-week intervals. See label for precautions for use on poinsettia, impatiens, and pansy.	

**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: FUNGICIDES**

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Alternaria leaf spot (continued)	<i>pyraclostrobin + boscalid</i> Pageant	11 + 7	Systemic 4–8 oz/100 gal	12 H/	Use preventively. Begin applications when conditions are favorable for disease, prior to disease symptom development. Re-apply at 7–14-day intervals.
	<i>trifloxystrobin</i> Compass 50WG	11	Systemic 2–4 oz/100 gal (spray)	12 H	Re-apply at 7–14-day intervals as needed. Rotate with fungicides in different chemical class.
	<i>triflumizole</i> Terraguard SC/LS	3	Contact 4–8 oz/100 gal	12 H	Apply foliar sprays at 7–14-day intervals. Use high rate for initial application.
	<i>triticonazole</i> Trinity TR	3	Systemic 1 can per 3000 sq ft (greenhouse)	12 H	For Trinity TR: Repeat at 7–day intervals up to 3x per crop (2x for pansies). Do not apply Trinity TR to ferns or orchids.
Anthracnose ( <i>Colletotrichum</i> , <i>Glomerella Elsinoe</i> , <i>Discula</i> , <i>Marssonina</i> , and others)	<i>azoxystrobin</i> Heritage Heritage SC	11	Systemic 1–8 oz/100 gal 2.0–15.3 fl oz/100 gal	4 H	Repeat every 7–28 days. Apply at the first sign of disease. Use lower rates and shorter intervals under light to moderate disease pressure. Use higher rates and shorter intervals under high disease pressure. Rotate after 2–3 applications with non-strobilurin fungicide. Do NOT apply to Flowering Cherry, Crabapple, Privet ( <i>Ligustrum</i> ), Leatherleaf fern or ferns, grown for cut foliage.
	<i>azoxystrobin + benzovindiflupyr</i> Mural	11 + 7	Systemic/Contact 4–7 oz/100 gal	12 H	Do NOT apply to apple, crabapple, flowering cherry, privet, leatherleaf fern, or other fern used for cut foliage. Apply at 7–14-day intervals.
	<i>Bacillus subtilis</i> QST 713 strain Cease, Rhapsody	BM02	Contact 2–8 qt/100–300 gal/A 4 qt/100–300 gal/A (typical)	4 H	Make applications on a 3–10–day schedule. Typical interval of 7 days. Shorten interval under severe disease pressure.
	<i>chlorothalonil</i> Daconil Zn Daconil Ultrex Daconil Weatherstik + many other formulations	M5	Contact 2 pt/100 gal 1.4 lb/100 gal 1.375 pt/100 gal See product label for rates.	12 H	Re-apply at 7–14-day intervals.  Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts. <b>Do not combine with pesticides, surfactants, or fertilizers in spray tank.</b>
	<i>chlorothalonil + thiophanate methyl</i> Spectro 90WDG	M5 + 1	Contact/Systemic 1–2 lb/100 gal	12 H	<b>Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts.</b> Minimum 7-day re-treatment interval. Do not exceed 2.15 lb/A of product.
	<i>copper hydroxide</i> Champ WG CuPRO 5000 Kalmor Nu-Cop 50 DF Nu-Cop HB	M1	Contact 0.5 lb/100 gal 1.5–2 lb/A (1.5 Tbsp/1000 sq ft) 0.5–1.5 lb/A (1 Tbsp/1000 sq ft) 1 lb/100 gal 0.5 lb/100 gal	24–48 H (check label)	<b>Do not apply in spray solutions having pH less than 6.5. Do not tank mix with Aliette or other phosphite/phosphate fungicides.</b> Begin application at the first sign of disease and repeat at 7–14-day intervals.
	<i>copper hydroxide + mancozeb</i> Junction	M1 + M3	Contact 1.5–3.5 lb/A	48 H	<b>Do not apply in spray solutions having pH less than 6.5.</b> Re-apply at 7–14-day intervals.
	<i>copper oxychloride + copper hydroxide</i> Badge SC Badge X2	M1	Contact 1.5–2 pt/A 1.5–2 lbs/A	24H (greenhouse) 48 H (other)	Apply at 7–14-day intervals. Use higher rates and shorter intervals during periods of frequent rains or disease pressure.
	<i>copper salts of fatty &amp; rosin acids</i> Camelot O	M1	Contact 0.5–2 gal/100 gal	4 H	<b>Discoloration of blooms may occur. Do not spray just before or during bloom periods.</b> Apply at 7–10-day intervals.

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Anthracnose ( <i>Colletotrichum</i> , <i>Glomerella Elsinoe</i> , <i>Discula</i> , <i>Marssonina</i> , and others) (continued)	<i>copper sulfate</i> Basicop	M1	Contact 2–4 lb/100 gal or 2–4 lb/A	24 H	<b>Phytotoxicity may occur on certain plant species/cultivars. Limited host labeling, check Ornamentals Section B: Plant Use Index.</b>  Trees: Apply to swelling buds and repeat 2 times at 10-day intervals as needed. Shrubs/Flowers: Apply preventively, and repeat at 7–10-day intervals and after rains.
	<i>cyprodinil + fludioxonil</i> Palladium	9 + 12	Systemic/Contact 2–6 oz/100 gal	12 H	Begin applications prior to the onset of disease, and repeat applications at 7–14-day intervals if conditions remain favorable for disease development.
	<i>difenoconazole + pydiflumetofen</i> Postiva	3 + 7	Systemic/Contact 10–28 fl oz/100 gal	12 H	Apply preventively as foliar spray at 7–14-day intervals. Use higher rate and shorter interval under severe disease pressure or when conditions are conducive to disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
	<i>fluopyram + trifloxystrobin</i> Broadform	7 + 11	Systemic 4–8 fl oz/100 gal	12 H	Apply at 7–14-day intervals. Under high disease pressure, use higher rate and shorter interval. <b>Do not use on leatherleaf fern.</b>
	<i>fluxapyroxad + pyraclostrobin</i> Orchestra Intrinsic	7 + 11	Contact/Systemic 8–10 fl oz/100 gal	12 H	Do NOT apply to Ninebark or Wintercreeper. Apply at 7–14-day intervals. Use preventively. Begin when conditions are favorable for fungal infection, prior to or at the first sign of disease.
	<i>myclobutanil</i> Eagle 20EW	3	Systemic 6–12 oz/100 gal	24 H	<b>For dogwood anthracnose only.</b> Repeat application at 10–14-day intervals.
	<i>fluoxastrobin</i> Fame SC	11	Systemic 4–8 fl oz/100 gal	12 H	Apply every 7–28 days. Under light disease pressure, use lower rates (4–5 oz/100 gal) on a 7–14 day interval or the higher rates (6–8 oz/100 gal) on a 14–28-day interval. Under high disease pressure, use the higher rates on a 7–14-day interval.
	<i>mancozeb</i> Dithane 75DF Fore 80WP Mancozeb DG Protect DF	M3	Contact 1–2 lb/100 gal 1.5 lb/100 gal 1.5 lb/100 gal 1–2 lb/100 gal	24 H	Addition of a spreader sticker will improve performance. Repeat application on 7–10-day intervals. For dogwood, apply when buds begin to open, when bracts have fallen, 4 weeks later, and again in late summer after flower buds for next season have formed. <b>Do not use Fore on Pachysandra.</b>
	<i>mefentrifluconazole</i> Avelyo	3	Systemic 5–10 fl oz/100 gal	12 H	Apply preventively as foliar and crown directed spray at 7–14-day intervals when conditions are favorable for disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
	<i>metconazole</i> Tourney	3	Systemic 1–4 oz/100 gal	12 H	Apply to the point of drip at 14–28-day intervals.
	<i>polyoxin D Zn salt</i> Affirm WDG	19	Systemic 0.25–0.5 lb/100 gal	4 H	Apply as full coverage foliar spray every 7–10 days. Apply prior to disease development and when conditions are conducive for disease.
	<i>propiconazole + chlorothalonil</i> Concert II	3 + M5	Systemic/Contact 22–35 fl oz (1.4–2.2 pt)/100 gal	12 H	For outdoor and landscape use only. Do not use in greenhouses. Limited host plant labeling; check label. <b>Do not apply to African Violets, Begonias, Boston fern, Geranium, Pittosporum, or Schefflera.</b> Re-apply at 21-day intervals. Application to blooms or tender new growth may cause injury.
	<i>potassium bicarbonate</i> MilStop		Contact 1.25–5 lb/100 gal	1 H	Apply by increasing 0.25 lbs per application not exceeding 5 lbs. Repeat applications at 1–2-week intervals. See label for precautions for use on poinsettia, impatiens, and pansy.
<i>pyraclostrobin + boscalid</i> Pageant	11 + 7	Systemic/Contact 18 oz/100 gal	12 H	Use preventively. Begin applications when conditions are favorable for disease, prior to disease symptom development. Re-apply at 7–14-day intervals.	

**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: FUNGICIDES**

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Anthracnose ( <i>Colletotrichum</i> , <i>Glomerella</i> <i>Elsinoe</i> , <i>Discula</i> , <i>Marssonina</i> , and others)  (continued)	<i>thiophanate methyl</i> 3336F 3336 EG OHP 6672 4.5F OHP 6672 50WP + many other formulations	1	Systemic 12–16 fl oz /100 gal 12–16 oz/100 gal 10.75–20 fl oz/100 gal 12–16 oz/100 gal See labels for rates.	12 H	<b>Not recommended for use on Boston fern, Swedish Ivy, or Easter Cactus.</b> Apply at bud break. Repeat application on 7–14-day intervals. Rotations or tank mix combinations of <i>mancozeb</i> or <i>chlorothalonil</i> can be used.
	<i>thiophanate methyl + propiconazole</i> Protocol	1 + 3	Systemic 10–16 fl. oz/100 gal	24H	Apply preventively as foliar spray to the point of drip at 14-day intervals.
	<i>trifloxystrobin</i> Compass 50WG	11	Systemic/Contact 2–4 oz /100 gal	12 H	Apply at first sign of disease and continue at 7–14-day intervals. Rotate with fungicide in different chemical class.
	<i>trifloxystrobin + triadimefon</i> Armada 50 WDG (landscape)	11 + 3	Systemic 3–9 oz/100 gal	12 H	Apply to the point of drip and repeat at 7–14-day intervals. Do NOT use on Petunia, Violets, and New Guinea Impatiens.
Bacterial leaf spots/rots ( <i>Xanthomonas</i> , <i>Pseudomonas</i> , <i>Acidovorax</i> , etc.)	<i>Bacillus subtilis QST 713 strain</i> Cease, Rhapsody	BM02	Contact 2–8 qt/100–300 gal/A 4 qt/100 gal/A (typical)	4 H	Make applications on a 3–10-day schedule. Typical interval of 7 days. Shorten under severe disease pressure. Begin applications when conditions favor disease development prior to disease onset. Thorough coverage is essential.
	<i>copper hydroxide</i> CuPRO 5000 Kalmor Nu-Cop 50 DF Nu-Cop HB Champ WG	M1	Contact 1.5–2 lb/A (1.5 Tbsp/1000 sq ft) 0.5–1.5 lb/A (1 Tbsp/1000 sq ft) 1.0 lb/100 gal 0.5 lb/100 gal 0.5 lb/100 gal	24–48 H (check label)	Do not apply in spray solutions having pH less than 6.5. Do not tank mix with Aliette or other <i>phosphite/phosphate</i> fungicides. Begin application at the first sign of disease and repeat at 7–14-day intervals.
	<i>copper hydroxide + mancozeb</i> Junction	M1 + M3	Contact 1.5–3.5 lb/A	48 H	<b>Do not apply in spray solutions having pH less than 6.5. Do not tank mix with Aliette fungicide.</b> Re-apply at 7–14-day intervals.
	<i>copper octanoate</i> Camelot O, Grotto	M1	Contact 0.5–2 gal/100 gal/A	4 H	<b>Discoloration of blooms may occur. Do not spray just before or during bloom periods.</b> Apply at 7–10-day intervals.
	<i>copper sulphate pentahydrate</i> Phyton 27	M1	Contact 1.5–2.5 oz/10 gal	24 H	Re-apply at 3–5-day intervals.
	<i>difenoconazole + pydiflumetofen</i> Postiva	3 + 7	Systemic/Contact 10-28 fl oz/100 gal (for suppression only)	12 H	Apply preventively as foliar spray at 7–14-day intervals. Use higher rate and shorter interval under severe disease pressure or when conditions are conducive to disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
	<i>fosetyl-AL</i> Aliette WDG	P07	Systemic 2–4 lb/100 gal	12 H	Spray to wet using no more than 400 gal/A. Repeat as necessary, but make no <b>more than 1 application every 7 days.</b>
	<i>phosphorous acid</i> Fosphite	P07	Systemic 1–2 qt/100 gal ( <i>Xanthomonas</i> )	4 H	Apply spray to thoroughly wet foliage. Repeat as needed at 7–14-day intervals.

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Bacterial leaf spots/rots ( <i>Xanthomonas</i> , <i>Pseudomonas</i> , <i>Acidovorax</i> , etc.) (continued)	<i>streptomycin sulfate</i> Agri-mycin 17	25	Contact 200 ppm (1 lb/100 gal)	12 H	Spray as preventive or at first signs of water-soaked areas on leaf. Apply every 4–5 days. For curative action, remove all rotted leaves from plant, then spray every 4 days. <b>Dieffenbachia only</b> —Soak cuttings for 20 minutes (200 ppm = 1 lb/100 gal). To stop spread of rot in stock plants, spray every 5–7 days with 100 ppm (8 oz/100 gal).
Black Root Rot (See <i>Thielaviopsis</i> )					
Black Spot ( <i>Diplocarpon rosea</i> , <i>Marssonina rosea</i> )	<i>azoxystrobin</i> Heritage Heritage SC	11	Systemic 4–8 oz/100 gal 7.7–15.3 fl oz/100 gal	4 H	Apply at 7–day intervals; may be increased to 14 days when disease pressure is light. May be tank-mixed with another black spot control fungicide when disease pressure is severe. Do NOT apply to Flowering Cherry, Crabapple, Privet ( <i>Ligustrum</i> ), Leatherleaf fern, or ferns grown for cut foliage.
	<i>Bacillus subtilis</i> QST 713 strain Cease, Rhapsody	BM02	Contact 2–8 qt/100–300 gal/A 4 qt/100 gal/A (typical)	4 H	Make applications on a 3–10-day schedule. Typical interval of 7 days. Shorten under severe disease pressure.
	<i>chlorothalonil</i> Daconil Zn Daconil Ultrex Daconil WeatherStik + many other formulations	M5	Contact 2 pt/100 gal 1.4 lb/100 gal 1.375 pt/100 gal See product label for rates.	12 H	Re-apply at 7–14-day intervals. <b>Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts. Do not combine with pesticides, surfactants, or fertilizers in spray tank.</b>
	<i>chlorothalonil</i> + <i>thiophanate methyl</i> Spectro 90WDG	M5 + 1	Contact/Systemic 1–2 lb/100 gal	12 H	<b>Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts.</b> Minimum 7–day re-treatment interval. Do not exceed 2.15 lb/A of product.
	<i>copper hydroxide</i> + <i>mancozeb</i> Junction	M1 + M3	Contact 1.5–3.5 lb/A	48 H	<b>Do not apply in spray solutions having pH less than 6.5.</b> Re-apply at 7–14-day intervals.
	<i>copper hydroxide</i> CuPRO 5000 Nu-Cop 50 DF Nu-Cop HB	M1	Contact 1.5–2 lb/A (1.5 Tbsp/1000 sqft) 1.0 lb/100 gal 0.5 lb/100 gal	24–48 H (check label)	<b>Do not apply in spray solutions having pH less than 6.5. Do not tank mix with Aliette or other phosphite/phosphate fungicides.</b> Begin application at the first sign of disease and repeat at 7–14-day intervals.
	<i>copper octanoate</i> Camelot O	M1	Contact 0.5–2 gal/100 gal	4 H	<b>Discoloration of blooms may occur. Do not spray just before or during bloom periods.</b> Apply at 7–10-day intervals.
	<i>fluopyram</i> + <i>trifloxystrobin</i> Broadform	7 + 11	Systemic 4–8 fl oz/100 gal	12 H	Apply at 7–14-day intervals. Under high disease pressure, use higher rate and shorter interval.
	<i>fluoxastrobin</i> Fame SC	11	Systemic 4–8 oz/100 gal	12 H	Apply every 7–21 days. Under light disease pressure, use lower rates on a 7–14-day interval or the higher rates on a 21–day interval. Under high disease pressure, use the higher rates on a 7–14-day interval.
	<i>mefentrifluconazole</i> Avelyo	3	Systemic 3–5 fl oz/100 gal	12 H	Apply preventively as foliar and crown directed spray at 7–14-day intervals when conditions are favorable for disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
	<i>metconazole</i> Tourney	3	Systemic 1–4 oz/100 gal	12 H	Apply to the point of drip at 14–28-day intervals.
<i>myclobutanil</i> Eagle 20EW	3	Systemic 6–12 oz/100 gal	24 H	Repeat application at 10–14-day intervals.	



**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: FUNGICIDES**

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Black Spot ( <i>Diplocarpon rosea</i> , <i>Marssonina rosea</i> ) (continued)	<i>propiconazole</i> Banner Maxx II, Strider	3	Systemic/Contact 5–8 fl oz/100 gal	12 H	<b>For outdoor use only.</b> Tank mix with a contact fungicide. Re-apply at 14–21-day intervals.
	<i>propiconazole + chlorothalonil</i> Concert II	3 + M5	Systemic/Contact 22–35 fl oz (1.4–2.2 pt)/100 gal	12 H	For outdoor and landscape use only. Do not use in greenhouses. Limited host plant labeling; check label. <b>Do not apply to African violets, begonias, Boston fern, geranium, pittosporum, schefflera.</b> Re-apply at 14–21-day intervals. Application to blooms or tender new growth may cause injury.
	<i>potassium bicarbonate</i> MilStop	NC	Contact 1.25–5 lb/100 gal	1 H	Apply by increasing 0.25 lb/application not exceeding 5 lb. Repeat applications at 1–2-week intervals. See label for precautions for use on poinsettia, impatiens, and pansy.
	<i>tebuconazole</i> Torque	3	Systemic 4–10 fl oz/100 gal	12 H	Apply every 14–21 days during the growing season, starting when leaves first appear. Rotate with a fungicide in a different class (different MOA#) to reduce fungicide resistance development.
	<i>thiophanate methyl</i> 3336 F 3336EG OHP 6672 4.5F OHP 6672 50WP	1	Systemic 12–16 fl oz /100 gal 12–16 oz/100 gal 10.75–20 fl oz/100 gal 12–16 oz/100 gal	12 H	Apply at bud break or at first sign of disease. Repeat application on 7–14-day intervals.
	<i>trifloxystrobin</i> Compass 50WG	11	Systemic 2–4 oz/100 gal	12 H	Apply to drip on 7–14-day intervals when conditions are favorable to disease development.
	<i>trifloxystrobin + triadimefon</i> Armada 50 WDG (landscape)	11 + 3	Systemic 1.2 oz/100 gal (winter) 2.4 oz/100 gal (summer)	12 H	Apply to the point of drip. Do not apply at intervals shorter than 30 days to avoid flower stalk length reduction.
Botrytis blight (gray mold)	<i>azoxystrobin</i> Heritage Heritage SC	11	Systemic 4–8 oz/100 gal 7.7–15.3 fl oz/100 gal	4 H	Repeat every 7–21 days prior to infection. <b>For suppression only.</b> Do NOT apply to Flowering Cherry, Crabapple, Privet ( <i>Ligustrum</i> ), Leatherleaf fern or ferns grown for cut foliage.
	<i>Bacillus subtilis</i> QST 713 strain Cease, Rhapsody	BM02	Contact 2–8 qt/100–300 gal/A 4 qt/100 gal/A (typical)	4 H	Make applications on a 3–10-day schedule. Typical interval of 7 days. Shorten under severe disease pressure.
	<i>benzovindiflupyr + azoxystrobin</i> Mural	7 + 11	Contact/Systemic 4–7 oz/100 gal	12 H	Do NOT apply to apple, crabapple, flowering cherry, privet, leatherleaf fern, or other fern used for cut foliage. Apply at 7–14-day intervals.
	<i>captan</i> Captan 50WP	M4	Contact 2 lb/100 gal ( <i>Chrysanthemum</i> )	48 H	Apply at first sign of disease. Repeat applications at 7–10-day intervals.
	<i>chlorothalonil</i> Daconil Zn Daconil Ultrex Daconil Weatherstik + many other formulations	M5	Contact 2 pt/100 gal 1.4 lb/100 gal 1.375 pt/100 gal See labels for rates.	12 H	Re-apply at 7-day intervals. <b>Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts.</b>

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Botrytis blight (gray mold) (continued)	<i>chlorothalonil</i> + <i>thiophanate methyl</i> Spectro 90WDG	M5 + 1	Contact 1–2 lb/100 gal	12 H	<b>Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts.</b> Minimum 7-day re-treatment interval. Do not exceed 2.15 lb/A of product.
	<i>copper hydroxide</i> CuPRO 5000 Kalmor Nu-Cop 50 DF Nu-Cop HB	M1	Contact 1.5–2 lb/A (1.5 Tbsp/1000 sq ft) 0.5–1.5 lb/A (1 Tbsp/1000 sq ft) 1 lb/100 gal 0.5 lb/100 gal	24–48 H (check label)	<b>Do not apply in spray solutions having pH less than 6.5. Do not tank mix with Aliette or other phosphite/phosphate fungicides.</b> Begin application at the first sign of disease and repeat at 7–14-day intervals.
	<i>copper hydroxide</i> + <i>mancozeb</i> Junction	M1 + M5	Contact 1.5–3.5 lb/A	48 H	<b>Do not apply in spray solutions having pH less than 6.5. Do not tank mix with Aliette fungicide.</b> Re-apply at 7–14-day intervals.
	<i>copper octanoate</i> Camelot O, Grotto	M1	Contact 0.5–2 gal/100 gal/A	4 H	<b>Discoloration of blooms may occur. Do not spray just before or during bloom periods.</b> Apply at 7–14-day intervals.
	<i>copper sulphate pentahydrate</i> Phyton 27	M1	Contact 1.5–2.5 oz/10 gal	24 H	Re-apply at 3–5-day intervals.
	<i>copper sulfate</i> Basicop	M1	Contact 2–4 lb/100 gal or 2–4 lb/A	24 H	<b>Phytotoxicity may occur on certain plant species/cultivars. Limited host labeling, check Ornamentals Section B: Plant Use Index.</b> Apply preventively, and repeat at 7–10-day intervals and after rains.
	<i>cyprodinil</i> + <i>fludioxonil</i> Palladium	9 + 12	Systemic/Contact 4–6 oz/100 gal	12 H	Spray at 7–14-day intervals while conditions are favorable for disease development. May cause visible residue on poinsettia bracts in full color.
	<i>dicloran</i> Botran 75–W	14	Contact 1 lb/150–200 gal (rose, geranium, chrysanthemum) 1.33 lb/100 gal (gladiolus) 1 lb/100 gal (rose, hydrangea) 2 lb/A (conifers)	12 H	<b>Limited host labeling; refer to Ornamentals Section B: Plant Use Index.</b> Spray at the first sign of disease or preventively, repeat every 7–14 days. Spray plants prior to storage or shipment.
	<i>difenoconazole</i> + <i>pydiflumetofen</i> Postiva	3 + 7	Systemic/Contact 10–28 fl oz/100 gal	12 H	Apply preventively as foliar spray at 7–14-day intervals. Use higher rate and shorter interval under severe disease pressure or when conditions are conducive to disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
	<i>fenhexamid</i> Decree 50%	17	Contact 0.75 lb/100 gal (preventative) 1–1.5 lb/100 gal (curative)	12 H	<b>Do not make more than 2 consecutive applications or use more than 6 lb/A/crop on plants grown outside or 0.14 lb/1000 sq ft/crop cycle on plants grown in greenhouses.</b> Re-apply at 7–14-day intervals preventively and 7-day intervals for curative.
<i>fludioxonil</i> Spirato GHN Medallion WDG	12	Contact 2–4 fl oz/100 gal 2–4 oz/100 gal	12 H	May stunt or yellow some impatiens, New Guinea impatiens, and some geranium cultivars. Do not use after bract formation on poinsettia. Re-apply at 7–14-day intervals. Rotate to different fungicide class after 2 applications.	
<i>fluopyram</i> + <i>trifloxystrobin</i> Broadform	7 + 11	Systemic 4–8 fl oz/100 gal	12 H	Apply at 7–14-day intervals. Under high disease pressure, use higher rate and shorter interval. <b>Do not use on leatherleaf fern.</b>	

**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: FUNGICIDES**

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Botrytis blight (gray mold) <i>(continued)</i>	<i>fluoxastrobin</i> Fame SC	11	Systemic 4–8 fl oz/100 gal	12 H	Apply prior to infection. Under light disease pressure, use lower rates on a 7–14-day interval or the higher rates on a 14–21-day interval. Under high disease pressure, use the higher rates on a 7–14-day interval.
	<i>fluxapyroxad + pyraclostrobin</i> Orkestra Intrinsic	7 + 11	Contact/Systemic 8 fl oz/100 gal	12 H	Do NOT apply to Ninebark or Wintercreeper. May discolor flowers of Impatiens and Petunia. Apply at 7–14-day intervals. Use preventively. Begin when conditions are favorable for fungal infection, prior to or at the first sign of disease.
	<i>isofetamid</i> Astun	7	Systemic 10–17 fl oz/100 gal 10–17 fl oz/A	12 H	Use in greenhouse and nurseries (no landscape use). Apply in spray to run-off. Do not apply more than 2 consecutive applications before rotating to a non-Group 7 fungicide. Apply at 7–14-day intervals.
	<i>iprodione</i> OHP Chipco 26019 Chipco 26019 FLO Iprodione Pro 2SE	2	Contact 1–2.5 lb/100 gal 1–2.5 qt/100 gal 1–2.5 qt/100 gal	12 H	<b>Do not use on Spathiphyllum or as a drench on Impatiens or Pothos.</b> Re-apply at 7–14-day intervals.
	<i>iprodione + thiophanate methyl</i> 26/36	2 + 1	Contact/Systemic 33–84 fl oz/100 gal	12 H	Spray plants to ensure thorough coverage. Repeat at 7–14-day intervals. Do not make more than 4 applications/crop/year. <b>Do not use on Spathiphyllum or New Guinea Impatiens.</b>
	<i>mancozeb</i> Dithane 75DF Fore 80WP Mancozeb DG Protect DF	M3	Contact 1–2 lb/100 gal 1.5 lb/100 gal 1.5 lb/100 gal 1–2 lb/100 gal	24 H	Addition of a spreader sticker will improve performance. Repeat application on 7–10-day intervals. <b>Do not use Fore on Pachysandra.</b>
	<i>metconazole</i> Tourney	3	Systemic 1–4 oz/100 gal	12 H	Apply to point of drip at 14–28-day intervals.
	<i>polyoxin D Zn salt</i> Affirm WDG	19	Systemic 0.25–0.5 lb/100 gal	4 H	Apply as full coverage foliar spray every 7–10 days. Apply prior to disease development and when conditions are conducive for disease.
	<i>potassium bicarbonate</i> MilStop	NC	Contact 1.25–5 lb/100 gal	1 H	Apply by increasing 0.25 lbs/application not exceeding 5 lb. Repeat applications at 1–2-week intervals. See label for precautions for use on poinsettia, impatiens, and pansy.
	<i>pyraclostrobin + boscalid</i> Pageant	11 + 7	Systemic/Contact 12–18 oz/100 gal	12 H	Use preventively. Begin applications when conditions are favorable for disease, prior to disease symptom development. Re-apply at 7–14-day intervals.
<i>thiophanate methyl</i> 3336 F 3336EG OHP 66724.5F OHP 6672 50W + many other formulations	1	Systemic 12–16 fl oz/100 gal 12–16 oz/100 gal 10–14.5 fl oz/100 gal 12–16 oz/100 gal See labels for rates.	12 H	<b>Fungicide resistance known. Rotate with fungicide with a different MOA number.</b> <b>Not recommended for use on Boston fern, Swedish Ivy, or Easter Cactus.</b> Repeat application on 7–14-day intervals.	

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Botrytis blight (gray mold) <i>(continued)</i>	<i>trifloxystrobin</i> Compass 50WG	11	Systemic 2–4 oz/100 gal (drip)	12 H	Apply at first sign of disease and continue at 7–14-day intervals. Rotate with fungicide in different chemical class.
	<i>triflumizole</i> Terraguard SC Terraguard SC/LS	3	Contact 4–8 oz/100 gal 4–8 oz/100 gal	12 H	Apply foliar sprays at 7–14-day intervals. Use high rate for initial application and heavy disease pressure. Do not use on impatiens plugs.
	<i>triticonazole</i> Trinity TR	3	Systemic 1 can/3,000 sq ft (greenhouse)	12 H	Elevate container above the plant canopy and clear a 6 ft area around can. Shut off exhaust and close vents. Repeat at 7-day intervals up to 3x per crop (2x for pansies). Rotate with non-Group 3 (DMI) product after two consecutive applications. Apply when foliage is dry and temperature is between 60°F and 80°F. Injury can occur if applied at higher or lower temperatures. <b>Do not use on ferns and orchids.</b>
Boxwood Blight (See <i>Cylindrocladium</i> root, stem and leaf blights; Boxwood Blight ( <i>Calonectria</i> sp.)					
Cercospora, Septoria leaf spots	<i>azoxystrobin</i> Heritage Heritage SC	11	Systemic 1–4 oz/100 gal 2.0–7.7 fl oz/100 gal	4 H	Apply to the point of drip at 7–28-day intervals. <b>Do not apply to Ligustrum (privet), leatherleaf fern, flowering cherry, or crabapple.</b> Do NOT apply to Flowering Cherry, Crabapple, Privet (Ligustrum), Leatherleaf fern or ferns grown for cut foliage.
	<i>Bacillus subtilis</i> QST 713 strain Cease, Rhapsody	BM02	Contact 2–8 qt/10 0–300 gal/A 4 qt/100 gal/A (typical)	4 H	Make applications on a 3–10-day schedule. Typical interval of 7 days. Shorten under severe disease pressure.
	<i>benzovindiflupyr</i> + <i>azoxystrobin</i> Mural	7 + 11	Contact/Systemic 4–7 oz/100 gal	12 H	Do NOT apply to apple, crabapple, flowering cherry, privet, leatherleaf fern or other fern used for cut foliage. Apply at 7–14-day intervals.
	<i>captan</i> Captan 50WP	M4	Contact 2 lb/100 gal (Chrysanthemum)	48 H	Apply at first sign of disease. Repeat applications at 7–10-day intervals.
	<i>chlorothalonil</i> Daconil Zn Daconil Ultrex Daconil Weatherstik + many other formulations	M5	Contact 2 pt/100 gal 1.4 lb/100 gal 1.375 pt/100 gal See labels for rates.	12 H	Re-apply at 7–14-day intervals. <b>Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts. Foliage of Knock-Out and Double Delight roses may be injured under certain growing conditions. Do not combine with pesticides, surfactants, or fertilizers in spray tank.</b>
	<i>chlorothalonil</i> + <i>thiophanate methyl</i> Spectro 90WDG	M5 + 1	Contact/Systemic 1–2 lb/100 gal	12 H	<b>Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts.</b> Minimum 7-day re-treatment interval. Do not exceed 2.15 lb/A of product
	<i>copper hydroxide</i> Champ WG CuPRO 5000 Kalmor Nu-Cop 50 DF Nu-Cop HB	M1	Contact 0.5 lb/100 gal 1.5–2 lb/A (1.5 Tbsp/1000 sq ft) 0.5–1.5 lb/A (1 Tbsp/1000 sq ft) 1 lb/100 gal 0.5 lb/100 gal	24–48 H (check label)	<b>Do not apply in spray solutions having pH less than 6.5. Do not tank mix with Aliette or other phosphite/phosphate fungicides.</b> Begin application at the first sign of disease and repeat at 7–14-day intervals.
	<i>copper hydroxide</i> + <i>mancozeb</i> Junction	M1 + M3	Contact 1.5–3.5 lb/100 gal	48 H	<b>Do not apply in spray solutions having pH less than 6.5.</b> Re-apply at 7–14-day intervals.
	<i>copper oxychloride</i> + <i>copper hydroxide</i> Badge SC Badge X2	M1	Contact 1.5 –2 pt/A 1.5–2 lbs/A	24H (greenhouse) 48 H (other)	Apply at 7–14-day intervals. Use higher rates and shorter intervals during periods of frequent rains or disease pressure.
	<i>copper octanoate</i> Camelot Grotto	M1	Contact 0.5–2 gal/100 gal/A	4 H	<b>Discoloration of blooms may occur. Do not spray just before or during bloom periods.</b> Apply at 7–10-day intervals.

**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: FUNGICIDES**

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Cercospora, Septoria leaf spot <i>(continued)</i>	<i>cyprodinil + fludioxonil</i> Palladium	9 + 12	Systemic/Contact 2–6 oz/100 gal	12 H	Begin applications prior to the onset of disease, and repeat applications at 7–14-day intervals if conditions remain favorable for disease development. Do not use on residential ornamentals.
	<i>difenoconazole + pydiflumetofen</i> Postiva	3 + 7	Systemic/Contact 10–28 fl oz/100 gal	12 H	Apply preventively as foliar spray at 7–14-day intervals. Use higher rate and shorter interval under severe disease pressure or when conditions are conducive to disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
	<i>fludioxonil</i> Spirato GHN Medallion	12	Contact 1–2 oz/100 gal 1–2 oz/100 gal	12 H	Re-apply at 7–14-day intervals.
	<i>fluopyram + trifloxystrobin</i> Broadform	7 + 11	Systemic 4–8 fl oz/100 gal	12 H	Apply at 7–14-day intervals. Under high disease pressure, use higher rate and shorter interval. <b>Do not use on leatherleaf fern.</b>
	<i>fluoxastrobin</i> Fame SC	11	Systemic 1–4 fl oz/100 gal	12 H	Under light disease pressure, use lower rates (1–2 oz/100 gal) on a 7–14-day interval or the higher rates (3–4 oz/100 gal) on a 14–28-day interval. Under high disease pressure, use the higher rates on a 7–14-day interval.
	<i>mancozeb</i> Dithane 75DF Fore 80WP Mancozeb DG Protect DF	M3	Contact 1–2 lb/100 gal 1.5 lb/100 gal 1.5 lb/100 gal 1–2 lb/100 gal	24 H	Addition of a spreader sticker will improve performance. Apply at the first sign of disease. Repeat application on 7–10-day intervals.
	<i>mefentrifluconazole</i> Avelyo	3	Systemic 3–5 fl oz/100 gal	12 H	Apply preventively as foliar and crown directed spray at 7–14-day intervals when conditions are favorable for disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
	<i>metconazole</i> Tourney	3	Systemic 1–4 oz/100 gal	12 H	Apply to point of drip at 14–28-day intervals.
	<i>myclobutanil</i> Eagle 20EW	3	Systemic 6–12 oz /100 gal	24 H	Repeat application at 10–14-day intervals.
	<i>propiconazole + chlorothalonil</i> Concert II	3 + M5	Systemic/Contact 22–35 fl oz (1.4–2.2 pt)/100 gal	12 H	<b>For outdoor and landscape use only.</b> Do not use in greenhouses. Limited host plant labeling; check label. Do not apply to African violets, begonias, Boston fern, geranium, pitosporum, schefflera. Re-apply at 14–21-day intervals. Application to blooms or tender new growth may cause injury.
	<i>propiconazole</i> Banner Maxx II Propiconazole Strider	3	Systemic 8–12 fl oz/100 gal 8–12 fl oz/100 gal 8–12 fl oz/100 gal	12 H	<b>Do not apply to African violets, begonias, Boston fern, or geranium. Do not use in greenhouses.</b> Apply every 30 days to point of drip. Begin when conditions favor disease development (generally mid-July through September). Maximum use rate is 8 fl oz. for impatiens, bayberry, linden, magnolia, sweetgum, and wax myrtle.
	<i>pyraclostrobin + boscalid</i> Pageant	11 + 7	Systemic/Contact 8–12 oz/100 gal	12 H	Use preventively. Begin applications when conditions are favorable for disease, prior to disease symptom development. Re-apply at 7–14-day intervals

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Cercospora, Septoria leaf spot (continued)	<i>thiophanate methyl</i> 3336 F 3336 EG OHP 6672 4.5F OHP 6672 50WP	1	Systemic 12–16 fl oz /100 gal 12–16 oz/100 gal 10–14.5 fl oz/100 gal 12–16 oz/100 gal	12 H	<b>Not recommended for use on Boston fern, Swedish Ivy, or Easter Cactus.</b> Begin application 14–21 days prior to when disease typically occurs or at the latest at the first sign of the disease. Repeat application on 7–14-day intervals. Rotations or tank mix combinations of <i>mancozeb</i> or <i>chlorothalonil</i> can be used. See labels for rates.
	<i>thiophanate methyl + propiconazole</i> Protocol	1 + 3	Systemic 16–24 fl oz/100 gal	24 H	Apply every 30 days, beginning when conditions favor disease development.
	<i>trifloxystrobin</i> Compass 50WG	11	Systemic 2–4 oz/100 gal	12 H	<b>Do not apply to Petunia, Violet, or New Guinea Impatiens or on Poinsettia after bract formation.</b> Apply at first sign of disease and continue at 7–14-day intervals. Rotate with fungicide in different chemical class.
	<i>triticonazole</i> Trinity TR	3	Systemic 2 cans/3,000 sq ft (greenhouse)	12 H	Elevate container above the plant canopy and clear a 6 ft area around can. Shut off exhaust and close vents. Repeat at 7-day intervals up to 3x per crop (2x for pansies).
Cercosporidium Needle Blight (See Needle Blight, <i>Passalora sequioae</i> , syn. <i>Cercosporidium sequioae</i> )					
Corynespora leaf spot	<i>azoxystrobin + benzovindiflupyr</i> Mural	11 + 7	Systemic/Contact 7 oz/100 gal	12 H	Do NOT apply to apple, crabapple, flowering cherry, privet, leatherleaf fern, or other fern used for cut foliage. Apply at 7–21-day intervals.
Cristulariella leaf spot (zonate leaf spot)	<i>propiconazole</i> Banner Maxx II Strider	3	Systemic 8–12 fl oz/100 gal 8–12 fl oz/100 gal	12 H	<b>For outdoor use only.</b> Apply to drip at 30-day intervals.
	<i>thiophanate methyl + propiconazole</i> Protocol	1 + 3	Systemic 16–24 fl. oz/100 gal	24 H	Apply every 30 days, beginning when conditions favor disease development.
Cylindrocladium root, stem and leaf blights; Boxwood Blight ( <i>Calonectria</i> sp.)	<i>azoxystrobin</i> Heritage Heritage SC	11	Systemic 4–8 oz/100 gal 7.7–15.3 fl oz/100 gal	4 H	Apply at 7–14-day intervals. Do NOT apply to apple, crabapple, flowering cherry, ligustrum (privet), leatherleaf fern, or other fern used for cut foliage. Do NOT apply to Flowering Cherry, Crabapple, Privet (Ligustrum), Leatherleaf fern or ferns grown for cut foliage.
	<i>benzovindiflupyr + azoxystrobin</i> Mural	7 + 11	Contact/Systemic 5–7 oz/100 gal	12 H	Do NOT apply to leatherleaf fern or other fern used for cut foliage. Apply at 7–14-day intervals.
	<i>chlorothalonil</i> Daconil Zn Daconil Weatherstik Daconil Ultrex	M5	Contact 2 pt/100 gal 1.375 pt/100 gal 1.4 lb/100 gal	12 H	Re-apply at 7–14-day intervals. <b>Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts.</b> <b>Do not combine with pesticides, surfactants, or fertilizers in spray tank.</b>
	<i>chlorothalonil + thiophanate methyl</i> Spectro 90 WDG	M5 + 1	Contact/Systemic 1–2 lb/100 gal	12 H	<b>Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts.</b> Minimum 7-day re-treatment interval. Do not exceed 2.15 lb/A of product.
	<i>cyprodinil + fludioxonil</i> Palladium	9 + 12	Systemic/Contact 2–6 oz/100 gal	12 H	Begin applications prior to the onset of disease. Repeat applications at 7–14-day intervals if conditions remain favorable for disease development. Ensure full spray coverage of all stems and inner areas of plants to the soil/media level.

**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: FUNGICIDES**

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Cylindrocladium root and stem rot; Boxwood Blight ( <i>Calonectria</i> sp.)	<i>difenoconazole + pydiflumetofen</i> Postiva	3 + 7	Systemic/Contact 10–28 fl oz/100 gal	12 H	Apply preventively as foliar spray at 7–14-day intervals. Use higher rate and shorter interval under severe disease pressure or when conditions are conducive to disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
	<i>fludioxonil</i> Spirato GHN Medallion WDG	12	Contact 1–2 fl oz/100 gal 1–2 oz/100 gal (4 oz/100 gal as foliar spray)	12 H	Do not use on Leatherleaf fern. Drench applications can be made up to a maximum of 2 pt/sq ft to wet root zone of plants.
	<i>fluxapyroxad + pyraclostrobin</i> Orkestra Intrinsic	7 + 11	Contact/Systemic 8–10 fl oz/100 gal	12 H	Use as a preventative treatment. Wet root zone thoroughly when used as a drench to control stem rot. Use at application intervals of 7–28 days as a drench. Use as a spray for twig blight and apply at 7–14-day intervals.
	<i>iprodione</i> Iprodione Pro 2 SE OHP Chipco 26019 Chipco 26019 FLO	2	Contact 1 qt/100 gal 1 qt/100 gal 1 qt/100 gal	12 H	Dip azalea and rhododendron cuttings for 5 minutes prior to planting.
	<i>iprodione + thiophanate methyl</i> 26/36	2 + 1	Contact/Systemic 66 fl oz/100 gal (dip for cuttings 5 min) 13.5 fl oz/100 gal (drench) 33–84 fl oz/100 gal (foliar spray)	12 H	Dip cuttings for 5 minutes prior to planting. Repeat at 7–14-day intervals. Do NOT make more than 4 applications/crop/year. Do not use on <i>Spathiphyllum</i> or New Guinea impatiens or as a drench on Impatiens, Petunia, or Pothos.
	<i>mefentrifluconazole</i> Avelyo	3	Systemic 2–3 fl oz/100 gal (drench)	12 H	Apply preventively as a drench for crown/stem rot at 14–28-day intervals when conditions are favorable for disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
	<i>pyraclostrobin + boscalid</i> Pageant	11 + 7	Systemic/Contact 12–18 oz/100 gal	12 H	Use preventively. Begin applications when conditions are favorable for disease, prior to disease symptom development. The crown and base of the plant and potting medium surrounding the crown must be thoroughly covered. Re-apply at 7–14-day intervals
	<i>tebuconazole</i> Torque	3	Systemic 8–10 fl. oz/100 gal	12 H	<b>Supplemental labeling for Boxwood Blight:</b> Use in a rotational program with other products with a different FRAC group mode of action.
	<i>thiophanate methyl</i> 3336 F  3336 EG  OHP 6672 4.5F OHP 6672 50WP  + many others	1	Systemic 8–16 fl oz/100 gal (drench) 16–24 fl. oz/100 gal (dip)  8–16 oz/100 gal (drench) 16–24 oz/100 gal (dip)  7.5–20 fl oz/100 gal 8–16 oz/100 gal (drench) 16–24 oz/100 gal (dip)  See labels for rates.	12 H	Repeat application on 2–4-week interval. Apply as a heavy spray or drench at rate of 0.5–2 pt/sq ft (100 gal covers 400–1,600 sq ft depending on fungicide rate used). Does not control <i>Cylindrocladium spathiphylli</i> (on <i>spathiphyllum</i> ).
	<i>trifloxystrobin</i> Compass 50WG	11	Systemic 1–2 oz/100 gal (wet media)	12 H	<b>Do not drench on pansy.</b> Start application at time of planting and at 14–28-day intervals depending on disease pressure. Rotate with fungicide in different chemical class.
<i>triflumizole</i> Terraguard SC	3	Contact 4–8 oz/100 gal ( <i>C. spathiphylli</i> ) 6–12 oz/100 gal ( <i>C. scoparium</i> , <i>C. theae</i> ) 6–8 oz /100 gal (drench) 6–12 oz /100 gal for established plants	12 H	Apply at 2–4-week intervals. Use higher rate at heavier disease pressure. Lower rate may be used in subsequent applications. Do not exceed 8 oz/600 sq ft of bed or bench area or inhibition of rooting may occur.	

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Downy Mildew	<i>azoxystrobin</i> Heritage Heritage SC	11	Systemic 2–4 oz/100 gal 3.8–7.7 fl oz/100 gal	4 H	Apply every 7–21 days during periods of active growth and prior to dormancy or severe infection. Use lower rates for herbaceous seedlings. Do NOT apply to Flowering Cherry, Crabapple, Privet (Ligustrum), Leatherleaf fern, or ferns grown for cut foliage.
	<i>azoxystrobin + benzovindiflupyr</i> Mural	11 + 7	Systemic/Contact 4–7 oz/100 gal	12 H	Apply at 7–14-day intervals during periods of active plant growth and prior to severe infection. Rotate with fungicides with different MOA numerical codes. Do NOT apply to Flowering Cherry, Crabapple, Privet (Ligustrum), Leatherleaf fern, or ferns grown for cut foliage.
	<i>Bacillus subtilis</i> QST 713 strain Cease, Rhapsody	BM02	Contact 2–8 qt/100–300 gal/A 4 qt/100 gal/A (typical)	4 H	Make applications on a 3–10-day schedule. Typical interval of 7 days. Shorten under severe disease pressure. Only labeled for <i>Peronospora</i> spp.
	<i>copper hydroxide</i> Champ WG CuPRO 5000 Nu-Cop 50 DF Nu-Cop HB	M1	Contact 0.5 lb/100 gal 1.5–2 lb/A (1.5 Tbsp/1000 sqft) 1 lb/100 gal 0.5 lb/100 gal	24–48 H (check label)	<b>Do not apply in spray solutions having pH less than 6.5. Do not tank mix with Aliette or other phosphite/phosphate fungicides.</b> Begin application at the first sign of disease and repeat at 7–14-day intervals.
	<i>copper hydroxide + mancozeb</i> Junction	M1 + M3	Contact 1.5–3.5 lb/A	48 H	<b>Do not apply in spray solutions having pH less than 6.5.</b> Re-apply at 7–14-day intervals.
	<i>copper octanoate</i> Camelot Grotto	M1	Contact 0.5–2 gal/100 gal/A	4 H	<b>Discoloration of blooms may occur. Do not spray just before or during bloom periods.</b> Apply at 7–10-day intervals. Only labeled for control of <i>Plasmopara</i> spp.
	<i>cyazofamid</i> Segway O	21	Locally systemic 2.1–3.5 fl oz/100 gal	12 H	Apply on 14–21-day intervals. Do not make more than 4 applications per crop cycle. Alternate application with a fungicide with a different mode of action.
	<i>dimethomorph</i> Stature SC	40	Systemic 6.12–12.25 fl oz/100 gal	12 H	Begin spraying when plants are well established or at first sign of disease. Apply on 10–14-day interval. Thoroughly wet foliage until runoff.
	<i>dimethomorph + ametoctradin</i> Orvego	40 + 45	Systemic 11–14 fl oz/100 gal	12 H	Begin spraying when plants are well established or at first sign of disease using a full-coverage spray applied on a 10–14-day interval. Rotate with a fungicide with a different mode of action to reduce fungicide resistance. Not labeled for landscape use.
	<i>fenamidone</i> (11) FenStop	11	Locally Systemic 7–14 oz/100 gal (foliar spray)	12 H	Repeat as necessary at 28-day intervals. Has cross-resistance to strobilurin fungicides. Do not rotate with strobilurin fungicides.
	<i>fluopicolide</i> Adorn	43	Systemic Foliar Spray: 2–4 fl oz/100 gal Drench: 1–4 fl oz/100 gal	12 H	Apply before disease development. Use higher rate when treating plants with a high potential for disease development. Re-apply after 14–28 days. Must be tank mixed with the labeled rate of another labeled fungicide product that has a different mode. Do not apply more than two applications per cropping cycle.
	<i>fluoxastrobin</i> Fame SC	11	Systemic 1–4 fl oz/100 gal	12 H	Apply at 7–21-day intervals. Under light disease pressure, use lower rates (1–2 oz /100 gal) on a 7–14-day interval or the higher rates (3–4 oz /100 gal) on a 14–28-day interval. Under high disease pressure, use the higher rates on a 7–14-day interval.
<i>fosetyl-AL</i> Aliette WDG Areca	P07	Systemic 2.5 lb/100 gal (rose) 2.5 lb/100 gal (bedding plants)	12 H	<b>Do not make more than 1 application every 7 days (for rose) or 30 days (for bedding).</b> Spray to wet using no more than 400 gal/acre.	



**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: FUNGICIDES**

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Downy Mildew (continued)	<i>mancozeb</i> Dithane 75DF Fore 80WSP Mancozeb DG Protect DF	M3	Contact 1–2 lb/100 gal 1.5 lb/100 gal 1.5 lb/100 gal 1–2 lb/100 gal	24 H	Addition of a spreader sticker will improve performance. Repeat application on 7–10-day intervals.
	<i>mandipropamid</i> Micora	40	Systemic 4–8 fl oz/100 gal Basil: 8 fl oz/A (0.9 fl oz/5000 sq ft)	4 H	Begin foliar applications prior to disease development and continue on 7–14-day interval. Make no more than 2 consecutive applications before switching to another effective non-Group 40 fungicide. Use shorter intervals and higher rates under high disease pressure.
	<i>mefenoxam</i> Subdue Maxx	4	Systemic 0.5–1 fl oz/100 gal (spray)	48 H	Apply as a tank mix for foliar spray with a non-Group 4 fungicide, such as with Adorn. Apply only one foliar application before rotating with another fungicide for resistance management. As a drench, apply at transplanting or in early spring or fall to reduce downy mildew disease development.
	<i>oxathiapiprolin</i> Segovis	49	Contact 0.6–3.2 fl oz/100 gal (foliar spray) Basil: 4–8 ml/5000 sq. ft (1.1–2.4 fl oz/A)	4 H	Apply on 7–14-day intervals. Do not make more than 2 sequential applications before rotating to a fungicide with a different mode of action.  For basil in greenhouses, apply in at least 15 gal per acre, increasing the spray volume as plants grow larger. Use the higher rate when disease is present.
	<i>phosphorous acid</i> Fosphite + many others	P07	Systemic 1–2 qt/100 gal See labels	4 H	Apply as a spray to thoroughly wet foliage. Re-apply as needed at 14–21-day intervals.
	<i>polyoxin D Zn salt</i> Affirm WG	19	Systemic 0.25–0.5 lb/100 gal	4 H	Apply as full coverage foliar spray every 7–10 days. Apply prior to disease development and when conditions are conducive for disease.
	<i>pyraclostrobin + boscalid</i> Pageant	11 + 7	Systemic + Contact 12–18 oz/100 gal	12 H	Use preventively. Begin applications when conditions are favorable for disease, prior to disease symptom development. Re-apply at 7–10-day intervals.
	<i>trifloxystrobin</i> Compass 50WG	11	Systemic 1–2 oz/100 gal (drip)	12 H	Apply at first sign of disease and continue at 7–14-day intervals. Rotate with fungicide in different chemical class (different MOA#).
Entomosporium leaf spot	<i>azoxystrobin</i> Heritage Heritage SC	11	Systemic 1–4 oz/100 gal 2.0–7.7 fl oz/100 gal	4 H	Repeat every 7–28 days. Apply at the first sign of disease at bud break. Use lower rates and shorter intervals under light to moderate disease pressure. Use higher rates and shorter intervals under high disease pressure. Rotate after 2–3 applications with non-strobilurin fungicide. Do NOT apply to Flowering Cherry, Crabapple, Privet (Ligustrum), Leatherleaf fern or ferns grown for cut foliage.
	<i>azoxystrobin + benzovindiflupyr</i> Mural	11 + 7	Systemic/Contact 4–7 oz/100 gal	12 H	Do NOT apply to apple or crabapple. Apply at 7–21-day intervals.
	<i>Bacillus subtilis QST 713 strain</i> Cease, Rhapsody	BM02	Contact 2–8 qt/100–300 gal/A 4 qt/100 gal/A (typical)	4 H	Make applications on a 3–10-day schedule.  Typical interval of 7 days. Shorten under severe disease pressure.

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Entomosporium leaf spot (continued)	<i>chlorothalonil</i> Daconil Zn Daconil Ultrex Daconil Weatherstik + many other formulations	M5	Contact 2 pt/100 gal 1.4 lb/100 gal 1.375 pt/100 gal See labels for rates.	12 H	Re-apply at 7–14-day intervals. <b>Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts.</b>
	<i>chlorothalonil + thiophanate methyl</i> Spectro 90 WDG	M5 + 1	Contact/Systemic 1–2 lb/100 gal	12 H	<b>Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts.</b> Minimum 7-day re-treatment interval. Do not exceed 2.5 lb/A of product.
	<i>copper hydroxide + mancozeb</i> Junction	M1 + M3	Contact 1.5–3.5 lb/A	48 H	<b>Do not apply in spray solutions having pH less than 6.5.</b> Re-apply at 7–14-day intervals.
	<i>copper octanoate</i> Camelot	M1	Contact 0.5–2 gal/100 gal/A	4 H	<b>Discoloration of blooms may occur. Do not spray just before or during bloom periods.</b> Apply at 7–14-day intervals.
	<i>myclobutanil</i> Eagle 20EW	3	Systemic 6–12 oz /100 gal	24 H	Repeat application at 10–14-day intervals.
	<i>propiconazole</i> Banner Maxx II Propiconazole Strider	3	Systemic 5–8 fl oz/100 gal 5–8 fl oz/100 gal 5–8 fl oz/100 gal	12 H	Apply every 14–21 days during period of infection. Spray to drip.
	<i>propiconazole + chlorothalonil</i> Concert II	3 + M5	Systemic/Contact 22–35 fl oz (1.4–2.2 pt)/100 gal	12 H	For outdoor and landscape use only. Do not use in greenhouses. Limited host plant labeling; check label. Re-apply at 14–21-day intervals. Application to blooms or tender new growth may cause injury.
	<i>thiophanate methyl + propiconazole</i> Protocol	1 + 3	Systemic 10–16 fl oz/100 gal	24 H	Apply preventively as foliar spray to the point of drip at 14-day intervals.
Fire blight	<i>streptomycin sulfate</i> Agri-mycin 17	25	Contact 100–200 ppm (8–16 oz/100 gal)	12 H	<b>For pear, apple, or pyracantha:</b> Apply first spray at start of blossoming and continue every 3–4 days during bloom period. Apply additional sprays every 5–7 days after blooming when weather conditions favor disease spread.
	<i>copper hydroxide</i> Champ WG CuPRO 5000 Kalmor Nu-Cop 50 DF Nu-Cop HB	M1	Contact 1 lb/100 gal 1.5–2 lb/A (1.5 Tbsp/1000 sqft) 0.5–1.5 lb/A (1 Tbsp/1000 sqft) 1 lb/100 gal 0.5 lb/100 gal	24–48 H (check label)	<b>Do not apply in spray solutions having pH less than 6.5. Do not tank mix with Aliette or other phosphite/phosphate fungicides.</b> Begin application at the first sign of disease and repeat at 7–14-day intervals.
	<i>copper hydroxide + mancozeb</i> Junction	M1 + M3	Contact 1.5–3.5 lb/100 gal (Suppression only)	48 H/ —	<b>Crabapple:</b> Make 1 application between silver tip and green tip as a full coverage spray. Injury may occur from late application. <b>Pear:</b> Apply at 5-day intervals during bloom period. Do not apply after bloom. Discontinue use when green tip reaches 0.5"

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DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Fire blight (continued)	<i>copper oxychloride + copper hydroxide</i> Badge SC Badge X2	M1	Contact 1.5–2 pt/A 1.5–2 lbs/A	48 H	Apply at 7–14-day intervals. Use higher rates and shorter intervals during periods of frequent rains or disease pressure.
	<i>copper octanoate</i> Camelot O	M1	Contact 0.5–2 gal/100 gal/A	4 H	<b>Discoloration of blooms may occur. Do not spray just before or during bloom periods.</b> Apply at 7–10-day intervals.
	<i>copper sulfate</i> Basicop	M1	Contact 2–4 lb/100 gal or 2–4 lb/A	24 H	Begin at 10% bloom and repeat at 5–7-day intervals until late bloom is over. Repeat applications after rains.
	<i>fosetyl-AL</i> Aliette WDG, Areca	P07	Systemic 2.5 lb/100 gal	12 H	Begin spray at pre-bloom stage and continue at 7-day intervals until bloom period ends. <b>Do not apply more than one application every 7 days.</b>
Flower or Petal blight ( <i>Ovulinia</i> , <i>Ciborinia</i> , <i>Sclerotinia</i> ) (continued)	<i>captan</i> Captan 50WP	M4	Contact 2 lb/100 gal (Azalea) 1 lb/100 gal (Camellia)	48 H	Apply to soil around plants prior to bloom. Repeat at 7–14-day intervals through bloom.
	<i>chlorothalonil</i> Daconil Zn Daconil Ultrex Daconil Weatherstik many other formulations	M5	Contact 2 pt/100 gal 1.4 lb/100 gal 1.375 pt/100 gal See labels for rates.	12 H	Re-apply at 7–14-day intervals. <b>Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts. Do not combine with pesticides, surfactants, or fertilizers in spray tank.</b>
	<i>chlorothalonil + thiophanate methyl</i> Spectro 90WDG	M5 + 1	Contact/Systemic 1–2 lb/100 gal	12 H	<b>Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts.</b> Minimum 7-day re-treatment interval. Do not exceed 2.15 lbs/A of product.
	<i>copper sulfate</i> Basicop	M1	Contact 2–4 lb/100 gal/A	24 H	Apply to entire plant before bud break in the spring. Repeat 2–3 weeks later. Remove and destroy any galls that may appear.
	<i>copper hydroxide + mancozeb</i> Junction	M1 + M3	Contact 1.5–3.5 lb/A	48 H	<b>Do not apply in spray solutions having pH less than 6.5.</b> Re-apply at 7–14-day intervals.
	<i>mancozeb</i> Dithane 75DF Fore 80WP Mancozeb DG Protect DF	M3	Contact 1–2 lb/100 gal 1.5 lb/100 gal 1.5 lb/100 gal 1–2 lb/100 gal	24 H	Addition of a spreader sticker will improve performance. Apply in full cover spray, 2–3 times a week while flowers are opening. Direct spray into flowers and thoroughly spray ground under bushes. <b>Do not use Fore on Pachysandra.</b>
	<i>PCNB</i> Terraclor 400	14	Contact Woody (drench): 6–12 oz /100 gal Magnolia: 3 pt/100 gal	12 H	Apply in sufficient water to assure good coverage. Apply to ground beneath bushes. Begin application prior to bud opening and repeat every 4–6 weeks during bloom period.
	<i>propiconazole</i> Banner Maxx II Propiconazole Pro Strider	3	Systemic 5–8 fl oz/100 gal 5–8 fl oz/100 gal 5–8 fl oz/100 gal	12 H	<b>For outdoor use only.</b> Apply every 14–21 days during period of infection and flower bloom. Spray to drip. Only labeled for <i>Ovulinia</i> spp. (azalea flower blight).

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Flower or petal blight ( <i>Ovulinia</i> , <i>Ciborinia</i> , <i>Sclerotinia</i> ) (continued)	<i>propiconazole</i> + <i>chlorothalonil</i> Concert II	3 + M5	Systemic/Contact 22–35 fl oz (1.4–2.2 pt)/100 gal	12 H	For outdoor and landscape use only. Do not use in greenhouses. Limited host plant labeling; check label. <b>Do not apply to African violets, begonias, Boston fern, geranium, pittosporum, schefflera.</b> Re-apply at 14–21-day intervals. Application to blooms or tender new growth may cause injury.
	<i>tebuconazole</i> Torque	3	Systemic 4–10 fl oz/100 gal	12 H	Apply 2–3 times/week into the flowers as they open and develop color. Apply every 14 days.
	<i>thiophanate methyl</i> 3336 F  3336 EG  OHP 6672 4.5F  OHP 6672 50WP  + many other formulations	1	Systemic 7.25–20 fl oz /100 gal 12–16 fl oz /100 gal 8–16 oz /100 gal ( <i>Ovulinia</i> ) 12–16 oz /100 gal 8–16 fl oz /100 gal ( <i>Ovulinia</i> ) 10.75–20 fl oz/100 gal 7.25–20 fl oz /100 gal ( <i>Ovulinia</i> ) 12–16 oz/100 gal 8–16 oz/100 gal ( <i>Ovulinia</i> ) See labels for rates	12 H	Apply as flowers open. Repeat application on 7–14-day intervals
	<i>thiophanate methyl</i> + <i>propiconazole</i> Protocol	1 + 3	Systemic 10–16 fl oz/100 gal	24 H	Apply preventively as foliar spray to the point of drip at 14-day intervals.
	Fungal leaf spots other than <i>Alternaria</i> , <i>Black spot</i> , <i>Cercospora</i> , <i>Septoria</i> , <i>Cristulariella</i> , <i>Entomosporium</i> ( <i>Phyllosticta</i> , <i>Phoma</i> , <i>Corynespora</i> , <i>Tubakia</i> , and others)	<i>azoxystrobin</i> Heritage Heritage SC	11	Systemic 1–4 oz/100 gal 2.0–7.7 fl oz/100 gal	4 H
<i>benzovindiflupyr</i> + <i>azoxystrobin</i> Mural		7 + 11	Contact/Systemic 4–7 oz/100 gal	12 H	Do NOT apply to apple, crabapple, flowering cherry, privet, leatherleaf fern, or other fern used for cut foliage. Apply at 7–21-day intervals
<i>chlorothalonil</i> Daconil Zn Daconil Ultrex Daconil Weatherstik + many other formulations		M5	Contact 2 pt/100 gal 1.4 lb/100 gal 1.375 pt/100 gal See labels for rates.	12 H	Re-apply at 7–14-day intervals. Apply to run-off to only dry foliage. <b>Do not use with mist blowers of high pressure spray equipment in greenhouses. May discolor flowers/bracts. Do not combine with pesticides, surfactants, or fertilizers in spray tank.</b>
<i>chlorothalonil</i> + <i>thiophanate methyl</i> Spectro 90WDG		M5 + 1	Contact/Systemic 1–2 lb/100 gal	12 H	<b>Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts.</b> Minimum 7–day re-treatment interval. Do not exceed 2.15 lb/A of product.
<i>copper hydroxide</i> (M1) Champ WG CuPRO 5000 Kalmor Nu-Cop 50 DF Nu-Cop HB		M1	Contact 0.5–1 lb/100 gal 1.5–2 lb/A (1.5 Tbsp/1000 sqft) 0.5–1.5 lb/A (1 Tbsp/1000 sqft) 1 lb/100 gal 0.5 lb/100 gal	24–48 H (check label)	<b>Do not apply in spray solutions having pH less than 6.5. Do not tank mix with aliette or other phosphite/phosphate fungicides.</b> Begin application at the first sign of disease and repeat at 7–14-day intervals.

## ORNAMENTALS AND SHADE TREE DISEASE CONTROL: FUNGICIDES

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Fungal leaf spots other than <i>Alternaria</i> , <i>Black spot</i> , <i>Cercospora</i> , <i>Septoria</i> , <i>Cristulariella</i> , <i>Entomosporium</i> ( <i>Phyllosticta</i> , <i>Phoma</i> , <i>Corynespora</i> , <i>Tubakia</i> , and others) (continued)	<i>copper hydroxide + mancozeb</i> Junction	M1 + M5	Contact 1.5–3.5 lb/100 gal	48 H	<b>Do not apply in spray solutions having pH less than 6.5.</b> Re-apply at 7–10-day intervals.
	<i>copper octanoate</i> Camelot O Grotto	M1	Contact 0.5–2 gal/100 gal/A	4 H	<b>Discoloration of blooms may occur.</b> Do not spray just before or during bloom periods. Apply at 7–10-day intervals.
	<i>copper sulfate</i> Basicop	M1	Contact 2–4 lb/100 gal or 2–4 lb/A	24 H	<b>Phytotoxicity may occur on certain plant species/cultivars. Limited host labeling, check Ornamentals Section B: Plant Use Index.</b> Trees: Apply to swelling buds and repeat 2 times at 10-day intervals as needed. Shrubs/Flowers: Apply preventively, and repeat at 7–10-day intervals and after rains.
	<i>difenoconazole + pydiflumetofen</i> Postiva	3 + 7	Systemic/Contact 10–28 fl oz/100 gal	12 H	Apply preventively as foliar spray at 7–14-day intervals. Use higher rate and shorter interval under severe disease pressure or when conditions are conducive to disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
	<i>fluxapyroxad + pyraclostrobin</i> Orkestra Intrinsic	7 + 11	Contact/Systemic 8–10 fl oz/100 gal	12 H	Do NOT apply to Ninebark or Wintercreeper. May cause flower discoloration of Petunia and Impatiens.
	<i>mancozeb</i> Dithane 75DF Fore 80WP Mancozeb DG Protect DF	M3	Contact 1–2 lb/100 gal 1.5 lb/100 gal 1.5 lb/100 gal 1–2 lb/100 gal	24 H	Addition of a spreader sticker will improve performance. Repeat application on 7–10-day intervals. <b>Do not use Fore on Pachysandra.</b>
	<i>mefentrifluconazole</i> Avelyo	3	Systemic 3–5 fl oz/100 gal	12 H	Apply preventively as foliar and crown directed spray at 7–14-day intervals when conditions are favorable for disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
	<i>propiconazole + chlorothalonil</i> Concert II	3 + M5	Systemic/Contact 22–35 fl oz (1.4–2.2 pt)/100 gal	12 H	For outdoor and landscape use only. Do not use in greenhouses. Limited host plant labeling; check label. <b>Do not apply to African violets, begonias, Boston fern, geranium, pittosporum, schefflera.</b> Re-apply at 14–21-day intervals. Application to blooms or tender new growth may cause injury.
	<i>potassium bicarbonate</i> MilStop	NC	Contact 1.25–5 lb/100 gal	1 H	Apply by increasing 0.25 lb/application not exceeding 5 lb. Repeat applications at 1–2-week intervals. See label for precautions for use on poinsettia, impatiens, and pansy.
	<i>pyraclostrobin + boscalid</i> Pageant	11 + 7	Systemic/Contact 8–12 oz/100 gal	12 H	Use preventively. Begin applications when conditions are favorable for disease, prior to disease symptom development. Re-apply at 7–14-day intervals.
<i>tebuconazole</i> Torque	3	Systemic 4–10 fl oz/100 gal	12 H	Apply at least 3 times per year, 14–21 days apart, beginning with spring bud break. Rotate with a fungicide in a different class (different MOA) to reduce fungicide resistance development. <b>Do not use on African violet, begonia, Boston fern, or geranium.</b>	

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Fungal leaf spots other than <i>Alternaria</i> , <i>Black spot</i> , <i>Cercospora</i> , <i>Septoria</i> , <i>Cristulariella</i> , <i>Entomosporium</i> ( <i>Phyllosticta</i> , <i>Phoma</i> , <i>Corynespora</i> , <i>Tubakia</i> , and others) (continued)	<i>thiophanate methyl</i> 3336 F 3336 EG OHP 6672 4.5F OHP 6672 50WP + many more formulations	1	Systemic 12–16 fl oz /100 gal 12–16 oz/100 gal 20 fl oz/100 gal 14.5–20 fl oz/100 gal 12–16 oz/100 gal See product labels for rates.	12 H	<b>Not recommended for use on Boston fern, Swedish Ivy, or Easter Cactus.</b> Apply at first sign of disease. Repeat application on 7–14-day intervals.  Rotations or tank mix combinations of <i>mancozeb</i> or <i>chlorothalonil</i> can be used.
	<i>thiophanate methyl + propiconazole</i> Protocol	1 + 3	Systemic 10–16 fl oz/100 gal	24 H	Apply preventively as foliar spray to the point of drip at 14-day intervals.
Fusarium stem and roset rot	<i>chlorothalonil + thiophanate methyl</i> Spectro 90 WDGs	M5 + 1	MODE OF ACTION: Contact/Systemic 1–2 lb/100 gal	12 H	Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts. Minimum 7–day re-treatment interval. Do not exceed 2.15 lb/A of product.
	<i>azoxystrobin</i> Heritage  Heritage SC	1	Systemic 1–4 oz/100 gal (soil-directed spray) 0.2–1 oz/100 gal (drench) 2.0–7.7 fl oz/100 gal (soil-directed spray) 0.8–3.8 fl oz/100 gal (drench)	4 H	Repeat every 7–21 days for soil-directed spray. Use 1–2 pints of solution/sq ft surface area every 7–28 days for drench. Do NOT apply to Flowering Cherry, Crabapple, Privet ( <i>Ligustrum</i> ), Leatherleaf fern, or ferns grown for cut foliage.
	<i>Bacillus subtilis</i> QST 713 strain Cease, Rhapsody	BM02	Contact 4–8 qt/100 gal/A	4 H	<b>Drenches for use only in greenhouses and nurseries (open or enclosed).</b> Apply 1 pt/3" soil depth to thoroughly soak the growing medium as a drench or directed spray. Optimal when used preventively and repeated every 21–28 days during growing cycle.
	<i>benzovindiflupyr + azoxystrobin</i> Mural	7 + 11	Contact/Systemic 5–7 oz/100 gal (soil-directed spray) 2–3 oz/100 gal (drench)	12 H	Do NOT apply to apple, crabapple, flowering cherry, privet, leather leaf fern, or other fern used for cut foliage. Apply at 7–21-day intervals for soil directed spray. For drench application, apply 1–2 pints of solution per square foot surface area every 7–28 days.
	<i>cyprodinil + fludioxonil</i> Palladium	9 + 12	Systemic/Contact 2–6 oz/100 gal	12 H	Begin applications prior to the onset of disease, and repeat applications at 7–14-day intervals if conditions remain favorable for disease development. Ensure full spray coverage of all stems and inner areas of plants to the soil/media level.
	<i>difenoconazole + pydiflumetofen</i> Postiva	3 + 7	Systemic/Contact 10–28 fl oz/100 gal	12 H	Apply preventively via chemigation or as a container drench at 7–14-day intervals. Use higher rate and shorter interval under severe disease pressure or when conditions are conducive to disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
	<i>etridiazole + thiophanate methyl</i> Banrot 8G Banrot 40WP	14 + 1	Contact/Systemic 12 oz/cu yd 4–8 oz/100 gal (bedding) 6–12 oz/100 gal (woody/foliage)	12 H	Use low rates for bedding plants and high rates for woody and foliage plants for Banrot 8G.  Drench at seeding and transplanting. Re-apply at 4–8-week intervals.
	<i>fludioxonil</i> Spirato GHN Medallion WDG	12	Contact 1–2 fl oz/100 gal 1–2 oz/100 gal	12 H	Drench applications can be made up to a maximum of 2 pt/sq ft to wet root zone of plants.
	<i>fluoastrobilin</i> Fame SC	11	Systemic 0.15–0.6/100 gal (Drench or surface spray)	12 H	Apply at 7–21-day intervals for crown spray and 14–28-day interval for drench or surface spray application.

**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: FUNGICIDES**

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Fusarium stem and root rot <i>(continued)</i>	<i>pyraclostrobin</i> Empress Intrinsic	11	Systemic 1–3 fl oz/100 gal (unrooted cuttings, seedlings, plugs) 2–6 fl oz/100 gal (herbaceous/woodyplants)	12 H	Use preventively when conditions are favorable for disease and prior to symptom development. Rotate to a non-Group 11 fungicide for resistance management.  Do not apply more than 4.4 fl oz/1000 sq ft/year. Repeat applications as needed 7–28 days after initial application.
	<i>pyraclostrobin + boscalid</i> Pageant	11 + 7	Systemic/Contact 12–18 oz/100 gal	12 H	Use preventively. Begin applications when conditions are favorable for disease, prior to disease symptom development. The crown and base of the plant and the potting medium surrounding the crown must be thoroughly covered. Re-apply at 7–14-day intervals.
	<i>thiophanate methyl</i> 3336 F 3336 EG  OHP 6672 4.5F OHP 6672 50WP + many more formulations	1	Systemic 8–16 fl oz /100 gal 12– 16 oz /100 gal (Spray) 16–24 oz /100 gal (Plant dip) 8–16 oz /100 gal (Drench) 10–14.5 fl oz/100 gal 12–16 oz /100 gal See label for rates.	12 H	Apply as a heavy spray or drench at rate of 0.5–2 pt/sq ft (100 gal covers 400–1,600 sq ft depending on fungicide rate used).  Applications can be re-applied at 7–14-day intervals.
	<i>triflumizole</i> Terraguard SC	3	Contact 4–8 fl oz/100 gal	12 H	Apply soil drenches at weekly intervals. Use higher rate under heavy disease pressure.
	<i>triticonazole</i> Trinity TR	3	Systemic 2 cans/3,000 sq ft (greenhouse)	12 H	Elevate container above the plant canopy and clear a 6 ft area around can. Shut off exhaust and close vents. Repeat at 7-day intervals up to 3x per crop.
	Myrothecium leaf spot and blight	<i>azoxystrobin</i> Heritage Heritage SC	11	Systemic 2–4 oz/100 gal 3.8–7.7 fl oz/100 gal	4 H
<i>azoxystrobin + benzovindiflupyr</i> Mural		11 + 7	Systemic/Contact 4–7 oz/100 gal	12 H	Apply at 7–21-day intervals.
<i>Bacillus subtilis QST 713 strain</i> Cease, Rhapsody		BM02	Contact 2–8 qt/100 gal/A 4 qt/100 gal/A (typical)	4 H	Make applications on a 3–10-day schedule. Typical interval of 7–day. Shorten under severe disease pressure.
<i>chlorothalonil</i> Daconil Ultrex Daconil Zn Daconil Weatherstik		SA	Contact 1.4 lb/100 gal 2 pt/100 gal 1.375 pt/100 gal	12 H	Re-apply at 7–14-day intervals. <b>Do not use with mist blowers of high pressure spray equipment in greenhouses. May discolor flowers/bracts. Do not combine with pesticides, surfactants, or fertilizers in spray tank.</b>
<i>chlorothalonil + thiophanate methyl</i> Spectro 90WDG		M5 + 1	Contact/Systemic 1–2 lb/100 gal	12 H	<b>Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts.</b> Minimum 7–day re-treatment interval. Do not exceed 2.15 lb/A of product.
<i>copper octanoate</i> Camelot O Grotto		M1	Contact 0.5–2 gal/100 gal/A	4 H	<b>Discoloration of blooms may occur.</b> Do not spray just before or during bloom periods. Apply at 7–10-day intervals.

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Myrothecium leaf spot and blight (continued)	<i>cyprodinil + fludioxonil</i> Palladium	9 + 12	Systemic/Contact 2–6 oz/100 gal	12 H	Begin applications prior to the onset of disease. Repeat applications at 7–14-day intervals if conditions remain favorable for disease development. Ensure full spray coverage of all stems and inner areas of plants to the soil/media level.
	<i>fludioxonil</i> Spirato GHN Medallion WDG	12	Contact 1–2 fl oz/100 gal 1–2 oz/100 gal	12 H	Re-apply at 7–14-day intervals. Drench may cause stunting and/or chlorosis to impatiens and New Guinea impatiens.
	<i>fluoxastrobin</i> Fame SC	11	Systemic 1–4 fl oz/100 gal	12 H	Under light disease pressure, use lower rates (1–2 oz/100 gal) on a 7–14-day interval or the higher rates (3–4 oz/100 gal) on a 14–28-day interval. Under high disease pressure, use the higher rates on a 7–14-day interval.
	<i>fluopyram + trifloxystrobin</i> Broadform	7 + 11	Systemic 2–4 fl oz/100 gal	12 H	Apply at 7–14-day intervals as a foliar spray to drip. Under high disease pressure, use higher rate and shorter interval. Do not use on leatherleaf fern.
	<i>metconazole</i> Tourney	3	Systemic 1–4 oz/100 gal	12 H	Apply to the point of drip at 14–28-day intervals.
	<i>pyraclostrobin + boscalid</i> Pageant	11 + 7	Systemic/Contact 8–12 oz/100 gal	12 H	Use preventively. Begin applications when conditions are favorable for disease, prior to disease symptom development. Re-apply at 7–14-day intervals. Do not expose petunia or impatiens in flower or wintercreeper or nine bark to spray or drift as injury may occur.
	<i>thiophanate methyl</i> 3336 F 3336 EG OHP 6672 4.5 F OHP 6672 50WP +many more formulations	1	Systemic 12–16 fl oz/100 gal 12–16 oz/100 gal 10–14.5 fl oz/100 gal 12–16 oz/100 gal See product label for rates	12 H	Apply as a heavy spray or drench at rate of 0.5–2 pt/sq ft (100 gal covers 400–1,600 sq ft depending on fungicide rate used). Applications can be re-applied at 1–2-week intervals.
	<i>trifloxystrobin</i> Compass 50WG	11	Systemic 1–2 oz/100 gal	12 H	Apply at first sign of disease and continue at 7–14-day intervals. Rotate with fungicide in different chemical class.
	<i>triflumizole</i> Terraguard SC	3	Contact 4–8 oz/100 gal	12 H	Apply foliar sprays at 7–14-day intervals. Use high rate for initial application.
<i>triticonazole</i> Trinity TR	3	Systemic 1 can/3,000 sq ft (greenhouse)	12 H	Elevate container above the plant canopy and clear a 6 ft area around can. Shut off exhaust and close vents. Repeat at 7-day intervals up to 3x per crop (2x for pansies).	



**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: FUNGICIDES**

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
<p>Needle Blight (<i>Passalora sequioae</i>, syn. <i>Cercosporidium</i>)</p> <p>*Spores are initially dispersed mid-May–mid-June, with symptoms and spore release peaking in Aug–Sept. Begin preventive fungicide applications mid-May to early June and continue through Sept–Oct. Curative applications can reduce disease when applied Aug–Oct when symptoms are first seen.</p> <p><b>Note:</b> Removal and disposal of infected plant parts can reduce spread. Air-blast applications are not as effective as pistol or direct application to interior of tree.</p>	<p><i>chlorothalonil</i> Daconil Zn Daconil Ultrex Daconil Weatherstik + many more formulations</p>	M5	<p>Contact 2 pt/100 gal 1.4 lb/100 gal 1.375 pt/100 gal See product label for rates.</p>	12 H	Re-apply at 7-day intervals.
	<p><i>chlorothalonil + thiophanate methyl</i> Spectro 90WDG</p>	M5 + 1	<p>Contact/Systemic 1–2 lb/100 gal</p>	12 H	<p>Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts. Minimum 7–day re-treatment interval. <b>Do not exceed 2.15 lb/A of product.</b></p>
	<p><i>copper hydroxide</i> Champ WG CuPRO 5000 Kalmor Nu-Cop 50 DF Nu-Cop HB Kocide 3000 Kocide 2000</p>	M1	<p>Contact 0.75–1.75 lb/100 gal 3–5 lb/A 0.5–1.5 lb/A (1 Tbsp/1000 sq ft) 1 lb/100 gal 0.5 lb/100 gal 0.75–1.75 lb/A 1.5–3 lb/A</p>	24–48 H (check label)	<b>Do not apply in spray solutions having pH less than 6.5. Do not tank mix with Aliette fungicide.</b> Re-apply at 7–14-day intervals.
	<p><i>copper oxychloride + copper hydroxide</i> Badge SC Badge X2</p>	M1	<p>Contact 1.5–2 pt/A 1.5–2 lbs/A</p>	24H (greenhouse) 48 H (other)	Apply at 7–14-day intervals. Use higher rates and shorter intervals during periods of frequent rains or disease pressure.
	<p><i>copper octanoate</i> Camelot</p>	M1	<p>Contact 0.5–2 gal/100 gal/A</p>	4 H	Apply first application when needles are just emerging. Make second application 3 weeks later.
	<p><i>mancozeb</i> Dithane 75DF Fore 80 WP Mancozeb DG Protect DF</p>	M3	<p>Contact 1–2 lb/100 gal 1.5 lb/100 gal 1.5 lb/100 gal 1–2 lb/100 gal</p>	24 H	<p>Addition of a spreader sticker will improve performance. Apply at the first sign of disease. Repeat application on 7–10-day intervals. <b>Do not use Fore on Pachysandra.</b></p>
	<p>Phoma basal and root rot (<i>Phoma exigua</i>)</p>	<p><i>cyprodinil + fludioxonil</i> Palladium</p>	9 + 12	<p>Systemic/Contact 2–6 oz/100 gal</p>	12 H
<p><i>difenoconazole + pydiflumetofen</i> Postiva</p>		3 + 7	<p>Systemic/Contact 10–28 fl oz/100 gal</p>	12 H	Apply preventively as foliar spray at 7–14-day intervals. Use higher rate and shorter interval under severe disease pressure or when conditions are conducive to disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
<p><i>mefentrifluconazole</i> Avelyo</p>		3	<p>Systemic 3–5 fl oz/100 gal</p>	12 H	Apply preventively as foliar and crown directed spray at 7–14-day intervals when conditions are favorable for disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Phomopsis tip blight Kabatina tip blight Sirroccoccus tip blight	<i>azoxystrobin</i> Heritage Heritage SC	11	Systemic 1–4 oz/100 gal 2.0–7.7 fl oz/100 gal	4 H	Repeat every 7–28 days. Apply at the first sign of disease at bud break. Do NOT apply to Flowering Cherry, Crabapple, Privet ( <i>Ligustrum</i> ), Leatherleaf fern, or ferns grown for cut foliage.
	<i>benzovindiflupyr + azoxystrobin</i> Mural	7 + 11	Contact/Systemic 4–7 oz/100 gal	12 H	Apply at 7–21-day intervals.
	<i>copper oxychloride + copper hydroxide</i> Badge SC Badge X2	M1	Contact 1.5–2 pt/A 1.5–2 lbs/A	24 H (greenhouse) 48 H (other)	Apply at 7–14-day intervals. Use higher rates and shorter intervals during periods of frequent rains or disease pressure.
	<i>cyprodinil + fludioxonil</i> Palladium	9 + 12	Systemic/Contact 2–6 oz/100 gal	12 H	Begin applications prior to the onset of disease, and repeat applications at 7–14-day intervals if conditions remain favorable for disease development. Ensure full spray coverage of all stems and inner areas of plants to the soil/media level.
	<i>mancozeb</i> Dithane 75DF Fore 80WP Mancozeb DG Protect DF	DC	Contact 1–2 lb/100 gal 1.5 lb/100 gal 1.5 lb/100 gal 1–2 lb/100 gal	24 H	Addition of a spreader sticker will improve performance. Repeat application on 7–10-day intervals. <b>Do not use Fore on Pachysandra.</b>
	<i>mefentrifluconazole</i> Avelyo	3	Systemic 5–9 fl oz/100 gal	12 H	Apply preventively as foliar and crown directed spray at 7–14-day intervals when conditions are favorable for disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
	<i>metconazole</i> Tourney	3	Systemic 1–4 oz/100 gal	12 H	Apply to the point of drip at 14–28-day intervals.
	<i>potassium bicarbonate</i> MilStop	NC	Contact 1.25–5 lb/100 gal	1 H	Repeat applications at 1–2-week intervals. See label for precautions for use on poinsettia, impatiens, and pansy.
	<i>propiconazole</i> Banner Maxx II Propiconazole Strider	3	Systemic 5–8 fl oz/100 gal 5–8 fl oz/100 gal 5–8 fl oz/100 gal	12 H	Apply every 14–21 days beginning at bud break in spring and during periods of active plant growth. Spray to drip.
	<i>tebuconazole</i> Torque	3	Systemic 8–10 fl. oz/100 gal	12 H	Supplemental labeling for conifer blights: Make first application as soon as conifers start to grow, and repeat the applications every 14–21 days during periods of active growth. Apply to point of drip.
Phytophthora Root Rot and Foliar Blight (See <i>Pythium</i> and <i>Phytophthora</i> )	<i>thiophanate methyl</i> 3336 F 3336 EG OHP 6672 4.5F OHP 6672 50WP + many more formulations	1	Systemic 16–24 fl oz /100 gal 16–24 oz/100 gal 14.5–20 fl oz/100 gal 16–32 oz/100 gal See product label for rates.	12 H	Apply at bud break in the spring. Repeat application on 7–14-day intervals.
	<i>thiophanate methyl + propiconazole</i> Protocol	1 + 3	Systemic 10–16 fl oz/100 gal ( <i>Phomopsis</i> ) 32 fl oz/100 gal ( <i>Sirroccoccus</i> )	24 H	<b>Phomopsis:</b> Make initial applications as soon as Juniper starts to grow and reapply every 14 to 21-days during periods of active growth. <b>Sirroccoccus:</b> Make initial application in mid- to late winter, and 3 additional applications at 2-month intervals

## ORNAMENTALS AND SHADE TREE DISEASE CONTROL: FUNGICIDES

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Pine needle cast ( <i>Lophodermium</i> )	<i>benzovindiflupyr + azoxystrobin</i> Mural	7 + 11	Contact/Systemic 7 oz/100 gal	12 H	Apply at 7–21-day intervals. Do NOT apply to Flowering Cherry, Crabapple, Privet ( <i>Ligustrum</i> ), Leatherleaf fern, or ferns grown for cut foliage.
	<i>chlorothalonil</i> Daconil Zn Daconil Ultrex Daconil Weatherstik	M5	Contact 4–8 pt/A 2.5–5 lb/100 gal or A 2.75–5.5 pt/A	12 H	Apply in early spring prior to bud break. Repeat applications at 6–8-week intervals. Apply monthly during periods of frequent rainfall. Suspend treatment during drought periods.
	<i>copper hydroxide</i> CuPRO 5000 Kocide 3000 Kocide 2000	M1	Contact 3–5 lb/A 0.75–1.75 lb/A 1.5–3 lb/A	24–48 H (check label)	<b>Do not apply in spray solutions having pH less than 6.5. Do not tank mix with Aliette fungicide.</b> Re-apply at 14-day intervals.
	<i>copper hydroxide + mancozeb</i> Junction	M1 + M3	Contact 1.5–3.5 lb/A	48 H	Do not apply in spray solutions having pH less than 6.5. Re-apply at 7–14-day intervals.
	<i>copper octanoate</i> Camelot O Grotto	M1	Contact 0.5–2 gal/100 gal/A	4 H	Apply first application when needles are emerging. Make second application 3 weeks later.
	<i>fluopyram + trifloxystrobin</i> Broadform	7 + 11	Systemic 13.4 fl oz/100 gal	12 H	Apply dosage per acre or per 100 gallons of water as a full coverage, dilute spray as needed at 7–21-day intervals. Under high disease pressure, use higher rate and shorter interval. Use a non-ionic spary adjuvant.
	<i>mancozeb</i> Dithane 75DF Fore 80WP Mancozeb DG Protect DF	M3	Contact 1–2 lb/100 gal 1.5 lb/100 gal 1.5 lb/100 gal 1–2 lb/100 gal	24 H	Addition of a spreader sticker will improve performance. Apply at 7–10-day intervals.
Powdery Mildew	<i>azoxystrobin</i> Heritage Heritage SC	11	Systemic 1–4 oz/100 gal 2.0–7.7 fl oz/100 gal	4 H	<b>Preventative applications only.</b> Repeat at 7–28 days. Do not make more than 2 sequential applications before rotating to another class of fungicide. Do NOT apply to Flowering Cherry, Crabapple, Privet ( <i>Ligustrum</i> ), Leatherleaf fern, or ferns grown for cut foliage.
	<i>Bacillus subtilis</i> QST 713 strain Cease, Rhapsody	BM02	Contact 2–8 qt/100 gal/A 4 qt/100 gal/A (typical)	4 H	Make applications on a 3–10-day schedule. Typical interval of 7–day. Shorten under severe disease pressure.
	<i>benzovindiflupyr + azoxystrobin</i> Mural	7 + 11	Contact/Systemic 4–7 oz/100 gal	12 H	Do NOT apply to apple, crabapple, flowering cherry, privet, leatherleaf fern, or other fern used for cut foliage. Apply at 7–21-day intervals. Do not make more than 2 sequential applications before rotating to another class of fungicide with a different MOA.
	<i>chlorothalonil</i> Daconil Ultrex Daconil Zn Daconil Weatherstik	M5	Contact 1.4 lb/100 gal 2 pt/100 gal 1.375 pt/100 gal	12 H	Apply on 7–14-day intervals at first sign of disease or when conditions favor disease development. <b>Do not combine with pesticides, surfactants, or fertilizers in spray tank.</b>
	<i>chlorothalonil + thiophanate methyl</i> Spectro 90WDG	M5 + 1	Contact/Systemic 1–2 lb/100 gal	12 H	<b>Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts.</b> Minimum 7–day re-treatment interval. Do not exceed 2.15 lb/A of product.

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Powdery mildew (continued)	<i>copper hydroxide</i> CuPRO 5000 Kalmor Nu-Cop 50 DF Nu-Cop HB	M1	Contact 1.5–2 lb/A (1.5 Tbsp/1000 sq ft) 0.5–2.0 lbs/A (0.5–1.5 Tbsp/1000 sq ft) 1 lb/100 gal 0.5 lb/100 gal	24–48 H (check label)	<b>Do not apply in spray solutions having pH less than 6.5. Do not tank mix with Aliette or other phosphite/phosphate fungicides.</b> Begin application at the first sign of disease and repeat at 7–14-day intervals.
	<i>copper octanoate</i> Camelot Grotto	M1	Contact 0.5–2 gal/100 gal/A	4 H	<b>Discoloration of blooms may occur. Do not spray just before or during bloom periods.</b> Apply at 7–10-day intervals.
	<i>copper sulfate</i> Basicop	M1	Contact 2–4 lb/100 gal or 2–4 lb/A	24 H	<b>Phytotoxicity may occur on certain plant species/cultivars. Limited host labeling, check Ornamentals Section B: Plant Use Index.</b> Apply preventively, and repeat at 7–10-day intervals and after rains.
	<i>copper sulphate pentahydrate</i> Phyton 27	M1	Contact 1.5–2.5 oz/100 gal	24 H	Apply preventively, and Re-apply on 3–5-day intervals. Poor curative activity.
	<i>cyprodinil + fludioxonil</i> Palladium	9 + 12	Systemic/Contact 4–6 oz/100 gal	12 H	Begin applications prior to the onset of disease. Repeat applications at 7–14-day intervals if conditions remain favorable for disease development. Ensure full spray coverage of all stems and inner areas of plants to the soil/media level.
	<i>difenoconazole + pydiflumetofen</i> Postiva	3 + 7	Systemic/Contact 10–28 fl oz/100 gal	12 H	Apply preventively as foliar spray at 7–14-day intervals. Use higher rate and shorter interval under severe disease pressure or when conditions are conducive to disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
	<i>fluoxastrobin</i> Fame SC	11	Systemic 1–4 fl oz/100 gal	12 H	Apply at 7–28-day intervals. Under light disease pressure, use lower rates (1–2 oz/100 gal) on a 7–14-day interval or the higher rates (3–4 oz/100 gal) on a 14–28-day interval. Under high disease pressure, use the higher rates on a 7–14-day interval.
	<i>fluopyram + trifloxystrobin</i> Broadform	7 + 11	Systemic 2–4 fl oz/100 gal	12 H	Apply at 7–14-day intervals. Under high disease pressure, use higher rate and shorter interval. <b>Do not use on leatherleaf fern.</b>
	<i>fluxapyroxad + pyraclostrobin</i> Orkestra Intrinsic	7 + 11	Contact/Systemic 6–8 fl oz/100 gal	12 H	Do NOT apply to Ninebark or Wintercreeper. Apply at 7 to 14 day intervals. Use preventively.
	<i>mefentrifluconazole</i> Avelyo	3	Systemic 3–5 fl oz/100 gal	12 H	Apply preventively as foliar and crown directed spray at 7–14-day intervals when conditions are favorable for disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
	<i>metconazole</i> Tourney	3	Systemic 1–4 oz/100 gal	12 H	Apply to the point of drip at 14–28-day intervals.
	<i>myclobutanil</i> Eagle 20EW	3	Systemic 6–12 oz/100 gal	24 H	Repeat application at 10–14-day intervals.
	<i>piperalin</i> Pipron	5	Contact 4–8 oz/100 gal	12 H	<b>Flower/bract spotting may occur. See precautions on hydrangea, begonia, and poinsettia.</b> Use with a surfactant on hard-to-wet leaves or under heavy disease pressure.
	<i>polyoxin D Zn salt</i> Affirm WDG	19	Systemic 0.25–0.5 lb/100 gal	4 H	Apply as full coverage foliar spray every 7–10 days. Apply prior to disease development and when conditions are conducive for disease.
<i>potassium bicarbonate</i> MilStop	NC	Contact 1.25–5 lb/100 gal	1 H	Apply by increasing 0.25 lb/application not exceeding 5 lbs. Repeat applications at 1–2-week intervals. See label for precautions for use on poinsettia, impatiens, and pansy.	

**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: FUNGICIDES**

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Powdery mildew (continued)	<i>propiconazole</i> Banner Maxx II Propiconazole Strider	3	Systemic 5–8 fl oz/100 gal 5–8 fl oz/100 gal 5–8 fl oz/100 gal	12 H	<b>Do not apply to African violets, begonias, Boston fern, or geranium. Do not use in greenhouses.</b> Apply every 14–21 days during period of infection. Spray to drip.
	<i>propiconazole + chlorothalonil</i> Concert II	3 + M5	Systemic/Contact 22–35 fl oz (1.4–2.2 pt)/100 gal	12 H	For outdoor and landscape use only. Do not use in greenhouses. Limited host plant labeling; check label. <b>Do not apply to African violets, begonias, Boston fern, geranium, pittosporum, schefflera.</b> Re-apply at 14–21-day intervals. Application to blooms or tender new growth may cause injury.
	<i>pyraclostrobin + boscalid</i> Pageant Intrinsic Pageant TR Intrinsic	11 + 7	Systemic/Contact 6–12 oz/100 gal 1 can/3000 sq. ft (greenhouse only)	12 H	Use preventively. Begin applications when conditions are favorable for disease, prior to or at the first sign of disease symptom development. Re-apply at 7–10-day intervals. Do NOT apply to ninebark or wintercreeper. Also, Pageant TR may cause injury to pansy and gerbera.
	<i>pyriofenone</i> Seido	50	Systemic (locally) 4–5 fl oz/100 gal	4 H	Apply at 7–14-day intervals. Do not apply more than 16 fl oz/A/year. Do not exceed 4 applications.
	<i>tebuconazole</i> Torque	3	Systemic 4–10 fl oz/100 gal	12 H	Apply at least 3 times per year, 14–21 days apart, beginning with spring bed break.
	<i>thiophanate methyl</i> 3336 F 3336 EG OHP 6672 4.5F OHP 6672 50WP + many more formulations	1	Systemic 12–24 fl oz /100 gal 12–24 oz/100 gal 10–20 fl oz/100 gal 8–16 oz/100 gal See product label for rates.	12 H	<b>Not recommended for use on Boston fern, Swedish Ivy, or Easter Cactus.</b> Apply at first sign of disease. Repeat application on 7–14-day intervals.
	<i>thiophanate methyl + propiconazole</i> Protocol	1 + 3	Systemic 10–16 fl oz/100 gal	24 H	Apply preventively as foliar spray to the point of drip at 14-day intervals.
	<i>trifloxystrobin</i> Compass 50WG	11	Systemic 1–2 oz/100 gal	12 H	<b>Do not apply to Petunia, Violet, or New Guinea Impatiens or on Poinsettia after bract formation.</b> Apply at first sign of disease and continue at 7–14-day intervals. Rotate with fungicide in different chemical class.
	<i>trifloxystrobin + triadimefon</i> Armada 50 WDG (landscape)	11 + 3	Systemic 1.2–2.4 oz/100 gal	12 H	Apply to the point of drip. Do not apply at intervals shorter than 30 days to avoid flower stalk length reduction. Do NOT use on Petunia, Violets, and New Guinea Impatiens.
	<i>triflumizole</i> Terraguard SC Terraguard SC/LS	3	Contact 4–8 oz/100 gal 4–8 oz/100 gal	12 H	Apply foliar sprays at weekly intervals.
<i>triticonazole</i> Trinity TR	3	Systemic 1 can/3,000 sq ft (greenhouse)	12 H	Elevate container above the plant canopy and clear a 6 ft area around can. Shut off exhaust and close vents. Repeat at 7-day intervals up to 3x per crop (2x for pansies).	
<i>Pythium</i> and <i>Phytophthora</i> aerial blight/root rot	<i>azoxystrobin</i> Heritage Heritage SC	11	Systemic 1–4 oz/100 gal (foliar spray) 2.0–7.7 fl oz/100 gal (foliar spray)	4 H	<b>For use on Phytophthora aerial/shoot blight.</b> Repeat every 7–28 days for foliar blight. Do NOT apply to Flowering Cherry, Crabapple, Privet (Ligustrum), Leatherleaf fern, or ferns grown for cut foliage.

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
<i>Pythium</i> and <i>Phytophthora</i> aerial blight/root rot (continued)	<i>Bacillus subtilis</i> QST 713 strain Cease, Rhapsody	BM02	Contact 2–8 qt/100–300 gal/A ( <i>Phytophthora</i> spray) 4–8 qt/100 gal/A (drench)	4 H	<b>Drenches for use only in greenhouses and nurseries.</b> Apply 1 pt/3" soil depth to thoroughly soak the growing medium as a drench or directed spray. Optimal when used preventively and repeated every 3–10 days during growing cycle.
	<i>captan</i> Captan 50WP	M4	Contact 4 lb/100 gal (for 30 min; Begonia) 4 lb/100 gal (Azalea, Carnation, Chrysanthemum)	48 H	Dip cuttings in mixture before bedding.
	<i>chlorothalonil</i> Daconil Ultrex Daconil Zn Daconil Weatherstik	M5	Contact 1.4 lb/100 gal 2 pt/100 gal 1.375 pt/100 gal	12 H	Re-apply at 7–14-day intervals. Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts. <b>Do not combine with pesticides, surfactants, or fertilizers in spray tank.</b>
	<i>copper hydroxide</i> CuPRO 5000	M1	Contact 1.5–2 lb/A (1.5 Tbsp/1000 sq ft)	24 H	<b>Do not apply in spray solutions having pH less than 6.5. Do not tank mix with Aliette or other phosphite/phosphate fungicides.</b> Begin application at the first sign of disease and repeat at 7–14-day intervals.
	<i>copper hydroxide + mancozeb</i> Junction	M1 + M3	Contact 1.5–3 lb/A	48 H	<b>Do not apply in spray solutions having pH less than 6.5.</b> Re-apply at 7–14-day intervals.
	<i>copper octanoate</i> Camelot O	M1	Contact 0.5–2 gal/100 gal/A	4 H	<b>Discoloration of blooms may occur. Do not spray just before or during bloom periods.</b> Apply at 7–10-day intervals.
	<i>cyazofamid</i> Segway O	21	Limited Systemic 1.5–3 fl oz/100 gal ( <i>Pythium</i> ) 3–6 fl oz/100 gal ( <i>Phytophthora</i> )	12 H	Apply at 14–28-day interval using another fungicide with a different Mode of Action between applications. Do not make more than 2 applications per crop cycle for root disease control. May be applied through irrigation systems.
	<i>dimethomorph</i> Stature SC	40	Systemic 12.25 fl oz /100 gal (aerial <i>Phytophthora</i> –foliar spray); 3.06–6.12 fl oz/50–100 gal (drench: greenhouse-grown, herbaceous, bedding plant); 6.12–12.25 fl oz/50–100 gal (drench: container- or field-grown, woody plants and herbaceous perennials)	12 H	Apply spray and drench when plant roots are well-established, or at first sign of disease, on a 10–14-day interval throughout the production cycle. For drench, use enough solution to wet root zone of the plant. Avoid watering plants for several hours before application to improve plant uptake of product. For foliar spray, thoroughly spray foliage until runoff.
	<i>dimethomorph + ametoctradin</i> Orvego	40 + 45	Systemic 14 fl oz/100 gal (aerial <i>Phytophthora</i> ) 11–14 fl oz/100 gal (drench)	12 H	For use on aerial <i>Phytophthora</i> : Begin spraying when plants are well established or at first sign of disease using a full-coverage spray applied on a 10–14-day interval. Rotate with a fungicide with a different mode of action to reduce fungicide resistance. <b>Product does not have activity on <i>Pythium</i>. For <i>Phytophthora</i> only.</b>
	<i>etridiazole</i> (14) Terrazole 35WP terrazole L Truban 25EC  Truban 30WP	14	Contact 3.5–10 oz/100 gal 2.5–7 fl oz/100 gal (1.5–4 tsp/10 gal) Woody/Foliage: 4–8 oz/100 gal Bedding: 3–4 oz/100 gal Woody: 3–10 oz/100 gal Foliage: 8–12 oz/100 gal Bedding: 4–6 oz/100 gal	12 H	Retreat with Terrazole at 4–12-week intervals. Repeat at 4–8-week intervals for bedding plants and at 2–3 months for woody/foliage plants. Apply at 8–12-week intervals for foliage and at 4–8-week intervals for bedding plants. <i>Etridiazole</i> is good for <i>Pythium</i> control, but is not very effective on <i>Phytophthora</i> . Use an alternate product for <i>Phytophthora</i> control.
<i>etridiazole + thiophanate methyl</i> Banrot 8G Banrot 40WP	14 + 1	Contact/Systemic 12 oz/cu yd Bedding: 4–8 oz/100 gal Woody/Foliage: 6–12 oz/100 gal	12 H	Use low rate for bedding plants and high rate for woody and foliage plants for Banrot 8G. Drench at seeding and transplanting. Re-apply at 4–8-week intervals.	

**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: FUNGICIDES**

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
<i>Pythium</i> and <i>Phytophthora</i> aerial blight/root rot <i>(continued)</i>	<i>fenamidone</i> FenStop	11	Systemic 7–14 oz/100 gal (foliar spray) 7–14 oz/50–100 gal (drench)	12 H	Repeat as necessary at 28-day intervals. Has cross-resistance to <i>strobilurin</i> fungicides. Do not rotate with strobilurin fungicides.
	<i>fluopicolide</i> Adorn	43	Systemic Foliar Spray: 2–4 fl oz/100 gal Drench: 1–4 fl oz/100 gal	12 H	Apply before disease development. Use higher rate when treating plants with a high potential for disease development. Must be tank mixed with the labeled rate of another fungicide with a different mode. If necessary, re-apply after 14–28 days. Do not apply more than two (2) applications per cropping cycle. Do not apply sequentially, alternate with another fungicide.
	<i>fluoxastrobin</i> Fame SC	11	Systemic 0.15–0.6/100 gal (drench or surface spray)	12 H	For <i>Phytophthora</i> : Apply at 7–28-day intervals for crown spray and 14–28-day interval for drench or surface spray application.
	<i>fosetyl-AL</i> Aliette WDG Areca	P07	Systemic Foliar spray: 2.5–5 lb/100 gal Bedding: 1.25–4 lb/100 gal Drench: 6.4–12.8 oz/100 gal Soil incorp: 8–12.8 oz/100 gal	12 H	<b>Do not exceed 1 application every 30 days.</b> <b>Spray to wet using no more than 400 gal/A.</b> Apply to 400 sq ft/100 gal (2 pt/sq ft) Use soil incorporation with well-rooted plants.
	<i>mandipropamid</i> Micora	40	Systemic 4–8 oz/100 gal	4 H	For <i>Phytophthora</i> control, apply as a foliar spray on a 7–14-day interval preventively or at the first sign of disease symptoms. Make no more than 2 consecutive applications before switching to another effective non-Group 40 fungicide. <b>Product does not have activity on Pythium. For Phytophthora only.</b>
	<i>mefenoxam</i> Subdue GR	4	Systemic Foliage: 1.6–8 oz/cu yd 8–40 oz/1000 sq ft bed area Bedding: 1.6–8 oz/cu yd 6–30 oz/1000 sq ft bed area Flowers: 1.6–8 oz/cu yd 12–60 oz/1000 sq ft bed area Woody: 1.6–12.5 oz/cu yd 26–125 oz/1000 sq ft bed area Azalea: 1.6–10 oz/cu yd 14.8–75 oz/1000 sq ft bed area	48 H	Thoroughly mix per cu yd soil or potting medium. After 2–3 months, product may be reapplied as a soil surface application. Soil surface applications can be re-applied at 2–3 month intervals, if needed.
	Subdue Maxx		Foliage: 0.3–0.6 fl oz/100 gal Bedding: 0.13–0.25 fl oz /100 gal at seeding 0.5–1 fl oz/100 gal at transplanting Flowers: 0.5–1 fl oz/100 gal Woody: 1–2 fl oz/100 gal Azalea: 0.63–1.25 fl oz/100 gal	0 H (drench)	Drench with 1 pt/sq ft. For medium deeper than 4", apply 1.5–2 pt/sq ft. Use higher rate for soil surface spray; spray to wet root zone, irrigate after application with 0.5" of water.
	<i>oxathiapiprolin</i> Segovis	49	Contact 0.6–3.2 fl oz/100 gal (foliar spray) 0.65–3.2 fl oz/100 gal (drench) 1.2–9.15 fl oz/25 gal (drip/banded)	4 H	<b>For Phytophthora management.</b> Apply on 7–14-day intervals for foliar spray applications and 14–28-day intervals when applied as a container drench. Do not make more than 2 sequential applications before rotating to a fungicide with a different mode of action. <b>Product does not have activity on Pythium. For Phytophthora only.</b>
	<i>phosphorous acid</i> Fosphite	P07	Systemic 1–2 qt/100 gal (foliar spray) 12–24 fl oz/100 gal (drench)	4 H	Apply as spray to thoroughly wet foliage. Re-apply as needed at 14–21-day intervals. As a drench, apply 1–2 pt of solution/sq ft at 2–4-week intervals. Thoroughly soak.

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
<i>Pythium</i> and <i>Phytophthora</i> aerial blight/root rot (continued)	<i>propamocarb hydrochloride</i> Banol	28	Systemic Herbaceous: 2–3 fl oz/10 gal Woody: 2.5 fl oz/10 gal	24 H	Apply 3 qt/10 sq ft before seeding or transplanting.
	<i>pyraclostrobin</i> Empress Intrinsic	11	Systemic 1–3 fl oz/100 gal (drench rooted cuttings, seedlings, plugs) 2–6 fl oz /100 gal (drench herbaceous/woody plants)	12 H	Use preventively when conditions are favorable for disease and prior to symptom development. Rotate to non-Group 11 fungicide for resistance management. Do not apply more than 4.4 fl oz/1000 sq ft/year. Repeat applications as needed 7–28 days after initial application.
	<i>pyraclostrobin + boscalid</i> Pageant	11 + 7	Systemic/Contact 12–18 oz/100 gal (soil borne) 18 oz/100 gal (aerial)	12 H	<b>Use preventively. Begin applications when conditions are favorable for disease, prior to disease symptom development. Re-apply at 7–10-day intervals for aerial blight and 7–21 days for root rot. For <i>Pythium</i> and <i>Phytophthora</i> root rot, apply in tank mix with another fungicide against these diseases.</b>
	<i>trifloxystrobin</i> Compass 50WG	11	Systemic 1–2 oz/100 gal (aerial) 1–2 oz/100 gal (drench)	12 H	For <i>Phytophthora</i> aerial blight. Continue at 7–14-day intervals for aerial blight; 14–28 days as drench for root rot. Rotate with fungicide in different chemical class (different FRAC #).
Rhizoctonia root rot and web blight	<i>azoxystrobin</i> Heritage  Heritage SC	11	Systemic 1–4 oz/100 gal (soil-directed spray) 0.2–0.9 oz/100 gal (drench) 2.0–7.7 fl oz/100 gal (soil-directed spray) 0.8–3.8 fl oz/100 gal (drench)	4 H	Repeat every 7–21 days for directed spray. Use 1–2 pt of solution/sq ft surface area, every 7–28 days for drench. Do NOT apply to Flowering Cherry, Crabapple, Privet ( <i>Ligustrum</i> ), Leatherleaf fern, or ferns grown for cut foliage.
	<i>Bacillus subtilis</i> QST 713 strain Cease, Rhapsody	BM02	Contact 4–8 qt/100 gal	4 H	<b>Drenches for use only in greenhouses and nurseries (open or enclosed).</b> Apply 1 pt/3" soil depth to thoroughly soak the growing medium as a drench or directed spray. Optimal when used preventively and repeated every 21–28 days during growing cycle.
	<i>benzovindiflupyr + azoxystrobin</i> Mural	7 + 11	Contact/Systemic 4–7 oz/100 gal (foliar spray) 5–7 oz/100 gal (soil-directed spray) 2–3 oz/100 gal (drench)	12 H	Do NOT apply to apple, crabapple, flowering cherry, privet, leatherleaf fern, or other fern used for cut foliage. Apply at 7–21-day intervals for directed soil spray; 7–28 days for drench; and 7–14 days for foliar spray.
	<i>chlorothalonil</i> Daconil Ultrex Daconil Weatherstik Daconil Zn + many other formulations	M5	Contact 1.4 lb/100 gal 1.375 pt/100 gal 2 pt/100 gal See product labels for rates.	12 H	Use for aerial/web blight as a foliar spray. Apply at 7–14-day intervals. <b>Do not combine with pesticides, surfactants, or fertilizers in spray tank.</b>
	<i>chlorothalonil + thiophanate methyl</i> Spectro 90WDG	M5 + 1	Contact/Systemic 1–2 lb/100 gal	12 H	<b>For use on aerial/web blight only. Do not use with mist blowers or high pressure spray equipment in greenhouses.</b> Minimum 7–day re-treatment interval. Do not exceed 2.15 lb/A of product.
	<i>copper octanoate</i> Camelot O Grotto	M1	Contact 0.5–2 gal/100 gal/A	4 H	Discoloration of blooms may occur. Do not spray just before or during bloom periods. Apply at 7–10-day intervals.
	<i>cyprodinil + fludioxonil</i> Palladium	9 + 12	Systemic/Contact 2–6 oz/100 gal	12 H	Begin applications prior to the onset of disease, and repeat applications at 7–14-day intervals if conditions remain favorable for disease development. Do not use on residential ornamentals



**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: FUNGICIDES**

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Rhizoctonia root rot and web blight (continued)	<i>difenoconazole + pydiflumetofen</i> Postiva	3 + 7	Systemic/Contact 10–28 fl oz/100 gal	12 H	Apply preventively via chemigation or as a container drench at 7–14-day intervals. Use higher rate and shorter interval under severe disease pressure or when conditions are conducive to disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
	<i>etridiazole + thiophanate methyl</i> Banrot 8G Banrot 40WP	14 + 1	Contact/Systemic 12 oz/cu yd Bedding: 4–8 oz/100 gal Woody/Foliage: 6–12 oz/100 gal	12 H	Use low rate for bedding plants and high rate for woody and foliage plants for Banrot 8G. Drench at seeding and transplanting. Re-apply at 4–8-week intervals.
	<i>fludioxonil</i> Spirato GHN Medallion WDG	12	Contact 1–2 fl oz/100 gal (foliar spray) 1 oz/100 gal (drench at seeding) 1–2 oz/100 gal (drench of cuttings and transplants)	12 H	<b>May stunt Impatiens and New Guinea Impatiens. May stunt some Geranium cultivars. DO NOT use on Leather Leaf Fern.</b> Re-apply spray at 7–14-day intervals. For drench, wet top-half of medium. Re-treat at 21–28-day intervals.
	<i>fluopyram + trifloxystrobin</i> Broadform	7 + 11	Systemic 2–8 fl oz/100 gal	12 H	Apply at 7–14-day intervals as foliar spray to drip. Under high disease pressure, use higher rate and shorter interval. Do not use on leatherleaf fern.
	<i>fluoaxastrobin</i> Fame SC	11	Systemic 0.15–0.6/100 gal (drench or surface spray)	12 H	Apply at 7–21-day intervals for crown spray and 14–28-day interval for drench or surface spray application.
	<i>flutolanil</i> Prostar 70WP	7	Systemic 3–6 oz/100 gal (drench) 3–12 oz/100 gal (aerial blight)	12 H	Drench at 1–2 pt/sq ft. Re-apply 21–28 days after initial application, if needed. Foliar spray should be reapplied at 14–21-day intervals.
	<i>iprodione</i> OHP Chipco 26019	2	Contact Foliar spray: 1–2.5 lb/A Drench: 6.5 oz/100 gal	12 H	<b>Do not use on Spathiphyllum or as a drench on Impatiens, New Guinea impatiens or Pothos.</b> May cause stunting and chlorosis on some geranium cultivars. Re-apply foliar spray at 7–14-day intervals. Drench on 14-day interval with 1–2 pt of solution/sq ft.
	Iprodione Pro 2SE		Foliar spray: 1–2.5 qt/100 gal Drench: 13 fl oz/100 gal		
	Chipco 26019 FLO		Foliar spray: 1–2.5 qt/100 gal Drench: 13 fl oz/100 gal		
	<i>iprodione + thiophanate methyl</i> 26/36	2 + 1	Contact/Systemic Foliar spray: 33–84 fl oz/100 gal Drench: 13.5 fl oz/100 gal	12 H	Drench at seeding or transplanting. Apply 1–2 pt/sq ft. Repeat at 14-day intervals. Do not make more than 6 applications/crop/year. Do not use on Spathiphyllum or New Guinea Impatiens. Do not drench Impatiens, Petunia, or Pothos.
	<i>mancozeb</i> Dithane 75DF Fore 80WP Mancozeb DG Protect DF	M3	Contact 1–2 lb/100 gal 1.5 lb/100 gal 1.5 lb/100 gal 1–2 lb/100 gal	24 H	Addition of a spreader sticker will improve performance. Repeat application on 7–10-day intervals. <b>Do not use Fore on Pachysandra.</b>
	<i>metconazole</i> Tourney	3	Systemic 1–4 oz/100 gal	12 H	Apply to the point of drip at 14–28-day intervals.
	<i>polyoxin D Zn salt</i> Affirm WDG	19	Systemic 0.25–0.5 lb/100 gal	4 H	Apply as full coverage foliar spray every 7–10 days or as drench every 14–28 days. Apply prior to disease development and when conditions are conducive for disease.

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Rhizoctonia root rot and web blight (continued)	PCNB Turficide 10G	14	Contact Orna. beds: 15 lb/1000 sq ft Growing media: 1–1.5 lb/cu yd	12 H	** Do not use on Philodendron or Pilea. Apply at seeding and/or transplant. Mix into top 2–3" of soil. Apply evenly over soil and incorporate into top 2" of soil in prepared seed bed. Non-residential use only.
	Terraclor 400		Bedding/Woody/Foliage drench: 6–12 oz/100 gal Bulb soak: 3 pt/3.2 gal Lily bulb soak: 6–9 pt/100 gal Pine seedlings: 2 pt/1000 sq ft in 5–10 gal		Repeat once 4–6 weeks later, if necessary. <u>Bulb soak:</u> Soak gladiolus, hyacinth, iris, narcissus, and tulip bulbs for 5 minutes. Soak Lily (Easter, Asiatic, Oriental) bulbs for 5–15 minutes. Add a 1% sticker to the mixture and maintain agitation.
	prothioconazole Proline 480 SC	3	Systemic 5.0 fl oz/Acre (pine seedlings)	12 H	For nursery pine seedlings only. Apply in a minimum of 10 gallons of spray solution per acre for ground sprayer. A maximum of 25 fl oz of product may be applied per acre per crop year.
	pyraclostrobin Empress Intrinsic	11	Systemic 1–3 fl oz/100 gal (drench rooted cuttings, seedlings, lugs) 2–6 fl oz /100 gal (drench herbaceous/woody plants)	12 H	Use preventively when conditions are favorable for disease and prior to symptom development. Rotate to a non-Group 11 fungicide for resistance management. Do not apply more than 4.4 fl oz/1000 sq ft/ year. Repeat application as needed 7–28 days after initial application.
	pyraclostrobin + boscalid Pageant	11 + 7	Systemic/Contact 12–18 oz/100 gal	12 H	Use preventively. Begin applications when conditions are favorable for disease, prior to disease symptom development. Re-apply at 7–14-day intervals; 7–21 days for drench. The crown and base of the plant and the soil or potting medium surrounding the crown must be thoroughly covered.
	thiophanate methyl 3336 F  3336 EG  OHP 66724.5F OHP 6672 50WP + many more formulations	1	Systemic 8–16 fl oz/100 gal (drench) 16–24 oz/100 gal (Plant dip) 8–16 oz/100 gal 16–24 oz/100 gal (Plant dip) 10–14.5 fl oz/100 gal 8–16 oz/100 gal See product labels for rates.	12 H	<b>Not recommended for use on Boston fern, Swedish Ivy, or Easter Cactus.</b>  Apply as a heavy spray or drench at rate of 0.5–2 pt/sq ft (100 gal covers 400–1,600 sq ft depending on fungicide rate used). Applications can be re-applied at 7–14-day intervals.
	thiophanate methyl + propiconazole Protocol	1 + 3	Systemic 10–16 fl. oz/100 gal	24 H	For Rhizoctonia web blight: Apply preventively as foliar spray to the point of drip at 14-day intervals.
	trifloxystrobin Compass 50WG	11	Systemic 0.5 oz/100 gal	12 H	<b>Do not apply to Petunia, Violet, or New Guinea Impatiens or on Poinsettia after bract formation.</b> Do not drench Pansy. Drench to wet upper half of medium. Repeat application in 21–28-day intervals.
	triflumizole Terraguard SC	3	Contact 4–8 oz/100 gal	12 H	Apply soil drenches at 2–4-week intervals. Apply foliar sprays at 7–14-day intervals.
Rust leaf spots ( <i>Puccinia</i> , <i>Uromyces</i> , etc.)	azoxystrobin Heritage Heritage SC	11	Systemic 1–4 oz/100 gal 2.0–7.7 fl oz/100 gal	4 H	Repeat every 7–28 days. Do NOT apply to Flowering Cherry, Crabapple, Privet (Ligustrum), Leatherleaf fern, or ferns grown for cut foliage.
	Bacillus subtilis QST 713 strain Cease, Rhapsody	BM02	Contact 2–8 qt/100 gal/A 4 qt/100 gal/A (typical)	4 H	Make applications on a 3–10-day schedule. Typical interval of 7 days. Shorten under severe disease pressure. Only labeled for <i>Puccinia</i> spp.
	benzovindiflupyr + azoxystrobin Mural	7 + 11	Contact/Systemic 4–7 oz/100 gal	12 H	Do NOT apply to apple, crabapple, flowering cherry, privet, leatherleaf fern, or other fern used for cut foliage. Apply at 7–21-day intervals.

**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: FUNGICIDES**

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Rust leaf spots ( <i>Puccinia</i> , <i>Uromyces</i> , etc.)  (continued)	<i>captan</i> -(M4) Captan 50WP	M4	Contact 2 lb/100 gal (carnation)	48 H	Apply at first sign of disease at 7–10-day intervals. Shorten if frequent rains or heavy dews.
	<i>chlorothalonil</i> Daconil Zn Daconil Ultrex Daconil Weatherstik + many other formulations	M5	Contact 2 pt/100 gal 1.4 lb/100 gal 1.375 pt/100 gal See product label for rates.	12 H	Re-apply at 7–14-day intervals.  <b>Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts. Do not combine with pesticides, surfactants, or fertilizers in spray tank.</b>
	<i>chlorothalonil + thiophanate methyl</i> Spectro 90WDG	M5 + 1	Contact/Systemic 1–2 lb/100 gal	12 H	<b>Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts.</b>  Minimum 7–day re-treatment interval. Do not exceed 2.15 lb/A of product.
	<i>difenoconazole + pydiflumetofen</i> Postiva	3 + 7	Systemic/Contact 10–28 fl oz/100 gal	12 H	Apply preventively as foliar spray at 7–14-day intervals. Use higher rate and shorter interval under severe disease pressure or when conditions are conducive to disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
	<i>flutolanil</i> Prostar 70WP	7	Systemic 3–6 oz/100 gal	12 H	Spray 14–21 days. Make no more than 4 applications/year.
	<i>fluopyram + trifloxystrobin</i> Broadform	7 + 11	Systemic 4–8 fl oz/100 gal	12 H	Apply at 7–14-day intervals as foliar spray to drip. Under high disease pressure, use higher rate and shorter interval. <b>Do not use on leatherleaf fern.</b>
	<i>fluoxastrobin</i> Fame SC	11	Systemic 1–4 fl oz/100 gal	12 H	Apply at 7–28-day intervals regularly. Under light disease pressure, use lower rates (1–2 oz /100 gal) on a 7–14-day interval or the higher rates (3–4 oz/100 gal) on a 14–28-day interval. Under high disease pressure, use the higher rates on a 7–14-day interval.
	<i>mancozeb</i> Dithane 75DF Fore 80WP Mancozeb DG Protect DF	M3	Contact 1–2 lb/100 gal 1.5 lb/100 gal 1.5 lb/100 gal 1–2 lb/100 gal	24 H	Addition of a spreader sticker will improve performance. Repeat application on 7–10-day intervals. <b>Do not use Fore on Pachysandra.</b>
	<i>mefentrifluconazole</i> Avelyo	3	Systemic 8–10 fl oz/100 gal	12 H	For suppression only. Apply preventively as foliar spray at 7–14-day intervals when conditions are favorable for disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
	<i>metconazole</i> Tourney	3	Systemic 1–4 oz/100 gal	12 H	Apply to the point of drip at 14–28-day intervals.
	<i>myclobutanil</i> Eagle 20EW	3	Systemic 6–12 oz/100 gal	24 H	Repeat application at 10–14-day intervals.
<i>oxycarboxin</i> Plantvax 750WP	7	Contact 130g/100L	12 H	<b>Do not mix with insecticides or miticides. For use only in enclosed structures.</b> Re-apply at 14–day intervals.	

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Rust leaf spots ( <i>Puccinia</i> , <i>Uromyces</i> , etc.) (continued)	<i>propiconazole</i> Banner Maxx II Propiconazole Strider	3	Systemic 5–8 fl oz/100 gal 5–8 fl oz/100 gal 5–8 fl oz/100 gal	12 H	<b>Do not use on geranium. Do not use in greenhouses.</b> Apply every 14–21 days during period of infection. Spray to drip.
	<i>propiconazole + chlorothalonil</i> Concert II	3 + M5	Systemic/Contact 22–35 fl oz (1.4–2.2 pt)/100 gal	12 H	For outdoor and landscape use only. Do not use in greenhouses. Limited host plant labeling; check label. <b>Do not apply to African violets, begonias, Boston fern, geranium, pittosporum, schefflera.</b> Re-apply at 14–21-day intervals. Application to blooms or tender new growth may cause injury.
	<i>pyraclostrobin + boscalid</i> Pageant	11 + 7	Systemic/Contact 6–12 oz/100 gal ( <i>Puccinia</i> spp, <i>Uromyces</i> spp.) 12–18 oz/100 gal ( <i>Coleosporium</i> )	12 H	Use preventively. Begin applications when conditions are favorable for disease, prior to disease symptom development. Re-apply at 7–14-day interval.
	<i>tebuconazole</i> Torque	3	Systemic 4–10 fl oz/100 gal	12 H	Apply at least 3 times per year, 14–21 days apart, and beginning with spring bud break. Rotate with a fungicide in a different class (different FRAC #) to reduce fungicide resistance development. <b>Do not use on African violet, begonia, Boston fern, or geranium.</b>
	<i>thiophanate methyl</i> 3336 F 3336 EG OHP 6672 4.5F OHP 6672 50WP + many more formulations	1	Systemic 12–16 fl oz /100 gal 12–16 oz/100 gal 10.75–20 fl oz/100 gal 12–16 oz/100 gal See product labels for rates.	12 H	Apply at first sign of disease. Repeat application on 7–14-day intervals.
	<i>thiophanate methyl + propiconazole</i> Protocol	1 + 3	Systemic 10–16 fl. oz/100 gal	24 H	Apply preventively as foliar spray to the point of drip at 14-day intervals.
	<i>trifloxystrobin</i> Compass 50WG	11	Systemic 2–4 oz/100 gal	12 H	Apply at first sign of disease and continue at 7–14-day intervals. Rotate with fungicide in different chemical class.
	<i>trifloxystrobin + triadimefon</i> Armada 50 WDG (landscape)	11 + 3	Systemic 4.8–9 oz/100 gal ( <i>Puccinia</i> , <i>Coleosporium</i> ) 1.2–2.4 oz/100 gal ( <i>Uromyces</i> )	12 H	Apply to the point of drip in early spring as growth starts at 14–21 days until new growth is fully expanded ( <i>Puccinia</i> ). Apply intervals no shorter than 30 days to avoid flower stalk length reduction.
<i>triflumizole</i> Terraguard SC Terraguard SC/LS	3	Contact 2–8 oz/100 gal 4–8 fl oz/100 gal	12 H	Apply foliar sprays at 7–14-day intervals. Use high rates for initial application.	
Rust: Cedar-Apple, Cedar-Quince <i>Gymnosporangium</i> sp.	<i>chlorothalonil</i> Daconil Ultrex Daconil Zn Daconil Weatherstik	M5	Contact 1.4 lb/100 gal 2 pt/100 gal 1.375 pt/100 gal	12 H	Apply every 7–14 days from July to August on cedar. Apply to crabapple at 7–14-day intervals. Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts. Do not combine with pesticides, surfactants, or fertilizers in spray tank.
	<i>difenoconazole + pydiflumetofen</i> Postiva	3 + 7	Systemic/Contact 10–28 fl oz/100 gal	12 H	Apply preventively as foliar spray at 7–14-day intervals. Use higher rate and shorter interval under severe disease pressure or when conditions are conducive to disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.

**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: FUNGICIDES**

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Rust: Cedar-Apple, Cedar-Quince <i>Gymnosporangium</i> sp. (continued)	<i>myclobutanol</i> Eagle 20EW	3	Systemic 6–12 oz /100 gal	24 H	Apply to crabapple at leaf bud break. Repeat application at 10–14-day intervals.
	<i>propiconazole</i> Banner Maxx II Strider	3	Systemic 2–4 fl oz/100 gal 2–4 fl oz/100 gal	12 H	Apply every 14–21 days from July–August on cedar. Apply to crabapple at 14–21-day intervals beginning at leaf bud break in spring.
	<i>propiconazole + chlorothalonil</i> Concert II	3 + M5	Systemic/Contact 9–17 fl oz (0.6–1.1 pt)/100 gal	12 H	For outdoor and landscape use only. Do not use in greenhouses. Re-apply at 14–21-day intervals. Application to tender new growth may cause injury.
	<i>pyraclostrobin + boscalid</i> Pageant	11 + 7	Systemic/Contact 12–18 oz/100 gal	12 H	Use preventively. Begin applications when conditions are favorable for disease, prior to disease symptom development. Re-apply at 7–14-day interval.
	<i>thiophanate methyl</i> 3336 F 3336 EG OHP 6672 4.5F OHP 6672 50WP + many more formulations	1	Systemic 12–16 fl oz /100 gal 12–16 oz/100 gal 10.75–20 fl oz/100 gal 12–16 oz/100 gal See product labels for rates.	12 H	Apply to crabapple at leaf bud break in the spring. Repeat application on 7–14-day intervals.
	<i>trifloxystrobin</i> Compass 50WG	3	Systemic 2–4 oz/10 gal	12 H	Apply at first sign of disease and continue at 7–14-day intervals. Rotate with fungicide with different mode.
	<i>trifloxystrobin + triadimefon</i> Armada 50 WDG (landscape)	11 + 2	Systemic 1.2–2.4 oz/100 gal	12 H	Apply to the point of drip when conditions favor disease. Do not apply at intervals shorter than 30 days to avoid growth reduction.
Scab ( <i>Cladosporium</i> , <i>Venturia</i> , <i>Sphaceloma</i> )	<i>azoxystrobin</i> Heritage Heritage SC	11	Systemic 1–4 oz/100 gal 2.0–7.7 fl oz/100 gal	4 H	Apply every 10–28. <b>Do not apply to apple trees.</b> See label for tolerant crabapple cultivars as some are sensitive to fungicide. Do not make more than 2 sequential applications. Do NOT apply to Flowering Cherry, Crabapple, Privet ( <i>Ligustrum</i> ), Leatherleaf fern, or ferns grown for cut foliage.
	<i>Bacillus subtilis</i> QST 713 strain Cease, Rhapsody	BM02	Contact 2–8 qt/100–300 gal/A 4 qt/100 gal/A (typical)	4 H	Make applications on a 3–10-day schedule. Typical interval of 7 days. Shorten under severe disease pressure. Only labeled for <i>Venturia</i> spp.
	<i>chlorothalonil</i> Daconil Zn Daconil Ultrex Daconil Weatherstik + many other formulations	M5	Contact 2 pt/100 gal 1.4 lb/100 gal 1.375 pt/100 gal See product label for rates.	12 H	Re-apply at 7–14-day intervals. <b>Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts.</b>
	<i>chlorothalonil + thiophanate methyl</i> Spectro 90WDG	M5 + 1	Contact/Systemic 1–2 lb/100 gal	12 H	<b>Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts.</b> Minimum 7–day re-treatment interval. Do not exceed 2.15 lb/A of product.

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Scab ( <i>Cladosporium</i> , <i>Venturia</i> , <i>Sphaceloma</i> ) (continued)	<i>copper hydroxide</i> CuPRO 5000 Nu-Cop 50 DF Nu-Cop HB	M1	Contact 1.5–2 lb/A (1.5 Tbsp/1000 sq ft) 1 lb/100 gal 0.5 lb/100 gal	24–48 H (check label)	<b>Do not apply in spray solutions having pH less than 6.5. Do not tank mix with Aliette or other phosphite/phosphate fungicides.</b> Begin application at the first sign of disease and repeat at 7–14-day intervals.
	<i>copper sulfate</i> Basicop	M1	Contact 2–4 lb/100 gal	24 H	<b>For pyracantha only:</b> Apply preventively. Repeat application every 7–10 days and after rains.
	<i>difenoconazole + pydiflumetofen</i> Postiva	3 + 7	Systemic/Contact 10–28 fl oz/100 gal	12 H	Apply preventively as foliar spray at 7–14-day intervals. Use higher rate and shorter interval under severe disease pressure or when conditions are conducive to disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
	<i>fluopyram + trifloxystrobin</i> Broadform	7 + 11	Systemic 4–8 fl oz/100 gal		Apply at 7–14-day intervals. Under high disease pressure, use higher rate and shorter interval. <b>Do not use on leatherleaf fern.</b>
	<i>fluoxastrobin</i> Fame SC	11	Systemic 1–4 fl oz/100 gal	12 H	Apply at 7–28-day intervals regularly. Under light disease pressure, use lower rates (1–2 oz /100 gal) on a 7–14-day interval or the higher rates (3–4 oz /100 gal) on a 14–28-day interval. Under high disease pressure, use the higher rates on a 7–14-day interval.
	<i>mancozeb</i> Dithane 75DF Fore 80WP Mancozeb DG Protect DF	M3	Contact 1–2 lb/100 gal 1.5 lb/100 gal 1.5 lb/100 gal 1–2 lb/100 gal	24 H	Addition of a spreader sticker will improve performance. Repeat application on 7–10-day intervals. <b>Do not use Fore on Pachysandra.</b>
	<i>mefentrifluconazole</i> Avelyo	3	Systemic 3–5 fl oz/100 gal	12 H	Apply preventively as foliar and crown directed spray at 7–14-day intervals when conditions are favorable for disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
	<i>metconazole</i> Tourney	3	Systemic 1–4 oz/100 gal	12 H	Apply to the point of drip at 14–28-day intervals.
	<i>myclobutanil</i> Eagle 20EW	3	Systemic 6–12 oz/100 gal	24 H	Repeat application at 10–14-day intervals.
	<i>polyoxin D Zn salt</i> Affirm WDG	19	Systemic 0.5 lb/100 gal	4 H	Apply as full coverage foliar spray every 7–10 days. Apply prior to disease development and when conditions are conducive. Only labeled for control of apple scab..
	<i>propiconazole</i> Banner Maxx II Strider	3	Systemic 2–4 fl oz/100 gal ( <i>Venturia</i> ) 8–12 fl oz/100 gal ( <i>Cladosporium</i> )	12 H	Apply every 14–21 days when conditions are favorable for disease development
	<i>propiconazole + chlorothalonil</i> Concert II	3 + M5	Systemic/Contact 22–35 fl oz (1.4–2.2 pt)/100 gal	12 H	For outdoor and landscape use only. Do not use in greenhouses. Limited host plant labeling; check label. <b>Do not apply to African violets, begonias, Boston fern, geranium, pittosporum, schefflera.</b> Re-apply at 14–21-day intervals. Application to blooms or tender new growth may cause injury.

**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: FUNGICIDES**

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Scab ( <i>Cladosporium</i> , <i>Venturia</i> , <i>Sphaceloma</i> ) (continued)	<i>potassium bicarbonate</i> MilStop	NC	Contact 1.25–5 lb/100 gal	1 H	Apply by increasing 0.25 lb/application not exceeding 5 lb. Repeat applications at 1–2-week intervals. See label for precautions for use on poinsettia, impatiens, and pansy.
	<i>pyraclostrobin + boscalid</i> Pageant	11 + 7	Systemic/Contact 6–12 oz/100 gal	12 H	Use preventively. Begin applications when conditions are favorable for disease, prior to disease symptom development. Re-apply at 7–10-day interval.
	<i>thiophanate methyl</i> 3336 F 3336 EG OHP 6672 4.5F OHP 6672 50WP + many more formulations	1	Systemic 12–16 fl oz/100 gal 12–16 oz/100 gal 10.75–20 fl oz/100 gal 12–16 oz/100 gal See product label for rates.	12 H	Apply as buds break in the spring. Repeat application on 7–14-day intervals during disease period. Rotations with <i>chlorothalonil</i> or <i>propiconazole</i> can be utilized.
	<i>trifloxystrobin</i> Compass 50WG	11	Systemic 2–4 oz/100 gal	12 H	<b>Do not apply to Poinsettia.</b> Apply at first sign of disease and continue at 7–14-day intervals. Rotate with fungicide with different mode of action.
	<i>triflumizole</i> Terraguard SC Terraguard SC/LS	3	Systemic 4–8 oz/100 gal 4–8 oz/100 gal	12 H	Apply foliar sprays at 7–14-day intervals. Use high rate for initial application.
Sclerotinia blight, stem rot ( <i>Sclerotinia sp.</i> )	<i>azoxystrobin</i> Heritage  Heritage SC	11	Systemic 1–4 oz/100 gal (soil-directed spray) 0.2–0.9 oz/100 gal (drench) 2.0–7.7 fl oz/100 gal (soil-directed spray) 0.8–3.8 fl oz/100 gal (drench)	4 H	Repeat every 7–21 days for directed spray. Use 1–2 pt of solution/sq ft of surface area, every 7–28 days for drench. Do NOT apply to Flowering Cherry, Crabapple, Privet (Ligustrum), Leatherleaf fern, or ferns grown for cut foliage.
	<i>azoxystrobin + benzovindiflupyr</i> Mural	11 + 7	Systemic/Contact 5–7 oz/100 gal (soil-directed spray)	12 H	Apply at 7–21-day intervals as a soil directed spray. Do NOT apply to Flowering Cherry, Crabapple, Privet (Ligustrum), Leatherleaf fern, or ferns grown for cut foliage.
	<i>chlorothalonil</i> Daconil Zn Daconil Ultrex Daconil Weatherstik + many other formulations	M5	Contact 2 pt/100 gal 1.4 lb/100 gal 1.375 pt/100 gal See product label for rates.	12 H	Re-apply at 7–14-day intervals. Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts.
	<i>chlorothalonil + thiophanate methyl</i> Spectro 90WDG	M5 + 1	Contact/Systemic 1–2 lb/100 gal	12 H	Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts. Minimum 7-day re-treatment interval. Do not exceed 2.15 lb/A of product.
	<i>cymodanil + fludioxonil</i> Palladium	9 + 12	Systemic/Contact 2–6 oz/100 gal	12 H	Begin applications prior to the onset of disease. Repeat applications at 7–14-day intervals if conditions remain favorable for disease development. Ensure full spray coverage of all stems and inner areas of plants to the soil/media level.

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Sclerotinia blight, stem rot ( <i>Sclerotinia sp.</i> ) (continued)	<i>difenoconazole + pydiflumetofen</i> Postiva	3 + 7	Systemic/Contact 10–28 fl oz/100 gal	12 H	Apply preventively via chemigation or as a container drench at 7–14-day intervals. Use higher rate and shorter interval under severe disease pressure or when conditions are conducive to disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
	<i>fluoxastrobin</i> Fame SC	11	Systemic 2–4 fl oz/100 gal	12 H	Apply at 7–28-day intervals regularly. Under light disease pressure, use lower rates (1 oz/100 gal) on a 7–14-day interval or the higher rates (3–4 oz/100 gal) on a 14–21-day interval. Under high disease pressure, use the higher rates on a 7–14-day interval.
	<i>iprodione + thiophanate methyl</i> 26/36	2 + 1	Systemic Drench: 13.5 fl oz/100 gal	12 H	Do not use as a drench on impatiens, petunia, or Pothos. Apply 0.5–2 pints of drench solution per sq ft depending on media type and depth.
	<i>metconazole</i> Tourney	3	Systemic 1–4 oz/100 gal	12 H	Apply to the point of drip at 14–28-day intervals.
	PCNB Turficide 10G Terraclor 400	14	Contact 20 lb/100 sq ft 6–12 fl oz (drench potted plants)	12 H	<b>Do not use on Philodendron or Pilea.</b> Apply at seeding and/or transplant. Mix into top 2–3" of soil. Apply 1 week prior to planting. Apply evenly over soil and mix into soil at a depth of 4".
	<i>thiophanate methyl</i> 3336 F 3336 EG  OHP 6672 4.5F OHP 6672 50WP + many more formulations	1	Systemic 8–16 fl oz/100 gal (drench) 8–16 oz/100 gal 16–24 oz/100 gal (plant dip) 10.75–20 fl oz/100 gal 12–16 oz/100 gal See product label for rates.	12 H	Apply as a heavy spray or drench at rate of 0.5–2 pt/sq ft (100 gal covers 400–1,600 sq ft depending on fungicide rate used). Repeat applications may be made at 7–14-day intervals. Do not apply to plug trays or seeding flats at the time of seeding.
Septoria leaf spot (See Cercospora leaf spot as fungicides are the same)					
Shot hole leaf spot (fungal and bacterial)	<i>copper sulfate</i> Basicop	M1	Contact 2–4 lb/100 gal/A	24 H	Apply preventively, and repeat application every 7–10 days and after rains.
	<i>copper hydroxide</i> CuPRO 5000 Nu-Cop 50 DF Nu-Cop HB	M1	Contact 1.5–2 lb/A (1.5 Tbsp/1000 sq ft) 1.0 lb/100 gal 0.5 lb/100 gal	24–48 H (check label)	<b>Do not apply in spray solutions having pH less than 6.5. Do not tank mix with Aliette or other phosphite/phosphate fungicides.</b> Begin application at the first sign of disease and repeat at 7–14-day intervals.
	<i>copper hydroxide + mancozeb</i> Junction	M1 + M3	Contact 1.5–3 lb/A	48 H	Do not apply in spray solutions having pH less than 6.5. Re-apply at 7–14-day intervals.
	<i>fluxapyroxad + pyraclostrobin</i> Orkestra Intrinsic	7 + 11	Contact/Systemic 8–10 fl oz/100 gal	12 H	Apply preventively as foliar spray at 7–14-day intervals when conditions are favorable for disease development.



**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: FUNGICIDES**

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Shot hole leaf spot (fungal and bacterial) <i>(continued)</i>	<i>mancozeb</i> Dithane 75DF Fore 80WP Mancozeb DG Protect DF	M3	Contact 1–2 lb/100 gal 1.5 lb/100 gal 1.5 lb/100 gal 1–2 lb/100 gal	24 H	Addition of a spreader sticker will improve performance. Repeat application on 7–10-day intervals. <b>Do not use Fore on Pachysandra.</b>
	<i>mefentrifluconazole</i> Avelyo	3	Systemic 3–5 fl oz/100 gal	12 H	Apply preventively as foliar spray at 7–14-day intervals when conditions are favorable for disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
	<i>metconazole</i> Tourney	3	Systemic 1–4 oz/100 gal	12 H	Apply to the point of drip at 14–28-day intervals.
Southern blight ( <i>Sclerotium rolfsii</i> )	<i>azoxystrobin</i> Heritage  Heritage SC	11	Systemic 1–4 oz/100 gal (soil-directed spray) 0.2–0.9 oz/100 gal (drench) 2.0–7.7 fl oz/100 gal (soil-directed spray) 0.8–3.8 fl oz/100 gal (drench)	4 H	Repeat every 7–21 days for directed spray. Apply 1–2 pt solution/sq ft surface area, every 7–28 days for drench.  Do NOT apply to Flowering Cherry, Crabapple, Privet (Ligustrum), Leatherleaf fern or ferns grown for cut foliage.
	<i>benzovindiflupyr + azoxystrobin</i> Mural	7 + 11	Contact/Systemic 5–7 oz/100 gal (soil-directed spray) 2–3 oz/100 gal (drench)	12 H	Do NOT apply to apple, crabapple, flowering cherry, privet, leatherleaf fern, or other fern used for cut foliage. Apply at 7–21-day intervals for directed soil spray or 7–28 days for a drench application.
	<i>cyprodinil + fludioxonil</i> Palladium	9 + 12	Systemic/Contact 2–6 oz/100 gal	12 H	Begin applications prior to the onset of disease. Repeat applications at 7–14-day intervals if conditions remain favorable for disease development. Ensure full spray coverage of all stems and inner areas of plants to the soil/media level.
	<i>flutolanil</i> Prostar 70WP	7	Systemic 3–6 oz/100 gal	12 H	Drench at 1–2 pt/sq ft. Re-apply 21–28 days after initial application, if needed.
	<i>fludioxonil</i> (Spirato GHN Medallion WDG	12	Contact 1–2 fl oz/100 gal 1–2 oz/100 gal	12 H	Re-treat at 21–28-day intervals. Drench applications can be made up to a maximum of 2 pt/sq ft to wet root zone of plants.
	<i>fluoxastrobin</i> Fame SC	11	Systemic 0.15–0.6/100 gal (drench or surface spray)	12 H	Apply at 7–21-day intervals for crown spray and 14–28-day interval for drench or surface spray application.
	PCNB Terraclor 400	14	Contact Drench: 3 pt/100 gal Lilies: 6–9 pt/100 gal	12 H	<b>Do not use on Philodendron or Pilea.</b>  Broadcast evenly on soil and incorporate into top 2–3" by roto-tilling or discing. Repeat once 4–6 weeks later, if necessary.
	<i>tebuconazole</i> Torque	3	Systemic 4–10 fl oz/100 gal	12 H	Apply at least 3 times per year, 14–21 days apart, beginning with spring bud break. Rotate with a fungicide in a different class (different FRAC #) to reduce fungicide resistance development. <b>Do not use on African violet, begonia, Boston fern, or geranium.</b>

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Southern blight ( <i>Sclerotium rolfsii</i> ) (continued)	<i>thiophanate methyl</i> 3336 F 3336 EG OHP 6672 4.5 F OHP 6672 50WP + many more formulations	1	Systemic 16–24 fl oz/100 gal 16–24 oz/100 gal 10.75–20 fl oz/100 gal 12–16 oz/100 gal See product label for rates.	12 H	<b>Not recommended for use on Boston fern, Swedish Ivy, or Easter Cactus.</b>  Apply as a heavy spray or drench at rate of 0.5–2 pt/sq ft (100 gal covers 400–1,600 sq ft depending on fungicide rate used).  Applications can be re-applied at 7–14-day intervals.
Thielaviopsis ( <i>Berkeleyomyces basicola</i> ; black root rot)	<i>etridiazole + thiophanate methyl</i> Banrot 8G Banrot 40WP	14 + 1	Contact/Systemic 12 oz/cu yd Bedding: 4–8 oz/100 gal Woody/Foliage: 6–12 oz/100 gal	12 H	Apply in volume to saturate rooting medium. Irrigate immediately. Protects against Thielaviopsis and Pythium but is not as effective against Thielaviopsis as <i>thiophanate methyl</i> only products that have a higher concentration of active ingredient. Apply at 4–8-week intervals.
	<i>fludioxonil</i> Spirato GHN Medallion WDG	12	Contact 1–2 fl oz/100 gal 1–2 oz/100 gal	12 H	Re-treat at 21–28-day intervals. Drench applications can be made up to a maximum of 2 pt/sq ft to wet root zone of plants.
	<i>fluxapyroxad + pyraclostrobin</i> Orkestra Intrinsic	7 + 11	Contact/Systemic 8–10 fl oz/100 gal	12 H	Use as a preventative treatment. Wet root zone thoroughly. Has no curative activity on Thielaviopsis.
	<i>mefentrifluconazole</i> Avelyo	3	Systemic 2–3 fl oz/100 gal	12 H	Apply preventively as a drench at 14–28-day intervals when conditions are favorable for disease development. Do not apply more than 2 sequential applications before rotating to a fungicide with a different MOA.
	<i>polyoxin D Zn salt</i> Affirm WDG	19	Systemic 0.5 lb/100 gal	4 H	Apply as a soil drench every 14–28 days.
	<i>thiophanate methyl</i> 3336 F 3336 EG OHP 6672 4.5 F OHP 6672 50WP + many more formulations	1	Systemic 16–24 fl oz/100 gal 16–24 oz/100 gal 7.5–20 fl oz/100 gal 12–16 oz/100 gal See product label for rates.	12 H	<b>Not recommended for use on Boston fern, Swedish Ivy, or Easter Cactus.</b> Apply as a heavy spray or drench at rate of 0.5–2 pt/sq ft (100 gal covers 400–1,600 sq ft depending on fungicide rate used). Applications can be re-applied at 7–14-day intervals. Do not apply to plug trays or seedling flats at the time of seeding. Use highest labeled rate for better control.
	<i>triflumizole</i> Terraguard SC	3	Contact 2–8 oz/100 gal	12 H	Apply soil drenches at 2–4-week intervals. Use higher rate under heavy disease pressure.

■ ORNAMENTALS AND SHADE TREE DISEASE CONTROL: FUNGICIDES

DISEASE	FUNGICIDE	MOA	GENERAL RATE	REI (hours)	REMARKS
Volutella blight ( <i>Pseudonectria buxi</i> )	<i>chlorothalonil</i> Daconil Zn Daconil Ultrex Daconil Weatherstik + many other formulations	M5	Contact 2 pt/100 gal 1.4 lb/100 gal 1.375 pt/100 gal See product label for rates.	12 H	Re-apply at 7–14-day intervals. <b>Do not use with mist blowers or high pressure spray equipment in greenhouses.</b>
	<i>chlorothalonil + thiophanate methyl</i> Spectro 90WDG	M5 + 1	Contact/Systemic 1–2 lb/100 gal	12 H	<b>Do not use with mist blowers or high pressure spray equipment in greenhouses. May discolor flowers/bracts.</b> Minimum 7–day re-treatment interval. Do not exceed 2.15 lb/A of product.
	<i>copper hydroxide</i> CuPRO 5000 Nu-Cop 50 DF Nu-Cop HB	M1	Contact 1.5–2 lb/A (1.5 Tbsp/1000 sq ft) 1 lb/100 gal 0.5 lb/100 gal	24–48 H (check label)	<b>Do not apply in spray solutions having pH less than 6.5. Do not tank mix with Aliette or other phosphite/phosphate fungicides.</b> Begin application at the first sign of disease and repeat at 7–14-day intervals.
	<i>copper sulphate pentahydrate</i> Phyton 27	M1	Contact 1.5–2.5 oz/100 gal	24 H	Re-apply at 3–5-day intervals.
	<i>mancozeb</i> Dithane 75DF Fore 80WP Mancozeb DG Protect DF	M3	Contact 1–2 lb/100 gal 1.5 lb/100 gal 1.5 lb/100 gal 1–2 lb/100 gal	24 H	Addition of a spreader sticker will improve performance. Repeat application on 7–10-day intervals. <b>Do not use Fore on Pachysandra.</b>

# ORNAMENTALS AND SHADE TREE DISEASE CONTROL

Jean L. Williams-Woodward, Extension Plant Pathologist

## PART B: PLANT USE INDEX

**PART B:** Provides a listing of fungicides labeled for use on specific plants. Plant names are listed alphabetically. To find a fungicide labeled for use on a specific plant, locate the plant name within the listing and the disease you want to control. Several fungicides may be labeled to control the same disease. Several new general categories have been added to the listing. These include “Bedding & Flowering Plants,” “Herbaceous Ornamentals,” “Woody Ornamentals,” “Foliage Plants,” “Interiorscapes,” and “Bulbs.” Fungicides labeled for use under these broad categories are listed. If it is uncertain whether a fungicide can be safely used on a plant species, a small number of plants should be treated to test for

phytotoxicity prior to treating the entire crop. Always refer to the fungicide label for directions.

NONE OF THE MATERIALS LISTED IN THIS GUIDE ARE RESTRICTED USE PESTICIDES. THEY MAY BE USED BY HOMEOWNERS AND COMMERCIAL GROWERS. However, packaging and cost may be much more than a homeowner will want or ever need.

**FOLLOW ALL LABEL DIRECTIONS CAREFULLY. PAY PARTICULAR ATTENTION TO RE-ENTRY PERIODS AND RE-USE INTERVALS.**

### GENERAL CATEGORIES:

BEDDING & FLOWERING PLANTS (Annuals, Perennials) (Greenhouse, Nursery, Landscape)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> , <i>Discula</i> , etc)	3336, Daconil Ultrex, Domain, Milstop, Mural, Postiva, Protect, Spectro 90
Bacterial leaf spot or blight	Aliette T&O, Prodigy
Black root rot ( <i>Thielaviopsis basicola</i> )	3336, Domain, Terraguard SC
Botrytis blight (grey mold of leaves, flowers and/or fruit)	3336, Astun, Daconil Ultrex, Decree, Domain, Milstop, Protect
Downy mildew	Aliette T&O, Fosphite, Mural, Prodigy, Protect, Segovis
Fungal Leaf spots— <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Alternaria</i> , etc.	3336, Daconil Ultrex, Domain, Milstop, Mural, Postiva, Protect, Spectro 90, Terraguard SC
Fusarium root or stem rot	Domain, Fosphite, Postiva
Fusarium wilt	3336, Spectro 90
Powdery mildew	3336, Compass, Domain, Fosphite, Milstop, Mural, Seldo (greenhouse/nursery only), Terraguard SC
Pythium, Phytophthora diseases	Aliette, Fosphite, Resyst, Segway O, Subdue GR, Subdue Maxx, Terrazole, Truban
Rhizoctonia root rot, web or aerial blight	3336, Fosphite, Postiva, Terraguard SC
Rust leaf spots	3336, Daconil Ultrex, Protect, Spectro 90
Scab ( <i>Venturia</i> , <i>Sphaceloma</i> , <i>Cladosporium</i> )	3336, Daconil Ultrex, Domain, Milstop, Protect
Southern blight ( <i>Sclerotium rolfsii</i> )	Mural
Volutella blight	Protect

**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: PLANT USE INDEX**

HERBACEOUS ORNAMENTALS (Greenhouse, Nursery, Landscape)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Daconil Ultrex, Domain, Milstop, Mural, Postiva, Torque
Bacterial leaf spot or blight	Aliette T&O, Fosphite, Postiva, Prodigy
Black root rot ( <i>Thielaviopsis</i> )	3336, Domain, Terraguard SC
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Astun, Daconil Ultrex, Decree, Domain, Milstop, Mural, Postiva
Downy mildew	Aliette T&O, Fosphite, Mural, Prodigy, Segovis
Fungal Leaf spots— <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Alternaria</i> , etc.	Banner Maxx, Daconil Ultrex, Domain, Milstop, Mural, Terraguard SC, Torque
Fusarium root or stem rot	Domain, Fosphite, Postiva
Fusarium wilt	3336
Powdery mildew	Banner Maxx, Compass, Domain, Fosphite, Milstop, Postiva, Seido (greenhouse/nursery only), Terraguard SC, Torque
Pythium, Phytophthora diseases	Aliette T&O, Fosphite, Mural, Prodigy, Resyst, Segovis, Segway O, Subdue GR
Rhizoctonia root rot, web or aerial blight	Domain, Fosphite, Postiva, Terraguard SC
Rust leaf spots	Banner Maxx, Daconil Ultrex, Mural, Plantvax (greenhouse), Postiva, Torque
Scab ( <i>Venturia</i> , <i>Sphaceloma</i> , <i>Cladosporium</i> )	Daconil Ultrex, Domain, Milstop, Torque
Southern blight ( <i>Sclerotium rolfsii</i> )	Mural
WOODY ORNAMENTALS (Deciduous/Evergreen Shrubs) (Greenhouse, Nursery, Landscape)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	3336, Daconil Ultrex, Daconil, Domain, Milstop, Mural, Postiva, Protect, Torque
Bacterial leaf spot or blight, fire blight	Aliette T&O, Fosphite, Prodigy
Black root rot ( <i>Thielaviopsis</i> )	3336, Domain, Terraguard SC
Botrytis blight (grey mold of leaves, flowers and/or fruit)	3336, Astun, Daconil Weatherstik, Domain, Mural, Postiva, Protect
Botryosphaeria dieback	Protect
Downy mildew	Aliette T&O, Fosphite, Mural, Prodigy, Protect, Segovis
Flower blight ( <i>Ovulinia</i> , <i>Ciborinia</i> )	Banner Maxx, 3336, Daconil Ultrex, Domain, Spectro 90, Terraclor, Torque
Fungal Leaf spots— <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Alternaria</i> , <i>Cristulariella</i> , etc.	Banner Maxx, Daconil Weatherstik, Domain, Milstop, Mural, Postiva, Terraguard SC, Torque
Fusarium root or stem rot	3336, Domain, Fosphite, Postiva

WOODY ORNAMENTALS (continued) (Deciduous/Evergreen Shrubs) (Greenhouse, Nursery, Landscape)	
<i>Phomopsis</i> on junipers, twig blight	3336, Domain, Milstop, Mural, Protect
Pine needle blight/needle cast	3336, Daconil Weatherstik, Mural, Protect
Powdery mildew	Banner Maxx, 3336, Daconil Weatherstik, Daconil Ultrex, Domain, Fosphite, Milstop, Mural, Postiva, Seido (greenhouse/nursery only), Spectro 90, Terraguard, Torque
Pythium, Phytophthora diseases	Aliette T&O, Banol, Fosphite, Mural, Prodigy, Resyst, Segovis, Segway O, Subdue GR, Subdue Maxx
Rhizoctonia root rot, web or aerial blight	3336, Daconil Ultrex, Domain, Fosphite, Postiva, Spectro 90, Terraguard SC, Turfcide 10G
Rust leaf spots	3336, Daconil Weatherstik, Daconil Ultrex, Mural, Postiva, Protect, Spectro 90, Torque
Scab ( <i>Venturia</i> , <i>Sphaceloma</i> , <i>Cladosporium</i> )	3336, Daconil Weatherstik, Daconil Ultrex, Domain, Milstop, Protect, Spectro 90
Southern blight ( <i>Sclerotium rolfsii</i> )	Mural, Terraclor, Torque
Volutella blight	Protect
FOLIAGE PLANTS	
Bacterial leaf spot or blight	Aliette T&O, Phyton 27, Prodigy
Black root rot ( <i>Thielaviopsis</i> )	Terraguard SC
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Astun, OHP Chipco 26019, Daconil Weatherstik, Decree, Milstop, Phyton 27, Spectro 90
Downy mildew	Aliette T&O, Prodigy, Segovis
Fungal Leaf spots— <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Alternaria</i> , etc.	OHP Chipco 26019, Daconil Weatherstik, Milstop, Spectro 90, Terraguard SC
Powdery mildew	Milstop, Terraguard SC
Pythium, Phytophthora diseases	Aliette T&O, Prodigy, Segovis, Segway O, Subdue GR, Subdue Maxx, Terrazole, Truban
Rhizoctonia root rot, web or aerial blight	OHP Chipco 26019, Phyton 27, Spectro 90, Terraguard SC
Rust leaf spots	Daconil Weatherstik

**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: PLANT USE INDEX**

INTERIORSCAPES	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	3336, Daconil Weatherstik, Milstop
Black root rot ( <i>Thielaviopsis</i> )	Banrot, 3336, Terraguard SC
Botrytis blight (grey mold of leaves, flowers and/or fruit)	3336, Astun, Milstop
Fungal leaf spots— <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Alternaria</i> , etc.	Banrot, 3336, Daconil Weatherstik, Milstop, Terraguard SC
Fusarium root or stem rot	Banrot
Fusarium wilt	3336
Powdery mildew	3336, Milstop, Terraguard SC
Pythium, Phytophthora diseases	Banrot, Subdue GR, Subdue Maxx
Rhizoctonia root rot, web or aerial blight	Banrot, Terraguard SC
Rust leaf spots	3336, Daconil Weatherstik
BULBS	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	3336, Daconil Weatherstik, Domain
Black root rot ( <i>Thielaviopsis</i> )	3336, Domain
Botrytis blight (grey mold of leaves, flowers and/or fruit)	3336, Daconil Weatherstik, Domain, Postiva
Downy mildew	Segovis
Fungal leaf spots— <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Alternaria</i> .	3336, Daconil Weatherstik, Domain, Postiva
Fusarium root or stem rot	Domain, Postiva
Fusarium wilt	3336
Powdery mildew	3336, Domain
Rhizoctonia root rot, web or aerial blight	Domain, Postiva
Phytophthora diseases	Segovis
Rust leaf spots	3336, Daconil Weatherstik, Postiva
Southern blight ( <i>Sclerotium rolfsii</i> )	Turfgo Engage
ABELIA	
Leaf spots— <i>Cercospora</i>	Camelot-O, Eagle, Heritage, Heritage SC, Pageant
Powdery mildew	Camelot-O, Eagle, Pageant

SPECIFIC PLANT CATEGORIES:

ABUTILON (Velvet leaf/Flowering Maple) DO NOT APPLY: EAGLE	
Rhizoctonia root rot, web or aerial blight	Palladium
ACHILLEA (See Yarrow)	
AFRICAN VIOLET (Saintpaulia) DO NOT USE: BANNER MAXX, CONCERT, STRIDER, TORQUE	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Fame SC, Pageant, Protect
Bacterial leaf spot or blight	Camelot-O
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Camelot-O, Decree, Fame SC, Dithane, Fore, Mancozeb, Medallion, Pageant, Phyton 27, Protect, Trinity TR
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Fame SC, Empress, Medallion, Pageant, Trinity TR
Leaf spots— <i>Corynespora</i> , <i>Myrothecium</i>	Camelot-O, Fame SC, Medallion, Pageant, Protect, Trinity TR
Powdery mildew	Camelot-O, Fame SC, Eagle, Pageant, Phyton 27, Pipron, Trinity TR
Pythium, Phytophthora diseases	Banol, Banrot 8G, Banrot 40WP, Fame SC, Empress, Orvego, Pageant, Phyton 27, Stature SC, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	Banrot 8G, Banrot 40WP, Fame SC, Empress, Medallion, Pageant, Protect, Trinity TR, Turfcide
AGERATUM	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, Fame SC, Dithane, Fore, Iprodione, Mancozeb, Medallion, MilStop, OHP 6672, Palladium, Protect
Downy Mildew	Fame SC, Fosphite
Leaf spots— <i>Cercospora</i> , <i>Alternaria</i> , etc.	26/36, Chipco 26019, Fame SC, Iprodione, Medallion, MilStop, OHP 6672, Palladium, Protect
Powdery mildew	Fame SC, Eagle, Fosphite, Heritage, Heritage SC, MilStop, OHP 6672, Palladium
Pythium, Phytophthora diseases	Banol, Banrot 8G, Banrot 40WP, Fame SC, Fosphite, Resyst, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Chipco 26019, Fame SC, Fosphite, Iprodione, Medallion, OHP 6672, Palladium, Protect
Rust leaf spots	Dithane, Eagle, Fore, Heritage, Heritage SC, Mancozeb, OHP 6672, Protect
AGLAONEMA (see Chinese Evergreen)	



**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: PLANT USE INDEX**

AJUGA (Bugleweed)	
Anthracnose	Compass, MilStop
Black root rot ( <i>Thielaviopsis</i> )	Banrot 40WP
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, Iprodione, MilStop
Fusarium root or stem rot	Banrot 40WP, Empress, Iprodione
Leaf spots— <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , etc.	26/36, Chipco 26019, Iprodione, MilStop
Phoma basal or root rot	None labeled specifically on Ajuga; test products for possible phytotoxicity prior to use on entire crop. (Italicize text)
Powdery mildew	Compass, Heritage, Heritage SC, MilStop
Pythium, Phytophthora diseases	Banrot 40WP, Empress, Terrazole, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 40WP, Chipco 26019, Compass, Empress, Iprodione
Southern blight ( <i>Sclerotium rolfsii</i> )	None labeled specifically on Ajuga; test products for possible phytotoxicity prior to use on entire crop. (Italicize text)
ALYSSUM (Lobularia)	
Black root rot ( <i>Thielaviopsis</i> )	Banrot 8G, Banrot 40WP, Medallion
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Cease, Chipco 26019, Iprodione, Medallion, MilStop, Palladium, Phyton 27, Protect
Downy mildew	Cease, Compass, FenStop, Fosphite, Micora, Orkestra Intrinsic, Orvego, Phyton 27, Protect, Stature SC
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Cease, Empress, Fosphite, Heritage, Heritage SC, Iprodione, Medallion, Palladium
Pythium, Phytophthora diseases	Banol, Banrot 8G, Banrot 40WP, Cease, Empress, FenStop, Fosphite, Micora, Orvego, Protect, Stature SC, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Cease, Chipco 26019, Compass, Empress, Fosphite, Heritage (directed spray), Heritage SC, Iprodione, Medallion, Palladium, Protect, Terrazole
AMORPHA (see False Indigo)	

ANEMONE	
Rust leaf spots	Eagle
ANTHURIUM	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Camelot-O, Dithane, Fore, Mancozeb, Protect
Bacterial leaf spot or blight	Aliette WDG, Camelot-O, Resyst
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Protect
Pythium, Phytophthora diseases	Fosphite, Protect, Resyst, Stature SC, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	Camelot-O, Fosphite, Protect
ANTIRRHINUM (see Snapdragon)	
APHELANDRA (see Zebra plant)	
APPLE, FLOWERING (see Crabapple)	
ARABIAN VIOLET (see EXACUM)	
ARBORVITAE (Thuja)	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Protect
Botryosphaeria dieback	Protect
Fusarium root or stem rot	Banrot 40WP, Empress, Fosphite
Needle Blight	Camelot-O, CuPRO 5000, Dithane, Fore, Junction, Nu-Cop, Protect
Phomopsis or tip or needle blight	Basicop, CuPRO 5000, Dithane, Fore, Junction, Mancozeb, Nu-Cop, Protect
Pythium, Phytophthora diseases	Banrot 40WP, Empress, Fosphite, Micora, Protect, Resyst, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP
Rhizoctonia root rot, web or aerial blight	Banrot 40WP, Empress, Fosphite, Protect

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ARTEMISIA (Wormwood)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Daconil Ultrex, Daconil Weatherstik, Heritage, Heritage SC, Spectro 90
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, Daconil Ultrex, Iprodione, Daconil Weatherstik, Spectro 90
Leaf spots— <i>Cercospora</i>	Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Heritage, Heritage SC, Iprodione, Spectro 90
Powdery mildew	Spectro 90
Pythium, Phytophthora diseases	Resyst, Subdue GR, Subdue Maxx
Rhizoctonia root rot, web or aerial blight	26/36, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Iprodione, Spectro 90
Rust leaf spots	Daconil Ultrex, Daconil Weatherstik, Spectro 90
ASH	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Discula</i> )	Banner Maxx, Daconil Ultrex, Daconil Weatherstik, Daconil ZN, Dithane, Fore, Junction, OHP 6672, Protect, Spectro 90
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Daconil Ultrex, Daconil Weatherstik, Daconil ZN, Mancozeb, OHP 6672, Phyton 27, Spectro 9
Leaf spots— <i>Cercospora</i> , <i>Cylindrosporium</i> , <i>Tubakia</i> , <i>Mycosphaerella</i>	Banner Maxx, Daconil Ultrex, Daconil Weatherstik, Daconil ZN, Fore, Mancozeb, OHP 6672, Protect, Spectro 90
Powdery mildew	Banner Maxx, Concert, Daconil ZN, OHP 6672, Protocol, Spectro 90
Rhizoctonia root rot, web or aerial blight	Daconil Ultrex, Daconil Weatherstik, Daconil ZN, Mancozeb, OHP 6672, Protect, Spectro 90
Rust leaf spots	Banner Maxx, Daconil Ultrex, Daconil Weatherstik, Daconil ZN, Dithane, Eagle, Fore, Mancozeb, OHP 6672, Spectro 90
ASTER	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Camelot, Daconil Weatherstik, Mancozeb, Protect, Spectro 90
Black root rot ( <i>Thielaviopsis</i> )	Banrot, Medallion
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, Daconil Weatherstik, Dithane, Fore, Iprodione, Mancozeb, Medallion, Phyton 27, Protect, Spectro 90
Downy mildew	Camelot, CuPRO 5000, Mancozeb, Phyton 27, Protect, Resyst, Subdue Maxx
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Cease, Fosphite, Iprodione, Medallion, Spectro 90
Leaf spots— <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Alternaria</i> , <i>Ascochyta</i>	26/36, Basicop, Cease, Chipco 26019, CuPRO 5000, Dithane, Fore, Iprodione, Mancozeb, Medallion, MilStop, Protect, Spectro 90

ASTER (continued)	
Powdery mildew	Cease, Compass, Eagle, Fosphite, MilStop, Phyton 27, Spectro 90
Pythium, Phytophthora diseases	Banol, Banrot 8G, Banrot 40WP, Cease, Fosphite, Phyton 27, Protect, Resyst, Spectro 90, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Cease, Chipco 26019, Compass, Fosphite, Iprodione, Medallion, Protect, Spectro 90
Rust leaf spots	Cease, Compass, Dithane, Eagle, Fore, Heritage, Heritage SC, Mancozeb, Protect, Spectro 90
AUCUBA	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Dithane, Fore, Mancozeb, Pageant, Protect
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Empress, Heritage, Heritage SC, Pageant
Leaf spots— <i>Alternaria</i> , <i>Cercospora</i>	Dithane, Fore, Mancozeb, Pageant, Protect
Pythium, Phytophthora diseases	Banrot 8G, Banrot 40WP, Empress, Pageant, Protect, Proturf/Progrow Pythium Control, Subdue GR, Subdue Maxx
Rhizoctonia root rot/web or aerial blight	Banrot 8G, Banrot 40WP, Empress, Heritage, Heritage SC, Pageant, Protect
Southern blight ( <i>Sclerotium rolfsii</i> )	Heritage, Heritage SC
AZALEA & RHODODENDRON	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	adform, Cease, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Heritage, Heritage SC, MilStop, OHP 6672, Pageant, Phyton 27, Protect, Spectro 90, Torque, Tourney
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Basicop, Broadform, Cease, Chipco 26019, Compass, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Iprodione, Junction, Medallion, MilStop, Nu-Cop, OHP 6672, Pageant, Phyton 27, Protect, Spectro 90, Tourney, Trinity TR
Cylindrocladium rot	26/36, Avelyo, Chipco 26019, Dithane, Fore, Iprodione, Mancozeb, OHP 6672, Pageant, Phyton 27, Protect, Trinity TR
Flower blight ( <i>Ovulinia</i> )	Banner Maxx II, Basicop, Captan 4L, Captan 50, Concert, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Eagle, Fore, Junction, Mancozeb, OHP 6672, Propiconazole, Protect, Protocol, Spectro 90, Torque
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Cease, Empress, Fosphite, Heritage, Heritage SC, Iprodione, OHP 6672, Pageant, Spectro 90, Trinity TR
Leaf gall, leaf blister ( <i>Exobasidium</i> )	Basicop, Junction, Pageant, Spectro 90

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AZALEA & RHODODENDRON (continued)	
Leaf spots— <i>Septoria</i> , <i>Cercospora</i> , <i>Ramularia</i> , <i>Corynespora</i> , etc.	26/36, Avelyo, Banner Maxx II, Basicop, Captan 4L, Captan 50, Cease, Chipco 26019, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Iprodione, Junction, Mancozeb, MilStop, Nu-Cop, OHP 6672, Pageant, Protect, Spectro 90, Torque, Tourney, Trinity TR
Phomopsis twig blight	Junction, OHP 6672, Tourney
Powdery mildew	Avelyo, Banner Maxx II, Broadform, Cease, Compass, Concert, CuPRO 5000, Eagle, Fosphite, Heritage, Heritage SC, Junction, MilStop, Nu-Cop, OHP 6672, Pageant, Propiconazole, Protocol, Spectro 90, Torque, Tourney, Trinity TR
Pythium, Phytophthora diseases	Adorn, Areca, Banol, Banrot 8G, Banrot 40WP, Cease, Compass, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Empress, FenStop, Fore, Fosphite, Heritage, Heritage SC, Mancozeb, Micora, Nu-Cop, Orvego, Pageant, Phytan 27, Protect, Resyst, Spectro 90, Stature SC, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Broadform, Chipco 26019, Cease, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Empress, Fosphite, Heritage, Heritage SC, Iprodione, OHP 6672, Pageant, Protect, Spectro90, Tourney, Trinity TR
Rust leaf spots	Broadform, Cease, Compass, Junction, OHP 6672, Pageant, Protect, Torque
Southern blight ( <i>Sclerotium rolfsii</i> )	Heritage, Heritage SC, Medallion, Torque
BABY'S BREATH ( <i>Gypsophila</i> )	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, Dithane, Fore, Iprodione, Mancozeb, MilStop, Protect, Spectro 90
Downy Mildew	Fosphite
Leaf spots— <i>Alternaria</i> , <i>Cercospora</i> , etc.	26/36, Chipco 26019, Iprodione, MilStop, Protect, Spectro 90
Pythium, Phytophthora diseases	ABanrot 40WP, Empress, Fosphite, Protect, Resyst, Spectro 90, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 40WP, Chipco 26019, Empress, Fosphite, Iprodione, Protect, Spectro 90
BARBERRY DO NOT USE: KOCIDE or other copper hydroxide products	
Leaf spots— <i>Phyllosticta</i>	Compass, Junction, Pageant, Trinity TR
Powdery Mildew	Eagle, Heritage, Heritage SC, Pageant, Phytan 27, Trinity TR
Rhizoctonia root rot, web, or aerial blight	Pageant, Phytan 27, Trinity TR
Rust leaf spots	Eagle, Heritage, Heritage SC, Pageant

BASSWOOD (Linden)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Banner Maxx II, Basicop, CuPRO 5000, Junction, Tourney
Leaf spots— <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Algal</i> , etc.	Banner Maxx II, Basicop, CuPRO 5000, Junction, Propiconazole, Protocol, Tourney
Powdery mildew	Banner Maxx, Protocol, Tourney
BEE BALM (see <i>Monarda</i> )	
BEGONIA DO NOT USE: BANNER MAXX, CONCERT, TORQUE	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Cease, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Fame SC, MilStop, Heritage, Heritage SC, OHP 6672, Pageant, Palladium, Protect, Spectro 90
Bacterial leaf spot	Cease, CuPRO 5000, Junction, Nu-Cop, Phyton 27
Black root rot ( <i>Thielaviopsis</i> )	Banrot 8G, Banrot 40WP, Medallion, OHP 6672
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Broadform, Cease, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Dithane, Fore, Junction, Mancozeb, Medallion, MilStop, OHP 6672, Pageant, Palladium, Phyton 27, Protect, Spectro 90, Trinity TR
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Fame SC, Empress, Fosphite, Medallion, OHP 6672, Pageant, Palladium, Spectro 90, Trinity T
Leaf spots— <i>Alternaria</i> , <i>Cercospora</i> , etc.	Avelyo, Basicop, Captan 4L, Cease, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Heritage, Heritage SC, Medallion, MilStop, OHP 6672, Pageant, Palladium, Protect, Spectro 90, Trinity TR
Powdery mildew	Avelyo, Broadform, Cease, Compass, CuPRO 5000, Daconil Zn, Fame SC, Eagle, Fosphite, Heritage, Heritage SC, MilStop, OHP 6672, Pageant, Palladium, Phyton 27, Pipron, Spectro 90, Trinity TR
Pythium, Phytophthora diseases	Areca, Banrot 8G, Banrot 40WP, Cease, Fame SC, Empress, Fosphite, Orvego, Pageant, Protect, Resyst, Spectro 90, Stature SC, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	Banrot 8G, Banrot 40WP, Broadform, Cease, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Empress, Fosphite, Medallion, OHP 6672, Pageant, Palladium, Protect, Spectro 90, Trinity TR
Southern blight ( <i>Sclerotium rolfsii</i> )	Fame SC, Medallion, Palladium
BERGAMOT (see <i>Monarda</i> )	

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BIRCH	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Glomerella</i> )	Protect, Tourney
Leaf spots— <i>Septoria</i> , <i>Cercospora</i> , <i>Cylindrosporium</i> , etc.	Protect, Tourney
Powdery mildew	Heritage, Heritage SC, Tourney
Rhizoctonia root rot, web or aerial blight	Protect, Tourney
Rust leaf spots	Eagle, Heritage, Heritage SC, Junction, Protect, Tourney
BLEEDING HEART ( <i>Dicentra</i> )	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Medallion, Palladium, Spectro 90
Leaf spot ( <i>Alternaria</i> , <i>Cercospora</i> )	Medallion, Palladium, Spectro 90
Rhizoctonia root rot, aerial blight	Medallion (foliar application only; for drench test for phytotoxicity), Palladium, Spectro 90
BOUGAINVILLEA	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	CuPRO 5000, Heritage, Heritage SC, Nu-Cop, Spectro 90
Bacterial leaf spot	CuPRO 5000, Fosphite, Nu-cop, Phyton 27, Resyst
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Phyton 27, Spectro 90
Powdery mildew	Fosphite, Phyton 27
Pythium, Phytophthora diseases	Areca, Fosphite, Micora, Resyst, Spectro 90
Rhizoctonia root rot, web or aerial blight	Fosphite, Phyton 27, Spectro 90

BOXWOOD	
Boxwood blight ( <i>Calonectria pseudonaviculata</i> ; syn. <i>Cylindrocladium</i> )	Avelyo, Daconil, Medallion, Postiva, Torque
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Cease, Empress, Fosphite, Iprodione, Pageant
Leaf spots— <i>Colletotrichum</i> , <i>Macrophoma</i> , <i>Pseudonectria</i> ( <i>Volutella</i> )	26/36, Basicop, Cease, Chipco 26019, CuPRO 5000, Dithane, Fore, Heritage, Heritage SC, Iprodione, Mancozeb, MilStop, Pageant, Protect
Pythium, Phytophthora diseases	Areca, Banrot 8G, Banrot 40WP, Cease, Empress, Fosphite, Micora, Pageant, Protect, Resyst, Subdue GR, Subdue Maxx, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Cease, Chipco 26019, Empress, Fosphite, Heritage, Heritage SC, Iprodione, Pageant, Protect
Volutella blight	Protect
BUCKEYE ( <i>Aesculus</i> spp., Horse Chestnut)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Glomerella</i> )	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Junction, Protect, Spectro 90
Leaf spots— <i>Guignardia</i> , <i>Septoria</i> , <i>Cercospora</i>	Daconil Ultrex, Daconil Weatherstik, Dithane, Fore, Junction, Mancozeb, Protect, Spectro 90
Powdery mildew	Eagle, Spectro 90
BUDDLEIA (Butterfly Bush)	
Downy mildew	Heritage, Heritage SC, Micora, Pageant
Leaf spot- <i>Cladosporium</i>	Compass, Heritage, Heritage SC, Pageant
Pythium, Phytophthora Diseases	Empress, Micora, Pageant
Rhizoctonia	Empress, Pageant
BUGLEWEED (SEE AJUGA)	



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<b>CACTUS</b>	
<b>DO NOT USE: 3336 (Haitora, Easter cactus), OHP 6672 (Easter cactus)</b>	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, Iprodione
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Iprodione
Leaf spots— <i>Colletotrichum</i> , <i>Cercospora</i> , etc.	26/36, Chipco 26019, Iprodione
Pythium, Phytophthora diseases	Banrot 8G, Banrot 40WP, Subdue GR, Subdue Maxx, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Chipco 26019, Iprodione
<b>CACTUS, CHRISTMAS (Schumbergera, Zygocactus)</b>	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Heritage, Heritage SC, Pageant, Protect, Spectro 90
Bacterial leaf spot or blight	Fosphite, Phyton 27, Resyst
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Medallion, Pageant, Phyton 27, Protect, Spectro 90
Fusarium root or stem rot	Banrot 40WP, Heritage, Heritage SC, Medallion, Pageant
Leaf spots— <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , etc.	Camelot-O, Heritage, Heritage SC, Medallion, Pageant, Protect, Spectro 90
Pythium, Phytophthora diseases	Banrot 40WP, Fosphite, Pageant, Protect, Resyst, Spectro 90, Subdue GR, Subdue Maxx, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	Banrot 40WP, Fosphite, Heritage, Heritage SC, Medallion, Pageant, Protect, Spectro 90
<b>CALADIUM</b>	
Bacterial Leaf Spot	Camelot-O
Botrytis blight (tuber rot)	Camelot-O, Daconil Ultrex, Medallion, OHP 6672, Pageant, Palladium, Spectro 90
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Empress, Fosphite, Heritage, Heritage SC, Medallion, OHP 6672, Pageant, Palladium, Spectro 90

CALADIUM (continued)	
Leaf spots— <i>Alternaria</i> , <i>Septoria</i> , <i>Cercospora</i> , etc.	Daconil Ultrex, Medallion, OHP 6672, Pageant, Palladium, Spectro 90
Pythium, Phytophthora diseases	Banrot 8G, Banrot 40WP, Empress, Fosphite, Micora, Pageant, Resyst, Spectro 90, Subdue GR, Subdue, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	Banrot 8G, Banrot 40WP, Camelot-O, Compass, Daconil Ultrex, Empress, Fosphite, Heritage, Heritage SC, Medallion, OHP 6672, Pageant, Palladium, Spectro 90
Southern blight ( <i>Sclerotium rolfsii</i> )	Heritage, Heritage SC, Medallion, Palladium
CALENDULA (Pot marigold)	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, Iprodione, Medallion, MilStop, Palladium
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Iprodione, Medallion, Palladium
Leaf spots— <i>Colletotrichum</i> , <i>Cercospora</i> , <i>Alternaria</i> , etc.	26/36, Chipco 26019, Eagle, Iprodione, Medallion, MilStop, Palladium
Powdery mildew	Banner Maxx II, MilStop, Palladium, Propiconazole, Protocol
Pythium, Phytophthora diseases	Banrot 8G, Banrot 40WP, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Chipco 26019, Iprodione, Medallion, Palladium
Southern blight ( <i>Sclerotium rolfsii</i> )	Medallion, Palladium
CALIBRACHOA (Trailing petunia)—see PETUNIA	
CAMELLIA	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Glomerella</i> )	Banner Maxx, Broadform, Compass, CuPRO 5000, Heritage, Heritage SC, Junction, Nu-Cop, Pageant, Protect, Protocol, Spectro 90, Torque, Tourney
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Pageant, Protect, Spectro 90
Flower blight ( <i>Ciborinia</i> , <i>Sclerotinia</i> )	Captan 4L, Captan 50, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Fore, Junction, Mancozeb, Protect, Spectro 90, Torque

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CAMELLIA (continued)	
Leaf gall, leaf blister ( <i>Exobasidium</i> )	Pageant, Spectro 90
Leaf spots— <i>Phyllosticta</i> , <i>Cercospora</i> , etc.	Heritage, Heritage SC, Pageant, Propiconazole, Protect, Spectro 90, Torque, Tourney
Pythium, Phytophthora diseases	Adorn, Banrot 8G, Banrot 40WP, CuPRO 5000, Empress, Micora, Orvego, Pageant, Protect, Spectro 90, Stature SC, Terrazole, Truban 30WP
Rhizoctonia root rot, web or aerial blight	Banrot 8G, Banrot 40WP, Broadform, Compass, Empress, Pageant, Protect, Spectro 90, Tourney
Southern blight ( <i>Sclerotium rolfsii</i> )	Torque
CANDYTUFT (Iberis)	
Pythium, Phytophthora diseases	Orvego, Pageant, Stature SC
CANNA	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	OHP 6672
Bacterial leaf spot or blight	CuPRO 5000, Nu-Cop
Rhizoctonia root rot, web or aerial blight	Empress, OHP 6672
Rust leaf spots	OHP 6672
Southern blight ( <i>Sclerotium rolfsii</i> )	Terraclor
CARDINAL FLOWER (see Lobelia)	
CARNATION (Dianthus)	
Anthracnose diseases ( <i>Colletotrichum</i> )	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, MilStop, Pageant, Protect, Spectro 90
Bacterial leaf spot or blight	Agri-Mycin 17, CuPRO 5000, Junction, Nu-Cop, Phyton 27
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Basicop, Chipco 26019, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Iprodione, Junction, Medallion, MilStop, Nu-Cop, Pageant, Palladium, Phyton 27, Protect, Spectro 90, Trinity TR

CARNATION ( <i>Dianthus</i> )	
Downy mildew	Fame SC, Fosphite, Orvego, Pageant, Phyton 27, Protect, Resyst, Trinity TR
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Empress, Fosphite, Iprodione, Medallion, Pageant, Palladium, Spectro 90, Trinity TR
Leaf spots— <i>Corynespora</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Alternaria</i> , <i>Heterosporium</i>	26/36, Avelyo, Captan 4L, Captan 50, Chipco 26019, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Dithane, Fore, Iprodione, Junction, Mancozeb, Medallion, MilStop, Nu-Cop, Pageant, Palladium, Protect, Spectro 90, Trinity TR
Powdery mildew	Avelyo, Fame SC, Eagle, Fosphite, Heritage, Heritage SC, MilStop, Pageant, Palladium, Phyton 27, Spectro 90, Trinity TR
Pythium, Phytophthora diseases	Banol, Banrot 8G, Banrot 40WP, Fame SC, Empress, Fosphite, Resyst, Orvego, Pageant, Protect, Spectro 90, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Empress, Fosphite, Iprodione, Medallion, Pageant, Palladium, Protect, Spectro 90, Trinity TR
Rust leaf spots	Banner Maxx II, Captan 4L, Captan 50, Fame SC, Dithane, Eagle, Fore, Heritage, Heritage SC, Mancozeb, Pageant, Plantvax, Propiconazole, Protect, Protocol, Spectro 90
Southern blight ( <i>Sclerotium rolfsii</i> )	Fame SC, Medallion, Palladium
CATALPA	
Leaf spots— <i>Phyllosticta</i> , <i>Colletotrichum</i>	Eagle, Junction
Powdery mildew	Eagle, Pipron
CATHARANTHUS (Madagascar Periwinkle, Vinca—Flowering annual)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Cease, Heritage, Heritage SC, Pageant, Palladium, Protect
Bacterial leaf spot or blight	Cease
Black root rot ( <i>Thielvaioopsis</i> )	Medallion
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Cease, Compass, Medallion, Pageant, Palladium, Protect

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<b>CATHARANTHUS (Madagascar Periwinkle, Vinca—Flowering annual)</b>	
Fusarium root or stem rot	Cease, Empress, Fosphite, Medallion, Pageant, Palladium
Powdery mildew	Cease, Fosphite, Pageant, Palladium
Pythium, Phytophthora diseases	Areca, Banol, Cease, Compass, Empress, FenStop, Fosphite, Micora, Orvego, Pageant, Protect, Stature SC, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	Cease, Compass, Empress, Fosphite, Medallion, Pageant, Palladium, Protect
Southern blight ( <i>Sclerotium rolfsii</i> )	Medallion, Palladium
<b>CEANOTHUS (Redroot)</b>	
Bacterial Blight	Fosphite
Powdery mildew	Fosphite, Heritage, Heritage SC
Pythium, Phytophthora diseases	Fosphite, Micora, Resyst, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP
<b>CEDAR</b>	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Botran 75W, Protect
Botryosphaeria dieback	Protect
Needle blight ( <i>Phomopsis</i> , <i>Passalora</i> )	CuPRO 5000, Dithane, Fore, Heritage, Heritage SC, Mancozeb, Protect
Pythium, Phytophthora diseases	Banrot 8G, Banrot 40WP, Empress, Fosphite, Protect, Resyst
Rhizoctonia root rot, web or aerial blight	Banrot 8G, Banrot 40WP, Empress, Fosphite, Protect
Rust (control not necessary or usually recommended)	Basicop, Compass, Heritage, Heritage SC, Protect
<b>CELOSIA (Cockscomb)</b>	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Palladium, Protect
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Compass, Medallion, Palladium, Protect

CELOSIA (Cockscomb) (continued)	
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Medallion, Palladium
Leaf spots— <i>Phyllosticta</i> , <i>Cercospora</i> , <i>Alternaria</i>	Dithane, Fore, Mancozeb, Medallion, Palladium, Protect
Pythium, Phytophthora diseases	Banol, Banrot 8G, Banrot 40WP, Protect, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	Banrot 8G, Banrot 40WP, Compass, Medallion, Palladium, Protect
CHERRY (Flowering & Sand)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, OHP 6672, Pageant, Protect, Spectro 90, Tourney
Bacterial leaf spot or blight, fire blight	Basicop, CuPRO 5000
CHERRY (Flowering & Sand) (continued)	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Heritage, Heritage SC, Iprodione, MilStop, OHP 6672, Pageant, Protect, Spectro 90, Tourney
Botryosphaeria dieback	Pageant, Protect
Leaf spots— <i>Phyllosticta</i> , <i>Cercospora</i> , <i>Coccomyces</i> , etc.	26/36, Banner Maxx II, Chipco 26019, Concert, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Eagle, Heritage, Heritage SC, Iprodione, MilStop, OHP 6672, Pageant, Protect, Spectro 90, Tourney
Powdery mildew	Broadform, Compass, Eagle, MilStop, OHP 6672, Pageant, Spectro 90, Tourney
Rust leaf spots	OHP 6672, Pageant, Protect O, Spectro 90, Tourney
CHERRY LAUREL	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Protect, Spectro 90
Leaf spots— <i>Cercospora</i> , <i>Phyllosticta</i>	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Junction, Protect, Spectro 90
Pythium, Phytophthora diseases	Protect, Spectro 90, Terrazole
Rhizoctonia root rot, web or aerial blight	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Protect, Spectro 90
Shot hole (fungal and bacterial)	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Protect

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CHESTNUT	
Leaf spots— <i>Phyllosticta</i> , <i>Tubakia</i> , <i>Cylindrosporium</i>	Pageant
Powdery mildew	Fosphite, Pageant
Pythium, Phytophthora Diseases	Empress, Fosphite, Pageant
CHINESE EVERGREEN ( <i>Aglaonema</i> )	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Avelyo, Camelot-O, Cease, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Heritage, Heritage SC, Protect, Spectro 90
Bacterial leaf spot or blight	Camelot-O, Cease, CuPRO 5000, Fosphite, Resyst
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Cease, Fosphite, Spectro 90
Leaf spots— <i>Cercospora</i> , <i>Myrothecium</i> , etc.	Camelot-O, Cease, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Heritage, Heritage SC, Protect, Spectro 90
Pythium, Phytophthora diseases	Banrot 8G, Banrot 40WP, Cease, Fosphite, Protect, Resyst, Spectro 90, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	Banrot 8G, Banrot 40WP, Camelot-O, Cease, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fosphite, Protect, Spectro 90
CHRYSANTHEMUM AND OSTEOSPERMUM (Cape Daisy)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Cease, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Heritage, Heritage SC, MilStop, OHP 6672, Pageant, Palladium, Protect, Spectro 90
Bacterial leaf spot or blight or wilt	Agri-mycin 17, Cease, CuPRO 5000, Phyton 27, Resyst
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Botran 75W, Broadform, Captan 50, Captan 4L, Cease, Chipco 26019, Compass, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Dithane, Fore, Iprodione, Junction, Mancozeb, Medallion, MilStop, Nu-Cop, OHP 6672, Pageant, Phyton 27, Palladium, Protect, Spectro 90, Trinity TR
Downy Mildew	Cease, Fame SC, Fosphite, Heritage, Heritage SC, Orvego, Pageant, Protect
Flower Blight	Banner Maxx II, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, OHP 6672
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Cease, Fame SC, Empress, Fosphite, Heritage, Heritage SC, Iprodione, Medallion, OHP 6672, Pageant, Palladium, Spectro 90, Trinity TR
Leaf spots— <i>Cercospora</i> , <i>Alternaria</i> , <i>Cylindrosporium</i> , <i>Phyllosticta</i> , etc.	26/36, Basicop, Broadform, Captan 4L, Captan 50, Cease, Chipco 26019, Compass, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Heritage, Heritage SC, Iprodione, Junction, Mancozeb, Medallion, MilStop, Nu-Cop, OHP 6672, Pageant, Palladium, Protect, Spectro 90, Trinity TR
Powdery mildew	Cease, Fame SC, Fosphite, MilStop, OHP 6672, Pageant, Palladium, Phyton 27, Pipron, Spectro 90, Trinity TR

CHRYSANTHEMUM AND OSTEOSPERMUM (Cape Daisy) (continued)	
Pythium, Phytophthora diseases	Banol, Banrot 8G, Banrot 40WP, Cease, Fame SC, Empress, Fosphite, Orvego, Pageant, Protect, Resyst, Stature SC, Spectro 90, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Broadform, Cease, Chipco 26019, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Empress, Fosphite, Iprodione, Medallion, OHP 6672, Pageant, Palladium, Protect, Spectro 90, Trinity TR
Rust leaf spots	Broadform, Cease, Compass, Fame SC, Dithane, Eagle, Fore, Mancozeb, OHP 6672, Pageant, Plantvax, Protect, Spectro 90
Southern blight ( <i>Sclerotium rolfsii</i> )	Fame SC, Medallion, Palladium
CINERARIA ( <i>Pericallis x hybrid</i> ; Florist's Cineraria)	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, Iprodione, MilStop, Phyton 27
Leaf spots— <i>Cercospora</i>	26/36, Chipco 26019, Iprodione, MilStop
Powdery mildew	MilStop
Rhizoctonia root rot, web or aerial blight	26/36, Chipco 26019, Iprodione
CISSUS (Grape Ivy)	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Camelot-O
Leaf spots— <i>Phyllosticta, Cercospora, Colletotrichum</i>	Camelot-O
Powdery mildew	Camelot-O, Fosphite
Pythium, Phytophthora diseases	Areca, Fosphite, Resyst
Rhizoctonia root rot, web or aerial blight	Camelot-O, Fosphite
CLEMATIS	
Leaf Spots	MilStop
CLETHRA	
Leaf spots— <i>Alternaria, Cercospora</i>	Heritage, Heritage SC
COCKSCOMB (see Celosia)	



**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: PLANT USE INDEX**

COLEUS	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Avelyo, Fame SC, Heritage, Heritage SC, MilStop, OHP 6672, Pageant, Palladium, Protect
Black root rot ( <i>Thielaviopsis</i> )	Avelyo, Banrot 8G, Banrot 40WP, Medallion, OHP 6672
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Broadform, Chipco 26019, Compass, Fame SC, Iprodione, Medallion, MilStop, OHP 6672, Pageant, Palladium, Phyton 27, Protect
Downy mildew	Adorn, Fame SC, Fosphite, Heritage, Heritage SC, Micora, Pageant, Phyton 27, Protect, Stature SC, Resyst
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Fame SC, Fosphite, Iprodione, Medallion, OHP 6672, Pageant, Palladium
Leaf spots— <i>Phyllosticta</i> , <i>Alternaria</i> , etc.	26/36, Chipco 26019, Fame SC, Heritage, Heritage SC, Iprodione, Medallion, MilStop, OHP 6672, Pageant, Palladium, Protect
Pythium, Phytophthora diseases	Banol, Banrot 8G, Banrot 40WP, Fame SC, Fosphite, Micora, Pageant, Protect, Resyst, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Broadform, Chipco 26019, Compass, Fame SC, Fosphite, Iprodione, Medallion, OHP 6672, Pageant, Palladium, Protect
COLUMBINE	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	MilStop, Protect
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, Iprodione, MilStop, Phyton 27, Protect
Downy Mildew	Fosphite, Protect
Leaf spots— <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Ascochyta</i> , etc.	26/36, Chipco 26019, Iprodione, MilStop, Protect
Powdery mildew	Fosphite, MilStop, Phyton 27
Pythium, Phytophthora diseases	Empress, Fosphite, Protect, Resyst
Rhizoctonia root rot, web or aerial blight	26/36, Chipco 26019, Empress, Fosphite, Iprodione, Protect
CONE FLOWER (see Echinacea)	
CORAL BELLS (Heuchera)	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, Iprodione, MilStop
Leaf spots— <i>Cercospora</i> , <i>Ramularia</i> , etc.	26/36, Chipco 26019, Iprodione, MilStop
Rhizoctonia root rot, web or aerial blight	26/36, Chipco 26019, Empress, Iprodione
Southern blight ( <i>Sclerotium rolfsii</i> )	Terraclor 400

CORDYLINE	
Anthracnose	Camelot-O
Cercospora leaf spot	Camelot-O, Dithane, Fore, Mancozeb, Protect
Pythium, Phytophthora Diseases	Orvego
COREOPSIS (Tickseed)	
Downy mildew	Compass, Micora, Pageant, Phyton 27
Leaf spot— <i>Cercospora</i> , <i>Septoria</i> , <i>Phyllosticta</i>	Compass, Medallion, OHP 6672, Pageant
Powdery mildew	Compass, OHP 6672, Pageant, Phyton 27
Rhizoctonia root rot, web or aerial blight	Compass, Empress, Medallion (foliar application only; for drench test for phytotoxicity), OHP 6672, Pageant
CORN FLOWER (Bachelor's Button, <i>Centaurea</i> )	
Rust leaf spots	Eagle
COSMOS	
Leaf spots— <i>Septoria</i> , <i>Cercospora</i> , etc.	Pageant, Palladium
Powdery mildew	Compass, Eagle, Pageant, Palladium
Rhizoctonia root rot and aerial/web blight	Compass, Pageant, Palladium
COTONEASTER	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Protect, Tourney
Bacterial leaf spot or blight, fire blight	Agri-Mycin 17, Fosphite, Phyton 27, Resyst
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Basicop, CuPRO 5000, Junction, Nu-Cop, Protect, Phyton 27, Tourney, Trinity TR
Leaf spots— <i>Phyllosticta</i> , <i>Entomosporium</i> , etc.	Banner Maxx II, Junction, Propiconazole, Protect, Tourney, Trinity TR
Pythium, Phytophthora diseases	Empress, Fosphite, Protect, Resyst, Subdue GR, Subdue Maxx
Rhizoctonia root rot, web or aerial blight	Empress, Fosphite, Heritage, Heritage SC, Protect, Tourney, Trinity TR

**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: PLANT USE INDEX**

CRABAPPLE (Flowering) & APPLE (Flowering) & PEAR (Ornamental) DO NOT USE: HERITAGE, MURAL OR COMPASS (see label for cultivar susceptibility)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> , <i>Gloeosporium</i> , etc)	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, MilStop, OHP 6672, Pageant, Protect, Spectro 90, Torque, Tourney
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, MilStop, OHP 6672, Pageant, Phyton 27, Protect, Spectro 90, Tourney
Botryosphaeria dieback	Pageant, Protect
Fire blight	Agri-Mycin 17, Aliette WDG, Areca, Basicop, CuPRO 5000, Fosphite, Junction, Nu-Cop, Phyton 27
Leaf spots— <i>Cercospora</i> , etc.	Avelyo, Broadform, Compass, Concert, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Fore, Mancozeb, MilStop, Nu-Cop, OHP 6672, Pageant, Propiconazole, Protect, Spectro 90, Torque, Tourney
Powdery mildew	Avelyo, Banner Maxx II, Broadform, Compass, Concert, Eagle, Fosphite, MilStop, OHP 6672, Pageant, Propiconazole, Protocol, Spectro 90, Torque, Tourney
Pythium, Phytophthora Diseases	Adorn, Empress, Fosphite, Micora, Pageant
Rhizoctonia root rot, web or aerial blight	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Empress, Fosphite, OHP 6672, Pageant, Protect, Spectro 90, Tourney
Rust leaf spots	Banner Maxx II, Broadform, Compass, Concert, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Eagle, Fore, Mancozeb, OHP 6672, Pageant, Propiconazole, Protect, Protocol, Spectro 90, Torque, Tourney
Scab ( <i>Venturia</i> )	Avelyo, Banner Maxx II, Basicop, 3336, Broadform, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Eagle, Fore, Mancozeb, MilStop, OHP 6672, Pageant, Phyton 27 Protect, Protocol, Spectro 90, Torque, Tourney
CRAPE MYRTLE ( <i>Lagerstroemia</i> )	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Cease, Heritage, Heritage SC, MilStop, Pageant, Protect, Tourney
Leaf spots— <i>Cristulariella</i> , <i>Cercospora</i> , etc.	26/36, Avelyo, Camelot-O, Cease, Chipco 26019, Heritage, Heritage SC, Iprodione, MilStop, Pageant, Protect, Tourney
Powdery mildew	Avelyo, Banner Maxx II, Broadform, Camelot-O, Cease, Compass, Concert, Eagle, Heritage, Heritage SC, MilStop, Pageant, Phyton 27, Propiconazole, Protocol, Tourney
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Cease, Chipco 26019, Empress, Iprodione, Pageant, Protect, Tourney
CRASSULA (see Jade plant)	

CROTON	
Anthracnose	Camelot-O, MilStop, Protect
Fusarium root or stem rot	Banrot 40WP, Iprodione, Spectro 90
Leaf spots— <i>Cercospora</i> , etc.	26/36, Chipco 26019, Iprodione, MilStop, Protect, Spectro 90
Pythium, Phytophthora diseases	Banrot 40WP, Protect, Spectro 90
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 40WP, Chipco 26019, Iprodione, Protect, Spectro 90
Rust leaf spots	Protect
CYCLAMEN	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Cease, Pageant, Protect
Bacterial leaf spot or blight	Cease, Phyton 27
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Cease, Chipco 26019, Iprodione, Medallion, Pageant, Phyton 27, Protect
Fusarium root or stem rot	Cease, Empress, Heritage, Heritage SC, Iprodione, Medallion, Pageant
Leaf spots— <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Ramularia</i> , etc.	26/36, Cease, Chipco 26019, Iprodione, Medallion, Pageant, Protect
Pythium, Phytophthora diseases	Cease, Empress, Pageant, Protect
Rhizoctonia root rot, web or aerial blight	26/36, Cease, Chipco 26019, Empress, Iprodione, Medallion, Pageant, Protect
CYPRESS ( <i>Cupressus</i> spp.)	
Passalora ( <i>Cercosporidium</i> ) needle or twig blight	Basicop, CuPRO 5000, Dithane, Fore, Heritage, Heritage SC, Protect
Phytophthora root rot	Protect
Rhizoctonia root rot, web or aerial blight	Protect
Rust leaf spots	Protect

**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: PLANT USE INDEX**

DAFFODIL ( <i>Narcissus</i> )	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Pageant, Palladium, Spectro 90
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, Daconil Ultrex, Daconi Weatherstik, Daconil Zn, Dithane, Fore, Iprodione, Mancozeb, Medallion, Pageant, Palladium, Phytan 27, Spectro 90
Fusarium root or stem rot	Empress, Iprodione, Medallion, Pageant, Palladium, Spectro
Leaf spots— <i>Septoria</i> , <i>Cercospora</i> , <i>Stagonospora</i> , <i>Ramularia</i> , etc.	26/36, Basicop, Chipco 26019, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Iprodione, Pageant, Palladium, Spectro 90
Pythium, Phytophthora diseases	Empress, Pageant
Rhizoctonia root rot, web or aerial blight	26/36, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Empress, Iprodione, Medallion, Pageant, Palladium, Spectro 90, Terraclor 400
Southern blight ( <i>Sclerotium rolfsii</i> )	Palladium, Terraclor 400
DAHLIA	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> , <i>Gloeosporium</i> , etc)	Fame SC, OHP 6672, Pageant, Palladium, Protect
Bacterial leaf spot or blight	Phyton 27
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Basicop, Chipco 26019, CuPRO 5000, Fame SC, Dithane, Fore, Iprodione, Junction, Mancozeb, Medallion, Nu-Cop, OHP 6672, Pageant, Palladium, Phytan 27, Protect,
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Fame SC, Empress, Iprodione, Medallion, OHP 6672, Pageant, Palladium
Leaf spots— <i>Sercospora</i> , <i>Alternaria</i> , etc.	26/36, Chipco 26019, CuPRO 5000, Fame SC, Iprodione, Junction, Medallion, Nu-Cop , OHP 6672, Pageant, Palladium, Protect
Powdery mildew	Fame SC, Eagle, OHP 6672, Pageant, Palladium, Phytan 27, Pipron
Pythium, Phytophthora diseases	Banol, Banrot 8G, Banrot 40WP, Fame SC, Empress, Pageant, Protect, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Chipco 26019, Fame SC, Empress, Iprodione, Medallion (test for phytotoxicity), OHP 6672, Pageant, Palladium, Protect
Southern blight ( <i>Sclerotium rolfsii</i> )	Fame SC, Medallion (test for phytotoxicity), Palladium

DAISY (Various)	
Black root rot ( <i>Thielaviopsis</i> )	Medallion (test for phytotoxicity)
Downy Mildew	Fosphite, Micora
Fusarium root or stem rot	Fosphite, Medallion (test for phytotoxicity), Spectro 90
Leaf spots— <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Cylindrosporium</i> , etc.	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Medallion, Protect, Spectro 90
Powdery mildew	Fosphite, Phyton 27, Spectro 90
Pythium, Phytophthora diseases	Fosphite, Micora, Protect, Resyst, Spectro 90, Stature SC, Subdue GR, Subdue, Terrazole, Truban 30WP
Rhizoctonia root rot, web or aerial blight	Broadform, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fosphite, Medallion (test for phytotoxicity), Protect, Spectro 90
DAISY, GERBER (Gerbera, Transvaal)	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Broadform (caution on open flower), Cease, Compass, Fame SC, Medallion, MilStop, Pageant, Palladium, Phyton 27, Protect, Spectro 90
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Cease, Fame SC, Empress, Medallion, Pageant, Palladium, Spectro 90
Powdery mildew	Avelyo, Broadform (caution on open flower), Cease, Compass, Fame SC, Eagle, Heritage, Heritage SC, MilStop, Pageant, Palladium, Phyton 27, Pipron, Spectro 90
Pythium, Phytophthora diseases	Adorn, Banrot 8G, Banrot 40WP, Cease, Fame SC, Empress, Micora, Orvego, Pageant, Protect, Spectro 90, Stature SC, Terrazole, Truban 30WP, Truban 25eC
Rhizoctonia root rot, web or aerial blight	Banrot 8G, Banrot 40WP, Cease, Fame SC, Empress, Medallion, Pageant, Palladium, Protect, Spectro 90
DAPHNE	
Pythium, Phytophthora diseases	Terrazole, Truban 30WP
DAYLILY (Hemerocallis spp.)	
Leaf streak ( <i>Aureobasidium microstictum</i> )	Broadform, Compass
Rhizoctonia root rot	Broadform, Compass, Empress, Pageant, Trinity
Rust ( <i>Puccinia hemerocallidis</i> )	Avelyo (suppression only), Broadform, Compass, Pageant
DELPHINIUM (Larkspur)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Heritage, Heritage SC, MilStop, Protect
Bacterial leaf spot or blight	Phyton 27
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, Compass, Dithane, Fore, Iprodione, Mancozeb, MilStop, Phyton 27, Protect

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DELPHINIUM (Larkspur) <i>(continued)</i>	
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Empress, Fosphite, Iprodione
Leaf spots— <i>Septoria</i> , <i>Cercospora</i> , <i>Ascochyta</i> , <i>Ramularia</i> , etc.	26/36, Basicop, Chipco 26019, Compass, CuPRO 5000, Heritage, Heritage SC, Iprodione, MilStop, Protect
Powdery mildew	Banner Maxx II, Compass, Eagle, Fosphite, MilStop, Phyton 27, Propiconazole
Pythium, Phytophthora diseases	Banrot 8G, Banrot 40WP, Empress, Fosphite, Protect, Resyst, Subdue GR, Subdue, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Chipco 26019, Compass, Empress, Fosphite, Iprodione, Protect
Rust leaf spots	Dithane, Eagle, Fore, Mancozeb, Protect
DEUTZIA	
Leaf spots— <i>Alternaria</i> , <i>Ascochyta</i> , <i>Septoria</i>	26/36, Camelot-O, Chipco 26019, Iprodione
Rhizoctonia root rot, web or aerial blight	26/36, Chipco 26019, Empress, Iprodione
DIANTHUS (Sweet William/Pinks)	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Cease, Chipco 26019, Compass, Fame SC, Iprodione, MilStop, OHP 6672, Pageant, Palladium, Phyton 27, Protect
Leaf spots— <i>Cladosporium</i> , <i>Cercospora</i> , etc.	26/36, Avelyo, Banner Maxx II, Cease, Chipco 26019, Compass, Fame SC, Iprodione, MilStop, OHP 6672, Pageant, Palladium, Propiconazole, Protect
Powdery mildew	Avelyo, Cease, Fame SC, Heritage, Heritage SC, MilStop, OHP 6672, Pageant, Palladium, Phyton 27
Pythium, Phytophthora diseases	Cease, Fame SC, Empress, Orvego, Pageant, Protect, Stature SC, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Cease, Chipco 26019, Compass, Fame SC, Empress, Iprodione, OHP 6672, Pageant, Palladium, Protect
Rust leaf spots	Cease, Compass, Fame SC, Eagle, Heritage, Heritage SC, OHP 6672, Pageant, Protect
Southern blight ( <i>Sclerotium rolfsii</i> )	Fame SC, Palladium
DICENTRA (see Bleeding Heart)	
DIEFFENBACHIA (Dumb cane)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> , <i>Gloeosporium</i> , etc)	Avelyo, Cease, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Heritage, Heritage SC, OHP 6672, Pageant, Protect, Spectro 90
Bacterial leaf spot or blight or stem rot	Agri-Mycin 17, Aliette WDG, Camelot-O, Cease, CuPRO 5000, Fosphite, Resyst

DIEFFENBACHIA (Dumb cane)	
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Cease, Fosphite, Iprodione, OHP 6672, Pageant, Spectro 90
Leaf spots— <i>Septoria</i> , <i>Cercospora</i> , <i>Myrothecium</i> , etc.	26/36, Broadform, Cease, Chipco 26019, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Fore, Heritage, Heritage SC, Iprodione, Mancozeb, OHP 6672, Pageant, Protect, Spectro 90,
Pythium, Phytophthora diseases	Areca, Banrot 8G, Banrot 40WP, Broadform, Cease, Compass, Orvego, Pageant, Protect, Resyst, Spectro 90, Stature SC, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Broadform, Camelot-O, Cease, Chipco 26019, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fosphite, Iprodione, OHP 6672, Pageant, Spectro 90
DIGITALIS (see Foxglove)	
DOGWOOD	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Discula</i> , etc)	Banner Maxx II, Basicop, Broadform, Cease, Compass, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Dithane, Eagle, Fore, Heritage, Heritage SC, Junction, Mancozeb, MilStop, Nu-Cop, Pageant, Phyton27, Protect, Protocol, Spectro 90, Torque, Tourney
Botryosphaeria dieback	Pageant, Protect
Leaf spots— <i>Septoria</i> , <i>Cercospora</i> Spot Anthracnose ( <i>Elsinoe</i> )	26/36, Avelyo, Basicop, Cease, Chipco 26019, Concert, CuPRO 5000 Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Dithane, Eagle, Fore, Heritage, Heritage SC, Iprodione, Junction, Mancozeb, MilStop, Pageant, Propiconazole, Protect, Spectro 90, Torque, Tourney
Powdery mildew	Avelyo, Banner Maxx II, Broadform, Cease, Compass, Concert, Fame SC, Eagle, Fosphite, Heritage, Heritage SC, MilStop, Pageant, Phyton 27, Propiconazole, Protocol, Spectro 90, Torque, Tourney
Pythium, Phytophthora diseases	Cease, Fame SC, Empress, Fosphite, Pageant, Protect, Resyst, Spectro 90, Subdue GR, Subdue Maxx
DRACAENA	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Cease, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, OHP 6672, Protect, Spectro 90,
Bacterial leaf spot or blight	Camelot-O, Cease, CuPRO 5000
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Camelot-O, Cease, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Iprodione, OHP 6672, Phyton 27, Protect, Spectro 90
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Cease, Dithane, Fore, Iprodione, OHP 6672, Spectro 90
Pythium, Phytophthora diseases	Banrot 8G, Banrot 40WP, Cease, Protect, Spectro 90
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Cease, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Iprodione, OHP 6672, Protect, Spectro 90,



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DUSTY MILLER ( <i>Senecio cineraria</i> )	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Broadform, OHP 6672, Palladium, Protect
Black root rot ( <i>Thielaviopsis</i> )	Avelyo, Banrot 40WP, OHP 6672
Downy mildew	Orvego, Protect, Stature SC
Leaf spots— <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , etc.	Avelyo, Compass, OHP 6672, Palladium, Phytan 27, Protect
Powdery Mildew	OHP 6672, Palladium, Trinity
Pythium, Phytophthora diseases	Banol, Banrot 40WP, Empress, Orvego, Protect, Stature SC, Truban 25EC
Rhizoctonia root rot, web or aerial blight	Banrot 40WP, Broadform, Compass, Empress, OHP 6672, Palladium, Protect, Trinity
ECHINACEA (Cone flower)	
Bacterial leaf spot	CuPRO 5000, Nu-Cop, Phytan 27
Fusarium root or stem rot	Empress, Pageant
Leaf spots— <i>Septoria</i> , <i>Cercospora</i> , <i>Colletotrichum</i>	Pageant
Powdery mildew	Pageant, Phytan 27
Pythium, Phytophthora diseases	Empress, Pageant
Rhizoctonia root rot, web or aerial blight	Empress, Pageant
ELAEAGNUS (Russian Olive)	
Fusarium root or stem rot	Empress, Pageant
Leaf spots— <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , etc.	Eagle, Junction, Pageant
Powdery mildew	Pageant
Pythium, Phytophthora diseases	Empress, Pageant
Rhizoctonia root rot, web or aerial blight	Empress, Pageant
Rust leaf spots	Eagle, Pageant

ELM	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Junction, Protect, Tourney
Botryosphaeria dieback	Protect
Leaf spots— <i>Cylindrosporium</i> , <i>Mycosphaerella</i> , <i>Gnomonia</i> , etc.	Dithane, Fore, Junction, Mancozeb, Protect, Tourney
Powdery mildew	Banner Maxx II, Eagle, Propiconazole, Protocol, Tourney
EPIPREMNUM (Pothos) DO NOT USE: 26/36 (Drench), CHIPCO 26019 (Drench), (Drench), IPRDIONE (Drench)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Heritage, Heritage SC, MilStop, OHP 6672, Palladium, Protect, Spectro 90
Bacterial leaf spot or blight	Camelot-O, CuPRO 5000, Fosphite, Resyst
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Fosphite, Medallion, OHP 6672, Palladium, Spectro 90
Leaf spots— <i>Cercospora</i>	26/36, Chipco 26019, Compass, Heritage, Heritage SC, Iprodione, Medallion, MilStop, OHP 6672, Palladium, Protect, Spectro 90
Pythium, Phytophthora diseases	Adorn, Areca, Banrot 8G, Banrot 40WP, Compass, Fosphite, Micora, Orvego, Protect, Resyst, Spectro 90, Subdue GR, Subdue Maxx, Terrazole, Truban 30 WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	Banrot 8G, Banrot 40WP, Compass, Fosphite, Medallion, OHP 6672, Palladium, Protect, Spectro 90
EUONYMUS DO NOT USE : EMPRESS ( <i>Euonymus vegetus</i> ), SUBDUE GR, SUBDUE MAXX OR PAGEANT ( <i>Euonymus vegetus</i> )	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Banner Maxx II, Basicop, Broadform, Compass, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Fore, Heritage, Heritage SC, Junction, Mancozeb, MilStop, Nu-Cop, Pageant, Phytan 27, Protect, Spectro 90, Tourney
Fusarium root or stem rot	Banrot 40WP, Empress, Iprodione, Pageant, Spectro 90, Trinity TR
Leaf spots— <i>Cladosporium</i> , <i>Ramularia</i> , etc.	26/36, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Heritage, Heritage SC, Iprodione, Junction, MilStop, Pageant, Propiconazole, Protect, Protocol, Spectro 90, Tourney, Trinity TR
Powdery mildew	Avelyo, Banner Maxx II, Broadform, Compass, Eagle, MilStop, Pageant, Propiconazole, Protocol, Spectro 90, Tourney, Trinity TR
Pythium, Phytophthora diseases	Banrot 40WP, Empress, Pageant, Protect, Spectro 90, Terrazole, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 40WP, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Empress, Iprodione, Pageant, Protect, Spectro 90, Tourney, Trinity TR

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EUCALYPTUS	
Cylindrocladium stem canker	Daconil Ultrex, Daconil Weatherstik, Daconil Zn
Leaf spots— <i>Cristulariella</i> , etc.	Spectro 90
Rhizoctonia root rot, web or aerial blight	Spectro 90
EUPHORBIA (see Poinsettia)	
EXACUM (Arabian Violet)	
Botrytis blight	Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Phyton 27, Spectro 90
Leaf spot	Spectro 90
Phytophthora root rot, aerial blight	Orvego, Spectro 90
Rhizoctonia root rot, web or aerial blight	Spectro 90
FALSE INDIGO (Amorpha)	
Leaf spots— <i>Cercospora</i> , etc.	Eagle
Powdery mildew	Eagle
Rust leaf spots	Eagle
FATSHEDERA (Tree ivy)	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, Iprodione, MilStop
Leaf spots— <i>Phyllosticta</i> , <i>Colletotrichum</i>	26/36, Chipco 26019, Iprodione, MilStop
Rhizoctonia root rot, web or aerial blight	26/36, Chipco 26019, Iprodione
FATSIA	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Fore, Heritage, Heritage SC, Mancozeb, Protect, Spectro 90
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Protect, Spectro 90
Pythium, Phytophthora diseases	Banrot 40WP, Protect, Spectro 90
Rhizoctonia root rot, web or aerial blight	Banrot 40WP, Camelot-O, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Protect, Spectro 90

FERN	
DO NOT USE: BANNER MAXX II, 3336, CONCERT, OHP 6672, or TORQUE on Boston Fern DO NOT USE: BROADFORM, COMPASS, HERITAGE, MEDALLION, MURAL, or PALLADIUM on Leather leaf fern	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Cease, MilStop, Protect, Spectro 90
Bacterial leaf spot or blight	Camelot-O, Cease, CuPRO 5000, Fosphite, Nu-Cop, Phyton 27, Resyst
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Camelot-O, Cease, Medallion, MilStop, Phyton 27, Protect, Spectro 90, Trinity TR
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Cease, Empress, Fosphite, Medallion, Spectro 90
Leaf spots— <i>Cercospora</i> , <i>Alternaria</i> , <i>Cylindrocladium</i> , etc.	Cease, Medallion, MilStop, Protect, Spectro 90
Pythium, Phytophthora diseases	Banol, Banrot 8G, Banrot 40WP, Cease, Empress, Fosphite, Protect, Resyst, Spectro 90, Terrazole
Rhizoctonia root rot, web or aerial blight	Banrot 8G, Banrot 40WP, Camelot-O, Cease, Dithane, Eagle, Empress, Fosphite, Fore, Mancozeb, Medallion, Phyton 27, Protect, Spectro 90, Trinity TR
FICUS (Ornamental Fig)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Broadform, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Heritage, Heritage SC, Protect, Spectro 90
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Camelot-O, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Iprodione, Phyton 27, Protect, Spectro 90
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Fosphite, Iprodione, Spectro 90
Leaf spots— <i>Cercospora</i> , <i>Alternaria</i> , <i>Corynespora</i> , etc.	26/36, Camelot-O, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Fore, Heritage, Heritage SC, Iprodione, Mancozeb, Protect, Spectro 90
Pythium, Phytophthora diseases	Banrot 8G, Banrot 40WP, Fosphite, Orvego, Protect, Resyst, Spectro 90, Stature SC, Subdue GR, Subdue Maxx, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Broadform, Chipco 26019, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fosphite, Iprodione, Phyton 27, Protect, Spectro 90
Rust leaf spots	Protect

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FIR ( <i>Pseudotsuga, Abies</i> )	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Botran 75W, MilStop, OHP 6672, Pageant, Protect, Tourney
Botryosphaeria dieback	Pageant, Protect
Needle cast, Tip blight	Champ, CuPRO 5000, Dithane, Fore, Junction, Kocide, Mancozeb, Nu-Cop , OHP 6672, Protect, Protocol
Pythium, Phytophthora diseases	Adorn, Aliette WDG, Areca, Banrot 8G, Banrot 40WP, Empress, Fosphite, Orvego, Pageant, Protect, Stature SC, Terrazole, Truban 30WP
Rhizoctonia root rot, web or aerial blight	Banrot 8G, Banrot 40WP, Empress, OHP 6672, Pageant, Protect, Tourney
Rust leaf spots	Banner Maxx II, Eagle, Heritage, Heritage SC, OHP 6672, Pageant, Propiconazole, Protect, Tourney
FITTONIA	
Leaf spots— <i>Myrothecium, Cercospora, etc.</i>	Protect, Spectro 90
Rhizoctonia root rot, web or aerial blight	Banrot 8G, Banrot 40WP, Camelot-O, Protect, Spectro 90
FORSYTHIA	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Camelot-O, Chipco 26019, Iprodione, MilStop, Phyton 27
Leaf spots— <i>Alternaria, Colletotrichum</i>	26/36, Camelot-O, Chipco 26019, Heritage, Heritage SC, Iprodione, Junction, MilStop
Phytophthora root rot	Empress, Micora
Rhizoctonia root rot, web or aerial blight	26/36, Chipco 26019, Empress, Iprodione, Phyton 27
FOXGLOVE ( <i>Digitalis</i> )	
Anthraxnose ( <i>Colletotrichum</i> )	Heritage, Heritage SC, OHP 6672
Leaf spots— <i>Ramularia, Cladosporium, Alternaria</i>	Heritage, Heritage SC, OHP 6672
Pythium, Phytophthora diseases	Empress, Fosphite, Resyst, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP
Rhizoctonia root rot, web or aerial blight	Empress, Fosphite, OHP 6672
FREESIA	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Phyton 27

FUSCHIA	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Mancozeb, OHP 6672, Palladium, Protect
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Dithane, Fore, Mancozeb, Medallion, OHP 6672, Palladium, Protect, Trinity TR
Leaf spots— <i>Septoria</i> , <i>Alternaria</i> , etc.	Medallion, OHP 6672, Palladium, Protect, Trinity TR
Rhizoctonia root rot, web or aerial blight	Medallion (test for phytotoxicity), OHP 6672, Palladium, Protect, Trinity TR
Rust leaf spots	Dithane, Eagle, Fore, Mancozeb, OHP 6672, Protect
GAILLARDIA (Blanket flower)	
Powdery mildew	Eagle, Fosphite
Pythium, Phytophthora diseases	Fosphite, Micora, Resyst, Subdue GR, Subdue Maxx
Leaf rust and Septoria leaf spot	Eagle, Heritage, Heritage SC
GARDENIA	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Pageant
Botrytis blight (grey mold of leaves, flowers and/or fruit)	CuPRO 5000, Nu-Cop, Pageant, Phyton 27
Powdery mildew	Eagle, Heritage, Heritage SC, Pageant, Phyton 27
Pythium, Phytophthora diseases	Adorn, Banrot 8G, Banrot 40WP, Empress, Micora, Pageant
Rhizoctonia root rot, web or aerial blight	Banrot 8G, Banrot 40WP, Empress, Pageant, Phyton 27
GAZANIA (Treasure flower)	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, Iprodione, MilStop
Rhizoctonia root rot, web or aerial blight	26/36, Chipco 26019, Empress, Iprodione

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GERANIUM DO NOT USE: MEDALLION, BANNER MAXX, CONCERT, TORQUE	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Cease, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, MilStop, OHP 6672, Pageant, Protect, Spectro 90
Bacterial leaf spot or blight	Agri-Mycin 17, Cease, Phyton 27
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Basicop, Botran 75W, Broadform, Cease, Chipco 26019, Compass, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Decree, Fame SC, Heritage, Heritage SC, Iprodione, Junction, Nu-Cop , MilStop, OHP 6672, Pageant, Phyton 27, Protect, Spectro 90, Trinity TR
Downy Mildew (on <i>Geranium spp.</i> )	Basicop, Cease, Compass, FenStop, Fosphite, Micora, Orvego, Pageant
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Cease, Empress, Fosphite, Iprodione, OHP 6672, Pageant, Spectro 90, Trinity TR
Powdery mildew	Avelyo, Broadform, Cease, Compass, Fame SC, Eagle, Fosphite, Heritage, Heritage SC, MilStop, OHP 6672, Pageant, Spectro 90, Trinity TR
Pythium, Phytophthora diseases	Adorn, Areca, Banol, Banrot 8G, Banrot 40WP, Cease, Fame SC, Empress, FenStop, Fosphite, Micora, Orvego, Pageant, Protect, Resyst, Stature SC, Spectro 90, Subdue GR, Subdue Maxx, Terrazole, Truban 30 WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot, Cease, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Empress, Fosphite, Iprodione, OHP 6672, Pageant, Protect, Spectro 90, Trinity TR
Rust leaf spots	Broadform, Cease, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Dithane, Eagle, Fore, Heritage, Heritage SC, Mancozeb, OHP 6672, Pageant, Plantvax, Phyton 27, Protect, Spectro 90
GERBER DAISY (see Daisy, Gerber)	
GINKGO	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Phyton 27

GLADIOLUS	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, MilStop, Nu-Cop , Pageant, Protect, Spectro 90
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Basicop, Botran 75W, Chipco 26019, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Fore, Iprodione, Junction, Mancozeb, MilStop, Nu-Cop , OHP 6672, Pageant, Phyton 27, Protect, Spectro 90
Fusarium root or stem rot	26/36, Compass, Empress, Iprodione, OHP 6672, Pageant, Spectro 90
Leaf spots— <i>Cercospora</i> , <i>Alternaria</i> , <i>Heterosporium</i> , <i>Curvularia</i> , etc.	26/36, Captan 4L, Captan 50, Chipco 26019, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Fore, Iprodione, Junction, Mancozeb, MilStop, Nu-Cop, OHP 6672, Pageant, Protect, Spectro 90
Powdery mildew	MilStop, Kumulus, Pageant
Pythium, Phytophthora diseases	Empress, Pageant
Rhizoctonia root rot, web or aerial blight	26/36, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Empress, Iprodione, OHP 6672, Pageant, Protect, Spectro 90, Terraclor 400
Southern blight ( <i>Sclerotium rolfsii</i> )	Terraclor 400
GLOXINIA ( <i>Sinningia</i> )	
Black root rot ( <i>Thielaviopsis</i> )	Banrot 8G, Banrot 40WP
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, Dithane, Fore, Iprodione, Mancozeb, MilStop, Phyton 27
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Fosphite, Iprodione
Leaf spots— <i>Myrothecium</i> , etc.	26/36, Chipco 26019, Iprodione, MilStop
Pythium, Phytophthora diseases	Banol, Banrot 8G, Banrot 40WP, Fosphite, Resyst, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Chipco 26019, Fosphite, Iprodione
GOMPHRENA ( <i>Globe Amaranth</i> )	
Leaf spots— <i>Alternaria</i> , etc.	Banner Maxx, Medallion, Propiconazole, Protect, Protocol
Pythium, Phytophthora diseases	Protect
Rhizoctonia root rot, web or aerial blight	Medallion, Protect



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GOURD, ORNAMENTAL	
Powdery mildew	Eagle
GRASS, ORNAMENTAL	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Broadform, Compass
Leaf spots— <i>Pyricularia</i> , <i>Bipolaris</i> , <i>Septoria</i> , etc.	Broadform, Captan 4L, Captan 50, Compass, Heritage, Heritage SC
Powdery mildew	Broadform, Compass, Heritage, Heritage SC, Phytan 27
Rust leaf spots	Broadform, Compass
GYPSOPHILIA (See Baby's Breath)	
HACKBERRY ( <i>Celtis</i> spp.)	
Bacterial leaf spot or blight, fire blight	Phytan 27
Leaf spots— <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Cylindrosporium</i> , etc.	Eagle
Powdery mildew	Eagle
HAWTHORN ( <i>Crataegus</i> spp.)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, MilStop, OHP 6672, Pageant, Protect, Spectro 90, Tourney
Bacterial leaf spot or blight, fire blight	Areca
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Iprodione, MilStop, OHP 6672, Pageant, Protect, Spectro 90, Tourney
Botryosphaeria dieback	Pageant, Protect
Fusarium root or stem rot	Iprodione, OHP 6672, Pageant, Spectro 90
Leaf spots— <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Cylindrosporium</i>	26/36, Chipco 26019, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Eagle, Fore, Iprodione, Mancozeb, MilStop, OHP 6672, Pageant, Protect, Spectro 90, Tourney
Powdery mildew	Eagle, MilStop, OHP 6672, Pageant, Spectro 90, Tourney
Rhizoctonia root rot, web or aerial blight	26/36, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Iprodione, OHP 6672, Pageant, Protect, Spectro 90, Tourney

HAWTHORN ( <i>Crataegus</i> spp.) (continued)	
Rust leaf spots	Banner Maxx II, Concert, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Eagle, Fore, Mancozeb, OHP 6672, Pageant, Propiconazole, Protect, Protocol, Spectro 90, Tourney
Scab ( <i>Venturia, Fusicladium</i> )	Cleary 3336, Compass, Dithane, Eagle, Fore, Mancozeb, MilStop, OHP 6672, Pageant, Protect, Spectro 90, Tourney
HEATHER	
Leaf spots	Heritage, Heritage SC, Medallion, Palladium
Pythium, Phytophthora diseases	Terrazole, Truban 30WP
Rhizoctonia root rot and aerial/web blight	Compass, Medallion, Palladium
HEMLOCK ( <i>Tsuga</i> )	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Botran 75W, Pageant, Tourney
Needle blight, Tip blight	Pageant, Tourney
Pythium, Phytophthora diseases	Empress, Pageant, Terrazole, Truban 30WP
Rhizoctonia root rot, web or aerial blight	Empress, Pageant, Tourney
Rust leaf spots	Empress, Pageant, Tourney
HENS & CHICKS ( <i>Sempervivum</i> )	
Leaf spots and Fusarium leaf and crown rot	Heritage, Heritage SC
Rhizoctonia root rot and aerial/web blight	Compass
HIBISCUS	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Broadform, Cease, Compass, Heritage, Heritage SC, MilStop, OHP 6672, Palladium, Protect
Bacterial leaf spot or blight	Cease, CuPRO 5000, Fosphite, Nu-Cop, Phyton 27, Resyst
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Broadform, Cease, Compass, MilStop, OHP 6672, Palladium, Phyton 27, Protect, Trinity TR

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HIBISCUS ( <i>continued</i> )	
Leaf spots— <i>Cercospora</i> , <i>Alternaria</i> , etc.	Cease, Heritage, Heritage SC, MilStop, OHP 6672, Palladium, Protect, Trinity TR
Powdery mildew	Cease, Eagle, Fosphite, Heritage, Heritage SC, MilStop, OHP 6672, Palladium, Trinity TR
Pythium, Phytophthora diseases	Areca, Broadform, Cease, Compass, Fosphite, Micora, Protect, Resyst
Rhizoctonia root rot, web or aerial blight	Broadform, Cease, Compass, Fosphite, OHP 6672, Palladium, Protect, Trinity TR
HOLLY ( <i>Ilex</i> )	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> , <i>Glomerella</i> )	Cease, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Junction, MilStop, OHP 6672, Pageant, Protect, Spectro 90, 90DF, Tourney
Bacterial leaf spot or blight	Cease, CuPRO 5000, Fosphite, Phytan 27, Resyst
Black root rot ( <i>Thielaviopsis</i> )	Banrot 8G, Banrot 40WP, OHP 6672
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Cease, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Iprodione, MilStop, OHP 6672, Pageant, Phytan 27, Protect, Spectro 90, Tourney, Trinity TR
Botryosphaeria dieback	Pageant, Protect
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Cease, Empress, Fosphite, Iprodione, OHP 6672, Pageant, Spectro 90, Trinity TR
Leaf spots— <i>Cercospora</i> , <i>Cylindrocladium</i> , etc.	26/36, Cease, Chipco 26019, Compass, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Fore, Iprodione, Junction, Mancozeb, MilStop, OHP 6672, Pageant, Protect, Spectro 90, Tourney, Trinity TR
Pythium, Phytophthora diseases	Areca, Banrot 8G, Banrot 40WP, Cease, Empress, Fosphite, Micora, Pageant, Protect, Resyst, Spectro 90, Subdue GR, Subdue MAXX
Rhizoctonia root rot, web or aerial blight	26/36, Banner Maxx II, Banrot 8G, Banrot 40WP, Cease, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Empress, Fosphite, Iprodione, OHP 6672, Pageant, Phytan 27, Protect, Protocol, Spectro 90, Terraclor 400, Tourney, Trinity TR
HOLLYHOCK ( <i>Alcea</i> )	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Fame SC, Dithane, Fore, Mancozeb, OHP 6672, Pageant, Protect, Spectro 90
Bacterial leaf spot or blight	Nu-Cop, CuPRO 5000
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Fame SC, OHP 6672, Pageant, Phytan 27, Protect, Spectro 90
Powdery mildew	Fame SC, Eagle, OHP 6672, Pageant, Phytan 27, Spectro 90
Rhizoctonia root rot, web or aerial blight	Fame SC, OHP 6672, Pageant, Protect, Spectro 90
Rust leaf spots	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Dithane, Eagle, Fore, Mancozeb, OHP 6672, Pageant, Phytan 27, Protect, Spectro 90

HONEYSUCKLE ( <i>Lonicera</i> )	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Pageant
Bacterial leaf spot or blight	Agri-Mycin 17, CuPRO 5000
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Pageant
Leaf spots— <i>Cercospora</i> , <i>Algal</i> , <i>Insoliobasidium</i> , etc.	Dithane, Eagle, Fore, Junction, Mancozeb, Pageant
Powdery mildew	Eagle, Pageant
Pythium, Phytophthora diseases	Micora, Orvego, Pageant, Stature SC, Subdue GR, Subdue Maxx
HOYA (Wax plant)	
Leaf spot— <i>Myrothecium</i>	26/36, Camelot-O, Chipco 26019, Iprodione, MilStop, Spectro 90
Pythium, Phytophthora diseases	Banrot 40WP, Spectro 90, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 40WP, Camelot-O, Chipco 26019, Iprodione, Spectro 90
HYACINTH	
Rhizoctonia root rot, web or aerial blight	Pageant, Terraclor 400
HYDRANGEA	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Cease, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Heritage, Heritage SC, MilStop, OHP 6672, Pageant, Protect, Spectro 90
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Botran 75W, Camelot-O, Cease, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Fore, Iprodione, Junction, Mancozeb, MilStop, OHP 6672, Pageant, Phyton 27, Protect, Spectro 90
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Cease, Empress, Iprodione, OHP 6672, Pageant, Spectro 90
Leaf spots— <i>Cercospora</i> , <i>Corynespora</i> , etc.	26/36, Camelot-O, Cease, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Eagle, Fore, Heritage, Heritage SC, Iprodione, Junction, Mancozeb, MilStop, OHP 6672, Pageant, Phyton 27, Protect, Spectro 90

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<i>HYDRANGEA (continued)</i>	
Powdery mildew	Broadform, Camelot-O, Cease, Compass, Heritage, Heritage SC, MilStop, OHP 6672, Pageant, Phyton 27, Pipron, Spectro 90
Pythium, Phytophthora diseases	Banrot 8G, Banrot 40WP, Cease, Empress, Micora, OHP 6672, Pageant, Protect, Spectro 9
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Cease, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Empress, Iprodione, OHP 6672, Pageant, Protect, Spectro 90
Rust leaf spots	Camelot-O, Cease, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Junction, OHP 6672, Pageant, Protect
<i>HYPERICUM (St. John's Wort)</i>	
Powdery mildew	Pageant
Rhizoctonia root rot, web or aerial blight	Empress, Pageant
Rust leaf spots	Compass, Pageant
<i>IBERIS (see Candytuft)</i>	
<i>IMPATIENS</i> DO NOT USE: 26/36 (drench), (drench), CHIPCO 26019 (drench), IPRDIONE (drench), TERRAGUARD (on plugs), MEDALLION (as drench or to seedlings), PAGEANT OR ORKESTRA INTRINSIC (when flowering)	
Bacterial leaf spot or blight	Agri-Mycin 17, Camelot-O, Cease, CuPRO 5000, Junction, Nu-Cop , Phyton 27
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Cease, Chipco 26019, Fame SC, Dithane, Fore, Iprodione, Mancozeb, MilStop, OHP 6672, Pageant, Phyton 27, Protect, Spectro 90, Trinity TR
Downy mildew	Cease, Compass, Fame SC, Fosphite, Micora, Orvego, Pageant, Protect, Resyst, Stature SC, Trinity TR
Leaf spots— <i>Alternaria</i> , <i>Cercospora</i> , etc.	26/36, Banner Maxx II, Broadform, Cease, Chipco 26019, Compass, Fame SC, Heritage, Heritage SC, Iprodione, Junction, MilStop, OHP 6672, Pageant, Phyton 27, Propiconazole, Protect, Spectro 90
Powdery mildew	Avelyo, Banner Maxx II, Cease, Daconil Ultrex, Fame SC, Fosphite, MilStop, OHP 6672, Pageant, Phyton 27, Propiconazole, Trinity TR

IMPATIENS ( <i>continued</i> ) DO NOT USE: 26/36 (drench), (drench), CHIPCO 26019 (drench), IPRODIONE (drench), TERRAGUARD (on plugs), MEDALLION (as drench or to seedlings), PAGEANT OR ORKESTRA INTRINSIC (when flowering)	
Pythium, Phytophthora diseases	Areca, Banol, Banrot 8G, Banrot 40WP, Cease, Fame SC, Empress, Fosphite, Micora, Orvego, Pageant, Protect, Resyst, Spectro 90, Stature SC, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Cease, Chipco 26019, Compass, Fame SC, Empress, Fosphite, Heritage, Heritage SC, Iprodione, OHP 6672, Pageant, Protect, Spectro 90, Trinity TR
INDIAN HAWTHORNE ( <i>Raphiolepis</i> )	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Banner Maxx II, Cease, CuPRO 5000, Heritage, Heritage SC, Junction, MilStop, Pageant
Leaf spots— <i>Cercospora</i> , <i>Entomosporium</i>	Banner Maxx II, Broadform, Cease, Compass, CuPRO 5000, Heritage, Heritage SC, Junction, MilStop, Nu-Cop, Pageant, Phytan 27, Propiconazole, Protocol
Rhizoctonia root rot, web or aerial blight	Cease, Compass, Empress, Pageant
IRIS	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Iprodione, Medallion, MilStop, OHP 6672, Pageant, Palladium, Phytan 27, Protect, Spectro 90
Fusarium root or stem rot	Empress, Iprodione, Medallion, OHP 6672, Pageant, Palladium, Spectro 90
Leaf spots— <i>Phyllosticta</i> , <i>Alternaria</i> , <i>Cladosporium</i> , etc.	26/36, Basicop, Chipco 26019, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Eagle, Fore, Iprodione, Mancozeb, MilStop, Pageant, Palladium, OHP 6672, Protect, Spectro 90
Pythium, Phytophthora diseases	Empress, Pageant, Protect, Spectro 90
Rhizoctonia root rot, web or aerial blight	26/36, Chipco 26019, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Empress, Iprodione, Medallion, OHP 6672, Pageant, Palladium, Protect, Spectro 90, Terraclor 400
Rust leaf spots	Banner Maxx II, Eagle, Heritage, Heritage SC, OHP 6672, Pageant, Plantvax, Propiconazole, Protect, Spectro 90
Southern blight ( <i>Sclerotium rolfsii</i> )	Palladium, Terraclor 400

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IVY ( <i>Hedera</i> ) DO NOT USE: 3336 ( <i>Plectranthus</i> —Swedish Ivy) OHP 6672 ( <i>Plectranthus</i> —Swedish Ivy)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Avelyo, Banner Maxx II, Broadform, Camelot-O, Cease, Compass, Heritage, Heritage SC, MilStop, OHP 6672, Palladium, Protect
Bacterial leaf spot or blight	Agri-Mycin 17, Aliette WDG, Basicop, Camelot-O, Cease, CuPRO 5000, Nu-Cop, Phyton 27, Resyst
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Broadform, Camelot-O, Cease, Chipco 26019, Compass, Iprodione, MilStop, Palladium, Phyton 27, Protect, Trinity TR
Leaf spots— <i>Phyllosticta</i> , <i>Cercospora</i> , <i>Ramularia</i> , <i>Macrophoma</i> , etc.	26/36, Avelyo, Camelot-O, Cease, Chipco 26019, Heritage, Heritage SC, Iprodione, MilStop, Palladium, Protect, Trinity TR
Powdery mildew	Avelyo, Cease, Fosphite, MilStop, OHP 6672, Palladium, Trinity TR
Pythium, Phytophthora diseases	Adorn, Banrot 8G, Banrot 40WP, Broadform, Cease, Compass, Empress, FenStop, Fosphite, Micora, Protect, Resyst, Subdue GR, Subdue Maxx, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Broadform, Camelot-O, Cease, Chipco 26019, Compass, Empress, Fosphite, Iprodione, OHP 6672, Palladium, Protect, Trinity TR
Southern blight ( <i>Sclerotium rolfsii</i> )	Palladium
JADE PLANT, CHINESE RUBBER PLANT ( <i>Crassula</i> )	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	MilStop, Protect, Spectro 90
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, Iprodione, MilStop, Protect, Spectro 90
Leaf spots— <i>Phomopsis</i>	26/36, Chipco 26019, Iprodione, MilStop, Protect, Spectro 90
Powdery mildew	MilStop, Spectro 90
JADE PLANT, CHINESE RUBBER PLANT ( <i>Crassula</i> ) (continued)	
Pythium, Phytophthora diseases	Protect, Spectro 90, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Chipco 26019, Iprodione, Protect, Spectro 90

JASMINE	
Anthracnose diseases ( <i>Colletotrichum</i> )	Compass
Rhizoctonia root rot, web or aerial blight	Compass
JUNIPER	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, Iprodione, MilStop, Pageant, Phyton 27, Protect, Tourney, Trinity TR
Botryosphaeria dieback	Pageant, Protect
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Empress, Fosphite, Iprodione, Pageant, Trinity TR
Tip blight ( <i>Phomopsis</i> , <i>Kabatinia</i> ), Needle blight ( <i>Passalora</i> )	Badge SC, Badge X2, Banner Maxx II, Basicop, Champ, CuPRO 5000, Dithane, Fore, Heritage, Heritage SC, Junction, Kocide, Mancozeb, MilStop, Propiconazole, Protect, Protocol, Tourney
Pythium, Phytophthora diseases	Areca, Banrot 8G, Banrot 40WP, Empress, Fosphite, Micora, Pageant, Protect, Resyst, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Chipco 26019, Compass, Empress, Fosphite, Iprodione, Pageant, Phyton 27, Protect, Tourney, Trinity TR
Rust leaf spots	Eagle, Fosphite, Heritage, Heritage SC, Junction, Pageant, Protect, Tourney
KALANCHOE	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Avelyo, Cease, MilStop, Protect
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Cease, Chipco 26019, Iprodione, MilStop, Phyton 27, Protect, Trinity TR
Fusarium root or stem rot	Banrot 40WP, Cease, Iprodione, Trinity TR
Leaf spots— <i>Cercospora</i> , etc.	26/36, Avelyo, Cease, Chipco 26019, Iprodione, MilStop, Protect, Trinity TR
Powdery mildew	Avelyo, Cease, MilStop, Phyton 27, Pipron, Trinity TR
Pythium, Phytophthora diseases	Banrot 40WP, Cease, Protect, Terrazole, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 40WP, Cease, Chipco 26019, Iprodione, Protect, Trinity TR



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KALMIA (Mountain Laurel)	
Botryosphaeria dieback	Protect
Leaf gall, leaf blister ( <i>Exobasidium</i> , <i>Taphrina</i> )	Spectro 90
Leaf spots— <i>Cercospora</i> , <i>Mycosphaerella</i> , etc.	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Eagle, Fore, Mancozeb, Protect, Spectro 90, Tourney
Powdery mildew	Eagle, Spectro 90, Tourney
Pythium, Phytophthora diseases	Empress, Micora, Protect, Spectro 90, Terrazole, Truban 30WP
Rhizoctonia root rot, web or aerial blight	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Protect, Spectro 90, Tourney
LANTANA	
Leaf spots— <i>Cercospora</i> , <i>Alternaria</i> , etc.	Fame SC, Medallion, Pageant, Palladium, Trinity TR
Rust leaf spots	Broadform, Compass, Fame SC, Pageant
Rhizoctonia root rot or web blight	Broadform, Compass, Fame SC, Empress, Medallion (test drench for phytotoxicity), Pageant, Palladium, Trinity TR
Southern blight ( <i>Sclerotium rolsii</i> )	Fame SC, Medallion (test drench for phytotoxicity), Palladium
LARKSPUR (see Delphinium)	
LEYLAND CYPRESS	
Needle blight ( <i>Passalora sequioae</i> , syn. <i>Cercosporidium</i> )	Badge SC, Badge X2, Champ, CuPRO 5000, Eagle, Heritage, Heritage SC, Kocide
LEUCOTHOE	
Leaf spots— <i>Cercospora</i> , <i>Rhytisma</i> , <i>Guignardia</i> , <i>Cylindrocladium</i>	Eagle
Pythium, Phytophthora diseases	Banrot 40WP, Terrazole, Truban 30WP
Rhizoctonia root rot, web or aerial blight	Banrot 40WP

LIATRIS	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Phyton 27
LIGUSTRUM (Privet) DO NOT USE: HERITAGE, MURAL	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Cease, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Junction, MilStop, OHP 6672, Protect, Spectro 90
Fusarium root or stem rot	Banrot 40WP, Cease, Empress, Iprodione, OHP 6672, Spectro 90
Leaf spots— <i>Cercospora</i> , <i>Algal</i> , <i>Phyllosticta</i> , etc.	26/36, Cease, Chipco 26019, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Eagle, Fore, Iprodione, Junction, Mancozeb, MilStop, OHP 6672, Protect, Spectro 90
Powdery mildew	Cease, Eagle, MilStop, OHP 6672, Spectro 90
Pythium, Phytophthora diseases	Banrot 40WP, Cease, Empress, Micora, Protect, Spectro 90, Terrazole, Truban 30WP
Rhizoctonia root rot, web or aerial blight	Banrot, 26/36, Chipco 26019, 6GT, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Domain, Fore, Iprodione, Mancozeb, OHP 6672, Protect, Spectro 90
Southern blight ( <i>Sclerotium rolfsii</i> )	Terraclor 400, OHP 6672
LILAC ( <i>Syringae</i> )	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Cease, Pageant, Spectro 90, Tourney
Bacterial leaf spot or blight	Basicop, Cease, CuPRO 5000, Junction, Phyton 27
Leaf spots— <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , etc.	Basicop, Cease, CuPRO 5000, Nu-Cop, Pageant, Spectro 90, Tourney
Powdery mildew	Banner Maxx II, Cease, Compass, Concert, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Eagle, Pageant, Phyton 27, Pipron, Propiconazole, Protocol, Spectro 90, Tourney
Phytophthora and Pythium diseases	Cease, Empress, FenStop, Junction, Micora, Pageant, Spectro 90
Rhizoctonia root rot, web or aerial blight	Cease, Compass, Empress, Pageant, Spectro 90, Tourney

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LILY (Easter Lily)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Cease, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Nu-Cop, OHP 6672, Pageant, Palladium, Protect, Spectro 90
Bacterial leaf spot or blight	Cease, Phyton 27
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Basicop, Cease, Chipco 26019, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Fore, Iprodione, Junction, Mancozeb, Medallion, Nu-Cop, OHP 6672, Pageant, Palladium, Phyton 27, Protect, Spectro 90, Trinity TR
Fusarium root or stem rot	Banrot 40WP, Cease, Empress, Fosphite, Iprodione, Medallion, OHP 6672, Pageant, Palladium, Spectro 90, Trinity TR
Powdery mildew	Cease, Fosphite, OHP 6672, Pageant, Palladium, Trinity TR
Pythium, Phytophthora diseases	Banol, Banrot 40WP, Cease, Empress, FenStop, Fosphite, Pageant, Protect, Spectro 90, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 40WP, Cease, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Empress, Fosphite, Iprodione, Medallion, OHP 6672, Pageant, Palladium, Protect, Spectro 90, Terraclor 400, Trinity TR
Rust leaf spots	Cease, OHP 6672, Pageant, Protect, Spectro 90
Southern blight ( <i>Sclerotium rolfsii</i> )	Palladium, Terraclor 400
LINDEN (see Basswood)	
LIRIOPE (Lilyturf)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Avelyo, Heritage, Heritage SC, Pageant, Protect
Rhizoctonia root rot, web or aerial blight	Broadform, Compass, Empress, Pageant, Protect
Phytophthora crown and root rot	Adorn, Empress, Micora, Pageant

LISIANTHUS ( <i>Eustoma</i> )	
Botrytis blight	Cease, Pageant, Palladium, Phyton 27
Leaf spots— <i>Alternaria</i>	Cease, Pageant, Palladium
Phytophthora aerial blight, root rot	Cease, Empress, Orvego, Pageant, Stature SC
Rhizoctonia root rot, aerial/web blight	Cease, Empress, Medallion, Pageant, Palladium
LOBELIA ( <i>Cardinal Flower</i> )	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Cease, Fame SC, Phyton 27, Protect
Leaf spots— <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , etc.	Cease, Fame SC, Protect
Pythium, Phytophthora diseases	Banol, Banrot 40WP, Cease, Fame SC, Empress, Protect
Rhizoctonia root rot, web or aerial blight	Banrot 40WP, Cease, Fame SC, Empress, Protect
Rust leaf spots	Cease, Fame SC, Protect
LOCUST	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Phyton 27
Powdery mildew	Eagle
LOQUAT	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	CuPRO 5000, Nu-Cop, Protect
Botrytis blight	Fosphite
Leaf spots— <i>Algal</i> , <i>Phyllosticta</i> , <i>Entomosporium</i> , etc.	CuPRO 5000, Protect
Rhizoctonia root rot, web or aerial blight	Fosphite, Protect
Scab ( <i>Spilocaea</i> , <i>Fusidodium</i> )	Protect

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LUPINE	
Anthracnose diseases	Broadform, Compass, Fame SC
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Broadform, Compass, Fame SC, Phytan 27
Powdery Mildew	Broadform, Compass, Fame SC
Rhizoctonia root rot, web or aerial blight	Broadform, Compass, Fame SC, Empress
MAGNOLIA	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Banner Maxx II, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Heritage, Heritage SC, Junction, Nu-Cop, Protect, Protocol, Spectro 90, Tourney
Bacterial leaf spot or blight	CuPRO 5000, Fosphite, Junction, Nu-Cop, Phytan 27
Leaf spots— <i>Cercospora</i> , <i>Algal</i> , <i>Cristulariella</i> , <i>Phyllosticta</i> , etc.	CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Fore, Heritage, Heritage SC, Junction, Mancozeb, Nu-Cop, Propiconazole, Protect, Spectro 90, Tourney
Powdery Mildew	Banner Maxx II, Protocol
Pythium, Phytophthora diseases	Empress, Fosphite, Micora, Protect, Spectro 90, Terrazole, Truban 30WP
Rhizoctonia root rot, web or aerial blight	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Empress, Fosphite, Phytan 27, Protect, Spectro 90, Tourney
MAHONIA (see Oregon Grape)	
MAPLE	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Banner Maxx II, Basicop, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Heritage, Heritage SC, Junction, OHP 6672, Pageant, Protect, Protocol, Spectro 90, Tourney
Leaf spots— <i>Cercospora</i> , <i>Rhytisma</i> , <i>Actinopelte</i> , <i>Phyllosticta</i> , <i>Cristulariella</i> , etc.	Avelyo, Basicop, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Fore, Heritage, Heritage SC, Junction, Mancozeb, OHP6672, Pageant, Propiconazole, Protect, Spectro90, Tourney
Powdery mildew	Banner Maxx II, Eagle, Fosphite, OHP 6672, Pageant, Propiconazole, Protocol, Spectro 90, Tourney
Pythium, Phytophthora diseases	Empress, Fosphite, Pageant, Protect, Spectro 90, Terrazole, Truban 25EC
Rhizoctonia root rot, web or aerial blight	Banrot, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Mancozeb, OHP 6672, Pageant, Protect, Spectro 90, Tourney
MARANTA (see Prayer Plant)	

MARIGOLD DO NOT USE: PROTECT-FRENCH MARIGOLD	
Bacterial leaf spot or blight	Cease, Phyton 27
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Basicop, Cease, Chipco 26019, Compass, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Fore, Iprodione, Junction, Mancozeb, Medallion, MilStop, Nu-Cop, OHP 6672, Pageant, Palladium, Phyton 27, Spectro 90, Trinity TR
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Cease, Empress, Fosphite, Iprodione, Medallion, OHP 6672, Pageant, Palladium, Spectro 90, Trinity TR
Leaf spots— <i>Alternaria</i> , <i>Cercospora</i> , etc.	26/36, Avelyo, Banner Maxx II, Basicop, Broadform, Cease, Chipco 26019, Compass, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Eagle, Heritage, Heritage SC, Iprodione, Junction, Medallion, MilStop, Nu-Cop, OHP 6672, Pageant, Palladium, Propiconazole, Spectro 90, Trinity TR
Powdery Mildew	Avelyo, Broadform, Cease, Compass, Fosphite, OHP 6672, Pageant, Palladium
Pythium, Phytophthora diseases	Adorn, Areca, Banol, Banrot 8G, Banrot 40WP, Cease, Empress, Fosphite, Micora, Pageant, Resyst, Spectro 90, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Broadform, Cease, Chipco 26019, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Empress, Fosphite, Iprodione, Medallion, OHP 6672, Pageant, Palladium, Spectro 90, Trinity TR
Southern blight ( <i>Sclerotium rolfsii</i> )	Medallion, Palladium
MOCK ORANGE	
Leaf spots— <i>Septoria</i> , <i>Cercospora</i> , <i>Ramularia</i> , etc.	Camelot-O
Powdery mildew	Camelot-O, Eagle, Heritage, Heritage SC
MONARDA (Bee Balm)	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Cease, Chipco 26019, Compass, Iprodione, MilStop, Pageant, Phyton 27, Trinity TR
Leaf spots— <i>Cercospora</i> , <i>Phyllosticta</i> , <i>Ramularia</i> , etc.	26/36, Cease, Chipco 26019, Iprodione, MilStop, Pageant, Trinity TR
Powdery mildew	Banner Maxx II, Cease, Compass, MilStop, Pageant, Phyton 27, Pipron, Propiconazole, Protocol, Trinity TR
Rhizoctonia root rot, web or aerial blight	26/36, Cease, Chipco 26019, Empress, Iprodione, Pageant, Trinity TR
Pythium and Phytophthora root rot	Cease, Empress, FenStop, Pageant
MOTHER-IN-LAWS TONGUE (see <i>Sansevieria</i> )	

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ORNAMENTALS

MOUNTAIN LAUREL (see <i>Kalmia</i> )	
NANDINA	
Anthracnose ( <i>Colletotrichum</i> , <i>Glomerella</i> )	Broadform, Compass, Heritage, Heritage SC, Pageant
Leaf spots— <i>Cercospora</i>	Heritage, Heritage SC, Pageant
Powdery Mildew	Broadform, Compass, Pageant
Rhizoctonia root rot and aerial/web blight	Pageant
NARCISSUS (see <i>Daffodil</i> )	
NASTURTIUM	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Protect
Leaf spots— <i>Cercospora</i> , etc.	Protect
Pythium, Phytophthora diseases	Banrot 8G, Banrot 40WP, Protect
Rhizoctonia root rot, web or aerial blight	Banrot 8G, Banrot 40WP, Protect
NEPHTHYTIS (see <i>Syngonium</i> )	
NICOTIANA (Ornamental Tobacco)	
Downy mildew	Protect
Leaf spots— <i>Alternaria</i> , <i>Colletotrichum</i> , <i>Cercospora</i> , etc.	Medallion, Protect
Rhizoctonia root rot, web or aerial blight	Medallion, Protect
NINEBARK ( <i>Physocarpus</i> ) DO NOT USE: <i>Orkestra Intrinsic</i> or <i>Pageant</i>	
Rust leaf spots	Eagle

OAK	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Elsinoe</i> , <i>Discula</i> , etc)	Basicop, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Heritage, Heritage SC, Junction, OHP 6672, Pageant, Phyton 27, Protect, Spectro 90
Leaf gall, leaf blister ( <i>Taphrina</i> )	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Fore, Mancozeb, Spectro 90
Leaf spots— <i>Tubakia</i> , <i>Cylindrosporium</i> , etc.	Banner Maxx II, Basicop, Concert, CuPRO5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Fore, Heritage, Heritage SC, Junction, Mancozeb, Nu-Cop, OHP 6672, Pageant, Propiconazole, Protect, Spectro 90, Tourney, Trinity TR
Powdery mildew	Eagle, Fosphite, Heritage, Heritage SC, OHP 6672, Pageant, Spectro 90, Tourney, Trinity TR
Phytophthora root, crown, stem rot, canker	Empress, Fosphite, Orvego Pageant, Protect, Spectro 90, Stature SC
Rhizoctonia root rot, web or aerial blight	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Empress, Fosphite, OHP 6672, Pageant, Protect, Spectro 90, Tourney, Trinity TR
Rust leaf spots	OHP 6672, Pageant, Protect, Tourney
OLEANDER ( <i>Nerium</i> )	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Heritage, Heritage SC, Nu-Cop
Bacterial leaf spot or blight	CuPRO 5000, Nu-Cop
Fusarium root or stem rot	Empress
Leaf spots— <i>Alternaria</i> , <i>Phyllosticta</i> , <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Algal</i> , etc.	CuPRO 5000, Heritage, Heritage SC, Nu-Cop
Pythium, Phytophthora diseases	Empress
Rhizoctonia root rot, web or aerial blight	Empress
ORCHID	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Cease, Protect ( <i>Cymbidium</i> , <i>Phalaenopsis</i> )
Bacterial leaf spot or blight	Agri-Mycin 17, Cease, Fosphite ( <i>Cattleya skinneri</i> ), Phyton 27
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Cease, Dithane ( <i>Dendrobium</i> ), Fore ( <i>Dendrobium</i> ), Mancozeb ( <i>Dendrobium</i> ), Phyton 27, Protect ( <i>Cymbidium</i> , <i>Phalaenopsis</i> ), Trinity TR



■ ORNAMENTALS AND SHADE TREE DISEASE CONTROL: PLANT USE INDEX

ORCHID ( <i>continued</i> )	
Leaf spots— <i>Septoria</i> , <i>Cercospora</i> , <i>Phyllosticta</i> , etc.	Cease, Protect ( <i>Cymbidium</i> , <i>Phalaenopsis</i> ), Trinity TR
Pythium, Phytophthora diseases	Areca ( <i>Cattelya</i> ), Cease, Fosphite ( <i>Cattleya skinneri</i> ), Protect, Terrazole, Truban 30WP
Rhizoctonia root rot, web or aerial blight	Cease, Fosphite ( <i>Cattleya skinneri</i> ), Protect ( <i>Cymbidium</i> , <i>Phalaenopsis</i> ), Trinity TR
Rust leaf spots	Cease, Protect ( <i>Cymbidium</i> , <i>Phalaenopsis</i> )
OREGON GRAPE ( <i>Mahonia</i> )	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Protect, Spectro 90
Leaf spots— <i>Cylindrocladium</i> , <i>Cercospora</i> , <i>Phyllosticta</i> , etc.	CuPRO 5000, Protect, Spectro 90
Rhizoctonia root rot, web or aerial blight	Protect, Spectro 90
Rust leaf spots	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Protect, Spectro 90
OSMANTHUS ( <i>Sweet Tea Olive</i> )	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> , <i>Gloeosporium</i> , etc)	Protect
Rhizoctonia root rot, web or aerial blight	Empress, Protect
OXALIS ( <i>Shamrock Plant</i> )	
Anthracnose ( <i>Colletotrichum</i> )	Palladium
Rust leaf spots	Dithane, Fore, Mancozeb
Rhizoctonia root rot, web blight	Palladium

OYSTER PLANT ( <i>Rhoeospathacea</i> )	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Spectro 90
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Spectro 90
Leaf spots— <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , etc.	Camelot-O, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Spectro 90
Rhizoctonia root rot, web or aerial blight	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Spectro 90
PACHYSANDRA (Mountain Spurge)	
Anthracnose diseases—leaf and stem spots, diebacks	MilStop, Pageant, Palladium, Protect, Spectro 90
Leaf spots or blights— <i>Phyllosticta</i> , <i>Septoria</i>	26/36, Basicop, Chipco 26019, Iprodione, MilStop, Pageant, Palladium, Protect, Spectro 90
Rhizoctonia root rot, web or aerial blight	26/36, Chipco 26019, Iprodione, Pageant, Palladium, Protect, Spectro 90
Volutella blight	Basicop, CuPRO 5000, Nu-Cop, Phytan 27, Protect
PALM	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Heritage, Heritage SC, MilStop, Penathlon, Protect, Spectro 90
Black root rot ( <i>Thielaviopsis</i> )	Banrot 8G, Banrot 40WP
Fusarium root or stem rot	Banrot 8G, Banrot40WP, Fosphite, Heritage, Heritage SC, Iprodione, Spectro 90
Leaf spots— <i>Cercospora</i> , <i>Bipolaris</i> , <i>Cylindrocladium</i> , <i>Exosporium</i> , <i>Epicoccum</i> , <i>Alternaria</i> , <i>Exserohilum</i>	26/36, Camelot-O, Chipco 26019, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Fore, Heritage, Heritage SC, Iprodione, Mancozeb, MilStop, Nu-Cop, Protect, Spectro 90
Pythium, Phytophthora diseases	Banrot 8G, Banrot 40WP, Fosphite, Micora, Nu-Cop, Protect, Spectro 90, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fosphite, Heritage, Heritage SC, Iprodione, Mancozeb, Protect, Spectro 90

**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: PLANT USE INDEX**

PANSY DO NOT USE: COMPASS (as a drench)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Basicop, Broadform, Cease, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Fore, Heritage, Heritage SC, Junction, Mancozeb, MilStop, OHP 6672, Pageant, Palladium, Protect, Spectro 90
Black root rot ( <i>Thielaviopsis</i> )	Avelyo, Banrot 8G, Banrot 40WP, Medallion, OHP 6672
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Basicop, Broadform, Cease, Chipco 26019, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Iprodione, Medallion, MilStop, OHP 6672, Pageant, Palladium, Phyton 27, Protect, Spectro 90, Trinity TR
Downy mildew	Basicop, Cease, Compass, Fosphite, Heritage, Heritage SC, Junction, Micora, Nu-Cop, Orvego, Pageant, Protect, Stature SC, Trinity TR
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Cease, Empress, Fosphite, Iprodione, Medallion, OHP 6672, Pageant, Palladium, Spectro 90, Trinity TR
Leaf spots— <i>Cercospora</i> , <i>Alternaria</i> , <i>Myrothecium</i> , <i>Mycocentrospora</i>	26/36, Avelyo, Basicop, Broadform, Cease, Chipco 26019, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Heritage, Heritage SC, Iprodione, Medallion, MilStop, OHP 6672, Pageant, Palladium, Phyton 27, Protect, Spectro 90, Trinity TR
Powdery mildew	Avelyo, Cease, Compass, Eagle, Fosphite, MilStop, OHP 6672, Pageant, Palladium, Phyton 27, Spectro 90, Trinity TR
Pythium, Phytophthora diseases	Adorn, Areca, Banol, Banrot 8G, Banrot 40WP, Cease, Empress, Fosphite, Micora, Orvego, Pageant, Phyton 27, Protect, Spectro 90, Stature SC, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Broadform, Cease, Chipco 26019, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Empress, Fosphite, Iprodione, Medallion, OHP 6672, Pageant, Palladium, Protect, Spectro 90, Trinity TR
PAULOWNIA (Princess Tree)	
PEACH (Ornamental)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, MilStop, Pageant, Protect, Spectro 90, Tourney
Bacterial leaf spot	Champ, CuPRO 5000, Junction
Blossom blight (Monilinia, Coryneum, etc)	Banner Maxx II, Basicop, Broadform, Champ, Concert, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Junction, Pageant
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Broadform, Chipco 26019, Compass, Junction, MilStop, Pageant

PEACH (Ornamental) (continued)	
Botryosphaeria dieback	Pageant, Protect
Fusarium root or stem rot	Empress, Iprodione, Pageant, Spectro 90
Leaf curl ( <i>Taphrina</i> )	Basicop, Champ, Junction
Powdery mildew	MilStop, Pageant, Spectro 90, Tourney
Pythium, Phytophthora diseases	Empress, Pageant, Protect
Rhizoctonia root rot, web or aerial blight	26/36, Broadform, Chipco 26019, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Empress, Iprodione, Pageant, Spectro 90, Protect, Tourney
Scab ( <i>Cladosporium</i> )	Junction, MilStop, Pageant, Protect, Spectro 90, Tourney
PEAR, ORNAMENTAL (see Crabapple)	
PECAN (Ornamental)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Junction, Pageant, Tourney
Leaf spots— <i>Phyllosticta</i> , <i>Mycosphaerella</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Algal</i> , etc.	Banner Maxx II, Champ, Junction, Pageant, Tourney
Powdery mildew	Banner Maxx II, Fosphite, Pageant, Tourney
Pythium, Phytophthora diseases	Champ, Empress, Fosphite, Pageant
Scab ( <i>Cladosporium</i> )	Banner Maxx II, Basicop, Pageant, Tourney
PEONY	
Anthracnose and leaf spots ( <i>Colletotrichum</i> and <i>Cladosporium</i> )	Protect
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Basicop, CuPRO 5000, Dithane, Fore, Junction, Mancozeb, Nu-Cop, Protect
Phytophthora root rot and aerial blight	Dithane, Mancozeb, Protect
Rhizoctonia root rot, web or aerial blight	Protect

**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: PLANT USE INDEX**

PEPEROMIA	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Heritage, Heritage SC, MilStop, Protect, Spectro 90
Bacterial leaf spots	Fosphite, Resyst
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Heritage, Heritage SC, Iprodione, Spectro 90
Pythium, Phytophthora diseases	Banrot 8G, Banrot 40WP, Fosphite, Protect, Resyst, Spectro 90, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Camelot-O, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fosphite, Heritage, Heritage SC, Iprodione, Protect, Spectro 90
PERIWINKLE ( <i>Vinca</i> sp.—Vine)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Cease, Compass, Heritage, Heritage SC, Junction, MilStop, Pageant, Palladium, Protect, Torque
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Cease, Chipco 26019, Iprodione, Medallion, Pageant, Palladium, Phytan 27, Protect
Leaf spots— <i>Phyllosticta</i> , <i>Septoria</i>	26/36, Cease, Chipco 26019, Heritage, Heritage SC, Iprodione, Medallion, MilStop, Pageant, Palladium, Protect, Torque
Phomopsis blight	CuPRO 5000, MilStop, Nu-Cop, Palladium
Phytophthora (aerial ) shoot blight	Adorn, Cease, Compass, Empress, FenStop, Fosphite, Heritage, Heritage SC, Micora, Orvego, Pageant, Phytan 27, Protect, Resyst, Stature SC, Subdue GR, Subdue Maxx, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Cease, Chipco 26019, Empress, Fosphite, Iprodione, Medallion, Pageant, Palladium, Protect
Rust leaf spots	Cease, Pageant, Protect, Torque
PETUNIA AND CALIBRACHOA	
Black root rot ( <i>Thielaviopsis</i> )	Avelyo, Banrot 8G, Banrot 40WP, Medallion, OHP 6672
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Broadform, Cease, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn Decree, Fame SC, Dithane, Fore, Mancozeb, Medallion, OHP 6672, Pageant, Palladium, Phytan 27, Protect, Spectro 90, Trinity TR
Leaf spots— <i>Ascochyta</i> , <i>Cercospora</i>	Avelyo, Cease, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Medallion, OHP 6672, Pageant, Palladium, Protect, Spectro 90, Trinity TR
Powdery mildew	Avelyo, Cease, Fame SC, Eagle, Fosphite, OHP 6672, Pageant, Palladium, Phytan 27, Spectro 90, Trinity TR

PETUNIA AND CALIBRACHOA (continued)	
Pythium, Phytophthora diseases	Areca, Banol, Banrot 8G, Banrot 40WP, Cease, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Empress, Fosphite, Heritage (foliage blight), Heritage SC, Micora, Orvego, Pageant, Resyst, Spectro 90, Stature SC, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	Banrot 8G, Banrot 40WP, Broadform, Cease, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Empress, Fosphite, Medallion, OHP 6672, Pageant, Palladium, Spectro 90, Trinity TR
PHILODENDRON DO NOT USE: TERRACLOR 400	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Camelot-O, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Heritage, Heritage SC, MilStop, OHP 6672, Palladium, Protect, Spectro 90
Bacterial leaf spot or blight or leaf rot	Agri-Mycin 17, Basicop, CuPRO 5000, Fosphite, Nu-Cop, Resyst
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Camelot-O, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Iprodione, MilStop, OHP 6672, Palladium, Protect, Spectro 90, Trinity TR
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Fosphite, Iprodione, OHP 6672, Palladium, Spectro 90, Trinity TR
Pythium, Phytophthora diseases	Areca, Banrot 8G, Banrot 40WP, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Fore, Fosphite, Protect, Resyst, Spectro 90, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fosphite, Iprodione, OHP 6672, Palladium, Protect, Spectro 90, Trinity TR
PHLOX	
Black root rot ( <i>Thielaviopsis</i> )	Banrot 8G, Banrot 40WP
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Basicop, Broadform, Cease, Chipco 26019, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Iprodione, MilStop, Pageant, Phyton27, Protect, Spectro 90
Leaf spots— <i>Alternaria</i> , <i>Cercospora</i> , <i>Ramularia</i> , <i>Phyllosticta</i> , <i>Ascochyta</i>	26/36, Basicop, Cease, Chipco 26019, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Eagle, Fore, Iprodione, Mancozeb, MilStop, Nu-Cop, Pageant, Protect, Spectro 90
Powdery mildew	Banner Maxx II, Broadform, Cease, Compass, Eagle, Fosphite, Heritage, Heritage SC, MilStop, Pageant, Phyton 27, Pipron, Propiconazole, Protocol, Spectro 90
Pythium, Phytophthora diseases	Banrot 8G, Banrot 40WP, Cease, Daconil Ultrex, Empress, Fosphite, Micora, MilStop, Pageant, Protect, Resyst, Spectro 90, Subdue GR, Subdue Maxx, Terrazole, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Cease, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Empress, Fosphite, Iprodione, Pageant, Protect, Spectro 90

**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: PLANT USE INDEX**

PHOTINIA (Redtip)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Cease, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Heritage, Heritage SC, Junction, Mancozeb, Nu-Cop, Pageant, Protect, Spectro 90, Tourney
Fire blight	Fosphite, Resyst
Leaf spots— <i>Entomosporium</i> , <i>Pestalotia</i>	Banner Maxx II, Broadform, Cease, Compass, Concert, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Eagle, Fore, Heritage, Heritage SC, Junction, Mancozeb, Nu-Cop, Pageant, Phyton 27, Propiconazole, Protect, Spectro 90, Tourney
Powdery mildew	Cease, Compass, Eagle, Fosphite, Heritage, Heritage SC, Junction, Pageant, Spectro 90, Tourney
Pythium, Phytophthora diseases	Banrot 40WP, Cease, Empress, Fosphite, Pageant, Protect, Resyst, Spectro 90, Subdue GR, Subdue Maxx, Terrazole
PIERIS (Andromeda, Lily of the Valley Bush)	
Leaf spots— <i>Phyllosticta</i> , <i>Alternaria</i>	26/36, Chipco 26019, CuPRO 5000, Heritage, Heritage SC, Iprodione, MilStop, Protect, Spectro 90
Pythium, Phytophthora diseases	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fosphite, Orvego, Protect, Resyst, Spectro 90, Stature SC, Subdue GR, Subdue Maxx
Rhizoctonia root rot, web or aerial blight	26/36, Chipco 26019, Fosphite, Heritage, Heritage SC, Iprodione, Protect, Spectro 90
PILEA DO NOT USE: TERRACLOR	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Camelot-O
Leaf spots— <i>Septoria</i> , <i>Myrothecium</i>	26/36, Camelot-O, Chipco 26019, Iprodione, MilStop, Protect
Pythium, Phytophthora diseases	Banrot 8G, Banrot 40WP, Protect, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Camelot-O, Chipco 26019, Iprodione, Protect

PINE	
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Empress, Fosphite, Iprodione, OHP 6672, Trinity TR
Pine needle blight/needle cast	Badge X2, Banner Maxx II, Basicop, Camelot-O, Champ, CuPRO 5000, Dithane, Fore, Heritage, Heritage SC, Junction, Kocide, Mancozeb, OHP 6672, Propiconazole, Protect, Tourney
Pythium, Phytophthora diseases	Aliette WDG, Areca, Banrot 8G, Banrot 40WP, Empress, Fosphite, Micora, Protect, Resyst, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Chipco 26019, Empress, Fosphite, Iprodione, OHP 6672, Proline 480 SC, Protect, Terraclor 400, Tourney, Trinity TR
Rust leaf spots	Eagle, Heritage, Heritage SC, Mancozeb, OHP 6672, Protect, Tourney
PITTOSPORUM DO NOT USE: DACONIL ULTREX, DACONIL WEATHERSTIK, DACONIL ZN, or CONCERT	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	MilStop, Pageant, Protect
Downy Mildew	Fosphite, Pageant
Leaf spots— <i>Cercospora</i> , etc.	26/36, Broadform, Chipco 26019, Compass, Dithane, Fore, Iprodione, Mancozeb, MilStop, Pageant, Protect
Pythium, Phytophthora diseases	Areca, Banrot 8G, Banrot 40WP, Empress, Fosphite, Pageant, Protect, Resyst, Subdue GR, Subdue Maxx
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Broadform, Chipco 26019, Compass, Empress, Fosphite, Iprodione, Medallion, Pageant, Phyton 27, Protect
PLUM (Ornamental)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Heritage, Heritage SC, MilStop, Pageant, Protect, Spectro 90, Tourney
Blossom blight and Shot hole	26/36, Banner Maxx II, Basicop, Chipco 26019, Concert, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Heritage, Heritage SC, Iprodione, Junction, Pageant
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Broadform, Chipco 26019, Compass, Heritage, Heritage SC, Junction, MilStop, Pageant
Leaf gall, leaf blister, leaf curl ( <i>Taphrina</i> )	Junction
Leaf spots— <i>Septoria</i> , <i>Cercospora</i> , <i>Coccomyces</i> , <i>Phyllosticta</i>	26/36, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Heritage, Heritage SC, Iprodione, Junction, MilStop, Pageant, Protect, Spectro 90, Tourney
Powdery mildew	Broadform, Compass, MilStop, Pageant, Spectro 90, Tourney
Rhizoctonia root rot, web or aerial blight	26/36, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Empress, Iprodione, Pageant, Protect, Spectro 90, Tourney
Rust leaf spots	Pageant, Protect, Tourney



**ORNAMENTALS AND SHADE TREE DISEASE CONTROL: PLANT USE INDEX**

PODOCARPUS	
Pythium, Phytophthora diseases	Banrot 40WP, Micora, Terrazole
Rhizoctonia root rot, web or aerial blight	Banrot 40WP
POINSETTIA (Euphorbia) DO NOT USE: COMPASS (after bract color development)	
Bacterial leaf spot or blight	Agri-Mycin 17, Cease, Phyton 27
Black root rot ( <i>Thielaviopsis</i> )	Banrot 8G, Banrot 40WP, Medallion, OHP 6672
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Broadform, Cease, Chipco 26019, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Decree, Iprodione, Medallion, MilStop, OHP 6672, Pageant, Palladium, Phyton 27, Protect, Spectro 90, Trinity TR
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Cease, Empress, Fosphite, Iprodione, Medallion, OHP 6672, Pageant, Palladium, Spectro 90, Trinity TR
Leaf spots— <i>Alternaria</i>	26/36, Cease, Chipco 26019, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Heritage, Heritage SC, Iprodione, MilStop, OHP 6672, Pageant, Palladium, Protect, Spectro 90, Trinity TR
Powdery mildew	Broadform, Cease, Compass, Eagle, Fosphite, MilStop, OHP 6672, Pageant, Palladium, Phyton 27, Pipron, Spectro 90, Trinity TR
Pythium, Phytophthora diseases	Banol, Banrot 8G, Banrot 40WP, Cease, Empress, FenStop, Fosphite, Micora, Orvego, Pageant, Protect, Resyst, Spectro 90, Stature SC, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Broadform, Camelot-O, Cease, Chipco 26019, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Empress, Fosphite, Iprodione, Medallion, OHP 6672, Pageant, Palladium, Protect, Spectro 90, Trinity TR
Scab ( <i>Sphaceloma</i> )	Broadform, Cease, Compass, Dithane, Eagle, Fore, Mancozeb, MilStop, Pageant, Phyton 27, Protect

POPLAR	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Protect, Spectro 90, Tourney
Leaf spots— <i>Septoria</i> , <i>Cercospora</i> , <i>Marsonina</i> , <i>Phyllosticta</i>	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Junction, Protect, Spectro 90, Tourney
Powdery mildew	Spectro 90, Tourney
Rhizoctonia root rot, web or aerial blight	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Empress, Protect, Spectro 90, Tourney
Rust leaf spots	Banner Maxx II, Concert, Dithane, Eagle, Fore, Junction, Mancozeb, Propiconazole, Protect, Protocol, Tourney
Scab ( <i>Venturia</i> )	Protect, Tourney
POPPY	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	MilStop
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, Compass, Iprodione, MilStop, Phyton 27
Rhizoctonia root rot, web or aerial blight	26/36, Chipco 26019, Iprodione
PORTULACA (Moss Rose/Purslane)	
Pythium, Phytophthora diseases	Banol, Cease, Empress, Protect, Terrazole, Truban 30WP
Rhizoctonia root rot, web or aerial blight	Cease, Empress, Medallion (test drench for phytotoxicity), Palladium, Protect
Rust-white rust ( <i>Albugo</i> )	Cease, Protect
POTHOS (see <i>Epipremnum</i> )	

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PRAYER PLANT ( <i>Maranta</i> )	
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Spectro 90
Leaf spots— <i>Phyllosticta</i> , <i>Glomerella</i>	Camelot-O, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Protect, Spectro 90
Pythium, Phytophthora diseases	Banrot 8G, Banrot 40WP, Protect, Spectro 90, Terrazole, Truban 25EC
Rhizoctonia root rot, web or aerial blight	Banrot 8G, Banrot 40WP, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Protect, Spectro 90
PRIMROSE ( <i>Primula</i> )	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Heritage, Heritage SC, MilStop, OHP 6672, Pageant
Bacterial leaf spot or blight	Phyton 27
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, Compass, Dithane, Fore, Iprodione, Mancozeb, MilStop, OHP 6672, Pageant, Phyton 27
Leaf spots— <i>Ascochyta</i> , <i>Cercospora</i> , <i>Alternaria</i> , etc.	26/36, Chipco 26019, Heritage, Heritage SC, Iprodione, MilStop, OHP 6672, Pageant
Powdery mildew	Fosphite, MilStop, OHP 6672, Pageant, Phyton 27
Pythium, Phytophthora diseases	Emperss, Fosphite, Orvego, Pageant, Resyst, Stature SC, Subdue GR, Subdue Maxx
Rhizoctonia root rot, web or aerial blight	26/36, Chipco 26019, Empress, Fosphite, Iprodione, OHP 6672, Pageant
PRIVET (see <i>Ligustrum</i> )	
PROTEA	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	MilStop, Protect
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, Dithane, Fore, Iprodione, Mancozeb, MilStop, Protect
Leaf spots— <i>Cercospora</i> , <i>Ascochyta</i> , <i>Alternaria</i>	26/36, Chipco 26019, Iprodione, MilStop, Protect
Rhizoctonia root rot, web or aerial blight	26/36, Chipco 26019, Iprodione, Protect

PYRACANTHA (Firethorne)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, MilStop, OHP 6672, Protect, Spectro 90, Tourney
Bacterial leaf spot or blight	Agri-Mycin 17, Phytan 27
Fire blight	Agri-Mycin 17, Aliette WDG, Basicop, CuPRO 5000, Nu-Cop , Phytan 27
Leaf spots— <i>Spilocaea</i> , etc.	26/36, Banner Maxx II, Camelot-O, Chipco 26019, Concert, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Iprodione, MilStop, OHP 6672, Propiconazole, Protect, Protocol, Spectro 90, Tourney
Powdery mildew	Camelot-O, MilStop, OHP 6672, Spectro 90, Tourney
Rhizoctonia root rot, web or aerial blight	26/36, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Iprodione, OHP 6672, Protect, Spectro 90, Tourney
Scab ( <i>Fusicladium</i> )	Basicop, 3336, CuPRO 5000, Dithane, Eagle, Fore, Junction, Mancozeb, MilStop, Nu-Cop, OHP 6672, Protect, Tourney
QUINCE (Flowering)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Pageant
Blossom and twig blight	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Eagle, Fosphite, Pageant
Leaf spots— <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Algal</i> , etc.	Camelot-O, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Eagle, Fore, Mancozeb, Pageant
Powdery mildew	Camelot-O, Fosphite, Pageant
Rhizoctonia root rot, web or aerial blight	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Empress, Fosphite, Pageant
Rust leaf spots	Camelot-O, Dithane, Eagle, Empress, Fore, Mancozeb, Pageant
RANUNCULUS	
Botrytis blight (Gray mold)	Cease, Compass, Decree, Phytan 27
Downy Mildew	Cease, Compass
Fusarium root or stem rot	Cease, Empress
Powdery Mildew	Cease, Compass
Pythium, Phytophthora diseases	Cease, Empress
Rhizoctonia root rot, web, or aerial blight	Cease, Empress

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REDBUD ( <i>Cercis</i> )	
Downy Mildew	Heritage, Heritage SC
Leaf spots— <i>Pseudocercospora</i> , etc.	Heritage, Heritage SC, Junction
Pythium, Pytophthora diseases	Empress
Rhizoctonia	Empress
REDTIP (see Photinia)	
REDWOOD ( <i>Sequoia</i> )	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Botran 75W, Daconil Ultrex, Daconil Weatherstik, Daconil Zn
Needle cast, Tip blight	Protect
RHAPHIOLEPIS (see Indian Hawthorne)	
RHODODENDRON (see Azalea)	
RHOEO (see Oyster Plant)	
ROSE	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Cease, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Junction, MilStop, OHP 6672, Pageant, Palladium, Protect, Spectro 90, Tourney
Bacterial blast and blight	Agri-Mycin 17, Cease, Fosphite, Phytan 27, Resyst
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Botran 75W, Broadform, Captan 50, Captan 4L, Cease, Chipco 26019, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Decree, Fame SC, Iprodione, Junction, Medallion, MilStop, OHP 6672, Pageant, Phytan 27, Palladium, Protect, Spectro 90, Tourney, Trinity TR
Downy mildew	Aliette WDG, Cease, Compass, Fame SC, Fosphite, Micora, Orvego, Pageant, Phytan 27, Protect, Resyst, Stature SC, Trinity TR
Leaf spots— <i>Cercospora</i> , <i>Black spot</i> , etc.	26/36, Avelyo, Banner Maxx II, Broadform, Captan 4L, Captan 50, Cease, Chipco 26019, Concert, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Dithane, Eagle, Fore, Heritage, Heritage SC, Iprodione, Junction, Mancozeb, MilStop, Nu-Cop, OHP 6672, Pageant, Palladium, Propiconazole, Protect, Spectro 90, Tourney, Trinity TR

<i>ROSE (continued)</i>	
Powdery mildew	Avelyo, Banner Maxx II, Basicop, Cease, Compass, CuPRO 5000, Fame SC, Eagle, Fosphite, Heritage, Heritage SC, Junction, MilStop, Nu-Cop, OHP 6672, Pageant, Palladium, Phyton 27, Pipron, Propiconazole, Protocol, Spectro 90, Torque, Tourney, Trinity TR
Pythium, Phytophthora diseases	Areca, Cease, Fame SC, Empress, Fosphite, Micora, Orvego, Pageant, Protect, Resyst, Spectro 90, Stature SC, Subdue GR, Subdue Maxx
Rhizoctonia root rot, web or aerial blight	26/36, Cease, Chipco 26019, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Empress, Fosphite, Iprodione, Medallion, OHP 6672, Pageant, Palladium, Protect, Spectro 90, Tourney, Trinity TR
Rust leaf spots	Banner Maxx II, Broadform, Cease, Compass, Concert, Fame SC, Dithane, Eagle, Fore, Heritage, Heritage SC, Junction, Mancozeb, OHP 6672, Pageant, Plantvax, Propiconazole, Protect, Protocol, Spectro 90, Torque, Tourney
ROSEMARY	
Rhizoctonia root rot and web blight	Dithane, Fore, Fosphite, Mancozeb
Powdery Mildew	Fosphite
Pythium, Phytophthora diseases	Fosphite, Resyst, Subdue GR, Subdue Maxx
RUDBECKIA (Black-eyed Susan)	
Downy mildew	Heritage, Heritage SC, Micora, Pageant, Phyton 27, Trinity TR
Leaf spots— <i>Cercospora</i> , <i>Septoria</i> ,	Avelyo, Heritage, Heritage SC, Pageant, Trinity TR
Pythium and Phytophthora diseases	Empress, Micora, Pageant

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SALVIA	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Broadform, Cease, Chipco 26019, Compass, Medallion, OHP 6672, Pageant, Palladium, Phyton 27
Downy mildew	Cease, Compass, Fosphite, Micora, Pageant, Phyton 27, Resyst
Leaf spots— <i>Ramularia</i> , <i>Cercospora</i> , etc.	26/36, Broadform, Cease, Chipco 26019, Compass, Iprodione, Medallion, OHP 6672, Pageant, Palladium
Powdery mildew	Broadform, Cease, Compass, Eagle, Fosphite, Heritage, Heritage SC, OHP 6672, Pageant, Palladium, Phyton27
Pythium, Phytophthora diseases	Banol, Banrot 8G, Banrot 40WP, Cease, Empress, Fosphite, Micora, Pageant, Resyst, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Broadform, Cease, Chipco 26019, Compass, Empress, Fosphite, Iprodione, Medallion, OHP 6672, Pageant, Palladium
SANSEVIERIA (Snake Plant, Mother-in-law tongue)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> , <i>Gloeosporium</i> , etc)	Protect, Spectro 90
Pythium, Phytophthora diseases	Protect, Specto 90, Terrazole, Truban 25EC
Rhizoctonia root rot, web or aerial blight	Protect, Spectro 90
SAND CHERRY (see Cherry)	
SCABIOSA	
Rhizoctonia root rot, web or aerial blight	Empress
Southern blight ( <i>Sclerotium rolfsii</i> )	Terraclor
SCHEFFLERA (Umbrella Tree)	
Bacterial leaf spot or blight, fire blight	Aliette WDG, Camelot-O, Fosphite, Resyst
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, CuPRO 5000, Iprodione, MilStop, Protect, Trinity TR
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Fosphite, Iprodione, Trinity TR

SCHEFFLERA (Umbrella Tree) <i>(continued)</i>	
Leaf spots— <i>Alternaria</i> , etc.	26/36, Camelot-O, Chipco 26019, Dithane, Fore, Iprodione, Mancozeb, MilStop, Protect, Trinity TR
Pythium, Phytophthora diseases	Banrot 8G, Banrot 40WP, Fosphite, Protect, Resyst, Subdue Maxx
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Chipco 26019, Fosphite, Iprodione, Protect, Trinity TR
SCHLUMBERGERA (see Cactus, Christmas)	
SEDUM	
Leaf spots— <i>Septoria</i> , etc.	Camelot-O, Heritage, Heritage SC, Pageant
Pythium, Phytophthora diseases	Empress, Fosphite, Pageant, Resyst, Subdue GR, Subdue Maxx
Rhizoctonia root rot, web or aerial blight	Empress, Fosphite, Pageant
Powdery mildew	Eagle, Fosphite, Pageant
SNAKE PLANT, MOTHER IN LAW TONGUE (See Sansevieria)	
SNAPDRAGON	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Basicop, Cease, Compass, CuPRO 5000, Fame SC, MilStop, Pageant, Palladium, Protect
Black root rot ( <i>Thielaviopsis</i> )	Banrot 8G, Banrot 40WP, Medallion
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Basicop, Broadform, Cease, Chipco 26019, Compass, Fame SC, Iprodione, Medallion, MilStop, Pageant, Palladium, Phyton 27, Protect
Downy mildew	Basicop, Cease, Compass, CuPRO 5000, Fame SC, Fosphite, Micora, Orvego, Pageant, Phyton 27, Protect, Resyst, Stature SC



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SNAPDRAGON ( <i>continued</i> )	
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Cease, Fame SC, Empress, Fosphite, Iprodione, Medallion, Pageant, Palladium
Leaf spots— <i>Cercospora</i> , etc.	26/36, Basicop, Broadform, Cease, Chipco 26019, Compass, Fame SC, Heritage, Heritage SC, Iprodione, Medallion, MilStop, Pageant, Palladium, Protect
Powdery mildew	Broadform, Cease, Compass, Fame SC, Eagle, Fosphite, Heritage, Heritage SC, MilStop, Pageant, Palladium
Pythium, Phytophthora diseases	Adorn, Banol, Banrot 8G, Banrot 40WP, Cease, Fame SC, Empress, Fosphite, Micora, Orvego, Pageant, Protect, Resyst, Stature SC, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Broadform, Cease, Chipco 26019, Compass, Fame SC, Empress, Fosphite, Iprodione, Medallion, Pageant, Palladium, Protect
Rust leaf spots	Banner Maxx II, Broadform, Cease, Compass, Fame SC, Dithane, Eagle, Fore, Heritage, Heritage SC, Mancozeb, Pageant, Phyton 27, Plantvax, Propiconazole, Protect, Protocol
SPATHIPHYLLUM DO NOT USE: 26/36, CHIPCO 26019, IPRDIONE, or TERRAGUARD	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Cease, Junction, Pageant, Palladium, Protect
Bacterial leaf spot or blight,	Aliette WDG, Cease, CuPRO 5000, Fosphite, Junction, Resyst
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Cease, Medallion, Pageant, Palladium, Phyton 27, Protect
Cylindrocladium crown rot and leaf blight	Avelyo, Compass, Medallion, Pageant, Palladium, Phyton 27, Protect
Pythium, Phytophthora diseases	Areca, Broadform, Cease, Compass, FenStop, Fosphite, Orvego, Pageant, Phyton 27, Protect, Resyst, Stature SC
Rhizoctonia root rot, web or aerial blight	Camelot-O, Cease, Fosphite, Heritage, Heritage SC, Medallion, Pageant, Palladium, Protect
SPEEDWELL (see <i>Veronica</i> )	
SPIREA	
Leaf spots— <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Algal</i> , <i>Cylindrosporium</i> , etc.	Cease, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Pageant, Spectro 90, Tourney, Trinity TR
Powdery mildew	Broadform, Cease, Compass, Eagle, Heritage, Heritage SC, Pageant, Phyton 27, Spectro 90, Tourney, Trinity TR
Rhizoctonia root rot, web or aerial blight	Cease, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Empress, Pageant, Phyton 27, Spectro 90, Tourney, Trinity TR

SPRUCE	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Botran 75W, MilStop, OHP 6672, Protect, Tourney, Trinity TR
Tip blight	Avelyo, Heritage, Heritage SC, MilStop, OHP 6672, Protect, Tourney, Trinity TR
Needle cast	Basicop, Champ, CuPRO 5000, Kocide, OHP 6672, Protect
Pythium, Phytophthora diseases	Aliette WDG, Banrot 8G, Banrot 40WP, Empress, Fosphite, Micora
Rhizoctonia root rot, web or aerial blight	Banrot 8G, Banrot 40WP, Empress, OHP 6672, Protect, Tourney, Trinity TR
Rust leaf spots	OHP 6672, Protect, Tourney
STATICE (Limonium)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> , <i>Gloeosporium</i> , etc)	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, MilStop, OHP 6672, Pageant, Protect, Spectro 90
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Iprodione, MilStop, OHP 6672, Pageant, Protect, Spectro 90
Downy mildew	Orvego, Pageant, Protect, Stature SC
Leaf spots— <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Alternaria</i> , <i>Phyllosticta</i> , etc.	26/36, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Fore, Iprodione, Mancozeb, MilStop, OHP 6672, Pageant, Protect, Spectro 90
Pythium, Phytophthora diseases	Banrot 40WP, Orvego, Pageant, Protect, Spectro 90, Stature SC, Terrazole, Truban 30WP
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 40WP, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Iprodione, OHP 6672, Pageant, Protect, Spectro 90
STOCK (Matthiola)	
Downy mildew	Cease, Micora, Orvego, Pageant, Stature SC
Leaf spots— <i>Alternaria</i> , <i>Myrothecium</i> , etc.	Cease, Pageant
Rhizoctonia root rot, web or aerial blight	Cease, Pageant
Phytophthora root rot, aerial blight	Cease, Micora, Orvego, Pageant, Stature SC

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STRAWFLOWER ( <i>Helichrysum</i> )	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Palladium, OHP 6672, Protect
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Palladium, OHP 6672, Protect
Downy mildew	Protect
Leaf spots— <i>Alternaria</i> , etc.	OHP 6672, Palladium, Protect
Rhizoctonia root rot, web blight	OHP 6672, Palladium, Protect
SUNFLOWER	
Botrytis blight (grey mold)	Medallion, Palladium
Downy mildew	Micora
Leaf spots— <i>Cercospora</i> , <i>Alternaria</i> , etc.	Eagle, Medallion, Palladium
Powdery mildew	Eagle, Palladium
Rhizoctonia stem rot, aerial blight	Medallion (test drench for phytotoxicity), Palladium
Rust leaf spots	Eagle
SWEET GUM ( <i>Liquidambar</i> )	
Leaf spots— <i>Pseudocercospora</i> , etc.	Banner Maxx II, Propiconazole, Tourney
Powdery mildew	Tourney
SWEET PEA	
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Phyton 27
SWEET WILLIAM/PINKS (see <i>Dianthus</i> )	

SYCAMORE (London Plane Tree)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> , <i>Gloeosporium</i> , <i>Gnomonia</i> , etc)	Banner Maxx II, Basicop, Camelot-O, Champ, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Junction, Kocide, Nu-Cop, OHP 6672, Phyton 27, Protect, Spectro 90, Tourney
Powdery mildew	Eagle, Fosphite, OHP 6672, Spectro 90, Tourney
Rhizoctonia root rot, web or aerial blight	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fosphite, OHP 6672, Protect, Spectro 90, Tourney
SYNGONIUM (Nephtytis)	
Bacterial leaf spot	Aliette WDG, Camelot-O, CuPRO 5000, Resyst
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Medallion, Palladium, Protect, Spectro 90
Leaf spots— <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Cephalosporium</i> , etc.	Camelot-O, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Eagle, Fore, Mancozeb, Medallion, Palladium, Protect, Spectro 90
Myrothecium leaf blight, crown rot	Broadform, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Medallion, Palladium, Spectro 90
Pythium, Phytophthora diseases	Banrot 8G, Banrot 40WP, Protect, Resyst, Spectro 90, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	Banrot 8G, Banrot 40WP, Broadform, Camelot-O, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Medallion (test drench for phytotoxicity), Palladium, Protect, Spectro 90
TAXUS (Yew)	
Phomopsis twig blight	Avelyo, Basicop, CuPRO 5000, Trinity TR
Pythium, Phytophthora diseases	Fosphite, Resyst, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP
Rhizoctonia root rot, web or aerial blight	Fosphite, Heritage, Heritage SC, Phyton 27, Trinity TR
TICKSEED (see <i>Coreopsis</i> )	
TRADESCANTIA (see <i>Wandering Jew</i> )	

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TULIP	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Junction, Nu-Cop, Pageant, Palladium, Spectro 90,
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Basicop, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Dithane, Fore, Iprodione, Junction, Mancozeb, Medallion, Nu-Cop, Pageant, Palladium, Phyton 27, Spectro 90
Fusarium root or stem rot	Empress, Iprodione, Medallion, Pageant, Palladium, Spectro 90
Rhizoctonia root rot, web or aerial blight	26/36, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Empress, Iprodione, Medallion, Pageant, Palladium, Spectro 90, Terraclor 400
Southern blight ( <i>Sclerotium rolfsii</i> )	Palladium, Terraclor 400
VENUS FLY TRAP	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Dithane, Fore, Mancozeb, Spectro 90
Rhizoctonia root rot, web or aerial blight	Spectro 90
VERBENA	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Cease, Fame SC, MilStop, OHP 6672, Pageant, Palladium, Protect
Bacterial leaf spot or blight	Cease, CuPRO 5000, Nu-Cop, Phyton 27
Botrytis blight (grey mold of leaves, flowers and/or fruit)	Cease, Compass, Fame SC, Medallion, MilStop, OHP 6672, Pageant, Palladium, Phyton 27, Protect
Leaf spots— <i>Cercospora</i> , <i>Phyllosticta</i> , etc.	Cease, Fame SC, Medallion, MilStop, OHP 6672, Pageant, Palladium, Protect
Powdery mildew	Cease, Compass, Fame SC, Fosphite, Heritage, Heritage SC, MilStop, OHP 6672, Pageant, Palladium, Phyton 27, Pipron
Pythium, Phytophthora diseases	Banol, Banrot 8G, Banrot 40WP, Cease, Fame SC, Empress, Fosphite, Micora, Orvego, Pageant, Protect, Resyst, Stature SC, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	Banrot 8G, Banrot 40WP, Cease, Compass, Fame SC, Empress, Fosphite, Medallion, OHP 6672, Pageant, Palladium, Protect
Southern blight ( <i>Sclerotium rolfsii</i> )	Fame SC, Medallion, Palladium
VERONICA (Speedwell)	
Downy mildew	Pageant, Phyton 27, Trinity TR
Powdery mildew	Compass, Pageant, Phyton 27, Trinity TR
Phytophthora root rot, aerial blight	Empress, Pageant
Rhizoctonia root rot, web or aerial blight	Empress, Pageant, Trinity TR

VIBURNUM DO NOT USE: SULFUR FUNGICIDES	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> , <i>Gloeosporium</i> , etc)	Broadform, Compass, CuPRO 5000, Heritage, Heritage SC, Junction, MilStop, Nu-Cop, Pageant, Spectro 90, Protect
Bacterial leaf spot or blight	Agri-Mycin 17
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Chipco 26019, Iprodione, Junction, MilStop, Pageant, Phyton 27, Protect, Spectro 90, Trinity TR
Downy mildew	Dithane, Fore, Heritage, Heritage SC, Mancozeb, Micora, Orvego, Pageant, Protect, Stature SC, Trinity TR
Leaf spots— <i>Phyllosticta</i> , <i>Cercospora</i> , etc.	26/36, Broadform, Chipco 26019, Compass, Dithane, Fore, Heritage, Heritage SC, Iprodione, Mancozeb, MilStop, Pageant, Phyton 27, Protect, Spectro 90, Trinity TR
Powdery mildew	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Eagle, Heritage, Heritage SC, MilStop, Pageant, Spectro 90, Trinity TR
Rhizoctonia root rot, web or aerial blight	26/36, Broadform, Chipco 26019, Compass, Empress, Iprodione, Pageant, Protect, Spectro 90, Trinity TR
VINCA ( <i>Vinca</i> sp.—see Periwinkle [groundcover]; Flowering annual—see <i>Catharanthus</i> )	
VIOLET ( <i>Viola</i> )	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> , <i>Gloeosporium</i> , etc)	Basicop, Cease, MilStop
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Basicop, Cease, Chipco 26019, Iprodione, MilStop
Downy mildew	Basicop, Cease, CuPRO 5000, Micora
Leaf spots— <i>Cercospora</i> , etc.	26/36, Basicop, Cease, Chipco 26019, Iprodione, MilStop
Powdery mildew	Cease, MilStop
Pythium, Phytophthora diseases	Banol, Cease, Empress, Micora
Rhizoctonia root rot, web or aerial blight	26/36, Cease, Chipco 26019, Empress, Iprodione

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ORNAMENTALS

WALNUT (Black)	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> , <i>Gloeosporium</i> , etc)	Banner Maxx II, Dithane, Fore, Junction, Mancozeb, OHP 6672, Pageant, Protect, Spectro 90, Tourney
Bacterial leaf spot or blight	Junction
Leaf spots— <i>Cladosporium</i> , etc.	Concert, Junction, OHP 6672, Pageant, Protect, Spectro 90, Tourney
Powdery mildew	Eagle, Fosphite, OHP 6672, Pageant, Spectro 90, Tourney
Rhizoctonia root rot, web or aerial blight	Empress, Fosphite, OHP 6672, Pageant, Protect, Spectro 90, Tourney
WANDERING JEW ( <i>Tradescantia</i> )	
Leaf spots	Medallion, Palladium
Rhizoctonia root rot, web or aerial blight	Banrot 40WP, Medallion (test drench for phytotoxicity), Palladium
WAX MYRTLE ( <i>Myrica cerifera</i> )	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> , <i>Gloeosporium</i> , etc)	Pageant
Leaf spots— <i>Septoria</i> , <i>Cercospora</i> , <i>Phyllosticta</i> , <i>Phomopsis</i> , etc.	Banner Maxx II, Pageant, Propiconazole
Rhizoctonia root rot, web or aerial blight	Empress, Pageant
Rust leaf spots	Pageant

WILLOW ( <i>Salix</i> )	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> , <i>Gloeosporium</i> , etc)	CuPRO 5000, Nu-Cop, Pageant, Protect
Botryosphaeria dieback	Protect
Leaf spots— <i>Phyllosticta</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Algal</i> , <i>Cylindrosporium</i> , <i>Marssonina</i> , etc.	Protect
Powdery mildew	Eagle
Rhizoctonia root rot, web or aerial blight	Protect
Rust leaf spots	Protect
YARROW ( <i>Achillea</i> )	
Powdery mildew	Eagle
Rhizoctonia root rot, web or aerial blight	Empress
YEW (see <i>Taxus</i> )	
YUCCA	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Protect, Spectro 90
Leaf spots— <i>Alternaria</i> , <i>Cercospora</i> , etc.	Camelot-O, CuPRO 5000, Nu-Cop, Protect, Spectro 90
Rhizoctonia root rot, web or aerial blight	Heritage, Heritage SC, Protect, Spectro 90
Rust leaf spots	Protect, Spectro 90



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ZEBRA PLANT ( <i>Aphelandra</i> )	
Anthracnose diseases—leaf and stem spots, diebacks ( <i>Colletotrichum</i> )	Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Heritage, Heritage SC, MilStop, Protect, Spectro 90
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Camelot-O, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Iprodione, MilStop, Protect, Spectro 90
Pythium, Phytophthora diseases	Areca, Fosphite, Protect, Resyst, Spectro 90, Subdue GR, Subdue Maxx
Rhizoctonia root rot, web or aerial blight	26/36, Camelot-O, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fosphite, Iprodione, Protect, Spectro 90
ZINNIA	
Bacterial leaf spot or blight	Cease, Phyton 27
Botrytis blight (grey mold of leaves, flowers and/or fruit)	26/36, Cease, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Iprodione, Junction, Medallion, MilStop, Pageant, Palladium, Phyton 27, Protect, Spectro 90
Fusarium root or stem rot	Banrot 8G, Banrot 40WP, Cease, Fame SC, Empress, Fosphite, Iprodione, Medallion, Pageant, Palladium
Leaf spots— <i>Alternaria</i> , <i>Cercospora</i> , etc.	26/36, Avelyo, Broadform, Cease, Chipco 26019, Compass, CuPRO 5000, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Dithane, Eagle, Fore, Heritage, Heritage SC, Iprodione, Junction, Mancozeb, Medallion, MilStop, Pageant, Palladium, Protect, Spectro 90, ZybanWSB
Powdery mildew	Avelyo, Banner MaxxII, Basicop, Broadform, Cease, Compass, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Eagle, Fosphite, Heritage, Heritage SC, Kumulus, MilStop, Pageant, Palladium, Phyton 27, Pipron, Propiconazole, Protocol, Spectro 90
Pythium, Phytophthora diseases	Areca, Banrot 8G, Banrot 40WP, Cease, Fame SC, Empress, Fosphite, Pageant, Protect, Resyst, Spectro 90, Subdue GR, Subdue Maxx, Terrazole, Truban 30WP, Truban 25EC
Rhizoctonia root rot, web or aerial blight	26/36, Banrot 8G, Banrot 40WP, Cease, Chipco 26019, Daconil Ultrex, Daconil Weatherstik, Daconil Zn, Fame SC, Empress, Fosphite, Iprodione, Medallion, Pageant, Palladium, Protect, Spectro 90
Southern blight ( <i>Sclerotium rolfsii</i> )	Fame SC, Medallion, Palladium