



DISEASE CONTROL Annuals and Bedding Plants

Commercial Ornamentals: Disease Control—Annuals and Bedding Plants

Host and Disease	Fungicide and Formulation	Rates (Unless Stated Otherwise)		Comments
		Per Gallon	Per 100 Gallons	

Botrytis Blight

BEDDING PLANTS: FOLIAGE AND BLOOMS: *African violet, ageratum, alyssum, aphelandra, calceolaria, celosia, chrysanthemum, cineraria, cyclamen, dianthus, geranium, marigold, nasturtium, salvia, scarlet sage, snapdragon, verbena, zinnia*. FOLIAGE ONLY: *Aster, balsam (impatiens), begonia, carnation, coleus, delphinium, petunia, vinca*

chlorothalonil EXOTHERM TERMIL	See Comments. 2 T.			SMOKE FUMIGATION IN GREENHOUSE: One can treat 1000 square feet. DO NOT use at temperatures above 75°F.
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BEDDING PLANTS: *African violet, begonia, carnation, chrysanthemum, daisy, geranium, hydrangea, marigold, pansy, petunia, poinsettia, rose, statice, zinnia*

chlorothalonil DACONIL ULTREX	---	1.4 lb.		FOLIAR SPRAY: Begin sprays at transplant or when conditions favor disease. Repeat every 7 to 14 days. Use shorter spray intervals when conditions favor disease.
DACONIL ULTREX WEATHER STIK	---	1.38 pt.		
DACONIL ZN	2 t.	2 pt.		
ECHO DF	---	1.25 lb.		
LANDSCAPE AND GARDEN FUNGICIDE	2 T.	---		
MANICUR ULTREX	---	1.4 lb.		
fenhexamid DECREE 50WDG	---	1-1.5 lb.		Apply at 7- to 14-day intervals to all above-ground plant surfaces.

BEDDING PLANTS: *aster, begonia, carnation, chrysanthemum, daisy, dianthus, dicentra, episica, exacum, geranium, Gerber daisy, gypsophila, impatiens, marigold, pansy, petunia, poinsettia, statice, zinnia*

chlorothalonil + thiophanate-methyl SPECTRO 90	---	1-2 lb.		Use sufficient volume of water to thoroughly cover the leaves and stems. Repeat applications at 7- to 10-day intervals as needed. Use higher rate at shorter interval when disease is present.
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BEDDING PLANTS: *alyssum, anemone, argyranthemum, aster, begonia, carnation, chrysanthemum, coleus, columbine, coneflower, soreopsis, cuphea, dahlia, daisy, dianthus, delphinium, dusty miller, Echinacea (coneflower), geranium, impatiens, oantana, lead plant, liatris, lobelia, lupine, marigold, monarda, pansy, pentas, petunia, phlox, poppy, primrose, pulmonaria, rudbeckia, salvia, scabiosa, sedum, verbena, veronica, vinca, viola*

copper sulfate pentahydrate PHYTON 27	---	10-20 fl.oz.		Use sufficient volume of water to thoroughly cover the leaves and stems. Repeat applications at 7- to 10-day intervals as needed to control disease. May be applied as often as 3 to 5 days when disease is severe. Refer to label for specific application rates on the above bedding plants.
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Host and Disease	Fungicide and Formulation	Rates (Unless Stated Otherwise)		Comments
		Per Gallon	Per 100 Gallons	
Commercial Ornamentals: Disease Control—Annuals and Bedding Plants				
Botrytis Blight (cont.)				
BEDDING PLANTS: <i>African violet, ageratum, alyssum, aster, begonia, bleeding heart, bridal veil, calendula, carnation, centaurea, celosia, Christmas cactus, chrysanthemum, coleus, coreopsis, cyclamen, dahlia, daisy, fuchsia, Gerber daisy, gomphrena, lantana, lisanthus, marigold, Mexican heather, pansy, petunia, poinsettia, portulaca, salvia, snapdragon, sunflower, tobacco (flowering), verbena, vinca, wandering jew, zinnia</i>				
	fluidioxonil MEDALLION	---	2-4 oz.	Apply to point of run-off at 7- to 14-day intervals when conditions favor disease. See label for further instructions.
BEDDING PLANTS: <i>ageratum, ajuga, alyssum, aster, calendula, carnation, chrysanthemum, cineraria, coleus, columbine, coral bells, crassula, cyclamen, deutzia, dianthus, dizygotheca, episcia, gazaina, geranium, gladiolus, gloxinia, gypsophila, impatiens, marigold, monarda, pansy, periwinkle, phlox, poinsettia, poppy, protea, salvia, snapdragon, statice, tulip, violet, zinnia</i>				
	iprodione CHIPCO 26GT CHIPCO 26019 50W IPRODIONE PRO SE SEXTANT 2F	--- --- --- ---	1-2.5 qt./A 1-2.5 lb./A 1-2.5 qt. 1-2.75 qt.	FOLIAR SPRAY: Apply when conditions favor disease on 7- to 14-day intervals. Use higher rate and shorter spray intervals when severe disease damage is likely. NOT FOR RESIDENTIAL USE.
BEDDING PLANTS: <i>African violet, ageratum, alyssum, anthurium, aster, baby's breath, begonia, carnation, celosia, chrysanthemum, coleus, columbine, croton, daisy (Transvall and Shasta), delphinium, dusty miller, English ivy, fern, fittonia, geranium, gerbera, gomphrena, impatiens, kalanchoe, lobelia, nasturtium, nicotiana, orchid, pachysandra, pansy, peony, petunia, phlox, poinsettia, portulaca, primula, protea, santolina, senecio, statice, strawflower, vanda, velvetleaf, verbena, zinnia</i>				
	mancozeb DITHANE T/O FORE FLO 37F MANCOZEB DG PROTECT T/O 80W	3 t. --- 1.5-3 t. 3 t.	1.5 lb. 1.2 qt. 1-2 lb. 1.5 lb.	FOLIAR SPRAY: Begin sprays when plants are fully leafed out and repeat every 7 to 10 days as needed. Add a wetting agent to tank mix.
BEDDING PLANTS AND FLORAL CROPS: <i>African violet, alyssum, artemisia, aster, begonia, calceolaria, carnation, chrysanthemum, cineraria, cyclamen, daffodil, daisy (Shasta), delphinium, dianthus, fuchsia, gazania, geranium, gerbera, gypsophila, impatiens, liatris, lupine, mandevilla, marigold, nasturtium, pelargonium, petunia, phlox, poppy, primrose, saintpaulia, saxifraga, senecio, sinningia, statice, sweet pea, verbena, violet, zinnia</i>				
	Streptomyces griseoviridis K61 MYCOSTOP	---	1.4 oz.	FOLIAR SPRAY: Apply every 2 to 4 weeks. Wet foliage to run-off.
BEDDING PLANTS: <i>Herbaceous annuals and perennials grown as bedding plants</i>				
	thiophanate-methyl 3336 4.5F 3336 50W CAVALIER 4.5F CAVALIER 50WSB OHP 6672 50W	0.5-1 T. 2.33-4 t. --- --- ---	10-20 fl.oz. 12-16 oz. 10-20 fl.oz. 12-16 oz. 12-16 oz.	FOLIAR SPRAY: Apply when conditions favor disease. Repeat sprays every 10 to 14 days; shorten intervals during overcast, rainy weather.
	thiophanate methyl + flutolanil SYS STAR WDG	---	4-8 oz.	FOLIAR SPRAY: Apply to point of drip when conditions favor disease. Repeat every 10 to 14 days as needed.

Host and Disease	Fungicide and Formulation	Rates (Unless Stated Otherwise)		Comments
		Per Gallon	Per 100 Gallons	
Commercial Ornamentals: Disease Control—Annuals and Bedding Plants				
Botrytis Blight (cont.)				
BEDDING PLANTS: <i>ageratum, artemisia, aster, calendula, carnation, chrysanthemum, cineraria, coleus, columbine, coral bells, delphinium, deutzia, dianthus, dicygotheca, episcia, gazania, geranium, gloxinia, gypsophila, kalanchoe, lipstick vine, monarda, pansy, periwinkle, phlox, poinsettia, poppy, protea, salvia, snapdragon, statice, violet, zinnia</i>				
	thiophanate-methyl + iprodione 26/36 FUNGICIDE	---	33-84 fl.oz./A	Use sufficient volume of water to thoroughly cover the leaves and stems. Repeat applications at 7- to 14-day intervals as needed. Use higher rate at shorter interval when disease is present. NOT FOR RESIDENTIAL USE.
BEDDING PLANTS: <i>all</i>				
	triflumizole TERRAGUARD SC	---	4-8 fl.oz.	Begin application before first sign of disease. Repeat as needed every 7 to 14 days. Use higher rate at shorter intervals when disease is present.
General Root and Crown Rot Control				
BEDDING PLANTS: <i>African violet, alyssum, artemisia, aster, begonia, bleeding heart, calceolaria, carnation, chrysanthemum, cineraria, coleus, cyclamen, delphinium, dianthus, gazania, geranium, gerbera, gypsophila, impatiens, liatris, lupine, marigold, monarda, nasturtium, pelargonium, petunia, phlox, poppy, primrose, primula, shasta daisy, sinningia, statice, sweet pea, verbena, violet, zinnia</i>				
<i>Biofungicides</i>				
	<i>Gliocladium virens</i> SOILGARD	---	27-40 oz./cu.yd. potting media	INCORPORATED: Blend with potting media 3 days before planting.
	<i>Streptomyces griseoviridis</i> K61 MYCOSTOP	---	0.08 oz./lb. seed	SEED DRESSING: Add to seed in container, seal, and shake until seed is evenly covered. Controls diseases caused by <i>Alternaria</i> , <i>Fusarium</i> , and <i>Phomopsis</i> . Suppresses <i>Pythium</i> and <i>Phytophthora</i> root rots.
		---	1.4 oz.	SOIL DRENCH: Apply 20 to 40 gallons of suspension to 800 square feet of bench, container, or bed area. Irrigate to saturate potting medium or soil. Repeat every 3 to 6 weeks as needed.
		---	5 g/1.3 gal.	SOIL SPRAY: Apply 2 to 4 gallons in a proportioner, injector, or sprayer to 800 square feet of bench, container, or bed area. Irrigate to improve soil penetration. Repeat every 3 to 6 weeks as needed.
		---	5 g/1.3 gal.	TRANSPLANT DIP: Dip roots of transplants shortly before planting.
	<i>Trichoderma harzianum</i> ROOT SHIELD	---	1-1.5 lb./cu.yd. potting media or landscape bed	INCORPORATED: Thoroughly mix into potting media. Mix into landscape beds with a rake or tiller.

Host and Disease	Fungicide and Formulation	Rates (Unless Stated Otherwise)		Comments
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Commercial Ornamentals: Disease Control—Annuals and Bedding Plants				
General Root and Crown Rot Control (cont.)				
<i>Disinfestation of Equipment</i>				
	alcohol 70-100%	---	---	SURFACE DISINFESTANT: Dip or swab tools, benches, pruning shears, etc.
	amphyl	See Comments.		See label for instructions.
	bleach 5.25%	---	6 gal.	SURFACE DISINFESTANT: Dip or spray on pots, flats, benches, and walkways. Remove dirt and debris before treatment. Corrosive to metal tools.
	formaldehyde Formalin 40%	---	1 pt./12 gal.	SURFACE DISINFESTANT: Dip or swab on clay pots, wood flats, benches, or concrete walkways. DO NOT use in poorly ventilated areas.
	steam or dry heat	See Comments.		Cover equipment and heat to 180°-200°F for 30 minutes.
<i>Soil Pasteurization/Fumigation</i>				
	aerated steam	See Comments.		Bring temperature to 140°F for 0.5 hour. Soil should be moist before treatment. Add any amendments or fertilizer before treatment. Prevent recontamination.
	dazomet BASAMID GRANULAR	9.4-13 oz./100 sq.ft.	225-350 lb./A	PREPLANT FUMIGATION: Spread uniformly across bed; till 8 inches deep when enough moisture is in soil for good plant growth. Wet soil after treatment so a crust forms. Wait 5 to 7 days before tilling. Wait 2 or 3 days to plant. DO NOT use in greenhouse that contains plants. See label for further directions. Basamid is a RESTRICTED USE pesticide and may be applied only by a certified applicator.
		4-5 oz./cu.yd. of media	---	BULK SOIL MIX: Add to soil mixer. Media must be moist when treated. See label for further directions. Basamid is a RESTRICTED USE pesticide and may be applied only by a certified applicator.

Host and Disease	Fungicide and Formulation	Rates (Unless Stated Otherwise)		Comments
		Per Gallon	Per 100 Gallons	
Commercial Ornamentals: Disease Control—Annuals and Bedding Plants				
General Root and Crown Rot Control (cont.)				
<i>Soil Pasteurization/Fumigation (cont.)</i>				
	electric soil pasteurizers	See Comments.		Bring temperature to 180°-190°F for 0.5 hour. Be sure soil is moist before treatment. Add any amendments or fertilizer before treatment. Handle treated soil carefully to prevent recontamination.
	formaldehyde Formalin 40%	2.5 T. in 1 c. water/bu. soil	---	BULK FUMIGATION: Sprinkle over a thin layer in flats. Mix thoroughly and stack the flats. Cover with plastic for 24 hours. Soil should be moist when treated. Air until odor is gone.
	liquid carbamate VAPAM	---	1-2 pt./5 gal.	BED FUMIGATION: Apply with hose proportioner or sprinkler can evenly to 100 square feet; thoroughly water into soil and cover with plastic for 48 hours. DO NOT plant for 2 to 3 weeks. If soils are high in organic matter or cold, wait 3 to 4 weeks before planting. To be used by certified applicators ONLY . Protective clothing and respirators REQUIRED . Vapam is a RESTRICTED USE pesticide.
		1 fl.oz./2 cu.ft.	---	BULK SOIL MIX: Add to soil mixer. Sprinkle soil after treatment with water and cover for 48 hours. Aerate soil 2 to 3 weeks before planting. See label for further information. To be used by certified applicators ONLY Protective clothing and respirators REQUIRED . Vapam is a RESTRICTED USE pesticide.
	steam	See Comments.		Bring temperature at coldest spot to 160°-180°F for 0.5 hour to kill microbes, insects, nematodes, and weed seed. Add soil amendments and fertilizer before sterilization. Store away from contaminated soil. Leaching may be necessary to remove excess soluble salts.
	<i>Soil Solarization</i>			
	See Comments.			Cover area prepared for seedbed with 1 or 2 layers of 1- to 4-mil clear plastic. Leave in place for 4 to 8 weeks, depending on the time of year. See Extension Circular ANR-713, "Soil Solarization For The Control of Nematodes And Soil-Borne Diseases," for more information.
Leaf Spots (Caused by bacteria)				
BEDDING PLANTS: <i>begonia, carnation, chrysanthemum, dianthus, dusty miller, impatiens, ivy, lantana, pentas, verbena</i>				
	copper hydroxide CUPRO 2005 T/N/O	---	0.75 lb.	FOLIAR SPRAY: Apply at first sign of disease. Reapply at 7- to 14-day intervals. See label for information on possible phytotoxicity.

Host and Disease	Fungicide and Formulation	Rates (Unless Stated Otherwise)		Comments
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Commercial Ornamentals: Disease Control—Annuals and Bedding Plants				
Leaf Spots and Blights (Caused by fungi)				
BEDDING PLANTS: <i>begonia, bougainvillea, cactus, ceanothus, gaillardia, English ivy, heather, marigold, pansy, potentilla, primrose, rose, sedum, snapdragon, vinca, viola, zinnia</i>				
	azoxystrobin HERITAGE 50W	---	1-4 oz.	FOLIAR SPRAY: Apply at first sign of disease and then every 7 to 28 days, as needed
BEDDING PLANTS: <i>Begonia, bougainvillea, cactus, carnation, ceanothus, chrysanthemum, daisy, English ivy, gaillardia, geranium, marigold, heather, pansy, petunia, phlox, poinsettia, potentilla, primrose, rose, sedum, snap-dragon, statice, vinca, viola, zinnia</i>				
	chlorothalonil CONCORDE DF	---	1-2.5 lb.	FOLIAR SPRAY: Begin sprays at transplant or first sign of disease. Repeat sprays every 7 to 14 days. Shorten intervals when conditions favor disease.
	DACONIL ULTREX	---	1.4 lb.	Apply when foliage and flowers are dry or nearly dry. DO NOT apply with high-pressure spray equipment or a mist blower.
	DACONIL	---	1.38 pt.	
	WEATHER STIK 6F			
	DACONIL ZN	2 t.	2 pt.	
	LANDSCAPE AND GARDEN FUNGICIDE	2 T.	---	
	MANICUR ULTREX	---	1.4 lb.	
BEDDING PLANTS: <i>aster, begonia, carnation, chrysanthemum, daisy, dianthus, dicentra, episica, exacum, geranium, Gerber daisy, gypsophila, impatiens, marigold, pansy, petunia, poinsettia, statice, zinnia</i>				
	chlorothalonil + thiophanate-methyl SPECTRO 90	---	1-2 lb.	Use sufficient volume of water to thoroughly cover the leaves and stems. Repeat applications at 7- to 14-day intervals as needed. Use higher rate at shorter interval when disease is present.
BEDDING PLANTS: <i>African violet, ageratum, alyssum, aster, begonia, bleeding heart, bridal veil, calendula, carnation, centaurea, celosia, Christmas cactus, chrysanthemum, coleus, coreopsis, cyclamen, dahlia, daisy, fuchsia, Gerber daisy, gomphrena, lantana, lisanthus, marigold, Mexican heather, pansy, petunia, poinsettia, portulaca, salvia, snapdragon, sunflower, tobacco (flowering), verbena, vinca, wandering jew, zinna</i>				
	fluidioxonil MEDALLION	---	2-4 oz.	For control of Alternaria, Septoria, Myrothecium, and Cercospora leaf spots. Apply to run-off at 7- to 14-day intervals when conditions favor disease. Also controls Rhizoctonia aerial blight.
BEDDING PLANTS: <i>ageratum, alyssum, aster, calendula, carnation, chrysanthemum, cineraria, coleus, columbine, crassula, croton, cyclamen, dahlia, delphinium, deutzia, dianthus, English ivy, gazania, geranium, gloxinia, gypsophila, impatiens, marigold, pansy, periwinkle, phlox, poinsettia, poppy, protea, salvia, snapdragon, statice, violet, zinnia</i>				
	iprodione CHIPCO 26GT	---	1-2.5 qt./A	FOLIAR SPRAY: Apply when conditions favor disease on 7- to 14-day intervals. Use higher rate and shorter spray intervals when severe damage is likely.
	CHIPCO 26019 50W	---	1-2.5 lb./A	Sextant is for the control of alternaria leaf spot and Rhizoctonia aerial web blight. NOT FOR RESIDENTIAL USE.
	IPRODIONE PRO SE	---	1-2.5 qt.	
	SEXTANT 2F	---	1-2.75 qt.	

Host and Disease	Fungicide and Formulation	Rates (Unless Stated Otherwise)		Comments
		Per Gallon	Per 100 Gallons	
Commercial Ornamentals: Disease Control—Annuals and Bedding Plants				
Leaf Spots and Blights (Caused by fungi) (cont.)				
BEDDING PLANTS: <i>ageratum, aster, carnation, celosia, columbine, coreopsis, dahlia, dusty miller, gazania, geranium, Gerber daisy, lily, limonium, marigold, pansy, petunia, poinsettia, portulaca, snapdragon, spiderwort, verbena, veronica, vinca, zinnia</i>				
	kresoxim-methyl CYGNUS	---	1.6-3.2 oz.	Apply as a protective spray at 10- to 14-day intervals. Apply higher rate at shorter interval when conditions favor disease.
BEDDING PLANTS: <i>African violet, ageratum, alyssum, anthurium, aster, baby's breath, begonia, carnation, celosia, chrysanthemum, coleus, columbine, croton, daisy (Transvall and Shasta), delphinium, dusty miller, English ivy, fern, fittonia, geranium, gerbera, gomphrena, impatiens, kalanchoe, lobelia, nasturtium, nicotiana, orchid, pachysandra, pansy, peony, petunia, phlox, poinsettia, portulaca, primula, protea, santolina, senecio, statice, strawflower, vanda, velvetleaf, verbena, zinnia</i>				
	mancozeb DITHANE T/O FORE FLO 37F MANCOZEB DG PROTECT T/O 80W	3 t. --- 1.5-3 t. 3 t.	1.5 lb. 1.2 qt. 1-2 lb. 1.5 lb.	FOLIAR SPRAY: Begin sprays when plants are fully leafed out and repeat every 7 to 10 days as needed. Add a wetting agent to tank mix.
BEDDING PLANTS: <i>Herbaceous annuals and perennials grown as bedding plants</i>				
	thiophanate-methyl 3336 4.5F 3336 50W CAVALIER 4.5F CAVALIER 50WSB	0.5-1.25 T. 2.33-4 t. --- ---	16-20 fl.oz. 12-16 oz. 16-20 fl.oz. 12-16 oz.	FOLIAR SPRAY: Begin at transplant or first sign of disease. Repeat sprays every 10 to 14 days. Shorten intervals to 7 days when conditions favor disease. DO NOT apply to plug trays or flats at seeding.
BEDDING PLANTS: <i>ageratum, artemisia, aster, calendula, carnation, chrysanthemum, cineraria, coleus, columbine, coral bells, delphinium, deutzia, dianthus, dzygotheca, episcia, gazania, geranium, gloxinia, gypsophila, kalanchoe, lipstick vine, monarda, pansy, periwinkle, phlox, poinsettia, poppy, protea, salvia, snapdragon, statice, violet, zinnia</i>				
	thiophanate-methyl + iprodione 26/36 FUNGICIDE	---	33-84 fl.oz./A	Use sufficient volume of water to thoroughly cover the leaves and stems. Repeat applications at 7- to 14-day intervals as needed. Use higher rate at shorter interval when disease is present. NOT FOR RESIDENTIAL USE.

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Commercial Ornamentals: Disease Control—Annuals and Bedding Plants				
Powdery Mildew				
BEDDING PLANTS: <i>aster, begonia, carnation, chrysanthemum, foxglove, gerber daisy, larkspur, pansy, phlox, poinsettia, rose, rosemary, rudbeckia, verbena, viola, zinnia</i>				
	azoxystrobin HERITAGE 50W	---	1-4 oz.	FOLIAR SPRAY: Apply at first sign of disease and then every 7 to 28 days as needed.
BEDDING PLANTS: <i>aster, begonia, carnation, chrysanthemum, daisy, dianthus, dicentra, episica, exacum, geranium, Gerber daisy, gypsophila, impatiens, marigold, pansy, petunia, poinsettia, statice, zinnia</i>				
	chlorothalonil + thiophanate-methyl SPECTRO 90	---	1-2 lb.	Use sufficient volume of water to thoroughly cover the leaves and stems. Repeat applications at 7- to 10-day intervals as needed. Use higher rate at shorter interval when disease is present.
BEDDING PLANTS: <i>ageratum, aster, columbine, coreopsis, dahlia, dusty miller, geranium, Gerber daisy, pansy, poinsettia, snapdragon, verbena, veronica, zinnia</i>				
	kresoxim-methyl CYGNUS	---	1.6-3.2 oz.	Apply as a protective spray at 10- to 14-day intervals. Apply higher rate at shorter interval when conditions favor disease.
BEDDING PLANTS: <i>ageratum, alyssum, artemisia, aster, calendula, carnation, centaurea, chrysanthemum, cineraria, coleus, columbine, coral bells, clematis, delphinium, dianthus, dizygotheca, episcia, gazania, geranium, gloxinia, gypsophila, heliopsis, kalanchoe, monarda, periwinkle, phlox, poppy, protea, pulmonaria, snapdragon, verbena, violet, zinnia</i>				
	potassium bicarbonate MILSTOP	---	1.25-3 lb. 2-3 lb.	GREENHOUSE: Use a sufficient volume of water to cover the leaves and stems. Repeat applications at 7- to 14-day intervals as needed to control disease. FIELD APPLICATION: Use a sufficient volume of water to cover the leaves and stems. Repeat applications at 7- to 14-day intervals as needed to control disease.
BEDDING PLANTS: <i>Herbaceous annuals and perennials grown as bedding plants</i>				
	thiophanate-methyl 3336 4.5F 3336 50W OHP 6672 50W	0.5-1.25 T. 2.33-4 t. 2.33-4 t.	10-20 fl.oz. 12-24 oz. 12-24 oz.	Apply at first sign of disease and repeat at 7- to 14-day intervals.
BEDDING PLANTS: <i>ageratum, artemisia, aster, calendula, carnation, chrysanthemum, cineraria, coleus, columbine, coral bells, delphinium, deutzia, dianthus, dizygotheca, episcia, gazania, geranium, gloxinia, gypsophila, kalanchoe, lipstick vine, monarda, pansy, periwinkle, phlox, poinsettia, poppy, protea, salvia, snapdragon, statice, violet, zinnia</i>				
	thiophanate-methyl + iprodione 26/36 FUNGICIDE	---	33-84 fl.oz./A	Use sufficient volume of water to thoroughly cover the leaves and stems. Repeat applications at 7- to 14-day intervals as needed. Use higher rate at shorter interval when disease is present. NOT FOR RESIDENTIAL USE.
BEDDING PLANTS: <i>ageratum, begonia, carnation, chrysanthemum, dahlia, delphinium, geranium, hollyhock, pansy, petunia, phlox, rose, salvia, sedum, snapdragon, sunflower, sweet pea, zinnia</i>				
	triadimefon BAYLETON T/O STRIKE 25W	---	1-2 oz. 2-4 oz.	Use lower rate in winter. Spray intervals should not be shorter than 30 days to avoid shortening flower stalk length. Bayleton is not labeled for greenhouse use.

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		Per Gallon	Per 100 Gallons	
Commercial Ornamentals: Disease Control—Annuals and Bedding Plants				
Powdery Mildew (cont.)				
BEDDING PLANTS: <i>all</i>				
	triflumizole TERRAGUARD SC	---	4-16 fl.oz	Begin applications before first sign of disease. Repeat as needed every 7 to 14 days. Use higher rate at shorter intervals when disease is present.
BEDDING PLANTS: <i>calendula, phlox, snapdragon, zinnia</i>				
	triforine TRIFORINE 18.2E	---	12-18 fl.oz.	Apply at 7- to 10-day intervals.
Pythium and Phytophthora Damping-Off, Root and Crown Rot				
BEDDING PLANTS: <i>flowers</i>				
	captan CAPTAN 50W	---	4 lb.	TUBER DIP FOR BEGONIAS: Dip for 30 minutes, drain, and plant.
		---	2 lb.	PREPLANT SOIL DRENCH: Apply 15 gallons per 1000 square feet. Cultivate to a depth of 3 to 4 inches.
BEDDING PLANTS: <i>ageratum, alyssum, aster, balsam, begonia, calendula, carnation, celosia, coleus, dahlia, dianthus, foxglove, impatiens, larkspur, marigold, pansy, petunia, portulaca, salvia, snapdragon, stokesia, verbena, vinca, zinnia</i>				
	etr Diazole TERRAZOLE 35W TRUBAN 30W	---	4-6 oz.	SOIL DRENCH: Covers 800-square-foot bed area. Use at seeding and transplanting. Irrigate immediately. Repeat at 1- to 2-month intervals.
BEDDING PLANTS: <i>ajuga, alyssum, calendula, celosia, chrysanthemum, cineraria, coleus, dahlia, dianthus, dusty miller, larkspur, marigold, pansy, petunia, phlox, salvia, snapdragon, verbena, vinca, zinnia</i>				
	etr Diazole TRUBAN 25E	---	3-4 fl.oz.	SOIL DRENCH AT SEEDING AND TRANSPLANTING: Apply to 400 to 800 square feet of bench area. Repeat applications as needed at 1- to 2-month intervals.
BEDDING PLANTS: <i>ageratum, alyssum, aster, balsam, begonia, calendula, carnation, celosia, coleus, dahlia, dianthus, foxglove, impatiens, marigold, pansy, petunia, portulaca, salvia, snapdragon, stokesia, verbena, vinca, zinnia</i>				
	etr Diazole TRUBAN 5G	---	5 oz./cu.yd.	
BEDDING PLANTS: <i>ageratum, ajuga, alyssum, aster, balsam, begonia, carnation, celosia, coleus, dahlia, dusty miller, gynura, impatiens, larkspur, marigold, nasturtium, pansy, petunia, phlox, salvia, snapdragon, verbena, zinnia</i>				
	etr Diazole + thiophanate-methyl BANROT 8G	---	8 oz./cu.yd.	SOIL DRENCH: Covers 800-square-foot bed area. Use at seeding and transplanting. Irrigate immediately. Repeat at 1- to 2-month intervals. Also controls diseases caused by Rhizoctonia, Fusarium, and Thielaviopsis.
	BANROT 40W	---	4-8 oz.	
BEDDING PLANTS: <i>such as alyssum, geranium, ivy, pelargonium, poinsettia, vinca</i>				
	fenamidone FENSTOP	---	7-14 fl.oz.	SOIL DRENCH: Covers 400 square feet of bed or bench area. Repeat applications as needed on a 28-day schedule. Do not make more than four applications per season. NOT FOR RESIDENTIAL USE.
BEDDING PLANTS: <i>such as begonia, geranium, impatiens, marigold, pansy, petunia, vinca, zinnia</i>				
	fosetyl-AI ALLETTE WDG	---	1.25-4 lb.	FOLIAR SPRAY: Apply to wet foliage, using no more than 400 gallons of spray solution per acre. Repeat as needed at monthly intervals.

Host and Disease	Fungicide and Formulation	Rates (Unless Stated Otherwise)		Comments
		Per Gallon	Per 100 Gallons	
Commercial Ornamentals: Disease Control—Annuals and Bedding Plants				
Pythium and Phytophthora Damping-Off, Root and Crown Rot (cont.)				
BEDDING PLANTS: <i>such as alyssum, geranium, ivy, pelargonium, poinsettia, and vinca</i>				
	mefenoxam SUBDUE MAXX	---	1 fl.oz./ 1000 sq.ft.	SOIL SURFACE SPRAY: Broadcast or band on soil surface to obtain thorough coverage of the plant root zone. After application, irrigate with at least a half inch of water if rainfall does not occur within 7 days.
BEDDING PLANTS: <i>ageratum, Algerian ivy, artemisia, aster, baby's breath, begonia, caladium, carnation, chrysanthemum, coleus, columbine, daisy (Shasta), delphinium, English ivy, gaillardia, geranium, impatiens, marigold, pansy, petunia, phlox, pinks, primrose, rosemary, salvia, snapdragon, verbena, vinca, zinnia</i>				
	mefenoxam SUBDUE MAXX	---	0.13-0.25 fl.oz.	SOIL DRENCH AT SEEDING: Covers 400- to 800-square-foot bed area (1-2 pints per square foot). DO NOT apply to English ivy more than once every 6 months.
	SUBDUE 2X WSP SUBDUE MAXX	---	0.1-0.5 oz. ---	SOIL DRENCH AT TRANSPLANTING: Covers 400- to 800-square-foot bed area. Repeat at 1- to 2-month intervals. DO NOT use more than 1.5 to 2 fluid ounces per 100 gallons every 6 weeks.
	SUBDUE MAXX	---	0.13 fl.oz./ cu.yd.	SOIL MIX AT SEEDING AND TRANSPLANTING: Mix thoroughly.
	SUBDUE GR	---	6-30 oz.	SOIL SURFACE: Covers 1000-square-foot bed area. Irrigate to wet soil. Repeat as needed at 1- to 2-month intervals. DO NOT apply rates of more than 22 ounces once every 6 weeks. DO NOT apply to English ivy more than once every 6 months.
	SUBDUE GR	---	1.6-8 oz./cu.yd.	DRY SOIL MIX: Mix thoroughly and irrigate with enough water to wet the root zone. May be re-applied as a soil surface application.
BEDDING PLANTS: <i>ageratum, artemisia, aster, begonia, caladium, carnation, chrysanthemum, columbine, coleus, daisy, delphinium, Easter lily, foxglove, gaillardia, geranium, gloxinia, impatiens, marigold, petunia, pansy, phlox, pinks, poinsettia, primrose, salvia, snapdragon, vinca, verbena, zinnia</i>				
	potassium salts of phosphorous acid ALUDE	0.3-0.67 fl.oz. ---	1-2 qt. ---	FOLIAR SPRAY: Apply to thoroughly wet foliage and repeat every 14 to 21 days as needed. DRENCH: Apply 25 gallons of solution to 100 square feet of bed area and repeat monthly as needed.
BEDDING PLANTS: <i>ageratum, alyssum, artemisia, aster, begonia, carnation, celosia, chrysanthemum, coleus, dusty miller, geranium, gloxinia, impatiens, lobelia, marigold, pansy, petunia, portulaca, salvia, snapdragon, verbena, vinca, violet.</i>				
	propamocarb BANOL 66.55	---	30 fl.oz. ---	AT SEEDING: Apply 3 quarts per 10 square feet. AT TRANSPLANTING (SEEDLINGS): Apply 3 quarts per 10 square feet.
		---	20 fl.oz.	AT TRANSPLANTING (CUTTINGS): Drench cutting beds with 2 gallons to 10 square feet of bed area before setting.
		---	20 fl.oz.	POTTING/SOIL DRENCH: Dip bare root plants in solution and repeat every 3 to 6 weeks with 3.5 fluid ounces spray mix per 4-inch pot.
BEDDING PLANTS: <i>ageratum, alyssum, artemisia, aster, calendula, carnation, centaurea, chrysanthemum, cineraria, coleus, columbine, coral bells, clematis, delphinium, dianthus, dizygotheca, episcia, gazania, geranium, gloxinia, gypsophila, heliopsis, kalanchoe, monarda, periwinkle, phlox, poppy, protea, pulmonaria, snapdragon, verbena, violet, zinnia</i>				
	<i>Trichoderma</i> <i>harzianum</i> Strain KRL- AG2 ROOT SHIELD	---	1-1.5 lb./cu. yd.	DRY SOIL MIX IN NURSERY AND GREENHOUSE: Thoroughly incorporate granules during mix preparation or pot filling. See label for compatibility with other fungicides and insecticides.

Host and Disease	Fungicide and Formulation	Rates (Unless Stated Otherwise)		Comments
		Per Gallon	Per 100 Gallons	
Commercial Ornamentals: Disease Control—Annuals and Bedding Plants				
Rhizoctonia Damping-Off, Root and Crown Rot				
BEDDING PLANTS: <i>herbaceous annuals or perennials grown as bedding plants</i>				
	etridiazole + thiophanate-methyl	---	8 oz.	DRY SOIL MIX: Mix thoroughly. Repeat as needed with soil drench. Also controls diseases caused by Rhizoctonia, Fusarium, and Thielaviopsis.
	BANROT 8G	---	4-8 oz.	SOIL DRENCH: Covers 800-square-foot bed area. Use at seeding and transplanting. Irrigate immediately. Repeat at 1- to 2-month intervals.
	BANROT 40W	---		Also controls diseases caused by Fusarium and Thielaviopsis.
BEDDING PLANTS: <i>African violet, ageratum, alyssum, aster, begonia, bleeding heart, bridal veil, calendula, carnation, centaurea, celosia, Christmas cactus, chrysanthemum, coleus, coreopsis, cyclamen, dahlia, daisy, fuchsia, Gerber daisy, gomphrena, lantana, lisanthus, marigold, Mexican heather, pansy, petunia, poinsettia, portulaca, salvia, snapdragon, sunflower, verbena, vinca, wandering jew, zinnia</i>				
	fludioxonil	---	1 oz.	AT SEEDING: Apply up to 1 pint of suspension per square foot of bed or bench area. Make only one application prior to transplanting crop to larger container. DO NOT apply Medallion to pansies or geraniums.
	MEDALLION	---		PRE-PLANT OR TRANSPLANT DRENCH: Use sufficient volume of water to thoroughly wet the potting medium.
		---	1-2 oz.	AT TRANSPLANTING: Mix in 100 gallons of water. Apply up to 1 pint of suspension per square foot of bed or bench area. Repeat if needed after 21 to 28 days. Under severe conditions, use higher rate. DO NOT apply Medallion to pansies or geraniums.
		---		FOLIAR SPRAY: Use sufficient volume of water to thoroughly cover the leaves and stems. Repeat applications at 7- to 14-day intervals as needed to control disease. Use higher rate at shorter interval when disease is present. Do not make more than two consecutive applications of this fungicide.
		---	1-2 oz./cu.yd.	PRE-POTTING MIX: Mix desired amount of Medallion with 0.5-1 gallon of water per cubic yard of potting media. Mix uniformly in media just before seeding or transplanting.
		---		SOIL MIX: Add fungicide to 0.5 to 1 gallon of water per cubic yard of media to be treated and then adding to medium in rotating drum or similar mixing unit. See label for further mixing instructions.
BEDDING PLANTS: <i>such as but not limited to chrysanthemum, geranium, hollyhock, lily, petunia, poinsettia, and snapdragon</i>				
	flutolanil	---	3-6 oz.	SOIL DRENCH: Apply 1 to 2 pints of suspension per square foot of bed or bench area. Retreat every 21 to 28 days until crop is finished. See label for drench rates on larger containers and for additional information. May be applied through overhead, microjet, and drip irrigation systems.
	CONTRAST 70WS	---	3-6 oz.	
	PROSTAR 70WP	---	3-6 oz.	

Host and Disease	Fungicide and Formulation	Rates (Unless Stated Otherwise)		Comments
		Per Gallon	Per 100 Gallons	
Commercial Ornamentals: Disease Control—Annuals and Bedding Plants				
Rhizoctonia Damping-Off, Root and Crown Rot (cont.)				
BEDDING PLANTS: at seeding: <i>ageratum, alyssum, aster, calendula, carnation, cineraria, columbine, coral bells, delphinium, deutzia, dianthus, geranium, gloxinia, marigold, pansy, periwinkle, phlox, poinsettia, poppy, protea, salvia, snapdragon, statice, violet, zinnia</i> . At transplanting: <i>Aster, carnation, chrysanthemum, coleus, dahlia, English ivy, geranium, gypsophila, marigold, salvia, snapdragon, zinnia</i>				
	iprodione CHIPCO 26GT SEXTANT 2F	--- --- ---	13 fl.oz. 13 fl.oz.	SOIL DRENCH AT SEEDING OR TRANSPLANTING: Apply 1 to 2 pints per square foot. Repeat at 14-day intervals. NOT FOR RESIDENTIAL USE.
BEDDING PLANTS: <i>abutilon, alyssum, calceolaria, canna, carnation, chrysanthemum, cineraria, columbine, coral bells, cyclamen, dahlia, delphinium, dianthus, foxglove, fuchsia, gardenia, gazania, geranium, gloxinia, impatiens, lily, lupine, marigold, monarda, petunia, poinsettia, portulaca, salvia, scabiosa, sedum, sempervivum, verbena, vinca, zinnia, and similar plants</i>				
	PCNB DEFEND 2F DEFEND 10G DEFEND 75W REVERE WSP TERRACLOR 400 TERRACLOR 75W	--- --- --- --- --- ---	0.75 pt. 15 lb./1000 sq.ft. bed area 4-8 oz. 4-8 oz. 6-12 fl.oz. 4-8 oz.	SOIL DRENCH AT SEEDING OR TRANSPLANTING: Apply to 400 to 800 square feet of bench or bed area. One repeat application can be made 4 to 6 weeks later. Continuously agitate to assure uniform application.
BEDDING PLANTS: <i>herbaceous annuals or perennials grown as bedding plants</i>				
	thiophanate-methyl 3336 4.5F 3336 50W OHP 6672 4.5F OHP 6672 50W 3336 G	0.5-1.25 t. 0.75-1 t. 2.33-4 t. --- ---	16-20 fl.oz. 12-16 oz. 20 fl.oz. 12-16 oz. 22-30 lb.	SOIL DRENCH: Covers 400- to 800-square-foot bed area or 1 to 3 pints per square foot. Apply after seeding or transplanting to propagation beds or containers. Repeat at 3- to 4-week intervals. Also controls Botrytis, Cylindrocladium, Fusarium, Sclerotinia, and Thielaviopsis stem, crown, and root rots. Does not control diseases caused by Pythium or Phytophthora. Broadcast rate per 1000 square feet of treated area. Repeat at 14- to 28-day intervals. Also controls Cylindrocladium, Fusarium, Sclerotinia, and Thielaviopsis root and crown rots.
BEDDING PLANTS:				
	thiophanate-methyl + flutolanil SYS STAR WDG	--- ---	2-4 oz.	DRENCH: Apply 1 to 2 pints per square foot of bed or bench area. Repeat as needed for control.
BEDDING PLANTS: <i>ageratum, artemisia, aster, calendula, carnation, chrysanthemum, cineraria, coleus, columbine, coral bells, delphinium, deutzia, dianthus, dizygotheca, episcia, gazania, geranium, gloxinia, gypsophila, kalanchoe, lipstick vine, monarda, pansy, periwinkle, phlox, poinsettia, poppy, protea, salvia, snapdragon, statice, violet, zinnia</i>				
	thiophanate-methyl + iprodione 26/36 FUNGICIDE	--- ---	33-84 fl.oz./A	HEAVY SPRAY/DRENCH: Use sufficient volume of water to thoroughly wet the roots and surrounding potting medium. Repeat applications at 7- to 14-day intervals as needed. Use higher rate at shorter interval when disease is present. NOT FOR RESIDENTIAL USE.

Host and Disease	Fungicide and Formulation	Rates (Unless Stated Otherwise)		Comments
		Per Gallon	Per 100 Gallons	
Commercial Ornamentals: Disease Control—Annuals and Bedding Plants				
Rhizoctonia Damping-Off, Root and Crown Rot (cont.)				
BEDDING PLANTS:				
	trifloxystrobin COMPASS O	---	0.5 oz.	DRENCH: Apply as a drench to upper half of growing medium. Start treatments at seeding and repeat at transplanting and at 21- to 28-day intervals as needed.
BEDDING PLANTS: <i>columbine, dianthus, heuchera, impatiens, lupine, pansy, poinsettia, vinca</i>				
	triflumizole TERRAGUARD 50W	0.67-1.33 t.	4-8 oz	SOIL DRENCH: Apply at 3- to 4-week intervals as needed.

Commercial Ornamentals: Disease Control—Annuals and Bedding Plants prepared by Austin K. Hagan, *Extension Plant Pathologist*, Alumni Professor, Entomology and Plant Pathology, Auburn University.

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For more information, call your county Extension office. It is listed in your telephone directory under your county's name.

Use pesticides **only** according to the directions on the label. Follow all directions, precautions, and restrictions that are listed. Do not use pesticides on plants that are not listed on the label.

The pesticide rates in this publication are recommended **only** if they are registered with the Environmental Protection Agency or the Alabama Department of Agriculture and Industries. If a registration is changed or cancelled, the rate listed here is no longer recommended. Before you apply **any** pesticide, check with your county Extension agent for the latest information.

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