

Chemical Disease Controls for the Greenhouse Industry



Note: An X in the table below indicates which pathogens are listed on product labels by the company selling the product. It does not guarantee that the pesticide products will provide adequate control of the pathogens listed on the label. For more information on how well pesticide products worked in research trials and for the correct rates for specific crops, contact a greenhouse extension agent in your area.



Trade name	Common name	Company	Vegetables	REI (hrs)	Damping-off, root rot, stem or foliar blight										Notes		
					Phytophthora	Pythium	Cylindrocium	Fusicarium	Rhizactonia	Sclerotinia	Thielaviopsis	Bulliform rot - fungal	Fungal leaf spots - flower blights	Botrytis spp.		Powdery mildew	Rust
26 GT	iprodione	Bayer		12			X	X	X				X	X	X		Do not use 26GT fungicide as a soil drench on impatiens or pothos. Do not use 26GT fungicide on spathiphyllum.
3336F, G, GC, WP	thiophanate-methyl	Cleary		12			X	X	X	X	X		X	X	X	X	Cleary's 3336G, GC are not labeled for leaf/flower spots or blights. Use of a wetting agent is recommended. Not recommended for use on Swedish ivy, Boston fern or Easter cactus.
4 Flowable Mancozeb	mancozeb	Lesco		24	X		X	X	X					X	X		The use of a spray adjuvant will improve performance. Do not use treated plants/fruits for food or feed purposes.
Agri-Fos	mono- and di-potassium salts	AgBio	0	4	X	X											Also labeled for the control of bacterial blight and fire blight.
Aliette WDG	aluminum tris	Bayer		12	X	X											Also labeled for the control of downy mildew and fire blight. Can be applied as a foliar spray, drench application, or soil incorporation.
Alban 50WSB, Flo	thiophanate-methyl	Scotts		12			X	X	X	X	X		X	X	X	X	Addition of surfactant improves distribution of product on hard-to-wet plants such as roses.
Alude	phosphorous acid	Cleary		4	X	X											Also labeled for bacterial blights and downy mildew. Do not apply to plants that are heat or moisture stressed.
Banol	propamocarb hydrochloride	Bayer		24	X	X											For use at all stages of ornamental propagation.
Banrot 8G, 40WP	etridiazole + thiophanate-methyl	Scotts		12	X	X		X	X								
Botran 75-W	dicloran	Gowan		12									X		X		
Camelot	copper salts	Whitmire Micro-Gen	0	12	X									X	X	X	Camelot is also labeled for control of bacterial diseases caused by <i>Erwinia</i> , <i>Pseudomonas</i> , and <i>Xanthomonas</i> spp. Labeled for control of downy mildew on various ornamental species. Do not apply to Easter lily when in bloom.
Captan 4L	captan	Drexel		4 days									X	X	X		Controls damping-off of cuttings. Do not spray the crops listed on the label beyond the point of drip from the leaf surface.
Captan 50WP	captan	Micro-Flo		4 days									X	X	X		Also controls damping-off of cuttings (see label for specific crops). Do not spray the crops listed on the label beyond the point of drip from the leaf surface.
Captan Pro 80 WDG	captan	Arysta LifeScience		4 days									X	X	X	X	Also controls damping-off of cuttings (see label for specific crops). Do not spray the crops listed on the label beyond the point of drip from the leaf surface.
Captec 4L	captan	Micro-Flo		4 days									X	X	X		Also controls damping-off of cuttings (see label for specific crops). Do not spray the crops listed on the label beyond the point of drip from the leaf surface. Open greenhouse vents during application and for at least one hour following.
Champ DP, Formula 2F	copper hydroxide	Agrol	0	24	X									X	X	X	Also labeled for bacterial diseases on certain crops (see label). Dry prill is a formulation resulting in virtually no dust. Do not tank mix with Aliette.
Champion WP	copper hydroxide	Agrol	0	24	X									X	X	X	Also controls bacterial leaf spot on certain crops (see label) and downy mildew on pansy and snapdragon. Do not apply to hibiscus in flower. To avoid residues on commercial plants, do not spray just before selling. Do not tank mix with Aliette.
Chipco 26019, Flo	iprodione	Bayer		12			X	X	X				X	X	X		May be applied as a foliar application, soil drench, or dip. Do not use as a soil drench on impatiens or pothos. Do not use product on spathiphyllum.
Chlorostar VI	chlorothalonil	Regal		48	X		X	X	X	X				X	X		Avoid applications during bloom period on plants where flower injury is unacceptable. Discontinue applications to poinsettia prior to bract formation.
Companion	<i>Bacillus subtilis</i> GB03	Growth Products		4	X	X		X	X								Most effective when applied as a preventative treatment. Only registered for use in protected glass- or greenhouses.
Compass	trifloxystrobin	OHP		12	X				X					X	X	X	Also controls downy mildew. Applications to poinsettia after bract formation may cause injury. May cause injury to petunia, violet and New Guinea impatiens. Do not use on ferns. Do not use as a drench on pansy.
ConSyst WDG	chlorothalonil + thiophanate	Regal		48										X	X	X	Labeled as fungistatic to <i>Pythium</i> diseases when used in a regular program. Also labeled for downy mildew.
Contrast 70WSP	flutolanil	Scotts		12					X				X				Use with a surfactant may improve coverage. Make no more than four applications of Contrast 70WSP per year to ornamental plantings.
Cygnus	kresoxim-methyl	BASF		12										X		X	Also labeled for downy mildew on rose and snapdragon.
Daconil Ultrex, Weather Stik, Zn	chlorothalonil	Syngenta		12	X		X	X	X	X				X	X	X	Do not apply to either green or variegated pittosporum or schefflera.
Decree 50WDG	fenhexamid	SePRO		12											X		This product should be used in a program with other fungicides to provide season-long protection. Avoid making more than two consecutive applications of this product. After the second application, use an alternative botryticide for two consecutive sprays before reapplying this product.
Dithane DF, 75DF	mancozeb	Dow Agro		24	X		X	X	X					X	X		Use with a surfactant will improve performance. Do not apply on French dwarf double or signet-type marigold seedlings. Do not use for food or feed purposes. Apply twice weekly to chrysanthemums during bloom period.
Eagle 20EW, 40WP	myclobutanil	Dow Agro		24										X		X	Do not use treated plant materials for food or feed purposes. See label for specific use instructions for chrysanthemum.
Echo 720, Ultimate, Zn	chlorothalonil	Sipcam		12	X		X	X	X					X	X	X	Avoid applications during bloom period on plants where flower injury is unacceptable. Discontinue applications to poinsettia prior to bract formation.
Fenox ME	mefenoxam	Regal		0	X	X											Check label for precautions concerning specific crops.
Fore 80WP	mancozeb	Dow Agro		24	X		X	X	X					X	X		The addition of a spreader-sticker will improve fungicide performance. Do not apply on French dwarf double or signet-type marigold seedlings. Do not use treated plants for food or feed purposes.
Heritage	azoxystrobin	Syngenta		4	X			X	X					X	X	X	The addition of a non-silicone based wetter-sticker is recommended to enhance coverage. Also controls downy mildew on rose. To reduce possible resistance, do not make more than three consecutive applications before alternating with a fungicide with a different mode of action.
Iprodione Pro ZSE	iprodione	Micro-Flo		12			X	X	X				X	X	X		Do not use this product as a soil drench on impatiens and pothos. Do not use Iprodione ProZSE on spathiphyllum.
Junction	mancozeb + copper hydroxide	SePRO		24	X									X	X	X	Do not apply in a spray solution of pH less than 6.0. Also controls certain bacterial diseases (see label). Avoid spraying azaleas, carnations, chrysanthemums and roses just prior to selling season due to possible foliar and/or bloom discoloration. Not recommended for use on French marigold. Do not use treated plants for food or feed purposes
Kocide 2000	copper hydroxide	SePRO		24	X									X	X	X	Kocide 2000 T/N/O is not labeled for use on vegetables. Also controls bacterial leaf spot on certain crops (see label) and downy mildew on pansy. Discoloration of foliage and/or blooms of some crops has been noted.
KOP-Hydroxide 50	copper hydroxide	Drexel	0	24										X	X	X	Do not use in a spray solution of pH less than 6.5 or greater than 9.0. Also controls bacterial leaf spot on certain cultivars. Discoloration of azalea, carnation, chrysanthemum, ivy and rose foliage and/or blooms have been noted in some varieties. To prevent residues on commercial plants, do not spray just before selling season.
Mancozeb DG, 4 Flowable	mancozeb	Lesco		24	X		X	X	X					X	X		The use of a spray adjuvant will improve performance. Do not use treated plants for food or feed purposes.
Manhandle	mancozeb	Lesco		24	X		X	X	X					X	X	X	Do not use on French dwarf double or signet-type marigold seedlings. Do not apply through irrigation.
Manicure 6 Flowable, Ultra	chlorothalonil	Lesco		12	X		X	X	X	X				X	X	X	Do not use on green or variegated pittosporum or schefflera due to possible phytotoxicity. Discontinue use prior to poinsettia bract formation due to possible phytotoxicity.
Medallion	fludioxonil	Syngenta		12			X	X	X					X	X		Drench applications at seedling stage to impatiens or New Guinea impatiens may cause stunting and/or chlorosis.
Micro Sulf	sulfur	Agrol	0	24										X		X	Greenhouse-grown crops may be much more sensitive to sulfur injury, so the lowest rate should be tried initially. Also controls two-spotted mile, rust on selected ornamentals (see label), and botrytis blight on hydrangea.
MilStop	potassium bicarbonate	Bioworks, Inc.	0	1				X						X	X	X	Do not apply this product with any other fertilizer or pesticide. MilStop is not to be applied through any irrigation system.
Mycostop	<i>Streptomyces griseoviridis</i>	AgBio	0	4	X	X		X	X						X		Also can be used as a seed treatment.
Nordox 75WG	cuprous oxide	Monterey	0	24	X									X	X	X	Do not tank mix with Aliette fungicide. Labeled for control of many bacterial diseases.
OHP 6672 50W, 4.5L	thiophanate-methyl	OHP		12			X	X	X	X	X		X	X	X	X	Use of a wetting agent is recommended for plants that have hydrophobic leaves. May be applied as a foliar application, soil drench, or dip.
Pentathlon DF, LF	maneb	SePRO		24	X		X	X	X					X	X	X	Do not use on French dwarf double or signet-type marigold seedlings. Also controls <i>Cylindrocadium</i> on azalea.
Phydan 20	quatary ammonium chlorides	Mariil		12	X	X		X	X				X	X	X	X	Also labeled for downy mildew and certain bacterial diseases (see label). Also labeled for use as a disinfectant on greenhouse work areas and equipment to prevent cross-contamination of fungal and bacterial pathogens, algae, mildews and TMV.
Phyton 27, New Dimension	copper complex	Source Technology		24	X		X		X					X	X	X	Also controls <i>Erwinia</i> on a variety of ornamental plants (see label), <i>Pseudomonas</i> on geranium and impatiens, <i>Xanthomonas</i> on begonia and geranium, and downy mildew on snapdragon.
Pipron 84.4LC	piperatin	SePRO		12												X	Use caution when applying to poinsettia bracts and begonias. Do not treat hydrangea after flower buds are visible.
PlantShield HC	<i>Trichoderma harzianum</i>	Bioworks, Inc.	0	0		X	X	X	X	X	X			X	X		Use with a non-ionic spreader-sticker is recommended when applying to foliage and stem. Can be applied in hydroponic systems and subirrigation. Also labeled for <i>Myrothecium</i> and downy mildew. <i>Trichoderma harzianum</i> strain T-22 will colonize roots in all types of growing media, at pH 5 to 8, and at temperatures ranging from 50 to 94°F.
Plantvax 75W	oxycarboxin	Chemtura		12												X	Do not mix with insecticides and acaricides, as plant injury may occur.
Propiconazole Pro	propiconazole	Micro-Flo		24										X		X	Do not apply to African violets, begonias, Boston fern, or geraniums.
Protect DF, T/O	mancozeb	Cleary		24	X		X	X	X					X	X	X	The addition of a spreader-sticker will improve fungicide performance. Also labeled for downy mildew.
Revere 10G	pentachloronitrobenzene	Lesco		12					X	X				X			
Rhapsody AS	<i>Bacillus subtilis</i> QST 713	Bioworks, Inc.		4	X	X		X	X					X	X	X	Rhapsody AS is registered for soil applications ONLY in protected growing environments such as glass- or greenhouses.
RootShield	<i>Trichoderma harzianum</i>	Bioworks, Inc.	0	0		X	X	X	X	X				X			Also labeled for <i>Myrothecium</i> . Granules become active above 50°F and are not effective when temperature remains cold. <i>Trichoderma harzianum</i> strain T-22 will colonize roots in all types of growing media, at pH 5 to 8, and at temperatures ranging from 50 to 94°F.
Rubigan EC	fenarimol	SePRO		12												X	Do not apply this product through irrigation.
Sextant	iprodione	OHP		12			X	X	X				X	X	X		Do not use Sextant as a soil drench on impatiens or pothos. Do not use on spathiphyllum. May be used as a soil drench or root dip on various plant species (see label).
Spectro 90WDG	chlorothalonil	Cleary		12			X	X	X	X				X	X	X	Do not use on green or variegated pittosporum or schefflera more than one time. Not recommended for Swedish ivy, Boston fern, or Easter cactus.
Stature DM	dimethomorph	SePRO		12	X												Also labeled for control of downy mildew on certain plant species.
Strike 50WDG	triadimefon	OHP		12										X		X	
Subdue GR, MAXX	mefenoxam	Syngenta		0	X	X											Check label for precautions concerning specific crops.
SysStar WDG	thiophanate-methyl + flutolanil	Regal		12					X	X				X	X	X	Make no more than four applications of SysStar per year to ornamental plantings. Do not use any treated plants for food or feed purposes.
SysTec 1998, 1998 WDG	thiophanate-methyl	Regal		12			X	X		X	X			X	X	X	May be applied as a foliar application, soil drench, or dip.
Sythane WSP	myclobutanil	Dow Agro		24										X	X	X	The use of a spray adjuvant will improve performance.
T-Storm F, 50WSB	thiophanate-methyl	Lesco		12			X	X	X	X	X			X	X	X	This product is not recommended for the following plants: Swedish ivy, Boston fern, and Easter cactus.
Terraclor 400, 75WP	PCNB	Chemtura	0	12					X	X				X	X	X	Labeled for botrytis rot only, not botrytis blight. Do not apply to <i>Magnolia fuscata</i> as injury may result.
TerraGuard 50W	triflumizole	Chemtura		12			X	X	X		X			X	X	X	Do not use on impatiens plugs. Do not exceed 2 oz/100 gal on impatiens transplants.
Terrazole 35WP	etridiazole	Chemtura		12	X	X											
Triact 70	neem oil	OHP		4										X	X	X	Also labeled for downy mildew and insects, including whiteflies, aphids, mites, and scales. Do not use on sensitive species, such as impatiens, fuchsia, hibiscus, some rose flowers or some carnation varieties, without prior testing.
Truban 25EC, 30WP	etridiazole	Scotts		12	X	X											
Turicide 10G	PCNB	Chemtura	0	12					X	X				X			Mix Turicide 10G into soil medium for best results.
ZeroTol	hydrogen dioxide	BioSafe Systems		0	X	X		X	X	X				X	X	X	Also controls downy mildew and <i>Pseudomonas</i> and <i>Xanthomonas</i> . Also labeled for use on greenhouse work areas and equipment.
Zyban WSB	thiophanate-methyl + mancozeb	Scotts		24				X	X	X				X	X	X	Also controls downy mildew. Do not use on French marigold or gloxinia.

X = Pathogens are listed on label
0 = Can be used on vegetables

PESTICIDE EMERGENCY INFORMATION

For any type of an emergency involving a pesticide, immediately contact the following emergency information centers for assistance.



Current as of June 2005

Human Pesticide Poisoning

1 - 8 0 0 - 2 2 2 - 1 2 2 2

From anywhere in the United States, call
P O I S O N C O N T R O L

Special Pesticide Emergencies

Animal Poisoning	Your veterinarian:	Local fire department:	Local police department or sheriff's department:	Michigan Clean Sweep, Michigan Department of Agriculture Environmental Stewardship Division	Department of Quality Environmental (MDEQ) Office Phone No.
Pesticide	Phone No.	Phone No.	Phone No.	Phone No.	Phone No.
Fire					
Accident					
Traffic					
Environmental Pollution					
Pesticide Disposal Information					

Animal Poison Control Center (\$50 consultation fee per case)	* 1-888-426-4435	* 911	* 1-800-405-0101	* 1-800-292-4706	* 1-800-858-3778
www.aspca.org					
or	and	and	and	and	and
Operations Division, Michigan State Police, Emergency Alerting System (EAS):	(517) 336-6605				
MDEQ Pollution					
Michigan Department of Agriculture Spill Response					
Michigan Department of Agriculture					
Region State University					
7 days a week, excluding holidays					
6:30 a.m. – 4:30 p.m. Pacific Time Zone					
1-800-858-3778					
FAX: 1-541-737-0761					
Web: nplc.orst.edu					

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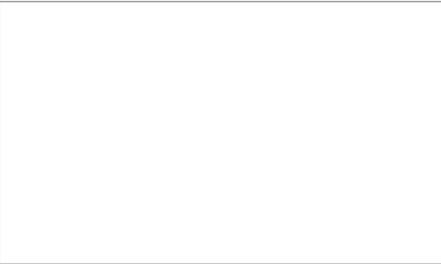
The Michigan Department of Agriculture (MDA) requires that chemi- cals used in the greenhouse must have Worker Protection in a location on the label other than the "Agricultural Use Requirements" box.

Any use inconsistent with the label can lead to injury of crops, humans, animals and the environment and can lead to fines and/or condemnation of the crop.

Vegetables include any plants being used as food or that will be transplanted as food crops later.

Always check the label for updated information. Labels change often. Some chemicals listed in this bulletin may be dropped by the manufacturer or distributor after publication of this bulletin. If you

Do not apply chemicals to plants that are stressed (by water, high temperatures or high humidity) because this increases the possibility of phytotoxicity. Always treat a small portion of plants of each variety with any new chemical (or combination of chemi- cals) and check them for damage 7 days later — before treating the whole crop. Chemicals that may not cause phytotoxicity when applied by themselves may cause damage when mixed together.



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