

Fungicide Tables

This table includes selected information about the fungicides recommended in this guide. The products are listed alphabetically by **Active Ingredient**, with a selection of **Trade Names**.

° = indicates that small package and ready-to-use formulations are commonly available at hardware stores and garden centers

* = indicates that some formulations may be Restricted Use Pesticides (RUP) and require a certification to purchase and use

† = indicates biorational formulations that may be listed by the Organic Materials Research Institute (OMRI) and may be allowed in organic production – check with your certifier

‡ = indicates additional formulations that do not currently occur elsewhere in this guide as crop protection recommendations because they are not as well understood to be effective options

The **Signal Word** is an indication of the human health hazard of the product.

The **Greenhouse Use** and **Chemigation Use** columns have one of four listings:

yes = the product label explicitly allows the use

some = the product label explicitly allows the use for certain crops (see the label for details),
or certain Trade Names allow complete or partial use

no = the product label explicitly prohibits the use

silent = the product label does not mention the use — states decide if such uses are allowed

The **Respirator Use** column has one of the following listings:

no = a respirator is not required PPE

yes = a respirator is required for some part of the process (see label for details)

some = certain Trade Names may require respirators, but others may not

The **Bee Precaution** column uses the following listings:

I = Toxic to honey bees. Do not apply to plants that are flowering, or water puddles.

II = Toxic to honey bees. Do not apply to plants that are flowering, or water puddles, except at dusk

III = No bee precaution, except when required by the pesticide label or regulations

a = Toxic to honey bee brood

b = Toxic to other bee species

Active Ingredients	Trade Names	Signal Word	Greenhouse Use	Chemigation Use	Respirator Use	Bee Precaution
*1,3-dichloropropene	Telone II, Telone EC	warning, danger	no	some	yes	II a
*1,3-dichloropropene, chloropicrin	Telone C-17, Telone C-35	danger	no	no	yes	II a
acibenzolar-s-methyl	Actigard	caution	silent	some	no	III
ametoctradin, dimethomorph	Zampro	caution	no	some	no	II b
‡†allyl isothiocyanate	Dominus	danger	yes	some	yes	-
‡† <i>Aureobasidium pullulans</i> strain DSM 14940 and 14941	Botector	caution	some	no	yes	III
azoxystrobin	Acadia LFC, Aframe, Arius, Azteroid FC 3.3, Dynasty, Heritage, Quadris, Satori	caution	some	some	no	III
azoxystrobin, benzovindiflupyr	Elatus, Mural	caution	some	some	no	III
azoxystrobin, chlorothalonil	Arius Advance, Quadris Opti	warning	no	some	yes	II ab
azoxystrobin, difenoconazole	Quadris Top	caution	some	some	no	II b
azoxystrobin, propiconazole	Quilt, Quilt Xcel	warning	no	some	no	II ab
azoxystrobin, <i>Reynoutria sachalinensis</i> extract	Azterknot	caution	some	some	yes	III
azoxystrobin, tebuconazole	Custodia	warning	no	some	no	II b
† <i>Bacillus amyloliquefaciens</i> strain MBI 600	Serifel	caution	silent	some	yes	III b
°† <i>Bacillus amyloliquefaciens</i> strain D747	Double Nickel 55, Double Nickel LC	caution	silent	some	yes	III b
† <i>Bacillus amyloliquefaciens</i> strain F727	Stargus	caution	yes	some	yes	III b
† <i>Bacillus mycooides</i> isolate J	LifeGuard WG	caution	yes	some	yes	-
† <i>Bacillus pumilus</i> QST 2808	Sonata	caution	yes	some	yes	-
‡† <i>Bacillus subtilis</i> strain IAB/BS03	AVIV	caution	yes	some	yes	III

Active Ingredients	Trade Names	Signal Word	Greenhouse Use	Chemigation Use	Respirator Use	Bee Precaution
† <i>Bacillus subtilis</i> strain QST 713	Cease, Serenade, Rhapsody	caution	yes	some	yes	III
‡† <i>Bacillus subtilis</i> var. <i>amyloliquefaciens</i> strain FZB24	Taegro 2	caution	yes	some	yes	III
‡†Bacteriophage active against <i>Clavibacter michiganensis</i> subsp. <i>michiganensis</i>	AgriPhage CMM	caution	yes	no	yes	-
‡†Bacteriophage active against <i>Xanthomonas campestris</i> pv. <i>vesicatoria</i> and <i>Pseudomonas syringae</i> pv. <i>tomato</i>	AgriPhage	caution	yes	no	yes	-
‡†banda de <i>Lupinus albus</i> doce (BLAD) polypeptides	Fracture, ProBlad Verde	caution	silent	some	some	-
boscalid	Endura	warning	no	some	no	II a
boscalid, pyraclostrobin	Coronet, Pageant Intrinsic, Pristine	caution	some	some	some	II a
‡†cerevisane (cell walls of <i>Saccharomyces cerevisiae</i> strain LAS117)	Romeo	caution	yes	no	no	-
°chlorothalonil	Bravo Weather Stik, Echo, Equus, Initiate	caution, warning, danger	no	some	some	II ab
chlorothalonil, cymoxanil	Cymbol Advance	caution	no	some	no	II ab
chlorothalonil, tebuconazole	Muscle ADV	caution	no	silent	no	II ab
‡†cinnamon oil	Cinnerate	caution	yes	some	no	-
‡†citric acid	FungOUT, Procidic	caution	yes	silent	no	-
‡†clove, rosemary, peppermint oil, cottonseed oil	GreenFurrow EF 400	-	some	silent	silent	II
† <i>Coniothyrium minitans</i> strain CON/M/91-08	Contans WG	caution	yes	some	yes	-
°copper diammonium diacetate complex	Copper Count N	caution	yes	some	no	-
†copper hydroxide	Champ, Kentan, Kocide, Nu-Cop, Spinnaker	caution, warning, danger	some	some	no	II
copper hydroxide, copper oxychloride	Badge SC	caution	yes	some	no	II b
°†copper octanoate	Camelot O, Cueva	caution	some	some	no	-
copper oxychloride	COC DF	caution	no	some	no	II b
copper oxychloride, copper sulfate	C-O-C-S WDG	warning	yes	no	no	II b
°†copper sulfate	Basic Copper 53, Cuprofix Ultra 40 Disperss, Cuproxat	caution, warning	some	some	no	III
‡†cottonseed oil, corn oil, garlic extract	Mildew Cure	-	silent	silent	no	-
†cuprous oxide	Nordox 75 WG	caution	silent	some	no	III
cyazofamid	Ranman 400SC	caution	some	some	no	-
cyflufenamid	Torino	caution	silent	no	no	III
cymoxanil	Curzate 60DF, Cymbol	warning	silent	some	no	III
‡cymoxanil, propamocarb	Cymbol Balance	caution	silent	some	no	III
cyprodinil	Vanguard WG	caution	silent	some	yes	III
cyprodinil, fludioxonil	Switch 62.5WG	caution	silent	some	yes	III
dichloro-nitroaniline	Botran 75W	caution	some	some	yes	III
difenoconazole, benzovindiflupyr	Aprovia Top	warning	no	some	no	II b
difenoconazole, cyprodinil	Inspire Super	caution	some	some	no	II b
dimethomorph	Forum	caution	no	some	no	II b
ethaboxam	Elumin	caution	no	some	no	-
‡†extract of <i>Swinglea glutinosa</i>	EcoSwing	caution	yes	some	no	-
famoxadone, cymoxanil	Tanos	caution	silent	some	no	III
fenamidone	Reason 500SC	caution	no	some	no	III
fenazaquin	Magister SC	warning	silent	no	no	I
fenhexamid	Decree 50WDG	caution	some	no	no	III
fluazinam	Lektivar 40SC, Omega 500F	warning	silent	some	no	-
fludioxonil	Cannonball, Emblem, Maxim 4FS, Protectant, Spirato	caution	some	some	some	III
fluopicolide	Presidio	caution	no	some	no	III
fluopyram	Velum Prime	caution	silent	some	no	III
fluopyram, pyrimethanil	Luna Tranquility	caution	some	some	no	III
fluopyram, tebuconazole	Luna Experience	caution	silent	some	no	II b
fluopyram, difenoconazole	Luna Flex	caution	silent	some	no	II b
fluopyram, trifloxystrobin	Luna Sensation	caution	silent	some	no	III
fluoxastrobin	Evito, Aftershock, Tepera	caution	some	some	no	-
*fluoxastrobin, bifenthrin	Tepera Plus	caution	some	some	no	I b
flutianil	Gatten	warning	no	no	no	-
flutolanil	Moncut	caution	silent	no	no	II a
flutriafol	Rhyme, Topguard EQ	caution, warning	some	some	no	III

Fungicide Tables

Active Ingredients	Trade Names	Signal Word	Greenhouse Use	Chemigation Use	Respirator Use	Bee Precaution
fluxapyroxad, pyraclostrobin	Merivon, Priaxor	caution, warning	no	some	no	III
fosetyl-aluminum	Aliette WDG	caution	silent	some	no	II ab
††garlic oil	Brandt Organics Aleo	warning	yes	silent	no	-
†† <i>Gliocladium catenulatum</i> (<i>Clonostachys rosea</i>) strain J1446	LALSTOP G46 WG, Pvent	caution	yes	some	yes	-
† <i>Gliocladium virens</i> GL-21	SoilGard	caution	yes	some	no	-
†hydrogen dioxide, peroxyacetic acid	OxiDate 2, TerraClean 5, ZeroTol 2.0	danger	yes	some	no	-
iprodione	Iprodione 4L AG, Meteor, Nevado 4F, Rovral 4F	caution	silent	some	yes	II ab
isofetamid	Kenja 400SC	caution	silent	some	no	-
††kaolin clay	Surround WP	caution	yes	no	yes	III
°mancozeb	Dithane Rainshield, Koverall, Manzate Max, Penncozeb	caution	Some	some	some	III
mancozeb, azoxystrobin	Dexter Max	caution	some	some	yes	III
mancozeb, azoxystrobin, tebuconazole	Dexter Xcel	caution	some	some	yes	II b
mancozeb, chlorothalonil	Elixir	warning	silent	some	no	II ab
mandipropamid	Revus	caution	silent	some	no	III
mandipropamid, difenoconazole	Revus Top	caution	silent	some	no	II b
mefenoxam (metalaxyl)	Apron XL, MetaStar, Ridomil Gold SL, Subdue Maxx, Ultra Flourish, Xyler	caution, warning	some	some	no	III
mefenoxam, chlorothalonil	Ridomil Gold Bravo SC	danger	no	some	no	II ab
mefenoxam, copper hydroxide	Ridomil Gold Copper	danger	no	some	no	II
mefenoxam, mancozeb	Ridomil Gold MZ	caution	silent	some	no	III
mefentrifluconazole	Cevya	caution	no	some	no	-
*metam potassium	K-PAM HL, Sectagon K54	danger	no	some	yes	III
*metam sodium	VAPAM HL, Sectagon K42	danger	no	some	yes	III
metrafenone	Vivando	caution	silent	no	no	III
°††mineral oil	Purespray Green, SuffOil-X, Tri-Tek	caution	some	no	no	-
mono- and dibasic sodium, potassium, and ammonium phosphites	Alude, Phostrol	caution	silent	some	no	-
mono-dipotassium salts of phosphorous acid	Agri-Fos, Fosphite, Reliant	caution	some	some	no	-
°myclobutanil	Rally 40WSP, Sonoma 40WSP, Sonoma 20EW	caution, warning	some	some	no	II
†† <i>Myrothecium verrucaria</i> strain AARC-0255 – dried fermentation solids & solubles	DiTera DF	caution	silent	some	no	-
°††neem oil	ECOWORKS EC, Rango, TerraNeem EC, Triact 70, Trilogy	caution	silent	no	no	II a
oxathiapiprolin	Orondis Gold 200	caution	some	some	no	-
oxathiapiprolin, chlorothalonil	Orondis Opti	danger	no	some	yes	II ab
oxathiapiprolin, mandipropamid	Orondis Ultrax	caution	some	some	no	III
oxathiapiprolin, mefenoxam	Orondis Gold	danger	no	some	no	III
†† <i>Paecilomyces lilacinus</i> strain PL251	MeloCon WG	caution	silent	some	yes	-
††paraffinic oil	JMS Stylet-Oil	caution	yes	no	no	-
PCNB	Blocker 4F, Blocker 10G, Terraclor 75WP	caution	silent	some	yes	I
penhiopyrad	Fontelis, Vertisan	caution	some	some	no	III
picoxystrobin	Aproach	caution	silent	some	no	-
polyoxin D zinc salt	Affirm WDG, Endorse, OSO 5% SC, Ph-D	caution	some	some	no	III
††potassium bicarbonate	Kaligreen, Milstop	caution	yes	no	no	III
potassium phosphite	K-Phite, ProPhyt	caution	silent	some	no	-
potassium phosphite, chlorothalonil	Catamaran	caution	silent	some	no	II ab
potassium phosphite, tebuconazole	Viathon	caution	silent	some	no	II b
††potassium salts of fatty acids	Des-X, KOPA, M-Pede	warning	yes	no	no	-
†potassium silicate	SiI-Matrix	caution	yes	some	no	III
propamocarb	Bruin, Previcur Flex	caution	some	some	no	-
propiconazole	Propimax EC, Tilt	warning	no	some	no	II ab
propiconazole, trifloxystrobin	Stratego	warning	silent	some	no	II ab
prothioconazole	Proline 480SC	caution	some	some	no	-
<i>Pseudomonas chlororaphis</i> strain AFS009	Howler, Zio	caution	some	some	yes	-
pydiflumetofen, fludioxonil	Miravis Prime	caution	some	some	no	III
pyraclostrobin	Cabrio, Headline EC	caution, warning	no	some	no	III

Active Ingredients	Trade Names	Signal Word	Greenhouse Use	Chemigation Use	Respirator Use	Bee Precaution
pyraclostrobin, metconazole	Headline AMP	warning	no	some	no	III
pyrimethanil	Scala S	caution	some	some	no	III
pyriofenone	Proливо 300SC	caution	silent	silent	no	-
quinoxifen	Quintec	caution	silent	no	no	III
† <i>Reynoutria sachalinensis</i> extract	Regalia, Regalia CG, Regalia RX	caution	silent	some	no	III
‡rhamnolipid biosurfactant (from <i>Pseudomonas aeruginosa</i>)	Zonix	danger	yes	some	no	-
‡†rosemary oil, clove oil, thyme oil, peppermint oil	Sporan	warning	yes	silent	no	II
‡sodium carbonate peroxyhydrate	PerCarb	danger	yes	no	no	-
‡† <i>Streptomyces griseoviridis</i> strain K61	Mycostop	caution	yes	some	yes	-
‡† <i>Streptomyces lydicus</i> WYEC 108	Actinovate AG, Actinovate STP	caution	yes	some	no	-
Streptomycin sulfate	Agri-mycin 17, FireWall, Streptrol	caution	some	no	yes	III
°†sulfur	Golden Micronized Sulfur, Kumulus DF, Micro Sulf, Microthiol Disperss, Thiolux, Sulfur 90 DF, Sulfur 80 WDG	caution	silent	some	no	III b
sulfur, tebuconazole	Unicorn DF	caution	silent	some	no	II b
‡†tea tree oil	Timorex Act, Timorex Gold	caution, warning	yes	no	no	-
tea tree oil, difenoconazole	Regev	caution	silent	no	no	II b
tebuconazole	Folicur 3.6F, Monsoon, Onset 3.6L, Toledo 3.6F	caution	silent	some	no	II b
thiabendazole	Mertect	caution	silent	silent	no	-
thiophanate-methyl	Cercobin, Miramar, Topsin 4.5FL, Topsin M	caution	silent	some	no	III
‡† <i>Trichoderma asperellum</i> strain ICC 012, <i>T. gamsii</i> strain ICC 080	Bio-Tam 2.0, Tenet WP	caution	yes	some	yes	III
‡† <i>Trichoderma harzianum</i> strain T-22	RootShield WP, RootShield AG	caution	yes	some	yes	II
‡† <i>Trichoderma harzianum</i> strain T-22, <i>T. virens</i> strain G-41	RootShield Plus WP, G	caution	yes	some	yes	II
‡†thyme oil	Promax, Thymox Control, Thyme Guard	caution, danger	some	silent	no	
trifloxystrobin	Flint, Flint Extra, Gem	caution	some	some	no	III
triflumizole	Procure 480SC	caution	silent	no	no	II b
† <i>Ulocladium oudemansii</i> strain U3	Botrystop	caution	silent	no	no	-
‡†yeast hydrolysate of <i>Saccharum cerevisiae</i>	KeyPlex 350	caution	silent	some	no	-
zoxamide, chlorothalonil	Zing!	caution	no	some	yes	II ab
zoxamide, mancozeb	Gavel 75DF	caution	silent	some	no	-

Small package hardware and garden center fungicides

This table includes additional pesticides that you may find readily available at hardware stores and garden centers in smaller quantities. The products are listed alphabetically by **Active Ingredient**, with a selection of **Trade Names**. RTU = Ready-To-Use without dilution, RTS = Ready-To-Spray with hose-end container.

† = indicates biorational formulations that may be listed by the Organic Materials Research Institute (OMRI) and may be allowed in organic production – check with your certifier

‡ = indicates additional formulations that do not currently occur elsewhere in this guide as crop protection recommendations because they are not as well understood to be effective options

Active Ingredients	Trade Names
‡† <i>Bacillus amyloliquefaciens</i> strain D747	Southern Ag Garden Friendly Fungicide, Bonide Revitalize Bio Fungicide Concentrate and RTU, Monterey Complete Disease Control RTU
chlorothalonil	Fertilome Broad Spectrum Landscape & Garden Fungicide Concentrate and RTU, GardenTech Daconil Fungicide Concentrate and RTU, Bonide Fung-onil Multipurpose Fungicide Concentrate and RTU, Southern Ag Liquid Ornamental & Vegetable Fungicide, Hi-Yield Vegetable Flower Fruit & Ornamental Fungicide, Ortho MAX Garden Disease Control Concentrate
copper diammonium diacetate complex	Southern Ag Liquid Copper Fungicide
†copper octanoate	Fertilome Captain Jack's Copper Fungicide Concentrate and RTU, Fertilome Copper Soap Fungicide Concentrate and RTU
†copper sulfate	Bonide Copper Fungicide
mancozeb	Southern Ag Dithane M-45, Bonide Mancozeb Flowable w/ Zinc Concentrate
mono-dipotassium salts of phosphorous acid	Monterey Garden Phos
myclobutanil	Fertilome F-Stop Lawn & Garden Fungicide Concentrate and RTS, Spectracide Immunox Multi-Purpose Fungicide for Gardens Concentrate, Monterey Fungi-Max
myclobutanil, permethrin	Spectracide Immunox 3-in-1 Insect and Disease Control Plus Fertilizer for Gardens RTU
‡†neem oil	Fertilome Natural Guard Neem, Bonide Captain Jack's NeemMax 4-In-1 Insecticide Fungicide Miticide Nematicide, Monterey 70% Neem Oil, Bonide Neem Oil Fungicide Miticide Insecticide, Garden Safe Neem Oil Extract Concentrate, Garden Safe Fungicide3, Monterey Neem Oil, Southern Ag Triple Action Neem Oil
‡†potassium salts of fatty acids, sulfur	Bonide Captain Jack's Tomato & Vegetable 3-In-1 Garden Spray
‡†potassium bicarbonate	Monterey Bi-Carb Old Fashioned Fungicide
‡†pyrethrins, neem oil	Fertilome Triple Action Concentrate RTU, Monterey Fruit Tree Spray Plus
‡pyrethrins, piperonyl butoxide, neem oil	Bonide Bon-Neem II RTU, Fertilome Fruit Tree Spray with Neem Py, Fertilome Triple Action Plus, Ortho Tree & Shrub Fruit Tree Spray
‡†sesame oil	AgroBioUSA Bee Safe 3-In-1 Garden Spray, AgroBioUSA Bee Safe Insect Killer
†sulfur	Hi-Yield Dusting Wettable Sulfur, GardenTech Sevin Sulfur Dust 2-in-1 Disease and Insect Control, Bonide Sulfur Plant Fungicide Dust, Southern Ag Wettable or Dusting Sulfur, Ortho Bug-Geta Slug and Snail Killer
†sulfur, pyrethrins	Ortho Insect Mite & Disease 3-In-1 RTU, Bonide Tomato & Vegetable 3-in-1 RTU and RTS