

Selected Fungicides and Bactericides Labeled for Greenhouse Use

Fungicide (Trade name, Product Source) Re-entry Interval	Target Diseases	Labeled Crops	Comments
BASIC COPPER SULFATE (Cuprofix Disperss; United Phosphorus, Inc.) 48 hr. REI	Many diseases including angular leaf spot, downy mildew. <i>Alternaria</i> blight, <i>Anthraco</i> se, bacterial blight, etc.	Vegetables including cucumber, eggplant, peppers and tomatoes.	Crops grown in the greenhouse may be more sensitive to copper injury so the user should determine plant sensitivity.
BACILLUS PUMILUS (Sonata; AgraQuest) 4 hr. REI	Early blight, late blight, downy mildew, powdery mildew	Many vegetables including Brassicas, bulb vegetables, cucurbits, fruiting vegetables and leafy vegetables,	OMRI approved.
BACILLUS SUBTILIS (Companion, Growth Products, LTD). 4hr. REI	Suppression of soilborne and foliar diseases including damping off, root rot and early blight	Many including fruiting, leafy vegetables, cucurbits, cole crops and herbs.	May be used in hydroponics, plug production and soilless production systems. Most effective used preventatively.
CHLOROTHALONIL plus POTASSIUM PHOSPHITE (Catamaran; Luxembourg –Pamol, Inc.) 12 hr. REI	Late blight	Tomatoes	
CONIOTHYRIUM MINITANS (Contans, SipcamAdvan) 4 hr. REI	<i>Sclerotinia sclerotiorum</i> , <i>Sclerotinia minor</i>	Many vegetables including leafy vegetables, brassicas, legumes, fruiting vegetables and bulb vegetables	OMRI approved. Contains a beneficial fungus. Do not allow to stand overnight following mixture. Acts as a preventative.
COPPER HYDROXIDE (Kocide 101, Kocide 2000, Kocide 4.5LF, Kocide DF, DuPont) 24 hr. REI	Leaf spots, <i>Anthraco</i> se and bacterial spots	See labels for specific crops including cucumber, eggplant pepper and tomatoes.	See labels for specific usage instructions.
COPPER SALTS of fatty and rosin acids (Camelot, Whitmire Micro-Gen) 12 hr. REI	<i>Alternaria</i> blight, downy mildew, angular leaf spot, powdery mildew, scab, gray mold, bacterial soft rot, bacterial spot, <i>Cercospora</i> leaf spot, etc.	Vegetables such as broccoli, cabbage, cucurbits, tomato, pepper, and lettuce.	The user should determine if Camelot can be used safely prior to use. Observe for 7 to 10 days for symptoms of injury.
CUPROUS OXIDE (Nordox, Monterey Chemical, Co.) 24 hr. REI	Bacterial spot and speck, <i>Alternaria</i> leaf spot, anthracnose, early and late blight, etc.	Eggplant, pepper and tomato	See label for specific usage instructions.
CYAZOFAMID (Ranman, FMC Corporation) 12 hr. REI	Pythium damping off Basil downy mildew	Tomato greenhouse transplant production and basil	Drench transplant tray with fungicide at planting or up until one week before transplant. See label for additional details.
DICLORAN (Botran 75-W, Gowan Company) 12 hr. REI	Pink rot, gray mold, <i>Sclerotinia</i> and <i>Sclerotium</i> rots, leaf blight and neck rot	Many vegetables including leaf lettuce, cucumbers, rhubarb, tomatoes and greenhouse seed potatoes or transplants.	May cause leaf bronzing on lettuce. Use adequate volume of water.
FENHEXAMID (Decree, Arysta Life Science) 4 hr. REI	Botrytis	Tomatoes, field tomato transplants grown in greenhouse, cucumbers and lettuce	Protectant fungicide with some plant back restrictions. See label for details.
HORTICULTURAL OIL (Ultra-Fine Oil, Whitmire Micro-Gen) 4 hr. REI	Powdery mildew	Cucurbits, melons and squash	Application should be made when disease is first noticed. See label for information on plant safety. Use lower label rates in the greenhouse.
HYDROGEN DIOXIDE (Oxidate, Zerotol, BioSafe Systems LLC) 1 hr. REI	<i>Anthraco</i> se, downy mildew, powdery mildew, <i>Pythium</i> root rot	Many including cole crops, cucurbit, leafy vegetables, peppers and tomatoes	Strong oxidizing agent. Contact, oxidizing sanitizer. (Active ingredient: hydrogen peroxide)

KAOLIN (Surround WP, Nova Source Tessenderlo Group) 4 hr. REI	Powdery Mildew	Cucurbit vegetables	Product forms a white clay film on leaves and fruit.
MANCOZEB (Dithane M45, DF, Dow AgroSciences LLC) 24 hr. REI	Leaf spot diseases, seed treatment for damping off, seed rots and seedling blights	Tomatoes and others	Broad-spectrum protectant fungicide.
MANDIPROPAMID (Micora, Syngenta) 4 hr. REI	Downy mildews, blue mold, and late blight, and suppression of Phytophthora blight	Brassicas, peppers, eggplants, leafy vegetables, and tomatoes. Basil transplants for resale.	Registered for closed greenhouses with permanent flooring on transplants for re-sale to consumers. See label for specific instructions.
PENTACHLORO-NITROBENZENE PCNB (Terraclor 75 WP, Terraclor Flowable, Terraclor 15G, Chemtura Corp.) 12 hr. REI	Root and stem rot, damping off (<i>Rhizoctonia solani</i> , <i>Pellicularia filamentosa</i>)	Vegetable bedding plants. Limited to container-grown beans, broccoli, Brussels sprouts, cabbage, Chinese cabbage, cauliflower, peppers and tomatoes.	Flowable and 75WP: Apply as a soil drench. 15G: Used as growing media mix. See label additional information.
PENTHIOPYRAD (Fontelis, DuPont) 12 hr. REI	Many, including gummy stem blight, Sclerotinia stem rot, leaf spots, powdery mildew and anthracnose	Tomatoes, peppers and edible peel cucurbits	See label for specific usage instructions.
PETROLEUMOIL (Saf-T-Side spray oil, Brandt Consolidated) 12 hr. REI	Powdery Mildew	Cucurbit vegetables	Contact fungicide. Phytotoxicity may occur. See label for details
POTASSIUM BICARBONATE (Armicarb 100, Helena Chemical Company; Milstop, BioWorks, Inc.; Kaligreen, Taogossi Co., LTD) 4 hr. REI	Powdery mildew and others	Many vegetables including cabbage, cucumber, eggplant, broccoli, cauliflower, lettuce, peppers, tomatoes and squash	Works by contact. Potassium bicarbonate disrupts the potassium ion balance in the fungus cell, causing the cell walls to collapse.
POTASSIUM SALTS OF FATTY ACIDS (M-Pede, Dow Agro Sciences) 12 hr. REI	Powdery Mildew	Greenhouse cucumber	Contact fungicide. See label for details.
PROPAMOCARB HYDROCHLORIDE (Previcur Flex, Bayer Crop Science) 12 hr. REI	<i>Pythium</i> root rot and damping off	Tomatoes, leaf lettuce, cucurbits and peppers	See label for specific usage instructions.
PYRACLASTROBIN plus BOSCALID (Pageant Intrinsic, BASF Corp) 12 hr. REI	Botrytis grey mold	Tomatoes and tomato transplants.	Pageant Intrinsic is also labeled for greenhouse use on tomato transplants grown for the home consumer market
PYRIMETHANIL (Scala, Bayer Crop Science) 12 hr. REI	Early blight and gray mold	Tomatoes	Use in well-ventilated houses only and ventilate two hours after application.
STREPTOMYCES GRISEOVIRIDIS strain K 61 (Mycostop, Mycostop Mix, Vedera Oy, Finland) 4 hr. REI	<i>Fusarium</i> , <i>Alternaria</i> , <i>Phomopsis</i> , suppression of <i>Botrytis</i> , and root rots of <i>Pythium</i> , <i>Phytophthora</i> , and <i>Rhizoctonia</i>	Greenhouse vegetables including lettuce, cucumbers, peppers, tomatoes and vegetable transplants.	Contains a beneficial bacterium. Repeat applications may be needed. Use as a soil spray or drench.
STREPTOMYCES LYDICUS (Actinovate, Natural Industries, Inc.) 1 hr. REI	Damping off and root rot, pathogens <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Phytophthora</i> , <i>Verticillium</i> ; and foliar diseases including downy and powdery mildew and <i>Alternaria</i> and <i>Botrytis</i> .	Greenhouse Vegetables and herbs.	May be applied to soil or foliage through mist systems or sprayer.
STREPTOMYCIN SULFATE (Agri-mycin 17, Nufarm Americas, Inc.) 12 hr. REI	Bacterial spot	Tomatoes and peppers	Repeated applications can result in resistant bacteria. Do not apply through any irrigation system.

SULFUR (Microthiol Disperss, United Phosphorus, Inc.) 24 hr. REI	Powdery mildew	Crucifers, cucurbits, peppers and tomatoes and other crops grown in the greenhouse (see label).	Crops grown in greenhouses may be more sensitive to sulfur injury, so the lowest label rate should be tried initially. Do not use within two weeks of an oil spray.
TRICHODERMA HARZIANUM (PlantShield, Rootshield, Bioworks, Inc.) 0 hr. REI	<i>Pythium</i> , <i>Rhizoctonia</i> , and <i>Fusarium</i> . When applied as a foliar spray, suppresses <i>Botrytis</i> and powdery mildew.	Greenhouse vegetables such as cucurbits, fruiting vegetables and lettuce.	Contains a beneficial fungus. Avoid applications of fungicides at least one week before or after application. Acts as a preventative. Will not cure diseased plants.
SULFUR (Microthiol Disperss, United Phosphorus, Inc.) 24 hr. REI	Powdery mildew	Crucifers, cucurbits, peppers and tomatoes and other crops grown in the greenhouse (see label).	Crops grown in greenhouses may be more sensitive to sulfur injury, so the lowest label rate should be tried initially. Do not use within two weeks of an oil spray.
TRICHODERMA HARZIANUM (PlantShield, Rootshield, Bioworks, Inc.) 0 hr. REI	<i>Pythium</i> , <i>Rhizoctonia</i> , and <i>Fusarium</i> . When applied as a foliar spray, suppresses <i>Botrytis</i> and powdery mildew.	Greenhouse vegetables such as cucurbits, fruiting vegetables and lettuce.	Contains a beneficial fungus. Avoid applications of fungicides at least one week before or after application. Acts as a preventative. Will not cure diseased plants.
TRICHODERMA VIRENS GL-21 (formerly known as <i>Gliocladium virens</i>) (SoilGard 12G, Certis USA LLC) 0 hr. REI	Damping off and root rot, pathogens <i>Pythium</i> and <i>Rhizoctonia</i>	Food crop plants in greenhouse	Acts as a preventative and will protect noninfected plants. Will not cure already diseased plants. Allow treated soil to incubate for one day prior to planting for best results. Do not use other soil fungicides at time of incorporation
TRIFLUMIZOLE (Procure, Chemtura) 12 hr. REI	Powdery mildew	Greenhouse grown cucurbits and transplants, Head and leaf lettuce including Butterhead varieties.	

If any information in these tables is inconsistent with the label, follow the label. Note that some states define pesticide applications in high tunnels as greenhouse applications and other states define them as field applications. Check with your extension educator or state department of agriculture for correct application.