

FUNGICIDES, BACTERICIDES, AND NEMATOCIDES

Not all chemicals listed are recommended or currently registered for use.
See listings for individual crops for recommended uses.

Common or Trade Name	Trade or Common Name	Action*	Fungicide Group ***	Use
Abound	azoxystrobin	B, F, Ls, P	11	Effective against a large number of fungi including powdery and downy mildews. Severe phytotoxicity on apples with a McIntosh heritage.
Absolute	tebuconazole + trifloxystrobin	B, C, F, Ls, P	3 + 11	For rust and powdery mildew control in grasses grown for seed in the PNW.
Academy	fludioxonil + difenoconazole	B-N, F, P	12 + 3	Postharvest fungicide.
Accrue	spiroxamine	F, N, P	5	Discontinued.
acibenzolar-S-methyl	Actigard, Blockade (Heritage Action)	A	P1	Labeled for certain vegetable crops and fruit.
Acquire	metalaxyl	Fs, N, P, S	4	For seed treatment to control oomycetes in specified row crops and vegetables.
Acrobat	dimethomorph	F, P	40	Discontinued.
Acrobat MZ	dimethomorph + mancozeb	F, P	40 + M3	Discontinued.
Acti-dione	cycloheximide	F		Discontinued. Antibiotic and fungicide.
Actigard	acibenzolar-S-methyl	A	P1	Labeled for certain vegetable crops and fruit.
Actinovate	<i>Streptomyces lydicus</i>	F	NC	Filamentous bacteria as a Biological control agent.
Actino-Iron	<i>Streptomyces lydicus</i>	F, P	NC	For control of soilborne pathogens of indoor/outdoor ornamentals and vegetable crops.
Adament	tebuconazole + trifloxystrobin	B, C, F, Ls, P	3 + 11	Discontinued.
Adorn	fluopicolide	F, N, P	43	Ornamental label for control of oomycetes. Must be tank-mixed with another fungicide.
Affirm	Polyoxin D zinc salt	F	19	Antibiotic active against certain fungi and bacteria.
Aframe	azoxystrobin	B-N, C, F, Ls, P	11	Another generic fungicide for many diseases.
Aframe Plus	azoxystrobin + propiconazole	B-N, C, F, Ls, P	3 + 11	Generic combination product for many diseases.
Agclor	sodium hypochlorite	B, Bact, E, F		Used as postharvest dip. Many fruits and vegetables on label.
Agri-Fos	phosphorous acid	A, Fs, N, P, S	P7	Active against oomycete fungal-like organisms.
Agri-Mycin	streptomycin	Bact, P	25	Antibiotic to control a number of commercially important bacterial plant pathogens including fire blight.
Agri-Strep	streptomycin			Discontinued name.
Alamo	propiconazole	B-N, C, F, Ls, P	3	Trunk injection for diseases such as Dutch elm disease.
Aldesan Microbiocide	formaldehyde	B, D, F		Used on ornamental bulb crops for nematode and <i>Sclerotium</i> management.
aldicarb	Temik	I, Nem, S		Discontinued.
Aliette	aluminum tris	A, Fs, N, P, S	P7	Used against oomycete fungal-like microorganisms; also some low bactericidal activity. Very acidic, so incompatible with copper products.
AllBan	thiophanate-methyl	B, F, P, S	1	Discontinued.
Allegiance	metalaxyl	Fs, N, P, S	4	Seed treatment to control damping-off caused by oomycetes.
Allisan	(DCNA) dichloran	F, N, P	14	Discontinued.

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Bact = Bactericidal
B-N = Broad to narrow
spectrum of activity
C = Curative
D = Disinfectant

E = Eradicant
F = Fungicidal
Fs = Fungistatic
Fum = Fumigant
I = Insecticidal

Ls = Locally systemic
N = Narrow-spectrum
activity
Nem = Nematicide

P = Protection
S = Systemic
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allyl isothiocyanate	Dominus	B, F, Fum, Nem	?	Broad spectrum pre-plant soil biofumigant for the control of certain soil borne fungi, nematodes, weeds, and insects in high-value crops.
Amplitude	<i>Bacillus amyloliquefaciens</i> strain F727	F, P	44	Broad spectrum biological for bulb vegetables, legumes, root, and row crops. ☐
Alto	cyproconazole	B, F, P	3	Broad-spectrum fungicide for cereals and soybean.
Alude	phosphorous acid	A, Fs, N, P, S	P7	Vegetable, fruit, and ornamental label and active against oomycete fungal-like organisms.
aluminum tris	Areca, Aliette	A, Fs, N, P, S	P7	Useful for oomycetes and very acidic.
ametotradin	(Zampro, Orvego)	F, P	45	A new class of fungicides, the pyrimidylamines, with activity against oomycetes.
Amistar	azoxystrobin	B, F, Ls, P	11	Discontinued
Anchor	oxadixyl	Fs, N, S		Discontinued.
anilazine	Dyrene			Voluntarily discontinued .
Apogee	prohexadione calcium	Growth regulator		Labeled for Apple to slow down or minimize shoot growth and thus susceptibility to fire blight.
Appear	potassium phosphite	A, Fs, N, P, S	P7	Label for oomycetes on turf and golf courses.
Aproach	picoxystrobin	B, F, Ls, P	11	For control of a range of foliar pathogens in field and nut crops
Apron	metalaxyl	N, P, S		Discontinued. Seed treatment.
Apron XL	mefenoxam	Fs, P, S	4	The biologically active R-enantiomer of metalaxyl.
Aprovia	benzovindiflupyr (solatenol)	B-N, F, Ls, P	7	Fruit label for this third generation group 7 material.
Aprovia Top	difenoconazole + benzovindiflupyr	B, F, P	7 + 3	Broad-spectrum fungicide for fruit as well as certain vegetables and field crops.
AQ10	<i>Ampelomyces quisqualis</i>	E, F	NC	Biological used for powdery mildew. Registration has lapsed.
Arasan	thiram			Discontinued name.
Arbor-OTC	oxytetracycline	Bact, P	41	Antibiotic for injection into trees.
ArborFos	phosphorous acid	A, Fs, N, P, S	P7	Tree injected material for use mostly against sudden oak death.
Arbotect	thiabendazole	B, C, F, Ls	1	Trunk injection for diseases such as Dutch elm disease.
Areca	aluminum tris	A, Fs, N, P, S	P7	Generic label for ornamentals.
Armada	triadimefon + trifloxystrobin	B-N, C, F, Ls, P	3 + 11	Combination for turf and ornamentals.
Armcarb	potassium bicarbonate	E, F	NC	Discontinued
Asperello	<i>Trichoderma asperellum</i> strain T34	F, P	NC	Biofungicide for use in greenhouse potting mix against <i>Fusarium</i> in carnation production.
Aspire	<i>Candida oleophila</i>	P	NC	Biological for postharvest fruit decay. (Registration has lapsed)
Astun	isofetamid	F, P	7	For use on ornamentals grown in greenhouses and nurseries. Active on <i>Botrytis</i> and powdery mildews.
Auragreen	basic cupric carbonate	F		Discontinued name.
Autilus	PCNB	B, F, P	14	Turf fungicide.
Auxigro	gamma aminobutyric acid and L-Glutamic acid	A	NC	No registrations
Aviv	<i>Bacillus subtilis</i> strain IAB/BS0	A, B-N, F	NC	Biological. ☐
azadirachtin	Ecozin	Nem		Botanical insecticide. Interferes with juvenile growth and repels adult nematodes and a wide range of insects.
azoxystrobin	Abound, Heritage, Quadris Amistar, Dynasty (QuiltXcel, Ridomil Gold, Quadris Top, Uniform, Topguard EQ)	B, F, Ls, P	11	Effective against a large number of fungi including powdery and downy mildews. Severe phototoxicity on apples with a McIntosh heritage.

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Bac-Master	streptomycin	Bact, P	25	Discontinued name.
Badge	copper oxychloride + copper hydroxide	B, Bact, F	M1	Registered on many crops.
Ballad Plus	<i>Bacillus pumilus</i> strain QST 2808	Bact, F, P	NC	Broad-spectrum biocontrol formulation for vegetable and field crops. ☐
Banner MAXX	propiconazole	B-N, C, F, Ls, P	3	Ornamental label.
Banol	propamocarb	F, N	28	Ornamental fungicide for use against oomycetes.
Banrot	etridiazole + thiophanate-methyl	B-N, F, P	14 & 1	Controls many soilborne fungal diseases.
Basamid	dazomet	F, Fum, Nem, V		Restricted use. Soil fumigant. Reacts with water to form fumigant.
Bayer Advanced Disease Control	tebuconazole	B-N, C, F, Ls, P	3	Good fungicide for the home market. ☐
Bayer Advanced Natria Disease Control RTU	<i>Bacillus subtilis</i> strain QST 713	F, P	NC	Home label for this biocontrol. OK for powdery mildew control. ☐ ☐
Bayleton	triadimefon	B-N, C, F, Ls, P	3	One of the first Group 3 fungicides active against powdery mildews and rusts. Resistance problems in many crops.
Baytan	triadimenol	F, S	3	Fungicidal seed treatment. Discontinued.
Benefit	iprodione + thiophanate-methyl	B, F, P, S		Discontinued. Ornamental label.
Benlate	benomyl	B, C, F, Ls	1	Discontinued, was a popular benzimidazole with wide activity but narrow mode of action against fungal beta tubulin gene. Result: wide-spread, stable populations of resistant fungi. Ornamental uses pulled in the mid-1990s. Not manufactured after 2001.
benomyl	Benlate, Tersan 1991	B, C, F, Ls	1	Discontinued. Controlled a wide range of fungal diseases. Resistance wide-spread and stable.
benzovindiflupyr (solatenol)	Aprovia (Aprovia Top, Elatus, Mural)	B, F, P	7	A fungicide belonging to the SDH-inhibitor group with an effect on a broad range of fungi.
Bi-Carb Old Fashioned Fungicide	potassium bicarbonate	E, F	NC	One of several home labels for this active ingredient. ☐
Bio-Save	<i>Pseudomonas syringae</i>	P	NC	Biological for postharvest fruit decay and potato seed and storage treatment. ☐
Bio-Tam	<i>Trichoderma asperellum</i> + <i>T. gamsii</i>	F, P	NC	For control of soilborne pathogens in various fruits, nuts, vegetables, and field crops. ☐
Bio-Trek	<i>Trichoderma harzianum</i>	F, P	NC	Biological labeled for a wide variety of crops. ☐
BLAD	Fracture, Problad, Regime	F	BM01	A naturally occurring seed storage protein in sweet lupines. Effective on brown rot but not so much on powdery mildew.
BlightBan	<i>Pseudomonas fluorescens</i>	P	NC	Biological for fire blight management. See also Sequestrene. ☐
B-Lock	boric acid	P	NC	Paint for protection of pruning wounds.
Blockade	acibenzolar-S-methyl	A	P1	Control of downy mildew in leafy vegetables.
Blocker 4F	pentachloronitrobenzene (PCNB)	F, P	14	Registered for soilborne diseases of vegetable and field crops.
Bloomtime	<i>Pantoea agglomerans</i> strain E325	P	NC	A biological for fire blight control that works by competitive inhibition against the fire blight bacterium. ☐
Blossom Protect	<i>Aureobasidium pullulans</i>	F, P	NC	Biological for fire blight management. ☐

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borax	Prev-Am, Sporax	P		Best use is as a wound treatment for a few fungi. Individual labels differ widely.
bordeaux	copper sulfate + hydrated lime	B, Bact, F, P	M1	Still an excellent dormant-season fungicide for the Willamette Valley of Oregon because it is rain-fast when sprayed on plants. Difficult to mix and apply compared to modern fungicides.
boscalid	Endura, (Pristine, Honor, Pagent) Emerald	F, P	7	For control of potato and tomato early blight and <i>Sclerotinia</i> , <i>Alternaria</i> , <i>Monilinia</i> and <i>Botrytis</i> . Also has activity on powdery mildew.
Botector	<i>Aureobasidium pullans</i> strains DSM 14940 and 14941	F, N, P	NC	Yeast that protects blossoms from <i>Botrytis</i> and brown rot pathogens. Variable efficacy so far. ☐
Botran	(DCNA) dichloran	F, P	14	Labeled for use during the growing season on several crops. Active against <i>Mucor</i> , <i>Rizopus</i> , and <i>Penicillium</i> .
BotryStop	<i>Urocladium oudemansii</i> U3 strain	F, N, P	NC	Biofungicide for use on many crops against Botrytis diseases.
Bravo	chlorothalonil	B, F, P	M5	Good protectant fungicide with long residual activity. Rain can redistribute to some extent.
Bravo CM	chlorothalonil + copper + maneb	B, Bact, F, P		Discontinued.
Break	propiconazole	B-N, C, F, Ls, P	3	Similar label to Tilt but for California only.
Briskway	azoxystrobin + difenconazole	B, C, F, Ls, P	3 + 11	Combination fungicide for use on turfgrass.
Broadform	fluopyram + trifloxystrobin	B, F Ls, P	7 + 11	Ornamental label for nurseries, greenhouse and landscapes.
Bumper	propiconazole	B-N, C, F, Ls, P	3	Generic product for popular fungicide.
Burrows E Wrap	ethoxyquin	N, P	--	Paper wrapped around pear fruit to prevent scald.
Cabrio	pyraclostrobin	B, F, Ls, P	11	Next generation strobilurin after Sovran. Better activity on numerous diseases.
Calirus	phosphorous acid	A, Fs, N, P, S	P7	Discontinued.
Camelot O	copper octanoate (soap)	Bact, F	M1	Ornamental label.
Cannonball	fludioxonil	F, N, P	12	Active against <i>Botrytis</i> and <i>Sclerotinia</i> diseases. For ginseng, melons and vegetables.
captafol	Difolatan			Discontinued.
captan	Captan, Orthocide	B, F, P	M4	Controls a wide variety of fungal diseases. Seed treatment by slurry; dry treatment; and plant-box application. Compatible with most commonly used insecticides and fungicides but cannot be used with strong alkalines or oil sprays.
CaptEbate	Captan + fenhexamid	B, F, P	M4 + 17	For <i>Botrytis</i> and brown rot control in some fruit crops.
Carbamate	ferbam	B, F, P		Discontinued name.
carbofuran	Furadan	B, I, Nem		Restricted-use pesticide breaks down rapidly with certain soil microbial populations.
Carboject	oxycarboxin	F, Ls, N		Discontinued. Used for tree injection.
carbon bisulfide	carbon disulfide	F, Fum, I, V		One of the most widely used fumigants for insects in stored grain, usually in combination with carbon tetrachloride to reduce fire hazard. Also a soil fumigant to control soil fungi and deep-rooted perennial weeds.
carboxin	Vitavax	F, S	7	Seed treatment. Controls smuts and <i>Rhizoctonia solani</i> .
Cavalier	thiophanate-methyl	B, F, P, S	1	Discontinued.
Cease	<i>Bacillus subtilis</i> strain QST 713	F, P	NC	Biological for several crops. ☐
Cela W524	triforine	B-N, C, F, P, S		Discontinued. Old experimental code name.
Champ	copper hydroxide	B, Bact, F, P	M1	Several formulations.
Champion++	copper hydroxide	B, Bact, F, P	M1	Organic formulation. ☐

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Charter	triticonazole	B-N, C, F, Ls, P	3	Wheat and barley seed treatment. For smuts, bunt, and early season infections by <i>Fusarium</i> and <i>Rhizoctonia</i> .
Chipco 26019	iprodione	F, Ls, N, P	2	Ornamental label for material against such fungi as <i>Botrytis</i> and <i>Monilinia</i> . Resistance is likely with increasing number of applications.
chlorfenapyr	Pylon	I, Nem		An ornamental miticide with activity against foliar nematodes.
chloroneb	Anderson's Golf Product Fungicide	F	14	Supplemental seed treatment, or in-furrow soil treatment at planting time, for systemic control of seedling diseases. Controls snow mold (<i>Typhula</i>), Pythium blight, brown patch, Sclerotium rot.
Chlor-O-Pic	chloropicrin	Bact, F, Fum, I, Nem		Restricted-use material. Soil fumigant.
chloropicrin	Chlor-o-Pic Metapicrin Timber Fume Tri-Clor	Bact, F, Fum, I, Nem		Restricted use. Soil fumigant to control nematodes, bacteria, fungi, insects, and weeds. Also a warning agent in odorless fumigants such as methyl bromide (Terr-o-Gas) and sulfuryl fluoride. Active chemical in tear gas.
chlorothalonil	Bravo, Echo, Ensign, Daconil 2787 (Concert, Orondis Opti) many others.	B, F, P	M5	Good protectant fungicide. Controls many diseases on many crops.
Cinnacure	cinnamaldehyde	N, E		Labeled for several insects, mites and powdery mildew. Very short residual so use only as disinfectant.
cinnamaldehyde	Cinnacure	N, E		Labeled for several insects, mites and powdery mildew. Very short residual so use only as disinfectant.
Cinnamite	cinnamaldehyde	N, E		Discontinued name.
Cinnerate	Cinnamon Oil	E, F, I, N	NC	Botanic oil active on powdery mildews. Labeled for a variety of diseases, mites and crops. ☐
Civitas Turf Defense	HMO	E, F, I, P	NC	Label for turf on golf courses, sports and athletic fields.
Clandosan	chitin, urea, and minerals	N		Purported to be a nematocide made of sea shells. No registration.
Cleary's 3336	thiophanate-methyl	B, F, P, S	1	Ornamental label. The plant converts thiophanate-methyl to carbendazim, the active fungicidal compound. Spectrum of activity is not as great as Benlate's.
Clevis	mancozeb + myclobutanil	B, C, F, Ls, P	M3 + 3	Discontinued.
C-O-C-S	copper oxychloride	B, Bact, F	M1	Activity is similar to other coppers.
Companion	<i>Bacillus subtilis</i> GB03	F, P	NC	Control of <i>Rhizoctonia</i> , <i>Pythium</i> , <i>Fusarium</i> , and <i>Phytophthora</i> diseases
Compass	trifloxystrobin	B, F, Ls, P	11	Ornamental label for a strobilurin compound effective against many fungi.
Concert	propiconazole + chlorothalonil	B, C, F, Ls, P	3 + M5	Combination for turf and ornamentals.
Concorde	chlorothalonil	B, F, P	M5	Discontinued name.
Consyst	Chlorothalonil + thiophanate-methyl	B, F, P	M5 + 1	Discontinued. Prepackaged mix for turf and some ornamentals.
Contans	<i>Coniothyrium minitans</i>	E	NC	Biological for destruction of sclerotia of <i>Sclerotinia</i> spp.

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Contend A	benzovindiflupyr + difenconazole	B, F, Ls, P	3 + 7	Label for snow mold on golf course turfgrass only
Contend B	azoxystrobin + propiconazole	B-N, C, F, Ls, P	3 + 11	Label for snow mold on golf course turfgrass only.
Contrast	flutolanil	F, S, N	7	Discontinued.
Copper-Count-N	copper ammonium complex	Bact, F	M1	Both food and ornamental uses.
coppers: bordeaux	copper sulfate + hydrated lime	B, Bact, F, P	M1	☐ for all coppers Still an important and effective dormant-season product (mixture) in rainy areas. Difficult to make and apply with conventional equipment.
copper ammonium complex	Copper Count-N, Kop-R-Spray	B, Bact, F		Similar to other copper products.
copper sulfate	basic copper sulfate cuprofix disperss	B, Bact, F		Controls many diseases. Used in dormant season with oil.
copper hydroxide	Champ, Champion, Kocide, Nu-Cop, CuPRO Kalmor, Kentan, Previsto	B, Bact, F		Controls many diseases. Used in dormant season with oil. Next-best copper after bordeaux for efficacy and rainfastness, and much easier to apply.
copper octanoate	Cueva, and others	B, Bact, F		Many organic uses.
copper oxychloride	C-O-C-S	B, Bact, F		Activity similar to other coppers.
copper oxides	Nordox	B, Bact, F		Activity similar to other coppers.
Coronet	pyraclostrobin + boscalid	B, F, Ls, P	11 + 7	Broad-spectrum fungicide combination labeled for seed treatment of various vegetable and field crops.
Cosavet	sulfur	F, I, P, V	M2	Good for powdery mildews.
Cruiser Extreme	thiamethoxam + fludioxonil + mefenoxam + azoxystrobin	B, F, Ls, P	? + 12 + 4 + 11	Seed treatment product for protection against certain insects, seedborne disease, and seedling diseases of field corn, popcorn, seed corn, and sweet corn.
CS 2005	copper sulfate	B, Bact, F	M1	Similar to other copper-based pesticides.
Cueva	copper octanoate (soap)	B, P, Bact, F	M1	Many organic uses. ☐
CuPRO	copper hydroxide	B, Bact, F	M1	Similar to other copper products.
Cuprofix Disperss	basic copper sulfate	B, Bact, P	M1	Fixed copper labeled for many crops.
Curalan	vinclozolin	B-N, F, Ls, P	2	Discontinued.
Curzate	cymoxanil	F, Ls	27	Labeled for control of potato and tomato late blight; hop downy mildew.
cyazofamid	Ranman, Segway	N, F, Ls, P	21	Activity against oomycete fungal-like organisms.
cycloheximide	Acti-dione	F		Discontinued. Antibiotic fungicide.
cyflufenamid	Torino	F, P	U6	For powdery mildew on a few fruit, hop, and vegetable crops.
Cygnus	kresoxim-methyl	B, F, Ls, P	11	Discontinued.
cymoxanil	Curzate, (Tanos)	F, Ls	27	Late blight of potato and tomato, downy mildew of hops.
Cyprex	dodine		U12	Discontinued name. See also Syllit.
cyproconazole	Alto	B-N, F, Ls	3	Broad spectrum fungicide for cereals and soybeans.
cyprodinil	Vangard, (Switch, Palladium)	C, Fs, Ls, N, P	9	Good activity on <i>Botrytis</i> and <i>Monilinia</i> . Fair on apple scab. Resistance is a problem if overused.
Daconil	chlorothalonil	B, F, P	M5	Ornamental label. Good protectant fungicide with long residual activity. Rain can redistribute to some extent.
Dart	Capric and Caprylic Acid	F, P	NC	Variety of crops an early formulations were phytotoxic.
Dasanit	fensulfthion			Discontinued.
dazomet	Basamid	F, Fum, I, Nem		Restricted use. For soil fungi, nematodes, germinating weeds, soil insects. Antimicrobial in slimicide preparations.
DCNA	dicloran	B, F, P	14	Discontinued.
Decco I-182	<i>Candida oleophila</i>	F, N, P		Biological for postharvest fruit decay. ☐

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Decco Salt 19	thiabendazole	F, P, S	1	Postharvest fungicide for apples, pears, carrots, and potatoes.
Deccosol	SOPP	F		Fungicide used in postharvest dump tanks for a few kinds of fruit.
Decree	fenhexamid	F, N, P	17	Labeled for use against <i>Botrytis</i> for ornamental and certain greenhouse vegetables/transplants.
Defend	PCNB	B, F, P	14	Discontinued.
Defiant	thiram	B, F, P	M3	Discontinued.
Deny	<i>Burkholderia cepacia</i>	F, N, P		Discontinued. Biological for soilborne fungi and nematodes.
Dexter Max	mancozeb + azoxystrobin	B, F, P	M3 + 11	Broad-spectrum fungicide for vegetables, fruit, and cereals.
Dexter Xcel	mancozeb + azoxystrobin + tebuconazole	B, F, P	M3 + 11 + 3	Broad-spectrum fungicide for vegetables and cereals.
dichlone	Dichlone Seed Protectant, Phygon			Discontinued.
dichloropropene	Telone II	B, E, Fum, Nem		Preplant for nematode, disease, insect, and weed control on a variety of crops. Harmful to crop plants and applied only as preplant to control nematodes. Do not apply in glasshouses containing plants. Apply year-round if soil conditions are suitable. Immediately seal soil surface by lightly compacting with roller or water. Do not plant any crop while any odor remains in soil. If in doubt, aerate soil by cultivating a few days before planting or sowing Restricted use.
dicloran	DCNA, Botran, Ditranyl	B, F, P	14	Active against <i>Botrytis</i> , <i>Monilinia</i> , <i>Rhizopus</i> (best on), <i>Sclerotinia</i> , and <i>Sclerotium</i> .
difenoconazole	Dividend, Inspire (Quadris Top, Academy)	B-N, C, F, P, Ls	3	Controls a broad range of fungal pathogens on many crops.
Difolatan	captafol			Discontinued.
Dikar	mancozeb + dinocap			Discontinued.
dimethomorph	Acrobat, Forum, Stature (Orvego, Zampro)	F, P	40	Active against oomycetes like late blight of potato. But not <i>Pythium</i> !
dimethy disulfide	Paladin	B, E, F, Fum, I, Nem		Restricted-use material. Soil fumigant registered for a few crops.
dinocap	Karathane, Crotothane	F, I		Discontinued.
Disarm	fluoxastrobin	B, F, Ls, P	11	Turf label for this fungicide.
Distinguish	pyrimethanil + trifloxystrobin	B, F, Ls, P	9 + 11	Discontinued.
DiTera	fermentation product	E		Fermentation products of <i>Myrothecium verrucaria</i> for use against nematodes. ☐
DiTera	<i>Myrothecium verrucaria</i> strain AARC-0255	N	NC	Biocontrol formulation for nematode control in many crops.
Dithane M22	maneb	B, F, P		Discontinued. No longer manufactured.
Dithane	mancozeb	B, F, P	M3	Excellent protective fungicide for many diseases on many crops. Field crop label.
Dividend	difenoconazole	B-N, C, F, P, S	3	Labeled as a seed treatment. Now comes packaged with Apron XL.
Dividend Extreme	difenoconazole + mefenoxam	B, C, F, P, S	3 + 4	Effective against various soilborne diseases in wheat, triticale, and barley.

**Not Classified.

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*Action:	Bact = Bactericidal	E = Eradicant	Ls = Locally systemic	P = Protection
A = Activator of plant defense	B-N = Broad to narrow spectrum of activity	F = Fungicidal	N = Narrow-spectrum activity	S = Systemic
Ar = Acaricide - substance poisonous to mites or ticks	C = Curative	Fs = Fungistatic	Nem = Nematicide	V = Vapor active
B = Broad-spectrum activity	D = Disinfectant	Fum = Fumigant	? = Unknown	
		I = Insecticidal		

FUNGICIDES, BACTERICIDES, AND NEMATOCIDES—CONTINUED

Common or Trade Name	Trade or Common Name	Action*	Fungicide Group ***	Use
Dividend XL RTA	difenoconazole + mefenoxam	B, C, F, P, S	3 + 4	Effective against various soilborne diseases in wheat.
Docket	chlorothalonil	B, F, P	M5	Basically the same product as Daconil.
dodine	Syllit, Cyprex	B, F, P	U12	Good for apple scab (if resistance is not a problem) leaf spot, and a few bacterial diseases. Bacterial activity low.
Domain	thiophanate-methyl	B, F, P, S		Discontinued name.
Dominus	allyl isothiocyanate	B, F, Fum, Nem	?	Broad spectrum pre-plant soil biofumigant for the control of certain soil borne fungi, nematodes, weeds, and insects in high-value crops.
Double Nickel	<i>Bacillus amyloliquefaciens</i> strain D747	F, P	44	Biological registered for many diseases. ☐
Du-Ter	triphenyltin hydroxide			Discontinued name. See Super Tin
Duosan	thiophanate-methyl + mancozeb	B, F, P, S		Discontinued.
Dynasty	azoxystrobin	B, F, P, S	11	Seed treatment for control of seed and seedborne disease of barley, corn, wheat, and legume vegetables.
Dyrene	wanilazine			Discontinued.
eFog	fludioxonil	F, N, P	12	Use postharvest on pome fruit by thermal fogging.
Eagle	myclobutanil	B-N, C, F, Ls, P	3	Labeled for landscape diseases.
Echo	chlorothalonil	B, F, P	M5	Good protectant fungicide that controls many diseases.
EcoSwing	Extract of <i>Swinglea glutinosa</i>		NC	Labeled for many crops.
Ecozin	azadirachtin	Nem		Botanical insecticide. Interferes with juvenile growth and repellent of adult nematodes.
Elatus	azoxystrobin + benzovindiflupyr	B, F, P	11 + 7	Broad-spectrum fungicide for corn, canola, and potatoes.
Elevate	fenhexamid	F, N, P	17	Food use label for use against <i>Botrytis</i> .
Elite	tebuconazole	B-N, C, F, Ls, P	3	Discontinued.
Emblem	fludioxonil	F, N, P	12	Ornamental label.
Emerald	boscalid	F, P	7	Labeled for turfgrass disease control.
Employ	harpin	A	?	SAR protein from a bacterium. Registered for many crops.
Empress	pyraclostrobin	B, F, Ls, P	11	Strobilurin used on many crops but this label for drenching ornamentals.
Encartis	boscalid + chlorothalonil	B, F, P	7 + M5	Label for golf course turfgrass.
Endorse	polyoxin D	F	19	Turf label for this antibiotic against <i>Rhizoctonia</i> diseases.
Endura	boscalid	F, P	7	For control of potato and tomato early blight and <i>Sclerotinia</i> , <i>Alternaria</i> , <i>Monilinia</i> and <i>Botrytis</i> .
Ensign	chlorothalonil	B, F, P	M5	Discontinued.
Enzone	tetrathiocarbonate	B, Fum, Nem, V		Discontinued
Epic 30	iprodione	B-N, F, Ls, P	2	Discontinued.
E-Rase	Jojoba oil	E, F	NC	Botanical oils have activity against powdery mildews. ☐
ethaboxam	V-10208	C, Ls, N, P, S	22	For oomycete-caused diseases in vegetables.
etridiazole	Terrazole, Truban, Koban 30	F, N	14	Soil-drench ornamental fungicides. Control <i>Pythium</i> and <i>Phytophthora</i> . Sensitive to UV irradiation.
ethoprop	Mocap	B, E, I, Nem		Action by contact; must be mixed with soil or carried by water into soil.
ethoxyquin	Burrows E Wrap, Ethoxywrap	N, P	--	Paper wrapped around pear fruit to prevent scald.
Ethoxywrap	ethoxyquin + copper	N, P	M1	Discontinued.

FUNGICIDES, BACTERICIDES, AND NEMATOCIDES—CONTINUED

Common or Trade Name	Trade or Common Name	Action*	Fungicide Group ***	Use
Ethylene dibromide	Dowfume	Fum, I, Nem		Discontinued.
Evito	fluoxastrobin	B, F, Ls, P	11	Effective against a large number of fungi including early and late blight.
Evolve	thiophanate-methyl + mancozeb + cymoxanil	F, P, S	1 + 27 + M3	Potato seed piece treatment for suppression of <i>Fusarium</i> , dry rot, black scurf (<i>Rhizoctonia</i> sp.), silver scurf (<i>Helminthosporium</i> sp.), and spread of <i>Phytophthora infestans</i> between seed-pieces.
Exotherm Termil	chlorothalonil	B, F, P	M5	Discontinued.
Exteris Stressgard	fluopyram + trifloxystrobin	B-N, F, Ls, P	7 + 11	Turfgrass label.
Fame	fluoxastrobin	B, F, Ls, P	11	Ornamental label.
famoxadone	(Tanos)	F, Ls	11	Labeled for hop and grape downy mildew, some foliar diseases of cucurbits.
Farmsaver	streptomycin	Bact, P	25	Discontinued.
fenamidone	Reason, Fenstop	F, P	11	Effective against certain foliar diseases in vegetable crops. Also labeled for oomycetes on ornamentals.
fenaminosulf	Lesan	F		Discontinued.
fenamiphos	Nemacur	C, Nem, S		Discontinued.
fenarimol	Focus, Vintage	B-N, C, F, Ls	3	Not manufactured anymore.
fenazaquin	Magister, Magus	Ar, I, P	39	An acaricide with activity on powdery mildew. Bees are very sensitive.
fenbuconazole	Indar, Enable	B-N, C, F, Ls, P	3	Fruit label. Excellent against brown rot.
fenhexamid	Decree, Elevate, Judge	F, N, P	17	For use against <i>Botrytis</i> .
fenpyrazamine	Protexio	F, N, P	17	For use against <i>Botrytis</i> and related fungi.
Fenstop	fenamidone	F, N, P	11	Labeled for oomycetes on ornamentals.
fensulfothion	Dasanit	I, Nem		Discontinued.
ferbam	Ferbam Granuflo	B, F, P	M3	Good fungicide but leaves a black residue and is not compatible with lime or copper.
Fiata	phosphorous acid	A, Fs, N, P, S	P7	Turf label for a material with activity on oomycetes.
Fire line	oxytetracycline	Bact, P	41	Antibiotic for fire blight on pear.
Fire wall	streptomycin	Bact, P	25	Discontinued.
FirstStep	potassium bicarbonate	E, F		Discontinued name.
FlameOut	oxytetracycline	Bact, P	41	Discontinued name.
Flanker	fosetyl-AL	A, Bact, Fs, P, S	P7	Discontinued name.
Flint	trifloxystrobin	B, F, Ls, P	11	A strobilurin compound for several crops. Phytotoxic to Concord grapes.
Flo-Pro IMZ	imazalil	F, P, S		Discontinued.
Folpan	folpet	F	M4	Labeled for hop downy mildew.
fluazinam	Omega, Secure	B, F, P	29	Has a rather broad spectrum of activity. Labeled for use on potato for <i>Phytophthora</i> and <i>Sclerotinia</i> diseases, and Apple scab.
fluidoxonil	Emblem, Maxim, Medallion, Scholar, Cannonball, Spirato, (Switch, Palladium)	F, N, P	12	A seed treatment, postharvest and ornamental fungicide. Degraded by exposure to direct sunlight.
fluensulfone	Nimitz	Nem	---	Nematacide for use on vegetables and strawberries.
fluopicolide	Presidio, Adorn (Stellar)	F, N, P	43	Active against selective oomycetes. Prone to resistance problems so must be tank-mixed.
fluopyram	Luna Privilege, Indemnify, Velum Prime (Luna Experience, Luna Sensation, Luna Tranquility)	F, P, Nem	7	Vegetables and tree crop foliar and fruit disease management. Some nemacidal activity too.

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Ar = Acaricide - substance

poisonous to mites or ticks

B = Broad-spectrum activity

Bact = Bactericidal

B-N = Broad to narrow

spectrum of activity

C = Curative

D = Disinfectant

E = Eradicant

F = Fungicidal

Fs = Fungistatic

Fum = Fumigant

I = Insecticidal

Ls = Locally systemic

N = Narrow-spectrum

activity

Nem = Nematicide

P = Protection

S = Systemic

V = Vapor active

? = Unknown

FUNGICIDES, BACTERICIDES, AND NEMATOCIDES—CONTINUED

Common or Trade Name	Trade or Common Name	Action*	Fungicide Group ***	Use
fluoxastrobin	Evito, Disarm, Aftershock, Fame	B, F, Ls, P	11	Effective against a large number of fungi including early and late blight of potato.
flutianil	Gatten	F, N	U13	Active on powdery mildews on many crops.
flutolanil	ProStar, Contrast, Moncut	F, S	7	Used to control turf and ornamental diseases caused by basidiomycetes. Sensitive to light.
flutriafol	Topguard, Rhyme, (Topguard EQ)	B-N, C, F, Ls, P	3	Label for field crops and nuts. Highly mobile in plant tissues with transpiration stream.
fluxapyroxad	(Merivon, Obvius) Orkestra, Xzemplar	B, F, P, C	7	Broad-spectrum fungicide used as a seed treatment or for foliar diseases.
Focus	fenarimol	B-N, C, F, Ls	3	Discontinued name.
Folcid	captafol			Discontinued name.
Folicur	tebuconazole	B-N, C, F, Ls, P	3	Discontinued name.
folpet	Folpan	F	M4	Labeled for hop downy mildew.
Fontelis	penthioopyrad	B, F, P	7	Use on fruits and vegetables for management of many leaf spots, powdery mildew and fruit rots.
Fore	mancozeb	B, F, P	M3	Ornamental label lists a broad array of diseases and crops. Has a green pigment for turf use.
formaldehyde	Aldesan Microbiocide	B, D, F		Fungicide, germicide, soil sterilant, and formerly seed treatment. Used on ornamental bulb crops for nematode and <i>Sclerotium</i> management.
Formalin	formaldehyde	F		Discontinued.
Forum	dimethomorph	F, P	40	Active against downy mildew of cucurbits, garlic, onion, lettuce, and hops as well as late blight of potato and tomato.
fosetyl-Al (aluminum tris)	Aliette, Signature	A, Bact, Fs, P, S	P7	Preventive and curative activity against many oomycetes. A low level of bactericidal activity that has been variable.
Fosphite	phosphorous acid	A, Fs, N, P, S	P7	Activity against oomycete fungal-like organisms. ☐
Fracture	BLAD	F	BM01	A naturally occurring seed storage protein in sweet lupines. Registered on tomato and some fruit crops. Effective on brown rot but not so much on powdery mildew.
Fungaflor	imazalil	F, S	3	Discontinued.
Funginex	triforine	B-N, F, Ls, P	3	Discontinued.
Fungi-Phite	phosphorous acid	A, Fs, N, P, S	P7	Useful for oomycetes.
Fungisol	deba carb + carbendazim	B, C, F, Ls	? + 1	Used for tree injection against a number of diseases.
Fungo	thiophanate-methyl	B, F, P, S		Discontinued name.
Fung-onil (bonide)	chlorothalonil	B, F, P	M5	Home label for good fungicide.
Furadan	carbofuran	B, I, Nem		Discontinued.
Gallex	xlenol + cresol	E		A paint on very young crown galls to prevent further development. May need to reapply frequently, and may not work if applied too late.
Galltrol	<i>Agrobacterium radiobacter</i>	Bact, P	NC	Biological for the prevention of crown gall. ☐
Gatten	flutianil	F, N	U13	Active on powdery mildews on many crops.
Gavel	mancozeb + zoxamide	B, F, P	M3 + 22	Broad-spectrum fungicide for control of potato late and early blights.
Gem	trifloxystrobin	B, F, Ls, P	11	Effective against many fungi. May become a discontinued name.
gibberellic acid	ProGibb	Growth regulator	NC	Plant hormone used to change growth of plants for aesthetic and disease control reasons (grapes).
Halt	thiophanate-methyl	B, F, P, S	1	Discontinued.
Harbour	streptomycin	Bact, P	25	Antibiotic for fire blight management.
harpin	Messenger, Employ, ProAct	A		Protein from a bacterium that stimulates host defense mechanisms. Also purported to enhance plant growth. ☐
Headline	pyraclostrobin	B, F, Ls, P	11	Next generation strobilurin after Sovran. Better activity on numerous diseases.

FUNGICIDES, BACTERICIDES, AND NEMATOCIDES—CONTINUED

Common or Trade Name	Trade or Common Name	Action*	Fungicide Group ***	Use
Heads Up	saponins	A	NC	Botanical extract from <i>Chenopodium quinoa</i> for field crops and tomato. Q
Headway	azoxystrobin + propiconazole	B-N, C, F, Ls, P	3 + 11	Turf label.
Helix Xtra	difenoconazole + mefenoxam + fludioxonil	B, C, F, P, S	3 + 4 + 12	Broad-spectrum fungicide combination plus an insecticide labeled for seed treatment of canola.
Heritage	azoxystrobin	B, F, Ls, P	11	Very effective, active against a very large number of fungi.
Heritage Action	azoxystrobin + acibenzolar	A, B, F, Ls, P	11 + P1	Turf formulation with a fungicide and the plant activator Actigard.
hexachlorobenzene	Anticaric, Sanocide Seed Protectant, Hexachloro benzene 40, No Bunt 40, Smut Go			Most are discontinued . Seed protectant. For common bunt and smut.
HMO (Horticultural Mineral Oil)	Civitas, JMS Stylet Oil, Neem Oil	E, F, I, P	NC	Oils are good for powdery mildew eradication. Don't mix with sulfur. Synthetic oils better than botanical oils.
Hoist	myclobutanil	B-N, C, F, Ls, P	3	Discontinued.
Honor	boscalid + pyraclostrobin	B, F, Ls, P	7 + 11	Combination fungicide for use on golf courses.
Hurricane	fludioxonil + mefenoxam	N, F, Fs, P, S	12 + 4	Discontinued.
iodomethane	Midas	Fum, V	--	Discontinued.
imazalil	Double R, Fungaflor	F, S	3	Especially active against benzimidazole-resistant strains of plant pathogenic fungi.
Indar	fenbuconazole	B-N, C, F, Ls, P	3	Tree fruit label. Excellent against brown rot.
Indemnify	fluopyram	Nem, F, P	7	A fungicide with nematocidal activity for use on lawns and turf.
Infuse	propiconazole	B-N, C, F, Ls, P	3	One of many generics for the home market. H
Insignia	pyraclostrobin	B, F, Ls, P	11	Turf and ornamental label for this strobilurin.
Inspire	difenoconazole	B-N, C, F, Ls, P	3	Labels for sugar beet and fruit.
Inspire Super	difenoconazole + cyprodinil	B-N, C, F, Ls, P	3 + 9	For pome fruit and nuts.
Instill	copper sulfate pentahydrate	B, Bact, F	M1	Another copper label for several crops. See also Phyton 27.
Instrata	chlorothalonil + propiconazole + fludioxonil	B, C, F, Ls, P	M5 + 3 + 12	Combination label for turf.
Intercept	<i>Coniothyrium minitans</i> strain CON/M/91-08	F		Discontinued. Biological for <i>Sclerotinia</i> diseases.
Interface	iprodione + trifloxystrobin	B, C, F, Ls, P	2 + 11	Combination fungicide for use on turfgrass.
Intuity	mandestrobin	B, F, Ls, P	11	Another strobilurin for grapes and strawberries.
ipconazole	Rancona 3.8 FS	B, F P	3	Seed treatment for a broad range of crops.
iprodione	Chipco 26019, Rovral, Epic 30, Nevado, Iprodione, and many others	F, N-B, P	2	Active on a broad spectrum of diseases: <i>Botrytis</i> , <i>Sclerotinia</i> , <i>Monilinia</i> , <i>Alternaria</i> , <i>Helminthosporium</i> , <i>Fusarium</i> , <i>Rhizoctonia</i> , etc.
isofetamid	Kenja, Astun	B-N, C, F, Ls, P	7	Small fruit and ornamental fungicide.
JMS Stylet Oil	aliphatic petroleum distillate (HMO)	E, F, I, P	NC	Good activity against powdery mildews. Do not use near sulfur applications.
Judge	fenhexamid	F, N, P	17	Postharvest label for <i>Botrytis</i> and <i>Monilinia</i> .
Junction	copper hydroxide + mancozeb	Bact, B	M1 + M3	Developed to control bacteria (on ornamentals) that are resistant to copper products.
Kaligreen	potassium bicarbonate	E, F	NC	To supplement powdery-mildew control programs.

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B-N = Broad to narrow spectrum of activity
C = Curative
D = Disinfectant
E = Eradicant
F = Fungicidal
Fs = Fungistatic
Fum = Fumigant
I = Insecticidal
Ls = Locally systemic
N = Narrow-spectrum activity
Nem = Nematicide
P = Protection
S = Systemic
V = Vapor active
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FUNGICIDES, BACTERICIDES, AND NEMATOCIDES—CONTINUED

Common or Trade Name	Trade or Common Name	Action*	Fungicide Group ***	Use
Kalmor	copper hydroxide	B, Bact, F	M1	Another copper for food crops and ornamentals.
Karathane	dinocap			Discontinued.
kasugamycin	Kasumin	Bact, P	24	Antibiotic registered for fire blight management.
Kasumin	kasugamycin	Bact, P	24	Antibiotic registered for fire blight management.
Kenja	isofetamid	B-N, C, F, Ls, P	7	Small fruit fungicide.
Kentan	copper hydroxide	B, Bact, F	M1	Registered on many crops.
Kestrel	propiconazole	B-N, C, F, Ls, P	3	Another generic of a great fungicide.
KleenGrow	quatarnary ammonium	D		Disinfectant with over the plant label for some ornamentals. Bulb dips also.
Koban 30	etridiazole	F, N	14	Discontinued.
Kocide	copper hydroxide	B, F, P	M1	Popular copper product for controlling many diseases. Several formulations are available.
Kodiak	<i>Bacillus subtilis</i>	F, P	NC	Discontinued.
Kop-R-Spray	copper ammonium carbonate	Bact, F	M1	Discontinued.
kresoxim-methyl	Cygnus, Sovran	B, F, Ls, P	11	Strobilurin fungicide effective on powdery mildew and many other fungi. Phytotoxic on a few cherry cultivars such as Van.
Kumulus	sulfur	F, I, P, V	M2	Water-dispersible sulfur granule used on many crops. ☐
laminarin	Vacciplant	A	P4	Wide range of crops it can be used on. Better activity on annuals than perennials.
Laredo	myclobutanil	B-N, C, F, Ls, P	3	Just labeled for almond.
Legion	fosetyl-AL	A, Bact, Fs, P, S	P7	Discontinued.
Lesan	fenaminosulf			Discontinued.
Lexicon	fluxapyroxad + pyraclostrobin	B-N, F, Ls, P	7 + 11	Turfgrass label.
LifeGard	<i>Bacillus mycoides</i> isolate J	A, F, P	NC	Biofungicide for use on several crops. ☐
lime sulfur	Lime-Sulfur, Sulforix	B, E, F, I		A fungicide that denatures fungal structures on contact. Good dormant-season control of insects and mites. ☐
LSP Flowable Fungicide	thiabendazole	F, P, S	1	Seed treatment effective against common bunt of wheat.
Luna Experience	fluopyram + tebuconazole	F, P B-N, C, Ls	7 + 3	Tree crop and grape foliar and fruit disease management.
Luna Privilege	fluopyram	F, P	7	Vegetables and tree crop foliar and fruit disease management. Not available alone.
Luna Sensation	fluopyram + trifloxystrobin	F, P B-N, C, Ls	7 + 11	Tree crop and grape foliar and fruit disease management.
Luna Tranquility	fluopyram + pyrimethanil	F, N, P	7 + 9	Vegetable and fruit disease management.
Magister	fenazaquin	Ar, I, P	39	An acaricide with activity on powdery mildew. Bees are very sensitive. Labeled for cherry and Christmas trees and non-bearing fruit.
Magus	fenazaquin	Ar, I, P	39	An acaricide with activity on powdery mildew. Bees are very sensitive. Labeled for ornamentals.
Majestene	Dead <i>Burkholderia</i> spp. strain A396	Nem	NC	Nematocide for use after planting. ☐
mancozeb	Fore, Dithane M45, Manzate 200, Pentathelon Protect, and many others	B, F, P	M3	Good protectant fungicide and seed treatment.
mandestrobin	Intuity, Pinpoint	B, F, Ls, P	11	Another strobilurin for grapes, strawberries and turf.
mandipropamid	Revus (Revus Top, Orondis Ultra) Micora	N, F, P	40	For control of some oomycetes like downy mildew but not <i>Pythium</i> .
maneb	Manex	B, F, P	M3	Moderately effective protectant fungicide.
Manex	maneb	B, F, P	M3	Discontinued.
ManKocide	copper hydroxide + mancozeb	Bact, B	M1 + M3	Developed to control bacteria resistant to copper products.

FUNGICIDES, BACTERICIDES, AND NEMATOCIDES—CONTINUED

Common or Trade Name	Trade or Common Name	Action*	Fungicide Group ***	Use
MasterCop	Copper sulfate pentahydrate	B, Bact, F	M1	Broad label for many crops.
Maxim	fludioxonil	F, P	12	A seed treatment.
Maxim MZ	fludioxonil + mancozeb	F, P	12 + M3	Potato seed piece treatment for suppression of Fusarium dry rot, black scurf (<i>Rhizoctonia</i> sp.), and silver scurf (<i>Helminthosporium</i> sp.).
Maxtima	mefentrifluconazole	B-N, C, F, Ls, P	3	Turf label.
Medallion	fludioxonil	F, N, P	12	Registered to control <i>Rhizoctonia</i> on ornamentals.
mefenoxam	Ridomil Gold, Subdue MAXX, Apron XL, Mefenoxam 2 (Quadris, Ridomil Gold, Ridomil Gold Bravo, Uniform)	Fs, P, S	4	The biologically active R-enantiomer of metalaxyl.
mefentrifluconazole	Maxtima	B-N, C, F, Ls, P	3	Turf label.
MeloCon	<i>Paecilomyces lilacinus</i> strain 251	Nem, P	NC	A nematode used for biological control of nematodes that can be used after planting but better at planting. Stable for weeks in the frig. ☐
Merivon	fluxapyroxad + pyraclostrobin	F, P, B-N, C, Ls	7 + 11	Tree fruit fungicide for powdery mildew and several other diseases. Do not use near grapes.
Mertect 340-F	thiabendazole	F, P, S	1	Has a number of good postharvest uses if resistance is not yet a problem.
Messenger	harpin	A		Discontinued.
metalaxyl	Ridomil, Subdue, Apron Allegiance, Acquire, MetaStar, (Obvius)	C, Fs, P, S	4	Best control of oomycetes if resistance is not yet a problem. May have curative properties, but using it that way encourages resistance to the chemical.
metam-sodium	Vapam HL, Metam CLR	E, F, Fum, I, Nem		Restricted-use materials. Soil disinfectant for soil fungi, nematodes, soil insects (wireworms, centipedes) and weeds. Field area or row application by soil injection or sprinkler injection. Treat seed, plant beds, and potting soil by different methods. Penetration and effectiveness is improved by water seal. Repeated applications may encourage bacteria that degrade this chemical faster.
Metapicrin	chloropicrin	Bact, F, Fum, I, Nem		Discontinued. Soil fumigant.
MetaStar	metalaxyl	Fs, N, P, S	4	For control of oomycetes in many crops.
metconazole	Quash, Tourney	B-N, C, F, Ls, P	3	Labeled for tree fruit, nuts, and turf.
Meteor	iprodione	F, N-B, P	2	Active on several diseases such as <i>Botrytis</i> and <i>Monilinia</i> .
metrafenone	Vivando	F, Ls, N, P	50	Active on fruit powdery mildews.
methyl bromide	Brom-o-Gas, Terr-o-Gas Tri-con	B, Bact, E, F, Fum, I, Nem		Odorless fumigant. Discontinued when classified as an ozone depleter under the Clean Air Act. Restricted use.
methylcyclopropene	SmartFresh	N		Prevents ethylene production in stored fruit so it helps control ripening and scald of apple among other things.
metiram	Polyram	B, F, P	M3	Used to prevent downy mildews, anthracnose, rusts, leaf spots, and seedling damping-off.
Mettle	tetraconazole	B-N, C, F, Ls, P	3	Labeled for grapes, cucurbits, and solaneous vegetables.
Micora	mandipropamid	N, F, P	40	Ornamental fungicide for aerial oomycete management.
Microcop	copper sulfate	B, Bact, F, P	M1	Discontinued.

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*Action:

A = Activator of plant defense
Ar = Acaricide - substance poisonous to mites or ticks
B = Broad-spectrum activity

Bact = Bactericidal
B-N = Broad to narrow spectrum of activity
C = Curative
D = Disinfectant

E = Eradicant
F = Fungicidal
Fs = Fungistatic
Fum = Fumigant
I = Insecticidal

Ls = Locally systemic
N = Narrow-spectrum activity
Nem = Nematicide

P = Protection
S = Systemic
V = Vapor active
? = Unknown

FUNGICIDES, BACTERICIDES, AND NEMATOCIDES—CONTINUED

Common or Trade Name	Trade or Common Name	Action*	Fungicide Group ***	Use
Microthiol Disperss	sulfur	F, I, P, V	M2	Good on powdery mildew.
Midas	iodomethane + chloropicrin	Fum, V	--	Discontinued.
Milban	dodemorph acetate	E, F	5	Discontinued.
MilStop	potassium bicarbonate	E, F	NC	Might be used to supplement a powdery mildew program. ☐
Mirage	tebuconazole	B-N, C, F, Ls	3	Lawn and turf label for this fungicide.
Miravis	pydiflumetofen	F, P	7	Label just for peanut.
Miravis Ace	pydiflumetofen + propiconazole	B-N, C, F, Ls, P	7 + 3	Label just for cereal grains.
Miravis Ace A	pydiflumetofen	F, P	7	Cereal label to start.
Miravis Ace B	propiconazole	B-N, C, F, Ls, P	3	Cereal label to start.
Miravis Neo	pydiflumetofen + propiconazole + azoxystrobin	B-N, C, F, Ls, P	3	Broad-spectrum fungicide for vegetables and row crops.
Miravis Prime	pydiflumetofen + fludioxonil	F, B-N, P	7 + 12	Fruit, potato, and vegetable label to start.
MiravisTop	pydiflumetofen + difenconazole	B-N, C, F, Ls, P	3 + 7	Broad-spectrum fungicide for dry beans and certain vegetables.
Mocap	ethoprop	B, E, I, Nem		Action on contact; must be mixed with soil or carried by water into soil.
Moncut	flutolanil	F, P	7	In-furrow use for potatoes for control of <i>Rhizoctonia</i> . 24-C label for bulbs in WA.
Monterey Complete Disease Control	<i>Bacillus amyloliquefaciens</i> strain D747	F, P	44	Biological for use in the home. ☐
Monterey Fungi-Fighter	propiconazole	B-N, C, F, Ls, P	3	Discontinued.
Monterey Liqui-Cop	copper diammonia diacetate complex	B, Bact, F	M1	Home label for many diseases. ☐
Morestan	oxythioquinox	F, I		Discontinued. Insecticide with some activity against powdery mildews.
Mozart TR	fludioxonil	F, N, P	12	Discontinued.
M-Pede	fatty acids (soap)	E, F, I, P		Used mostly for soft-bodied insects but with good activity against powdery mildews. ☐
Mural	solatenol (benzovindiflupyr) + azoxystrobin	B-N, F, Ls, P	7 + 11	Third generation group 7 material, both materials have slow uptake.
Muscle	tebuconazole	B-N, C, F, Ls, P	3	For rust and powdery mildew control in grasses grown for seed.
myclobutanil	Rally, Systhane, Nova, Eagle Immunox, Laredo	B-N, C, F, Ls, P	3	Used for scab and powdery mildew. Resistance beginning to show up throughout PNW.
Mycoject	oxytetracycline	Bact, P	41	Used for tree injection against bacterial and phytoplasma diseases.
MycoShield	oxytetracycline	Bact, P	41	Antibiotic used on pears against fire blight.
Mycostop	<i>Streptomyces griseoviridis</i> Strain 61	F, P	NC	Biological seed, transplant or cutting dip for several crops. ☐
Mylone	dazomet			Discontinued.
MZ Curzate	mancozeb + cymoxanil	F, P	M3 + 27	Potato seed piece treatment for suppression of Fusarium, dry rot and spread of <i>Phytophthora infestans</i> between seed-pieces.
Navicon	mefentrifluconazole + pyraclostrobin	B-N, C, F, Ls, P	3 + 11	Turf label.
Neem oil	Trilogy, Triact, Garden Defense, Rango	E, F, I, N, P	NC	Botanic oil active on powdery mildews. ☐
Nemacur	fenamiphos	C, Nem, S		Discontinued
Nema Q	saponins	?	NC	Botanical extract from <i>Quillaja saponaria</i> for suppression of neamtodes
Nemasol	metam-sodium	E, F, Fum, I, Nem		Discontinued name.

FUNGICIDES, BACTERICIDES, AND NEMATOCIDES—CONTINUED

Common or Trade Name	Trade or Common Name	Action*	Fungicide Group ***	Use
Nevado	iprodione	F, N-B, P	2	Generic label for a good <i>Botrytis</i> and brown rot fungicide. Resistance can be a problem if it is use too often.
Nimitz	fluensulfone	Nem	---	Post plant nematocide for use on vegetables and strawberries.
Nogall	<i>Agrobacterium radiobacter</i>	Bact, P	NC	New strain of the bacterium for crown gall. ☐
Norbac	<i>Agrobacterium radiobacter</i>	Bact, P		Discontinued. Biological for crown gall.
Nordox	cuprous oxide	B, Bact, F, P	M1	Activity similar to other copper products. ☐
Nortica	<i>Bacillus firmus</i> strain I-1582	F, P	NC	Biological.
Nova	myclobutanil	B-N, C, F, Ls, P	3	Discontinued name.
Nu-Cop	copper hydroxide	B, Bact, F, P	M1	Good fungicide and bactericide for many diseases. Was called Blue Shield.
Nutrol	potassium dihydrogen phosphate	E, F	NC	Similar to potassium bicarbonates in fungicidal activity.
Nuzone	imazalil	F, S	3	Discontinued.
Obtego	<i>Trichoderma asperellum</i> + <i>T. gamsii</i>	F, P	NC	Biological for ornamental world.
Obvius	metalaxy + fluxapyroxad + picoxystrobin	B, F, Ls, P	4 + 7 + 11	Fungicide seed treatment combination for field crops.
OHP 26 GT-O	iprodione	F, N-B, P		Discontinued name.
OHP 6672	thiophanate-methyl	B, F, P, S	1	Ornamental label for a benomyl-like product.
Omega	fluazinam	F, P	29	Labeled for use on potato for <i>Phytophthora</i> and <i>Sclerotinia</i> diseases.
Orbit	propiconazole	B-N, C, F, Ls, P	3	Discontinued tree fruit label.
Organocide Plant Doctor	phosphorous acid	A, Fs, N, P, S	P7	Home label for oomycete diseases in the garden and landscape including Sudden Oak Death. ☐
Orius	tebuconazole	B-N, C, F, Ls, P	3	For grapes, stone fruit, and grass seed.
Orkestra	fluxapyroxad + pyraclostrobin	B-N, F, Ls, P	7 + 11	Ornamental label.
Ornalin	vinclozolin	F, Ls, P		Discontinued ornamental label.
Orondis Gold	oxathiapiprolin	F, P	49	Active on oomycetes.
Orondis Opti	chlorothalonil + oxathiapiprolin	B, F, P	M5 + 49	Fungicide for vegetables, ginseng and ornamental for use on downy mildews.
Orondis Ultra	oxathiapiprolin + mandipropamid	N, P	49 + 40	Premixed fungicide for vegetables to control oomycetes such as downy mildew.
Orthorix	lime sulfur	B, E, F, I		Discontinued name changed to Sulfurix.
Orvego	dimethomorph + ametoctradin	F, P	40 + 45	Ornamental fungicide for oomycete management.
Oso	polyoxin D	F	19	Liquid formulation of this active ingredient.
oxadixyl	Anchor	F, N, S		Discontinued seed treatment to control Pythium damping-off.
oxathiapiprolin	Segovis Orondis Gold (Orondis Opti, Orondis Ultra)	N, F,	49	Active on oomycetes.
oxamyl	Vydate, Return	I, Nem		For certain insects, mites, and/or nematodes. Restricted use.
OxiDate	peroxide	B, D		Disinfectant with very short residual activity. Registered like fungicides but do not use it that way.
OxiPhos	phosphorous acid + peroxide	A, B, D, Fs, N, P, S	P7	Another material in this class with activity on oomycetes with the added disinfectant activity of peroxide.

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*Action:	Bact = Bactericidal	E = Eradicant	Ls = Locally systemic	P = Protection
A = Activator of plant defense	B-N = Broad to narrow spectrum of activity	F = Fungicidal	N = Narrow-spectrum activity	S = Systemic
Ar = Acaricide - substance poisonous to mites or ticks	C = Curative	Fs = Fungistatic	V = Vapor active	
B = Broad-spectrum activity	D = Disinfectant	Fum = Fumigant	Nem = Nematicide	? = Unknown
		I = Insecticidal		

FUNGICIDES, BACTERICIDES, AND NEMATICIDES—CONTINUED

Common or Trade Name	Trade or Common Name	Action*	Fungicide Group ***	Use
oxycarboxin	Plantvax, Carboject	F, Ls, N	7	Foliar application for rusts in greenhouses or shadehouses.
oxytetracycline	Myco-Shield, Fireline, Arbor-OTC	Bact, P	41	Antibiotic for fire blight on pear.
oxthioquinox	Morestan	F, I		Discontinued. Insecticide with activity against powdery mildew.
Pageant	pyraclostrobin + boscalid	B, F, Ls, P	11 + 7	Combination product for ornamental markets.
Paladin	dimethy disulfide	B, E, F, Fum, I, Nem		Restricted use material. Soil fumigant registered for a few crops.
Palladium	fludioxonil + cyprodinil	F, B, P	12 + 9	Combination material for control of <i>Botrytis</i> and <i>Rhizoctonia</i> in ornamentals.
parinol	Parnon			Discontinued.
Parnon	parinol			Discontinued.
PathGuard	chlorothalonil	B, F, P		Discontinued.
PCNB	Terraclor, Turfcide, Engage Defend, Blocker	B, F, P	14	Soil fungicide and seed dressing agent. Controls many soil fungi, storage rots, damping-off, and smut.
Pear Wrap	ethoxyquin + copper	N, P	M1	Paper wrapped around pear fruit to prevent scald.
Pegasus	chlorothalonil	B, F, P	M5	Another generic of a great fungicide.
Penbotec	pyrimethanil	F, N, P	9	Fungicide labeled for use on pome fruits postharvest.
Penncozeb	mancozeb	B, F, P	M3	General fungicide used on several crops to control many diseases.
Pentathlon	mancozeb	B, F, P	M3	Discontinued.
penthioopyrad	Fontelis, Vertisan, Velista	B, F, P	7	Use on fruits and vegetables for management of many leaf spots, powdery mildew and fruit rots.
Pentra-Bark	polyalkylene modified heptamethyltrisiloxane	--	--	Surfactant that purports to penetrate bark.
peroxide	OxiDate, TerraCyte, ZeroTol	B, D		Disinfectants with short residual activity. Can be used on plants, soil or inanimate objects such as greenhouse benches or irrigation lines.
Phaltan	folpet			Discontinued.
Ph-D	polyoxin D	F	19	Label for fruiting crops.
Phospho Jet	phosphorous acid	A, Fs, N, P, S	P7	Inject into trees to control oomycetes such as <i>Phytophthora ramorum</i> .
Phosphorous Acid	Fosphite, Alude, Agri-Fos Phostrol, Topaz, ArborFOS Vital, Fungi-phite, and more	A, Fs, N, P, S	P7	Activity against oomycete fungal-like organisms. ☐
Phostrol	phosphorous acid	A, Fs, N, P, S	P7	Active against oomycete fungal-like organisms.
Physan 20	quaternary ammonium	D		Disinfectant with an over the plant label.
Phyton 27	tannate complex of picro cupric ammonium formate	B, Bact, F, P	M1	Copper product with many labeled uses.
Pic-Brom	methy bromide + chloropicrin	Bact, F, Fum, I, Nem		Restricted-use material. Soil fumigant.
Pic-Clor	dichloropropene + chloropicrin	Bact, F, Fum, I, Nem		Restricted-use material. Soil fumigant.
picoxystrobin	Approach (Obvius)	B, F, Ls, P	11	For control of a range of foliar pathogens in field crops including canola, cereal grains except rice, sorghum, corn, dried legume vegetables, and soybean and hazelnuts.
Pillar	triticonazole + pyraclostrobin	B, C, F, Ls, P	3 + 11	Combination fungicide for use on turfgrass.
Pinpoint	mandestrobin	B, F, Ls, P	11	Turfgrass label.
piperalin	Pipron	F, N	5	Ornamental fungicide for powdery mildew.
Pipron	piperalin	F, N	5	Ornamental fungicide for powdery mildew.
PlantShield	<i>Tricoderma harzianum</i>	F, P	NC	Discontinued.

FUNGICIDES, BACTERICIDES, AND NEMATOCIDES—CONTINUED

Common or Trade Name	Trade or Common Name	Action*	Fungicide Group ***	Use
Plantvax	oxycarboxin	F, Ls, N	7	Foliar application for rusts in greenhouses or shadehouses. Little interest in USA so will be marketed only in Europe.
PMA	phenylmercury acetate			Discontinued.
Polyoxin D	Endorse, Veranda, Ph-D Affirm, OSO	F	19	Antibiotic active against certain fungi and bacteria.
Polyram	metiram	B, F, P	M3	Ethylenebis-dithiocarbamate (EBDC)-type fungicide.
Polysul	lime sulfur	B, E, F, I		Discontinued.
Posterity	pydiflumetofen	F, P	7	Turf label only.
potassium bicarbonate	Armcarb, Kaligreen Remedy, MilStop	E, F	NC	Has activity against powdery mildew, but do not believe any claims for black spot of rose.
PreFence	<i>Streptomyces</i> sp. strain K61	F, P	NC	Biological targeting <i>Fusarium</i> , <i>Alternaria</i> and <i>Phomopsis</i> in many crops but only suppressive for other diseases.
Premion	PCNB + tebuconazole	3 + 14		Turfgrass label.
Preplant Soil Fumigant	methy bromide + chloropicrin	Bact, F, Fum, I, Nem		Restricted-use material. Soil fumigant.
Presidio	fluopicolide	F, N, P	43	For control of oomycetes in vegetables and grapes. Prone to resistance problems so must be tank-mixed.
Prestop	<i>Gliocladium catenulatum</i> strain J1446	F, P	NC	Biological formulation applied to soil, planting medium, or as a spray to plants prior to the presence of any harvestable food portions to control a range of soilborne and foliar pathogens on a range of crops. ☐
Prev-Am	borax	I, P		Label for insects, powdery mildew, and has activity some other fungi.
Previa	chlorothalonil	B, F, P	M5	Labe for turf and landscape trees.
Previcur	propamocarb	F, P	28	Systemic fungicide for mix with contact fungicide to use for control of potato late and early blights.
Previsto	copper hydroxide	B, Bact, F	M1	Copper hydroxide in a matrix with Alginate. Has done well against fire blight.
Prevont	<i>Bacillus subtilis</i> strain IAB/BS03	A, B-N, F	NC	Biological renamed Aviv.
Priaxor Xemium	fluxapyroxad + pyraclostrobin	B, F, P, C, Ls	7 + 11	Broad-spectrum fungicide combination labeled for various vegetable and field crops.
Pristine	pyraclostrobin + boscalid	B, F, Ls, P	7 + 11	Combination product from BASF registered on fruit and vegetables.
ProAct	Harpin protein	A	NC	Stimulates disease suppression system, labeled for in row crops.
Problad	BLAD	F	BM01	Registered for fruits and vegetables.
Problad Verde	BLAD	F	BM01	Registered for fruits and vegetables. See Fracture.
ProCon-Z	propiconazole	B-N, C, F, Ls, P	3	Another generic for this popular material.
Procure	triflumizole	B-N, C, F, Ls, P	3	For grapes and pears.
ProGibb	gibberellic acid	Growth regulator	NC	Plant hormone used to change growth of plants for aesthetic and disease control reasons (grapes).
prohexadione calcium	Apogee	Growth regulator		Labeled for apple to slow down or minimize shoot growth and thus susceptibility to fire blight.
Proline	prothioconazole	B-N, C, F, Ls, P	3	Field crop label and some fruits. Great on <i>Monilinia</i> .
Proливо	pyriofenone	F, Ls, N, P	50	Useful on cucurbit and fruit powdery mildews.

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Fum = Fumigant
I = Insecticidal

Ls = Locally systemic
N = Narrow-spectrum activity
Nem = Nematicide

P = Protection
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FUNGICIDES, BACTERICIDES, AND NEMATOCIDES—CONTINUED

Common or Trade Name	Trade or Common Name	Action*	Fungicide Group ***	Use
propamocarb	Previcur, Tattoo, Banol Proplant (Stellar)	F, P	28	Systemic fungicide to mix with contact fungicide to use for control of potato late and early blights. Ornamental labels are Banol and Proplant
ProPensity	propiconazole	B-N, C, F, Ls, P	3	Generic for turfgrass diseases and many ornamentals.
ProPhyt	phosphorous acid	A, Fs, N, P, S	P7	Useful for oomycetes.
propiconazole	Alamo, Tilt, Banner, Bumper, PropiMax, Propensity, Ferti-lome Systemic Fungicide, (Concert) and many others	B-N, C, F, Ls, P	3	Has systemic and eradivative properties. Also growth regulation activity on a number of crops.
PropiMax	propiconazole	B-N, C, F, Ls, P	3	Popular fungicide with systemic and eradicator properties.
Propizol	propiconazole	B-N, C, F, Ls, P	3	Generic product for injection into trees.
Proplant	propamocarb	F, P	28	Ornamental label registered for control of oomycetes.
Propulse	fluopyram + prothioconazole	B, F, Ls, P	3 + 7	Field crops and small fruit label.
ProStar	flutolanil	F, S	7	Used for turf diseases only.
Protect	mancozeb	B, F, P	M3	Ornamental fungicide used on many crops to control many diseases. More ornamentals listed than on other similar labels.
Protégé	azoxystrobin	F, P	11	Discontinued name.
Pro-tex	maneb + triphenyltin hydroxide	F, P	M3 + 30	Potato early and late blight, Cercospora leaf spot of sugar beet. Restricted use.
Protexio	fenpyrazamine	F, N, P	17	For use against <i>Botrytis</i> and related fungi. Although registered it is not manufactured due to a garlic smelling residue on fruit crops.
prothioconazole	Proline, (Propulse)	B-N, C, F, Ls, P	3	New DMI material for field and fruit crops.
pydiflumetofen	Posterity, Miravis Ace A (Miravis Neo, Miravis Prime, Miravis Top)	F, P	7	Starting out on many crops.
Pylon	chlorfenapyr	I, Nem		An ornamental miticide with activity against foliar nematodes.
pyraclostrobin	Empress, Cabrio, Headline, Pristine, Insignia, Stamina (Merivon, Honor, Pillar, Orkestra)	B, F, Ls, P	11	Next generation strobilurin after kresoxim-methyl. Better activity on numerous diseases.
pyrimethanil	Penbotec, Scala (Luna Tranquility)	F, N, P	9	Fungicide used for <i>Botrytis</i> and <i>Monilinia</i> control and postharvest on pome fruit.
pyrifenone	Prolivo	F, Ls, N, P	50	Useful on cucurbit and fruit powdery mildews.
Quadris	azoxystrobin	B, F, Ls, P	11	Effective strobilurin compounds, active against a very large number of fungi.
Quadris Opti	azoxystrobin + chlorothalonil	B, F, P	11 + M5	Broad-spectrum fungicide for vegetables.
Quadris Ridomil Gold	azoxystrobin + mefenoxam	B, F, Fs, Ls, P, S	11 + 4	Broad-spectrum fungicide for potatoes.
Quadris Top	difenconazole + azoxystrobin	B-N, C, F, Ls, P	3 + 11	Combinations product for vegetables and tree fruit.
quaternary ammonium	KleenGrow, Phsan 20	D		Disinfectants that can be used over the plant. No residual so use often.
Quash	metconazole	B-N, C, F, Ls, P	3	Labeled at first for tree fruit and nuts.
Quell	metalaxyl	C, Fs, P, S		Discontinued name.
Quilt and Quilt Xcel	azoxystrobin + propiconazole	B, F, Ls, P	11 + 3	A combination fungicide for stone fruit, cereals, and grass-for-seed disease control.
quinoxifen	Quintec	F, N, P	13	For control of only powdery mildews in general. Good on hop, however, ineffective on apple powdery mildew.
Quintec	quinoxifen	F, N, P	13	For control of only powdery mildews in general. Good on hop, however, ineffective on apple powdery mildew.

FUNGICIDES, BACTERICIDES, AND NEMATOCIDES—CONTINUED

Common or Trade Name	Trade or Common Name	Action*	Fungicide Group ***	Use
Rally	myclobutanil	B-N, C, F, Ls, P	3	Fungicide with systemic and eradivative properties. Excellent against powdery mildew diseases but resistance becoming a problem.
Rampart	phosphorous acid	A, Fs, N, P, S	P7	Another material in this class with activity on oomycetes. Can be trunk injected.
Rancona	ipconazole	B, F P	3	Seed treatment for a broad range of crops.
Rango	neem oil	E, F, I, N, P	NC	Botanic oil registered on many crops.
Ranman	cyazofamid	N, F, Ls, P	21	Activity against oomycete fungal-like organisms.
Raxil	tebuconazole	B-N, C, F, Ls, P	3	Labeled as a seed treatment.
Raxil MD	tebuconazole + metalaxyl	B, C, F, Ls, P	3 + 4	Labeled as a seed treatment for control of various seedborne and soilborne diseases in cereals.
Reach	chlorothalonil + triadimefon	B, C, F, Ls, P		Discontinued.
Reason	fenamidone	F, P	11	Effective against certain foliar diseases in vegetable crops.
Regalia	Extract of <i>Reynoutria sachalinensis</i>	A	P5	Label for odds and ends of crops including walnut. Use at weekly intervals. ☐
Regime	BLAD	F	BM01	Registered for ornamentals.
ReLoad	phosphites	A, Fs, N, P, S	P7	Generic label for many crops and ornamentals.
Remedy	potassium bicarbonate	E, F	NC	Discontinued name.
Renown	chlorothalonil + azoxystrobin	B, F, Ls, P	M5 + 11	Turf label.
Return	oxamyl	I, Nem		Restricted use material. For certain insects, mites and/or nematodes.
Revus	mandipropamid	N, F, P	40	For control of some oomycetes like downy mildew, but not <i>Pythium</i> , in certain vegetables and grapes.
Revus Top	mandipropamid + difenoconazole	B, F, P, S	3 + 40	For control of many diseases in tomato and potato.
Rhapsody	<i>Bacillus subtilis</i> Strain QST 713	F, P	NC	Ornamental label for this biocontrol product. Protein in culture filtrate is actual active ingredient. ☐
Rhizopro	<i>Bacillus subtilis</i> var. <i>amyloliquefaciens</i> strain FZB24	A	44	Discontinued.
Rhyme	flutriafol	B-N, C, F, Ls, P	3	California and Arizona label.
Ridomil	metalaxyl	Fs, P, S	4	Active against oomycetes when resistance is not a problem.
Ridomil Gold	mefenoxam	Fs, P, S	4	The biologically active R-enantiomer of metalaxyl.
Ridomil Gold Bravo SC	mefenoxam + chlorothalonil	B-N, Fs, P, S	4 + M5	Prepacked mix for vegetable crops in the field.
Ridomil Gold Copper	mefenoxam + copper hydroxide	B-N, Fs, P, S	4 + M1	Prepacked mix for downy mildews.
Ridomil Gold MZ	mefenoxam + mancozeb	B-N, Fs, P, S	4 + M3	Prepacked mix for downy mildews.
Ronilan	vinclozolin	B-N, F, Ls, P	2	Discontinued.
RootShield	<i>Trichoderma harzianum</i>	F, P	NC	Biological for various root diseases. ☐ ☐
Roper	mancozeb	B, F, P	M3	Broad-spectrum fungicide for fruit and vegetables.
Rovral	iprodione	B-N, F, Ls, P	2	Good fungicide against <i>Botrytis</i> if resistance is not a problem.
Rubigan	fenarimol	B-N, C, F, Ls, P	3	Discontinued.
Safer Garden Fungicide	sulfur	F, I, P, V	M2	Home label and packaging. Good on powdery mildew. ☐ ☐
Saf-T-Side	refined petroleum distillate (oil)	E, F, N, P	NC	Discontinued.

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 poisonous to mites or ticks
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

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 spectrum of activity
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 S = Systemic
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FUNGICIDES, BACTERICIDES, AND NEMATOCIDES—CONTINUED

Common or Trade Name	Trade or Common Name	Action*	Fungicide Group ***	Use
Scala	pyrimethanil	F, N, P	9	Used for <i>Botrytis</i> and <i>Monilinia</i> control.
Scholar	fludioxonil	F, N, P	12	Postharvest label for stone fruits. Degraded by direct sunlight.
Secure	fluazinam	B, F, P	29	Lawn and turf label for tank-mixing in with fungicides at risk for resistance development.
Segovis	oxathiapiprolin	N, F, S	49	Ornamental label for use against downy mildews and aerial and soilborne <i>Phytophthora</i> diseases.
Segway	cyazofamid	N, F, Ls, P	21	Ornamental fungicide for downy mildews and aerial <i>Phytophthoras</i> .
Sentinel	ciproconazole	B-N, C, F, Ls, P		Discontinued name for turf.
Sequestrene 138	chelated iron	Adjuvant		Tank-mixed with BlightBan for better control of fire blight than with BlightBan alone.
Serenade	<i>Bacillus subtilis</i> strain QST 713	F, P	NC	Biological labeled for gray mold, powdery mildews, and other foliar diseases on many crops. Has had variable testing results.  
Sextant	iprodione	F, N-B, P		Discontinued name.
Signature	fosetyl-Al	A, Fs, N, P, S	P7	Same as Aliette but with a green pigment included for the turf market.
Sil-Matrix	potassium silicate	F, I	--	General label for use on many crops. Do not use on open blooms of ornamentals.
SmartFresh	methylcyclopropene (1-MCP)	N		Prevents ethylene production in stored fruit so it helps control ripening and scald of apple among other things.
sodium hypochlorite	Clorox, Agclor	Bact, E, F		Bleach has a number of disinfectant uses.
SoilGard	<i>Gliricladium virens</i>	F, P	NC	Biological for damping-off organisms. 
Soil-Prep	metam-sodium	E, F, Fum, I, Nem		Restricted use. Soil disinfectant for fungi, nematodes, soil insects (wireworms, centipedes), and weeds. Field area or row application by soil injection or sprinkler injection.
solatenol (benzovindiflupyr)	Aprovia (Mural, Elatus)	B-N, F, Ls, P	7	Third generation group 7 material, slow uptake. Trademark name for benzovindiflupyr.
Sonata	<i>Bacillus pumilis</i> strain QST 2808	F, P	NC	Biocontrol product labeled for several diseases including powdery mildew. 
Sonoma	myclobutanil	B-N, C, F, Ls, P	3	Labeled for various crops.
SOPP	Stri-Seal, Deccosol	F		Fungicide used in pear-processing dump tanks.
Sovran	kresoxim-methyl	B, F, Ls, P	11	Fruit label for a strobilurin compound. Phytotoxic on a few cherry cultivars such as Van.
Spectracide Immunox	myclobutanil	B-N, C, F, Ls, P	3	An effective fungicide for the home market.
Spectro	chlorothalonil + thiophanate-methyl	B, F, Ls, P	M5 + 1	Ornamental label for a combination of two good fungicides.
Spirato GHN	fludioxonil	F, N, P	12	Fungicide with an ornamental label that can be used in greenhouse and many other sites.
spiroxamine	Accrue	F, N, P	5	Effective against powdery mildew on hops. Not registered.
Sporan	Rosemary oil + clove oil + thyme oil	E, F, I	NC	Botanicales good for organic powdery mildew control.
Sporax	borax	F, N, P		Discontinued.
Spot-Less	<i>Pseudomonas aureofaciens</i>	F	NC	Discontinued.
Spotrete	thiram	B, F, P	M3	Fungicide used for a few diseases but mostly as an animal repellent.
Spur Shield	cyclohexane polymer	P	NC	Wound sealant.
Stamina	pyraclostrobin	B, F, Ls, P	11	Seed treatment of cereals and legumes to control a broad spectrum of fungal diseases.
Stargus	<i>Bacillus amyloliquefaciens</i> strain F727	F, P	44	Broad spectrum biological for vegetable, small fruit, and ornamental crops. 
Stature	dimethomorph	F, P	40	Ornamental label to control downy mildews.

FUNGICIDES, BACTERICIDES, AND NEMATOCIDES—CONTINUED

Common or Trade Name	Trade or Common Name	Action*	Fungicide Group ***	Use
Stellar	fluopicolide + propamocarb hydrochloride	N, F	28 + 43	Turf label for <i>Pythium</i> management.
Stratego	propiconazole + trifloxystrobin	B, C, F, Ls, P	3 + 11	Prepackaged fungicide mix for select markets.
streptomycin	Agri-Mycin, Harbour	Bact, P	25	Antibiotic; controls a number of commercially important bacterial plant pathogens including fire blight.
Streptrol	streptomycin	Bact, P	25	Discontinued.
Strider	propiconazole	B-N, C, F, Ls, P	3	Generic of a popular fungicide.
Strike	triadimefon	B-N, C, F, Ls, P	3	Not registered alone.
Strike Plus	triadimefon + trifloxystrobin	B-N, C, F, Ls, P	3 + 11	Discontinued.
Stri-Seal	SOPP	F		Fungicide used in pear-processing dump tanks.
Subdue	metalaxyl	C, Fs, P, S	4	Controls oomycetes if resistance has not occurred.
Subdue MAXX	mefenoxam	Fs, P, S	4	The biologically active <i>R</i> -enantiomer of metalaxyl.
Subtilex	<i>Bacillus subtilis</i> strain MBI 600	F, P	NC	Biological registered for several fungal root pathogens and powdery mildew. ☐
SuffOil-X	Petroleum oil	F, I	--	Has powdery mildew on the label.
Sulforix	lime sulfur	B, E, F		New name instead of Orthorix.
sulfur	Kumulus, Microthiol Disperss, Cosavet, (Unicorn)	F, I, P, V	M2	Sulfur is likely to injure plants above 85°F to 90°F. Effectively controls a variety of plant diseases especially powdery mildew. Do not use with oils.
Superior Oils	refined petroleum distillate (oil)	E, F, N, P	NC	Developed for summer orchard use and low phytotoxicity. These oils have a high content of paraffinic hydrocarbons with relatively small amounts of aromatic and naphthenic constituents. Use for insect and powdery mildew control as well as spray adjuvants.
Super Tin	TPTH	F, N, P	30	Used for early and late blight of potato. Restricted use.
Switch	fludioxonil + cyprodinil	F, B, P	12 + 9	The combination gives better <i>Botrytis</i> control and resistance management than either one of the ingredients does alone.
Syllit	dodine	B, F, P	U12	Used for a number of diseases such as apple scab and sycamore anthracnose.
Systec	thiophanate-methyl	N-B, F, P	1	Ornamental fungicide.
System 3	<i>Bacillus subtilis</i> strain GB03 + Apron and Terraclor	F, P	NC + 4 + 14	Seed treatment.
Sythane	myclobutanil	B-N, C, F, Ls, P	3	Discontinued.
Systox	demeton			Discontinued.
Tachigaren	hymexazole	?	32	Seed treatment for sugar beets.
Taegro	<i>Bacillus subtilis</i> var. <i>amyloliquefaciens</i> Strain FZB24	A	NC	Biocontrol product targeting <i>Rhizoctonia</i> and <i>Fusarium</i> . ☐
Tanos	famoxadone + cymoxanil	F, Ls	11 + 27	Labeled for hop and grape downy mildew, some foliar diseases of vegetable crops.
Tartan	triadimefon + trifloxystrobin	B-N, C, F, Ls, P	3 + 11	Control of certain foliar, stem, and root diseases of turfgrass including golf courses, sod farms, and sports fields.
Tattoo C	propamocarb hydrochloride + chlorothalonil	F, P	28 + M5	For potato late blight.

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FUNGICIDES, BACTERICIDES, AND NEMATOCIDES—CONTINUED

Common or Trade Name	Trade or Common Name	Action*	Fungicide Group ***	Use
Tavano	polyoxin D	F	19	Discontinued.
TCMTB	Busan 30 A	F		Fungicide seed treatment.
Tebucon	tebuconazole	B-N, C, F, Ls, P	3	One of many generics.
tebuconazole	Toledo, Raxil, Tebuject Orius, Bayer Advanced, Tebucon, Tebuzol, Tebustar (Luna Experience) and many others.	B-N, C, F, Ls, P	3	For fruit, grass seed, and ornamentals.
Tebuject	tebuconazole	B-N, C, F, Ls, P	3	Used for tree injection against a few diseases.
Tebusha	tebuconazole	B-N, C, F, Ls, P	3	Discontinued.
Tebustar	tebuconazole	B-N, C, F, Ls, P	3	Fungicide for grasses grown for seed.
Tebuzol	tebuconazole	B-N, C, F, Ls, P	3	Flowable formulation of this DMI.
Tee-Off	thiophanate-methyl	B, F, P, S	1	Labeled for turfgrass diseases.
Telone II	dichloropropene	B, E, Fum, Nem		Preplant for nematode, disease, insect, and weed control on a variety of crops. Harmful to crop plants and applied only as preplant to control nematodes. Do not apply in glasshouses containing plants. Apply year-round if soil conditions are suitable, overall or a row basis. Immediately seal soil surface by lightly compacting with roller or water. Do not plant any crop while any odor remains in the soil. If in doubt, aerate soil by cultivating a few days before planting. Restricted use.
Telone C-17	dichloropropene + chloropicrin	F, Fum		Restricted use. Preplant nematocide and soilborne fungicide.
Temik	aldicarb	I, Nem, S		Discontinued.
Tenet WP	<i>Trichoderma asperellum</i> and <i>Trichoderma gamsii</i>	F, P	NC	For control of soilborne pathogens in various fruits, nuts, vegetables, field, ornamental crops, and turf. ☐
Terraclor	PCNB	B, F, P	14	Soil fungicide and seed treatment. Controls many soil fungi, storage rots, damping-off, and smut.
TerraCyte	peroxide	B, D		Disinfectant for turf and container grown plants.
TerraCyte Pro	sodium carbonate peroxyhydrate	E		Mostly used for algae and liverwort control in turf.
Terraguard	triflumizole	B-N, C, F, Ls, P	3	For ornamental disease problems such as powdery mildew.
Terranil	chlorothalonil	B, F, P	M5	Discontinued.
Terrazole	etridiazole	F, N	14	Soil drench ornamental fungicide to control <i>Pythium</i> and <i>Phytophthora</i> .
Terr-o-cide	methyl bromide			Discontinued name. Now called Terr-o-gas
Terr-O-Gas	methy bromide + chloropicrin	Bact, F, Fum, I, Nem		Restricted-use material. Soil fumigant.
Tersan LSR	maneb			Discontinued.
Tersan SP	chloroneb			Discontinued.
Tersan 1991	benomyl			Discontinued.
tetraconazole	Mettle	B-N, C, F, Ls, P	3	Label starting out in grapes.
Tetrasul	lime sulfur	B, E, F, I		Discontinued.
Tetrathiocarbonate	Enzone	B, Fum, Nem, V		Discontinued. Breaks down to carbon disulfide in the soil and acts as a fumigant
thiabendazole	Mertect 340-F, Arbotect 20-S, LSP Flowable Fungicide	F, P, S	1	A fungicide, controls many storage-rot fungi and leaf-spotting diseases.
Thiolux	sulfur	F, I, P, V	M2	Discontinued.
Trigo	triadimefon + trifloxystrobin	B-N, C, F, Ls, P	3 + 11	Combination package of 2 fungicides for ornamentals.
Trionic	triflumizole	B-N, C, F, Ls, P	3	Generic imidazole fungicide.
thiophanate	Bromosan, Spot Klean			Discontinued.

FUNGICIDES, BACTERICIDES, AND NEMATOCIDES—CONTINUED

Common or Trade Name	Trade or Common Name	Action*	Fungicide Group ***	Use
thiophanate-methyl	Cleary's 3336, TOPS, Topsin M, Cavalier, Regal SysTec, OHP 6672, Tee-Off, T-Methyl 4.5F AG	B, F, P, S	1	Activity like benomyl's: the plant converts both to carbendazim, which is the active fungicidal compound.
thiram	Spotreat, Thiram Granuflo Defiant	B, F, P	M3	Fungicide, seed protectant, animal repellent. As seed protectant, reduces losses from seed decay, damping-off, and seedling blights caused by many seedborne and soilborne organisms.
Thiosperse	sulfur	F, I, P, V	M2	Discontinued.
Thynon	dithianon			Discontinued.
Tilt	propiconazole	B-N, C, F, Ls, P	3	Labeled for many crops.
Timber Fume	chloropicrin	Bact, F, Fum, I, Nem		Restricted-use material. Fumigant to control decay in wood.
T-Methyl	thiophanate-methyl	B, F, P, S	1	Converted in the plant to carbendazim, which is the active fungicidal compound.
Toledo	tebuconazole	B-N, C, F, Ls, P	3	For rust and powdery mildew control in grasses grown for seed in the PNW.
Topaz	propiconazole	B-N, C, F, Ls, P	3	Another generic for this popular material.
Topguard	flutriafol	B-N, C, F, Ls, P	3	Label starting out in apples and soybeans. Most systemic of the DMT's.
Topguard EQ	flutriafol + azoxystrobin	B-N, C, F, Ls, P	3 + 11	Combination package of 2 fungicides.
Tops	thiophanate-methyl	B, F, P, S	1	Potato seed treatment.
TopShield	<i>Trichoderma harzianum</i>	F, P		Discontinued.
Topsin M	thiophanate-methyl	B, F, P, S	1	Converted in the plant to carbendazim, which is the active fungicidal compound.
Tops-MZ	thiophanate-methyl + mancozeb	B, F, P, S	1 + M3	Potato seed treatment.
Torino	cyflufenamid	F, P	U6	For powdery mildew on a few fruit, hop, and vegetable crops.
Torque	tebuconazole	B-N, C, F, Ls, P	3	One of many generics.
Touché	vinclozolin	F, Ls, N, P		Discontinued.
Tourney	metconazole	B-N, C, F, Ls, P	3	Turf and ornamental label.
TPTH	Super Tin	F, N, P	30	Used for early and late blight of potato. Restricted use.
Triact	neem oil	E, F, N, P	NC	Used as a fungicide on powdery mildews. Solidifies at 40°F. ☐
triadimefon	Strike, Bayleton (Armada, Strike Plus, Trigo)	B-N, C, F, Ls, P	3	Controls powdery mildew and rust diseases on many crops.
triadimenol	Baytan	F, S	3	Seed treatment for smuts, rusts, and powdery mildews.
Triathlon BA	<i>Bacillus amyloliquefaciens</i> strain D747	F, P	44	Biological.
Tri-Clor	chloropicrin I, Nem	Bact, F, Fum,		Restricted-use material. Soil fumigant.
Tri-Con	methy bromide + chloropicrin	Bact, F, Fum, I, Nem		Restricted-use material. Soil fumigant.
trifloxystrobin	Flint, Compass, (Armada, Strike Plus, Trigo)	B, F, Ls, P	11	A strobilurin compound effective against many fungi.
triflumizole	Terraguard, Procure Trionic	B-N, C, F, Ls, P	3	Fungicide used on ornamentals, pears, and grapes for powdery mildew and scab control.

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FUNGICIDES, BACTERICIDES, AND NEMATOCIDES—CONTINUED

Common or Trade Name	Trade or Common Name	Action*	Fungicide Group ***	Use
triforine	Funginex, Cela W-524, Triforine, Saprol	B-N, F, Ls, P	3	For use against powdery mildew, scab, rust, and other diseases. Ag uses cancelled.
Tri-Form	dichloropropene + chloropicrin	Bact, F, Fum, I, Nem		Restricted-use material. Soil fumigant.
Trinity	triticonazole	B-N, C, F, Ls, P	3	Fungicide for turf diseases. TR or total release formulation for greenhouse use.
Trilogy	neem oil	E, F, N, P, I	NC	Used against powdery mildews. ☐
Trionic	triflumizole	B-N, C, F, Ls, P	3	Generic Procure for a few fruits and vegetables.
triticonazole	Charter, Trinity (Pillar)	B-N, C, F, Ls, P	3	Fungicide for turf diseases and wheat and barley seed treatment.
Trivapro	benzovindiflupyr + azoxystrobin + propiconazole	B, F, P	3 + 7 + 11	Broad-spectrum fungicide for cereals, corn, and soybean.
Truban	etridiazole	F	14	Used for damping-off and root rot caused by oomycetes.
Turficide	PCNB	B, F, P	14	Turf label to control a few diseases.
TurfShield	<i>Trichoderma harzianum</i>	F, P	NC	Biological registered for turf.
Tutane	2-aminobutane			Discontinued.
T-22	<i>Trichoderma harzianum</i>	F, P	NC	Discontinued.
Ultra-Shield	chlorine dioxide	B, D	--	Used for cleaning irrigation water and disinfecting tools and surfaces in greenhouses and nurseries.
Unicorn	tebuconazole + sulfur	B-N, C, F Ls, P	3 + M2	One of many generics but focused on powdery mildew with the addition of sulfur.
Uniform	azoxystrobin + mefenoxam	B, F, P	11 + 4	Labeled for many diseases in field and vegetable crops.
V-10208	ethaboxam	C, Ls, N, P, S	22	For oomycete-caused diseases in vegetables.
Vacciplant	laminarin	°A	P4	Wide range of crops it can be used on. Better activity on annuals than perennials.
Vanguard	cyprodinil	C, Fs, Ls, N, P	9	Good activity on <i>Botrytis</i> and <i>Monilinia</i> . Fair on apple scab. Resistance could be a problem if overused.
Vapam HL	metam-sodium	E, F, Fum, I, Nem		Restricted use. Soil disinfectant for soil fungi, nematodes, soil insects (wireworms, centipedes), and weeds. Field area or row application by soil injection or sprinkler injection. Treat seed, plant beds, and potting soil by different methods. Penetration and effectiveness is improved by water seal.
VeggieTurbo	Polyoxin D	F	19	Several vegetable and fruits on this generic label for Washington State.
Velista	penthioopyrad	B, F, P	7	Turf formulation for this fungicide.
Velum Prime	fluopyram	F, N, Nem	7	High rate of this fungicide is also nematocidal. Label is directed at nematodes and delivered via chemigation, drip or drench.
Veranda T	Polyoxin D	F	19	Turfgrass label.
Vertisan	penthioopyrad	B, F, P	7	Broad-spectrum fungicide for many diseases in field crops.
Victus	<i>Pseudomonas fluorescens</i>	Bact	NC	Biological to control bacterial blotch in mushroom production. ☐
vinclozolin	Ronilan, Ornalin, Touché, Vorlan	F, Ls, N, P	2	Controls <i>Botrytis</i> , <i>Sclerotinia</i> , <i>Monilinia</i> , and some other fungi. Labels discontinued .
Vintage	fenarimol	B-N, C, F, Ls	3	Discontinued.
Vital	phosphorous acid	A, Fs, N, P, S	P7	Discontinued.
Vitiseal	paint	P	NC	Paint for protection of pruning wounds.
Vitavax	carboxin	F, Ls, N	7	Seed treatment for small grains to control <i>Rhizoctonia</i> .
Vivando	metrafenone	F, Ls, N, P	50	Active on fruit powdery mildews.

FUNGICIDES, BACTERICIDES, AND NEMATOCIDES—CONTINUED

Common or Trade Name	Trade or Common Name	Action*	Fungicide Group ***	Use
Vorlan	vinclozolin	F, Ls, N, P		Discontinued.
Vorlex	methyl isothicyanate			Discontinued.
Vydate	oxamyl	I, Nem		For certain insects, mites, and/or nematodes. Restricted use.
Wakil	fludioxonil, metalaxyl-M, and cymoxanil	B, F, Ls, P	12 + 4 + 27	Seed treatment combination for pea seed crops.
Willowood Azoxy	azoxystrobin	B-N, C, F, Ls, P	11	Another generic of this fungicide.
Wingman	mancozeb	B, F, P	M3	Discontinued name.
WRC-AP-1	<i>Gliocladium virens</i>	F, P	NC	For control of damping-off and root rot in ornamentals and vegetables.
Xeroton-3	hydrogen peroxide + peroxyacetic acid + octanoic acid	D	--	Lots of uses but expect low residual.
Xzemplar	fluxapyroxad	B, C, F, P	7	Turfgrass label. Does not kill aglae.
Zampro	ametoctradin + dimethomorph	F, P	45 + 40	Fungicide mixture for diseases caused by oomycetes in vegetables, hop, and grapes.
ZeroTol	peroxide	B, D		Disinfectant with very short residual activity. Registered like fungicides but do not use it that way.
Zen-O-Spore	<i>Ulocladium oudemansii</i> strain U3	F, N, P	NC	Biofungicide for use on fruits and nuts against Botrytis diseases. ☐
zineb	Zineb	B, F, P		Discontinued.
Zio	<i>Pseudomonas chlororaphis</i> strain AFS009	F	NC	Biological fungicide for turf and ornamentals.
ziram	Ziram, Ziram Granuflo	B, F, P	M3	Used extensively to control shothole, brown rot, and peach leaf curl. The most stable of the metallic dithiocarbamates; nonphytotoxic except for zinc-sensitive plants. Does not build up in soil and is rapidly decomposed by weathering.
Zonix Biofungicide	Rhamnolipid Biosurfactant	E, F	NC	A surfactant derived from <i>Pseudomonas aeruginosa</i> that actively lyses zoospores. Good use in hydroponic systems and may have several other uses. Several general crops on the label.
Zyban	thiophanate-methyl + mancozeb	B, F, P, S	1 + M3	Ornamental label for a variety of diseases.

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