

Reference



FUNGICIDES AND THE DISEASES THEY CONTROL BEST

March, 2014

The active ingredients listed below have consistently shown good efficacy in multiple research trials against the diseases shown. The number above each active ingredient refers to the resistance management group assigned to it by FRAC (Fungicide Resistance Action Committee, <http://www.frac.info/>). More information on resistance management appears on the back of this page. Consult the PACE Turf website at www.paceturf.org for additional information on important cultural practices that should be implemented for each disease. Always refer to product labels to confirm all use, handling and application requirements.

	11	7	M5	14	21	14	3	11	7	12	43	7	33	2	M3	4	3	3	14	7	33	19	F4	3	11	3	1	3	3	11	2
Some systemicity	azoxystrobin	boscalid	chlorothalonil	chloroneb	cyazofamid	etridiazole	fenarimol	fluoxastrobin	fluxapyroxad	fludioxonil	flupicolide	flutolanil	fosetyl-Al	iprodione	mancozeb	mefenoxam	metconazole	myclobutanil	PCNB	penthiopyrad	phosphites	polyoxin D zinc	propamocarb	propiconazole	pyraclostrobin	tebuconazole	thiophanate-methyl	triadimefon	triticonazole	trifloxystrobin	vinclozolin
Contact																															
Resistance management is critical; use with caution	R							R																R		R				R	
Algae																															
<i>Oscillatoria</i> , cyanobacteria																															
Anthraxnose																															
<i>Colletotrichum cereale</i>	R							R																	R		R			R	
Bentgrass/bermuda dead spot																															
<i>Ophiostoma agrostis</i>																															
Blight, melting out, leaf spot																															
<i>Curvularia Bipolaris Dreschlera</i>																															
Brown ring patch																															
<i>Waitea circinata</i>																															
Brown/yellow patch																															
<i>Rhizoctonia</i> spp.																															
Dollar spot																															
<i>Sclerotinia homeocarpa</i>																															
Fairy ring																															
basidiomycete fungi																															
Gray leaf spot	R																								R					R	
<i>Pyricularia grisea</i>																															
Gray snow mold																															
<i>Typhula</i>																															
Necrotic ring spot																															
<i>Ophiostoma korrae</i>																															
Pink snow mold/Microdochium patch, <i>Microdochium nivale</i>																															
Pythium foliar blight																															
<i>Pythium</i> spp.																															
Pythium root dysfunction																															
<i>Pythium volutum</i>																															
Rapid blight																															
<i>Labyrinthula terrestris</i>																															
Red thread																															
<i>Laetisaria fuciformis</i>																															
Root rot																															
<i>Pythium</i> spp.																															
Rusts																															
<i>Puccinia</i> spp.																															
Southern blight																															
<i>Sclerotium rolfsii</i>																															
Spring dead spot																															
<i>Ophiostoma</i> spp.																															
Summer patch																															
<i>Magnaporthe poae</i>																															
Take-all patch, decline																															
<i>Gaeumannomyces graminis</i>																															

Reference



Fungicide Resistance Management Groups

March, 2014

Fungicides **shaded in blue** are considered reduced risk, and those **shaded in green** are considered biopesticides by the US EPA.

Active Ingredient	Trade Names	Resistance group	Resistance risk
azoxystrobin	Heritage	11: QoI	High
boscalid	Emerald	7: SDHI	Medium
chlorothalonil	Concorde, Daconil, Echo, Manicure	M5: Chloronitriles	Low
chloroneb	Terraneb	14: aromatic hydrocarbons	Low to Medium
cyazofamid	Segway	21: Qil	Unknown, but assumed to be Medium to High
etridiazole (ethazole)	Koban, Terrazole	14: Heteroaromatic	
fenarimol	Patchwork, Rubigan	3: DMI	Medium
fludioxonil	Medallion	12: Phenylpyrroles	Low to Medium
fluopicolide	Stellar (part of tank mix)	43: benzamide	unknown
fluoxastrobin	Disarm	11: QoI	High
fluxapyroxad	Xzemplar	7: SDHI	Medium
flutolanil	Prostar	7: SDHI	Medium
fosetyl-Al (aluminum tris)	Aliette	33: Phosphonates	Low
iprodione	Chipco 26019, Chipco 26GT, Iprodione Pro	2: Dicarboximides	Medium to High
mancozeb	Dithane, Fore, Mancozeb, Protect	M3: Dithiocarbamate	Low
mefenoxam	Subdue Maxx, Quell	4: Phenylamide	High
metconazole	Tourney	3: DMI	Medium
myclobutanil	Eagle, Golden Eagle	3: DMI	Medium
PCNB (quintozene)	Defend, Penstar, Terraclor, Turfcide	14: Aromatic hydrocarbons	Low to Medium
penthiopyrad	Velista	7: SDHI	Medium to High
phosphites	Alude, Magellan, ReSyst, Vital	33: Phosphonates	Low
polyoxin D zinc	Endorse	19: Polyoxins	Medium
propamocarb	Banol	F4: Carbamates	Low to Medium
propiconazole	Banner Maxx, Propiconazole Pro	3: DMI	Medium
pyraclostrobin	Insignia	11: QoI	High
tebuconazole	Torque	3: DMI	Medium
thiophanate-methyl	Cavalier, Cleary's 3336, Fungo	1: MBC	High
triadimefon	Accost, Bayleton, Fungicide VII	3: DMI	Medium
trifloxystrobin	Compass	11: QoI	High
triticonazole	Trinity, Triton	3: DMI	Medium
vinclozolin	Curalan, Touche, Vorlan	2: Dicarboximides	Medium to High

NOTE: Fungicides are organized into Fungicide Resistance Groups based on mode of action and chemical structure. In general, a pest that develops resistance to one fungicide within a group will probably be cross-resistant to other members of the group. Therefore, rotation among different fungicide resistance groups is important for delaying or avoiding resistance. Source: Fungicide Resistance Action Committee (FRAC), www.frac.info.