FUNGICIDE CLASSIFICATION

Repeated use of fungicides with the same mode of action can result in the selection of fungicide-resistant strains of plant pathogens.

Take ACTION
Fungicide-Resistance Management

by MODE OF ACTION (MOA)

This section groups fungicides by their mode of action to assist in the selection of fungicides **1)** to maintain greater diversity in fungicide use and **2)** to rotate among effective fungicides with different modes of action to delay the development of fungicide resistance.

FRAC CODE	MODE OF ACTION	CHEMICAL FAMILY	ACTIVE INGREDIENT	PRODUCT EXAMPLES (Trade Name)
MITOSIS DISRUPTERS				
1	MBC (methyl benzimidazole carbamates) B1: ß-tubuline assembly in mitosis	Thiophanates	thiophanate-methyl	***Topsin,*** *multiple generics and component in premix*
CELL MEMBRANE DISRUPTERS				
3	DMI (demethylation inhibitors)/ triazoles G1: C14- demethylase in sterol biosynthesis (erg11/cyp51)	Triazoles	cyproconazole	***Alto*** *and component in premix*
			difenoconazole	*Component of* ***Quadris Top***
			flutriafol	***Topguard*** *and component in premix*
			metconazole	*Component of* ***Headline Amp***
			propiconazole	***Tilt,*** *multiple generics and component in premix*
			tebuconazole	***Folicur,*** *multiple generics and component in premix*
			tetraconazole	***Domark,*** *multiple generics and component in premix*
		Triazolinthiones	prothioconazole	***Proline*** *and component in premix*
RESPIRATION INHIBITORS				
7	SDHI (succinate dehydrogenase inhibitors)/carboxamides COMPLEX II: succinate-dehydrogenase	Pyridinecarboxamides	boscalid	***Endura***
		Pyridinyl-ethylbenzamides	fluopyram	*Component of* ***Propulse***
		Pyrazole-4-carboxamides	benzovindiflupyr	*Component of* ***Trivapro***
			fluxapyroxad	*Component of* ***Priaxor***
			penthiopyrad	***Vertisan***
11	QoI (quinone outside inhibitors)/ Strobilurins C3: COMPLEX III: cytochrome bc1 (ubiquinol oxidase) at Qo site (cyt b gene)	Methoxy-acrylates	azoxystrobin	***Quadris,*** *multiple generics and component in premix*
			picoxystrobin	***Aproach*** *and component in premix*
		Dihyrdro-dioxazines	fluoxastrobin	***Aftershock, Evito***
		Methoxy-carbamates	pyraclostrobin	***Headline*** *and component in premix*
		Oximino-acetates	trifloxystrobin	*Component in premix*
OXIDATIVE PHOSPHORYLATION UNCOUPLERS				
29	Oxidative phosphorylation uncouplers	2,6-dinitroanilines	fluazinam	***Omega***
UNKNOWN				
33	UNKNOWN	Phosphonates	phophorous acid and salts	*Component in premix*
MULTI-SITE CONTACT ACTIVITY				
M1 M5	MULTI-SITE CONTACT ACTIVITY	Inorganic	copper (different salts)	***Badge*** *and multiple generics*
		Chloronitriles (Phthalonitriles)	chlorothalonil	***Bravo Weather Stik,*** *multiple generics and component in premix*

by PREMIX

This section lists premix fungicides by their trade names so you can identify the premix's component fungicides and their respective mode of action groups. Refer to the **Mode of Action** section on the left for more information.

PREMIX	ACTIVE INGREDIENT	FRAC CODE
ACROPOLIS	thiophanate-methyl	1
	tetraconazole	3
AFFIANCE	tetraconazole	3
	azoxystrobin	11
AFRAME PLUS	propiconazole	3
	azoxystrobin	11
APROACH PRIMA	cyproconazole	3
	picoxystrobin	11
AVARIS	propiconazole	3
	azoxystrobin	11
AZOXY TEB	tebuconazole	3
	azoxystrobin	11
AZOXYPROP XTRA	propiconazole	3
	azoxystrobin	11
CATAMARAN	potassium phosphite	33
	chlorothalonil	M5
COVER XL	propiconazole	3
	azoxystrobin	11
CUSTODIA	tebuconazole	3
	azoxystrobin	11
DELARO	prothioconazole	3
	trifloxystrobin	11
EVITO T	tebuconazole	3
	fluoxastrobin	11
FORTIX	flutriafol	3
	fluoxastrobin	11
HEADLINE AMP	pyraclostrobin	11
	metconazole	3
MUSCLE ADV	tebuconazole	3
	chlorothalonil	M5
OVERRULE	thiophanate-methyl	1
	tebuconazole	3
PREEMPTOR	flutriafol	3
	fluoxastrobin	11
PRIAXOR	fluxapyroxad	7
	pyraclostrobin	11
PRIAXOR D	tetraconazole	3
	fluxapyroxad	7
	pyraclostrobin	11
PROPULSE	prothioconazole	3
	fluopyram	7
PROTOCOL	thiophanate-methyl	1
	propiconazole	3
QUADRIS TOP QUADRIS TOP SBX	difenoconazole	3
	azoxystrobin	11
QUILT QUILT XCEL	propiconazole	3
	azoxystrobin	11
STRATEGO	propiconazole	3
	trifloxystrobin	11
STRATEGO YLD	prothioconazole	3
	trifloxystrobin	11
TOPGUARD EQ	flutriafol	3
	azoxystrobin	11
TOPSIN XTR	thiophanate-methyl	1
	tebuconazole	3
TRIVAPRO	propiconazole	3
	benzovindiflupyr	7
	azoxystrobin	11
VIATHON	tebuconazole	3
	potassium phosphite	33

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For more information and links to additional resources, visit ***www.IWillTakeAction.com***

Fungicides listed in this publication may not be registered for use in all states. Always read and follow the label directions.

Fungicides are classified according to their mode of action, or numeric FRAC code. The list of FRAC codes was developed by the Fungicide Resistance Action Committee and is a technical classification of fungicide modes of action according to scientific data. For more information, please visit www.frac.info.

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