

## Chemical Family: Dithiocarbamates

Common Name	Trade Names <sup>1</sup>	Mode of Action	Placement/Mobility	Concern Over Resistance	Comments
Mancozeb	Fore, Mancozeb, Dithane T/O, Protect T/O	general	contact	low	These types of fungicides have broad-spectrum control properties and are used as protectants. Early development of these started in the 1930's.
Thiram	Spotrete, Defiant, Thiram				

## Chemical Family: Dicarboximides

Iprodione	Chipco 26GT, Iprodione Pro, 18 Plus	specific	local penetrant	moderate to high (not persistent)	The dicarboximides were developed in the mid-1970's. These fungicides have broad-spectrum activity.
Vinclozolin	Touché, Curalan				

## Chemical Family: Benzimidazoles

Thiophanate-methyl	Fungo 50, Cleary's 3336 T methyl Pro, T-Storm	specific	systemic (upward)	high	This family of fungicides became available in the late 1960's and ushered in the era of systemic fungicides. The development of resistance to the benzimidazoles is a serious problem.
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## Chemical Family: Sterol Inhibitors or Demethylase Inhibitors

Fenarimol	Rubigan	specific	systemic (upward)	high	This group of fungicides was introduced in the late 1970's and has broad-spectrum activity. At times, referred to as the SI's or DMI's. The development of resistance to this family of fungicides is a serious problem.
Myclobutanil	Eagle				
Triademefon	Bayleton, Accost				
Propiconazole	Banner MAXX, Spectator, Propiconazole Pro				

## Chemical Family: Strobilurins

Azoxystrobin	Heritage	specific	systemic (upward)	high	First product available in 1997. The chemical structures are found in various naturally-occurring, wood-decaying fungi. Broad spectrum disease management chemical tools.
Trifloxystrobin	Compass	specific	local penetrant	high	
Pyraclostrobin	Insignia	specific	local penetrant	high	

## Chemical Family: Carboxamides or Anilides

Flutolanil	ProStar	specific	systemic (upward)	low	The Carboxamides were the first family of successful systemic fungicides to hit the market in 1966. Carboxin (Vitavax) is the best known fungicide in this family and is still used worldwide to treat smut and other seed borne diseases of wheat. With the exception of Emerald which is only labeled for dollar spot and bentgrass dead spot, carboxamide fungicides are highly effective against Rhizoctonia and other basidiomycetes.
Boscalid	Emerald	specific	systemic (upward)	moderate to high	

## Additional Fungicides... each is in a different chemical family

Chlorothalonil	Daconil, Manicure, Concorde, Echo	general	contact	low	Listed are other important fungicides. Some give broad spectrum control. Since these compounds represent different chemical groups, they are placed together here. Chlorothalonil is a protectant fungicide, PCNB is usually considered to be a protectant but may be locally systemic.
PCNB (pentachloronitrobenzine)	Terraclor, Turfcide, Revere, FFII, PCNB, Defend, Engage	general	contact	low	
Fludioxonil	Medallion	specific	contact	low to moderate	
Polyoxin D zinc salt	Endorse	specific	local penetrant	moderate	

## Oomycete (Pythium) Fungicides ... in different chemical families

Mefenoxam	Subdue MAXX, Apron (seed treatment only)	specific	systemic (upward)	high	Few diseases besides those caused by Pythium species or closely related water molds (Oomycetes) like yellow tuft, are controlled. Azoxystrobin (Heritage) is unique with activity against both Pythium species (Oomycetes) and the fungi. Fosetyl-aluminum is a true systemic exhibiting both upward and downward movement in plants. It is also unique in that it moves in the phloem (symplastic transport) as compared to all other systemic fungicides that are transported in the xylem (apoplastic transport).
Propamocarb	Banol	not well known	systemic (upward)	low	
Fosetyl-Aluminum	Prodigy, Chipco Signature (Aliette)	not well known	systemic (up & down)	low	
Azoxystrobin	Heritage	specific	systemic (upward)	moderate to high	
Chloroneb	Teremec Sp	general	contact (local penetrant)	low	
Ethazol (Etridiazol)	Koban, Terrazole	general	contact	low	

<sup>1</sup>Product list by trade name may not be all inclusive.