College of Agriculture, Food and Environment
Cooperative Extension Service

Plant Pathology Fact Sheet **PPFS-FR-S-15**

Effectiveness of Fungicides for Management of Strawberry Diseases

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This guide is a decision-making tool to help growers select fungicides from different chemical classes (FRAC).[1]
Additional information can be found in a number of UK Cooperative Extension Service publications, including ID-232, or by contacting county Extension agents.

FRAC Code Fungicide Group[1]	Fungicide	Chemical	Phomopsis Leaf Blight *Phomopsis obscurans*	Common Leaf Spot *Mycosphaerella fragariae*	Powdery Mildew *Sphaerotheca macularis*	Gray Mold *Botrytis cinerea*	Leather Rot *Phytophthora cactorum*	Anthracnose Fruit Rot or Crown Rot *Colletotrichum spp.*	Red Stele *Phytophthora fragariae*
1 Methyl Benzimidazole	Upwardly systemic. Fungicide resistance risk high. Tank mix with fungicides from a different fungicide group (FRAC) to prevent or delay resistance development. Do not mix with copper.								
	Protocol*	thiophanate-methyl + propiconazole	++	++	++	++		++	
	Topsin M~	thiophanate-methyl	++	++	+++	+++			
2 Dicarboximides	Locally systemic, long protection period under wet conditions. Medium to high risk for resistance. Do not apply more than 2 applications per season. Toxic to honey bees; do not apply during bloom.								
	Rovral	iprodione		++		+++			
3 Sterol Inhibitors (DMI or SI)	Upwardly systemic. Rainfast in 2 hours. Some curative activity. There is wide variation in activity within this group. Medium risk for resistance. Make no more than 5 applications per season. Note: This group, which was formerly known as De-Mehtylation Inhibitors (DMI), are now classified as Sterol Biosynthesis Inhibitors (SBI or SI).								
	Mettle	tetraconazole	+++	++	+++				
	Orbit	propiconazale	+++	++	+++				
	Procure	triflumizole	+++		+++				
	Protocol*	thiophanate-methyl + propiconazole	++	++	++	++		++	

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3 Sterol Inhibitors (DMI or SI) *cont'd*	Upwardly systemic. Rainfast in 2 hours. Some curative activity. There is wide variation in activity within this group. Medium risk for resistance. Make no more than 5 applications per season. Note: This group, which was formerly known as De-Mehtylation Inhibitors (DMI), are now classified as Sterol Biosynthesis Inhibitors (SBI or SI).								
	Quadris Top*	azoxystrobin + difenoconazole	+++	+++	+++	++	+++	+++	
	Quilt Xcel*	azoxystrobin + propiconazole			+++			++	
	Rally	myclobutanil	+++	+	+++				
4 Phenylamides (PA)	Systemic. Effective on water molds (oomycetes). There are various formulations and combinations of Ridomil fungicides on the market. Read labels carefully before use. Do not make more than 4 applications per season.								
	Ridomil	mefenoxam					+++		+++
7 Succinate Dehydrogenase Inhibitors (SDHI)	Upwardly sustemic fungicide with varying degrees of systemic activity. Medium to high risk for resistance.								
	Luna Sensation*	fluopyram + trifloxystrobin		++	+++	+++	+++	+++	
	Luna Tranquility*	fluopyram + pyrimethanil			+++	+++			
	Merivon*	fluxapyroxad + pyraclostrobin		+++	+	+++		+++	
	Pristine*	pyraclostrobin + boscalid		++	+++	+++	+++	+++	
9 Anilino Pyrimidines (PA)	Locally systemic. Effective substitutes for Topsin M for Botrytis fruit rot/gray mold. Fungicide timing is important. Medium risk for resistance development. Do not make more than 3 applications per season.								
	Fontelis	penthiopyrad			+++	+++			
	Luna Tranquility*	fluopyram + pyrimethanil			+++	+++			
	Merivon*	fluxapyroxad + pyraclostrobin		+++	+			+++	

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9 Anilino Pyrimidines (PA) *cont'd*	Locally systemic. Effective substitutes for Topsin M for Botrytis fruit rot/gray mold. Fungicide timing is important. Medium risk for resistance development. Do not make more than 3 applications per season.								
	Scala	pyrimethanil				+++			
	Switch*	cyprodinil + fludioxonil				+++		++	
11 Quinone outside inhibitors (QoI)	Locally systemic. Fungicide resistance risk high. Do not make more than 4 applications per season. Note: These fungicides are also known as strobilurins.								
	Abound	azoxystrobin			+++	++	+++	+++	
	Cabrio	pyraclostrobin		++	+++	++	+++	+++	
	Luna Sensation*	fluopyram + trifloxystrobin		++	+++	+++	+++	+++	
	Merivon*	fluxapyroxad + pyraclostrobin		+++	+	+++		+++	
	Pristine*	pyraclostrobin + boscalid		++	+++	+++	+++	+++	
	Quadris Top*	azoxystrobin + difenoconazole	+++	+++	+++	++	+++	+++	
	Quilt Xcel*	azoxystrobin + propiconazole			+++			++	
12 Phenyl pyrroles	Effective as good substitute for QoIs in a resistance program. Low to medium risk for resistance. Do not make more than 4 applications per season.								
	Switch*	cyprodinil + fludioxonil				+++		++	
13 Azanaphthalenes	Upwardly systemic fungicide with some downward-moving ability. Effective protection against powdery mildew. Most effective during the early stages of powdery mildew development, as a protectant only. Medium risk for resistance. Do not make more than 5 applications per season.								
	Quintec	quinoxyfen			+++				

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17 SBI: Class III	Locally systemic. Low to medium risk for resistance. Maxiumum of 3 applications per season.								
	CaptEvate*	captan + fenhexamid	++	++		+++	+	++	
	Elevate*	fenhexamid				+++			
33 Phosphonates	Fully systemic. Effective as a protectant treatment of water molds (oomycetes) such as *Phytophthora* spp.								
	Agri-Fos	phosphorus acid					+++		++
	Aliette	fosetyl-AL					+++		++
	Legion	fosetyl-AL					+++		++
	ProPhyt	phosphorus acid					+++		++
M Multi-site Inhibitors	No systemic activity (washes off in the rain). Fungicide resistance risk low.								
	Captan	captan	++	++		++	+	++	+
	CaptEvate*	captan + fenhexamid	++	++		+++	+	++	
	Thiram	thiram	++	++		++	+	+	
U6 Phenyl-acetamide	Do not exceed 2 applications per season. Valued for late-season management of powdery mildew (3-day PHI).								
	Torino	cyflufenamid			+++				

Notes

* Chemical contains more than one active ingredient, thus more than one FRAC code is assigned.

~ Never apply Topsin M alone. Combine with unrelated fungicide such as Captan or Thiram.

Efficacy ratings

+++ highly effective

++ moderately effective

\+ slightly effective

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Check fungicide labels for specific host information, possible phytotoxicity, rates, re-entry intervals, and resistance management information. Always follow label instructions.