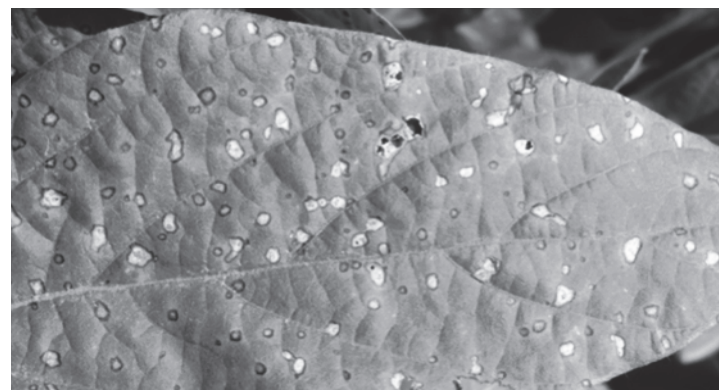
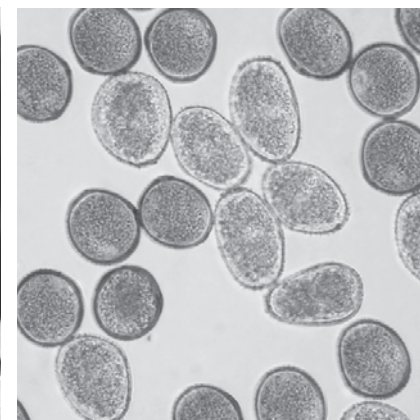
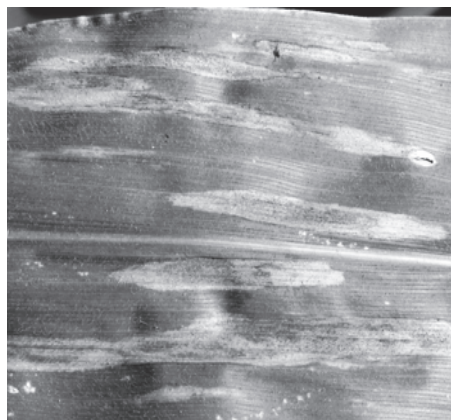


# Arkansas Plant Disease Control Products Guide

**2017**



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# MP154, Arkansas Plant Disease Control Products Guide – 2017

Edited by:

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MP154-3.5M-1-2017RV

## ***DISCLAIMER***

The listing of any product in this publication does not imply endorsement of that product or discrimination against any other product by the University of Arkansas System Division of Agriculture.

The information in this publication was current as of October 1, 2016, and applies only to Arkansas. It may not be appropriate for other states or locations.

Every effort was made to ensure accuracy, but the user of any crop protection product must read and follow the most current label on the product – *The Label is the Law*. For further assistance, contact your local office of the University of Arkansas System Division of Agriculture, Cooperative Extension Service.

## ***WARNING***

Many crop protection products may be poisonous, especially in concentrated form. The United States Environmental Protection Agency has established a Poison Control System throughout the United States. Each Center can determine the toxic compounds in commercial products, respond to calls from physicians or individuals and provide supportive or antidotal treatment.

### **THE POISON CONTROL CENTER FOR ARKANSAS IS:**

Arkansas Poison & Drug Information Center  
College of Pharmacy, University of Arkansas for Medical Sciences  
4301 W. Markham, Mail Slot 522-2  
Little Rock, AR 72205

### **POISON CONTROL HOTLINE – TOLL-FREE PHONE NUMBER**

**1-800-376-4766**

### **PESTICIDE SPILLS – OFFICE OF EMERGENCY SERVICES**

**1-800-322-4012**

## TABLE OF CONVERSIONS

TO CONVERT	TO	MULTIPLY BY
<b>oz dry wt/100 gals</b> .....	Tbs/gal .....	0.06
	tsp/gal .....	0.19
<b>lb dry wt/100 gals</b> .....	Tbs/gal .....	1.00
<b>fl oz/100 gals</b> .....	Tbs/gal .....	0.02
	tsp/gal .....	0.06
<b>pints/100 gals</b> .....	Tbs/gal .....	0.32
	tsp/gal .....	0.96
	fl oz/gal .....	0.16
<b>quarts/100 gals</b> .....	Tbs/gal .....	0.64
	tsp/gal .....	1.92
	fl oz/gal .....	0.32
<b>fl oz</b> .....	Tbs .....	2.00
	tsp .....	6.00

### Dry Measure

28.35 grams = 1 ounce

16 oz = 1 lb = 453.6 grams

1 gal water = 8.34 lbs

### Liquid Measure

80 drops = 1 tsp  
 8 fl oz = 16 Tbs = 1 cup = 237 ml  
 4 quarts = 256 Tbs = 1 gal = 3,785 ml

3 tsp = 1 Tbs = 14.8 ml  
 2 cups = 32 Tbs = 1 pint = 473 ml  
 128 fl oz = 1 gal = 3,785 ml

2 Tbs = 1 fl oz = 29.6 ml  
 2 pints = 64 Tbs = 1 qt = 946 ml

### Land Measure

16.5 ft = 5.5 yds = 1 rod  
 4,256 sq ft = 16 sq rds = 1 sq chain  
 208.71 ft x 208.71 ft = 1 sq acre

66 ft = 4 rods = 1 chain  
 1 acre = 160 sq rds = 43,560 sq ft

1 sq rd = 30.25 sq yds = 272.25 sq ft  
 1 acre = 10 sq chains = 43,560 sq ft

### Row Feet in 1 Acre at Various Row Spacings

6" rows = 87,120 ft  
 10" rows = 52,272 ft  
 19" rows = 27,512 ft  
 36" rows = 14,520 ft  
 42" rows = 12,446 ft

7" rows = 74,674 ft  
 12" rows = 43,560 ft  
 24" rows = 21,780 ft  
 38" rows = 13,756 ft  
 48" rows = 10,890 ft

8" rows = 65,340 ft  
 18" rows = 29,040 ft  
 30" rows = 17,424 ft  
 40" rows = 13,068 ft

### Crop Standard Weights

Corn = 56 lbs/bu  
 Grain Sorghum = 56 lbs/bu

Oats = 32 lbs/bu  
 Soybean = 60 lbs/bu

Rice = 45 lbs/bu  
 Wheat = 60 lbs/bu

## MANAGING FUNGICIDE RESISTANCE

**Fungicide resistance** is the loss of efficacy of a particular type of fungicide against a target pathogen. Fungicide resistance is often recognized when the expectations of disease control are not met when the labeled rate of a fungicide is applied.

**All fungicide products have a specific mode of action (MOA)**, which is the way in which the fungicide affects (kills) pathogens. All fungicides are classified by MOA, and **each MOA is assigned a group code called a FRAC number that will appear somewhere on the product label**. FRAC stands for the *Fungicide Resistance Action Committee*, which is a technical group of specialists that provides fungicide resistance management guidelines to prolong the effectiveness of “at risk” fungicides and to limit crop losses due to fungicide-resistant pathogens. See [www.frac.info](http://www.frac.info) for the most up-to-date information on fungicide resistance and FRAC codes.

The following are some basic guidelines that should be considered in developing a fungicide program to avoid inadvertently selecting fungicide-resistant pathogens.

### Fungicide Resistance Management Guidelines

1. Obtain an accurate disease diagnosis. This allows fungicide selection to be made correctly to minimize the chance of applying an ineffective fungicide.
2. DO NOT apply fungicides in the absence of disease.
3. Avoid the exclusive use of a fungicide product with a single MOA or FRAC Code.
4. Rotate different MOA or FRAC Code fungicide applications if more than one application is needed within a season.
5. Use the manufacturer’s recommended rates as indicated on the label.
6. Utilize integrated disease management strategies (including host plant resistance, crop rotation, crop residue management, removal of diseased tissue on perennial crops, etc.).

## CORN (FIELD) – FOLIAR DISEASES

Travis Faske and Terry Spurlock

**NOTE: Fungicides should not be applied prior to 100% tassel and should not be applied later than 14 days after brown silk. We do not recommend the use of fungicides on field corn in Arkansas except under extraordinary circumstances. Preventative use will likely not result in an economic return on current hybrids grown in the state in most years. In rare cases where they might be needed – such as years favorable to southern rust, late-planted corn, or corn following corn in the same field – the following foliar fungicides are registered for use in Arkansas.**

Disease	Fungicide	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
Southern rust, Northern and Southern corn leaf blight	Topguard 1.04 SC	flutriafol	3	7 - 14 fl oz	7	
	Tilt or Propimax 3.6 EC	propiconazole	3	4 fl oz	30	
	Proline 480 SC	prothioconazole	3	5.7 fl oz	14	
	tebuconazole (multiple generics 3.6 F)	tebuconazole	3	4 - 6 fl oz	36	
	Domark 230 ME	tetraconazole	3	4 - 6 fl oz	R3	
	Quadris 2.08 SC (multiple generics)	azoxystrobin	11	6 - 15.5 fl oz	7	
	Evito 480 SC or Aftershock 480 SC	fluoxastrobin	11	2 - 5.7 fl oz	30	
	Approach 2.08 SC	picoxystrobin	11	3 - 12 fl oz	7	
	Headline 2.09 SC	pyraclostrobin	11	6 - 12 fl oz	7	Rust and gray leaf spot: 6 - 9 fl oz; corn leaf blights: 9 - 12 fl oz
	Prosaro 421 SC	prothioconazole + tebuconazole	3 + 3	6.5 fl oz	36	
	Topguard EQ 4.29 SC	azoxystrobin + flutriafol	11 + 3	5 - 7 fl oz	7	
	Quilt Xcel 2.2 SE	azoxystrobin + propiconazole	11 + 3	10.5 - 14 fl oz	30	Additional triazole (1 fl oz) may be needed when applying less than the high rate.
	Affiance 1.5 SC	azoxystrobin + tetraconazole	11 + 3	10 - 17 fl oz	7	
	Fortix 3.22 SC or Preemptor 3.22 SC	fluoxastrobin + flutriafol	11 + 3	4 - 6 fl oz	30	
	Zolera FX	fluoxastrobin + tetraconazole	11 + 3	4.4 - 6.8 fl oz	30	
(continued)	Approach Prima 2.34 SC	picoxystrobin + cyproconazole	11 + 3	3.4 - 6.8 fl oz	21	



## CORN (FIELD) – FOLIAR DISEASES – continued

Disease	Fungicide	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
Southern rust, <i>(cont.)</i> Northern and Southern corn leaf blight	Stratego 2.08 SC	trifloxystrobin + propiconazole	11 + 3	12 fl oz	30	Additional triazole (1 - 2 fl oz) may be needed for maximum control.
	Stratego YLD 4.18 SC	trifloxystrobin + prothioconazole	11 + 3	4 - 5 fl oz	14	
	Headline AMP 1.68 SC	pyraclostrobin + metconazole	11 + 3	10 - 14.4 fl oz	20	
	Priaxor 4.17 SC	pyraclostrobin + fluxapyroxad	11 + 7	4 - 8 fl oz	21	Rusts: 6 - 8 fl oz; corn leaf blights and gray leaf spot: 4 fl oz.
	Trivapro A 0.83 EC + Trivapro B 2.2 SE	benzovindiflupyr + azoxystrobin + propiconazole	7 + 11 + 3	4 - 10.5 fl oz	30	

## Management of Corn Diseases – Fungicide Efficacy for Control of Corn Diseases (*April 2016*)

The Corn Disease Working Group (CDWG) has developed the following information. Efficacy ratings for each fungicide listed in the table were determined by field testing the materials over multiple years and locations by members of the committee. Efficacy ratings are based upon level of disease control achieved by product and are not necessarily reflective of yield increases obtained from product application. Efficacy depends upon proper application timing, rate and application method to achieve optimum effectiveness of the fungicide as determined by labeled instructions and overall level of disease in the field at the time of application. Differences in efficacy among fungicide products were determined by direct comparisons among products in field tests and are based on a single application of the labeled rate as listed in the table. **The table includes systemic fungicides available that have been tested over multiple years and locations. This table is not intended to be a list of all labeled products<sup>1</sup>.** Efficacy categories: NR = Not Recommended; P = Poor; F = Fair; G = Good; VG = Very Good; E = Excellent; NL = Not Labeled for use against this disease; U = Unknown efficacy or insufficient data to rank product efficacy.

**NOTE: This guideline was a composite of several field trials from multiple states across the U.S. corn belt and may not always reflect fungicide efficacy observed in Arkansas.**

Fungicide(s)				Anthracnose Leaf Blight	Eyespot	Gray Leaf Spot	Northern Leaf Blight	Southern Rust <sup>A</sup>	Harvest Restriction <sup>2</sup>
Class	Active Ingredient (%)	Product/Trade Name	Rate/A (fl oz)						
QoI Strobilurins Group 11	Azoxystrobin 22.9%	Quadris 2.08 SC Multiple Generics	6 - 15.5	VG	VG	E	G	G	7 days
	Pyraclostrobin 23.6%	Headline 2.09 EC/SC	6 - 12	VG	E	E	VG	E	7 days
	Picoxystrobin	Approach 2.08 SC	3 - 12	VG	VG	F-VG	VG	U	7 days
DMI Triazoles Group 3	Propiconazole 41.8%	Tilt 3.6 EC Multiple Generics	2 - 4	NL	E	G	G	G	30 days
	Prothioconazole 41.0%	Proline 480 SC	5.7	U	E	U	VG	G	14 days
	Tebuconazole 38.7%	Folicur 3.6 F Multiple Generics	4 - 6	NL	NL	U	VG	U	36 days
	Tetraconazole 20.5%	Domark 230 ME Multiple Generics	4 - 6	U	U	E	U	G	R3 (milk)

(continued)



**Management of Corn Diseases – Fungicide Efficacy for Control of Corn Diseases (April 2016)**  
(continued)

Fungicide(s)				Anthracnose Leaf Blight	Eyespot	Gray Leaf Spot	Northern Leaf Blight	Southern Rust <sup>A</sup>	Harvest Restriction <sup>2</sup>
Class	Active Ingredient (%)	Product/Trade Name	Rate/A (fl oz)						
Mixed Modes of Action Group 11 + 3 or 7	Azoxystrobin 13.5% Propiconazole 11.7%	Quilt Xcel 2.2 SE Aframe Plus 2.2 SE	10.5 - 14	VG	VG-E	E	VG	VG	30 days
	Benzovindiflupyr 10.27% Azoxystrobin 13.5% Propiconazole 11.7%	Trivapro A 0.83 EC + Trivapro B 2.2 SE	A = 4 B = 10.5	U	U	E	VG	E	7 days (A) 30 days (B)
	Cyproconazole 7.17% Picoxystrobin 17.94%	Approach Prima 2.34 SC	3.4 - 6.8	U	U	E	VG	VG	30 days
	Flutriafol 19.3% Fluoxastrobin 14.84%	Fortix 3.22 SC Preemptor 3.22 SC	4 - 6	U	U	E	VG	VG	R4 (dough)
	Pyraclostrobin 13.6% Metconazole 5.1%	Headline AMP 1.68 SC	10 - 14.4	U	E	E	VG	VG	20 days
	Pyraclostrobin 28.58% Fluxapyroxad 14.33%	Priaxor 4.17 SC	4 - 8	U	U	VG	U	G	21 days
	Trifloxystrobin 32.3% Prothioconazole 10.8%	Stratego YLD 4.18 SC	4 - 5	VG	VG	E	VG	VG	14 days
	Tetraconazole 7.48% Azoxystrobin 9.35%	Affiance 1.5 SC	10 - 14	U	U	U	U	G	7 days

<sup>1</sup> Additional fungicides are labeled for disease on corn, including contact fungicides such as chlorothalonil. Certain fungicides may be available for diseases not listed in the table, including Gibberella and Fusarium ear rot. Application of Proline 480 SC for use on ear rots requires a FIFRA Section 2(ee) and is only approved for use in Illinois, Indiana, Iowa, Louisiana, Maryland, Michigan, Mississippi, North Dakota, Ohio, Pennsylvania and Virginia.

<sup>2</sup> Harvest restrictions are listed for field corn harvested for grain. Restrictions may vary for other types of corn (sweet, seed or popcorn, etc.) and corn for other uses such as forage or fodder.

<sup>A</sup> Though there is no threshold for economical use of a fungicide to control southern rust, consider yield potential, hybrid susceptibility, growth stage and weather conditions when southern rust threatens. Generally, fungicides with a sole strobilurin mode of action are most effective when applied before southern rust is observed, and fungicides with a sole or mixed triazole mode of action are effective when applied before or after rust is found in a field. A fungicide application at tasseling or silking when southern rust has been observed on a susceptible hybrid with good yield potential may be the most beneficial at suppressing disease development; however, additional application may be needed for season-long crop protection. Field corn within two weeks from physiological maturity (i.e., black layer) is very unlikely to benefit from a fungicide application.

Many products have specific use restrictions about the amount of active ingredient that can be applied within a period of time or the amount of sequential applications that can occur. Please read and follow all specific use restrictions prior to fungicide use. This information is provided only as a guide. It is the responsibility of the pesticide applicator by law to read and follow all current label directions. Reference to products in this publication is not intended to be an endorsement to the exclusion of others that may be similar. Persons using such products assume responsibility for their use in accordance with current directions of the manufacturer. Members or participants in the CDWG assume no liability resulting from the use of these products.

## CORN (FIELD) – AFLATOXIN

Travis Faske

Contamination	Product	Rate/A	Comment
Aflatoxin	Afla-Guard (atoxigenic strain of <i>Aspergillus flavus</i> )	10 - 20 lb	To suppress aflatoxin contamination in low to moderate risk fields, apply at V10 to VT.

## CORN (FIELD) – NEMATODES

Travis Faske

Nematode <sup>1</sup>	Nematicide <sup>2</sup>	Formulation	Active Ingredient	FRAC Code	Rate/Acre	Comments
Root-knot, Lesion and Stubby-root Nematodes (+ early season insects)	Counter 20 G Lock'n Load	20% granules	terbufos	---	6.5 lb	Apply either in 7 inch band over the row or in the seed furrow at planting according to the label. Do not exceed 6.5 lb/acre total.
	Telone II <sup>3</sup>	Liquid	1,3-dichloropropene	---	3 - 6 gal	Inject 12 inches below planting depth and seal immediately with appropriate bedding equipment. Wait 7 - 14 days before planting.
	Avicta Complete Corn 500/1250 with Vibrance <sup>4</sup>	Seed treatment	abamectin + thiamethoxam + azoxystrobin + mefenoxam + fludioxonil + sedaxane	---	See label.	Available through commercial seed companies and dealer distributors.
				11		
				4		
				12		
				7		
	Poncho/Votivo <sup>4</sup>	Seed treatment	clothianidin + <i>Bacillus firmus</i> I-1582	---		Available through commercial seed companies and dealer distributors.

<sup>1</sup>Certain other nematodes are considered economic problems on corn in other parts of the U.S. These include the root-knot lesion, stubby-root, ring, dagger, spiral, stunt and sting nematodes. There is no data from Arkansas to indicate the severity of these nematodes under our conditions, but at high populations a nematicide might be justified. Fields with long-term corn history that have lower than expected yields or yields that decline over time should be tested for nematodes by submitting a soil sample to the Nematode Diagnostic Laboratory located at the Southwest Research and Extension Center near Hope. Contact your local county Extension agent for guidelines on when and how to collect the sample. **A small fee is charged for this service.**

<sup>2</sup>**RESTRICTED USE PESTICIDES** – These are dangerous pesticides – use caution in handling and read and follow current label directions. There has been no recent research in Arkansas that demonstrates any economic return for the use of these products on corn. These products **can cause crop injury if certain herbicides are applied afterwards – carefully read pesticide interaction information on the label before applying these or any pesticides.**

<sup>3</sup>Use where nematode pressure is severe.

<sup>4</sup>Use where nematode pressure is low to moderate.

## COTTON – FOLIAR DISEASES

Travis Faske

Disease	Fungicide	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
Target Spot ( <i>Corynespora cassiicola</i> )	<b>Chemical Control of Leaf Spot Diseases:</b> Research results from other states suggest fungicides need to be applied as early as the 1st week after bloom or by the 3rd week after bloom. Two applications appear to be the most effective. Yield responses more often occur with fields with a history of severe target spot, disease severity is great enough to result in defoliation levels of 30% to 50% by the 2nd or 3rd week of August, and irrigation or rainfall suggest continued increase in severity of disease. Until we know more about the disease and performance of these products in the mid-South, it is recommended to include a non-sprayed check.					
	Topguard 1.04 SC	flutriafol	3	7 - 14 fl oz	21	
	Headline 2.09 SC	pyraclostrobin	11	6 - 12 fl oz	30	
	Quadris 2.08 SC	azoxystrobin	11	6 - 9 fl oz	45	
	Priaxor 4.17 SC	pyraclostrobin + fluxapyroxad	11 + 7	4 - 8 fl oz	30	
	Elatus 45 WG	azoxystrobin + benzovindiflupyr	11 + 7	6 - 7.3 fl oz	45	

## COTTON – NEMATODES

Travis Faske

Nematode	Nematicide	Formulation	Active Ingredient	Rate/Acre	Comments
Root-knot and Reniform	Avicta 500 FS <sup>1</sup>	Seed treatment	abamectin	0.15 mg ai/seed	Available through commercial seed companies and dealer distributors.
	Avicta Elite Cotton <sup>1</sup> + Vibrance	Seed treatment	azoxystrobin + fludioxonil + mefenoxam thiamethoxam + abamectin imidacloprid sedaxane	0.03 mg ai/seed 0.53 mg ai/seed 0.375 mg ai/seed 0.0096 mg ai/seed	Available through commercial seed companies and dealer distributors. Rate based on 5,500 seed/lb.
	Aeris <sup>1</sup>	Seed treatment	thiodicarb + imidacloprid	0.75 mg ai/seed	Available through commercial seed companies and dealer distributors.
	Poncho/Votivo <sup>1</sup>	Seed treatment	clothianidin + <i>Bacillus firmus</i> I-1582	0.424 mg ai/seed	Commercial seed treatment equipment only.
	Velum Total	Liquid	fluopyram + imidacloprid	14 - 18 fl oz	Apply as in-furrow spray with 5 - 6 gal/ac water at planting.
	Telone II <sup>2</sup>	Liquid	1,3-dichloropropene	3 - 6 gal	Inject 12 inches below planting depth and seal immediately with appropriate bedding equipment. Wait 7 - 14 days before planting.

<sup>1</sup>Use where nematode pressure is low to moderate.

<sup>2</sup>Use where nematode pressure is severe.

**RESTRICTED USE PESTICIDES** – For sale and use only by licensed/certified applicators or persons under their direct supervision. **These are dangerous pesticides – use caution in handling and read and follow current label directions.** If nematodes are suspected to be causing problems, a diagnostic soil sample should be taken to your county agent for submission to the Cooperative Extension Service Nematode Diagnostic Laboratory. **A small fee is required.**

## COTTON – SEEDLING DISEASES

Terry Spurlock

### Chemical Control of Seedling Diseases of Cotton in Arkansas:

1. All cotton seed planted in Arkansas should be treated commercially.
2. Under conditions that favor seedling diseases, additional stand protection may be received from the use of in-furrow fungicides when planting treated seed (treated seed + in-furrow combination).
3. The following products are commonly used in Arkansas cotton production to control seedling diseases.

Disease	Product	Active Ingredient	FRAC Code	Rate/cwt
<b>Commercial Seed Treatments or Distributor-Applied Seed Treatments</b>				
Pythium and Rhizoctonia diseases; fungal seed rots	Vortex +	ipconazole +	3	0.08 fl oz +
	Spera +	myclobutanil +	3	1.8 fl oz +
	Allegiance FL	metalaxyl	4	0.75 fl oz
	Systhane 40 WP +	myclobutanil +	3	1.25 oz +
	Maxim 4 FS +	fludioxonil +	12	0.08 fl oz +
	Apron XL	mefenoxam	4	0.32 fl oz
	Dynasty CST	azoxystrobin + fludioxonil + mefenoxam	11 + 12 + 4	0.03 mg ai/seed
	Avicta Complete Cotton	azoxystrobin + fludioxonil + mefenoxam	11 + 12 + 4	0.03 mg ai/seed
		thiamethoxam +	---	0.34 mg ai/seed
		abamectin	---	0.15 mg ai/seed
	Seed Shield Cotton	azoxystrobin + fludioxonil + mefenoxam	11 + 12 + 4	4 oz/cwt
	Trilex Advanced	trifloxystrobin + metalaxyl + triadimenol	11 + 4 + 3	1.6 fl oz
	EverGol Prime	penflufen	7	0.64 fl oz
	Vibrance	sedaxane	7	0.3 fl oz
<b>In-Furrow Applications</b>				
Pythium and Rhizoctonia diseases; fungal seed rots	Reason 500 SC	fenamidone	11	0.45 fl oz per 1,000 row ft
	Uniform	azoxystrobin + mefenoxam	11 + 4	0.32 - 0.48 fl oz per 1,000 row ft
	Headline	pyraclostrobin	11	0.3 - 0.8 fl oz per 1,000 row ft
	Quadris	azoxystrobin	11	0.4 - 0.7 fl oz per 1,000 row ft
	Priaxor	pyraclostrobin + fluxapyroxad	11 + 7	0.1 - 0.6 fl oz per 1,000 row ft

## SMALL FRUIT DISEASES (Commercial)

Sherrie Smith and Jackie Lee

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>GRAPES</b>								
Dormant	Anthracnose	Nu-Cop 50 DF	cupric hydroxide	M1	2 lb	24 hours		Begin applications late dormancy before bud break.
	Black rot Eutypa Phomopsis	Liquid lime-sulfur	calcium polysulfides	M2	Rate depends on product name. See label.	48 hours	Dormant only	Apply in late winter before buds swell.
	Powdery mildew	Sulforix	calcium polysulfides	M2	1 gallon per acre in sufficient water	48 hours	Dormant	
	Phytophthora root rot	Ridomil Gold SL	mefenoxam	4	3.6 pt or 0.25 pt/1,000 row ft	48 hours	60	Apply in spring before plants begin to grow. Two more applications may be made when conditions are favorable for disease.
Bud Break to Bloom	Angular leaf scorch Black rot Downy mildew Phomopsis	Abound 2.08 FL	azoxystrobin	11	11 - 15.4 fl oz	4 hours	14	Early sprays are critical for control of black rot if the disease has been a historical problem.
		Quadris Top	azoxystrobin + difenoconazole	11 3	12 - 14 oz	12 hours	14	Early sprays are critical for control of black rot if the disease has been a historical problem.
		Pristine	boscalid + pyraclostrobin	7 11	8 - 12.5 oz	12 hours (5 days for cane tying, turning or girdling)	14	DO NOT APPLY PRISTINE TO CONCORD, WORDEN, FREDONIA AND RELATED VARIETIES AS LEAF INJURY MAY RESULT – SEE LABEL.
		Captan 50 WP	captan	M4	2 - 4 lb	72 hours	0	
		Sovran 50 WG	kresoxim-methyl	11	3.2 - 5.6 oz	12 hours	14	
		Dithane DF Rainshield	mancozeb	M3	1.5 - 2.5 lb	24 hours	66	
		Revus	mandipropamid	40	8 oz	4 hours	14	
		Revus Top	mandipropamid + difenoconazole	40 3	7 oz	12 hours	14	

(continued)

### SMALL FRUIT DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>GRAPES (cont.)</b>								
Bud Break to Bloom <i>(cont.)</i>	Angular leaf scorch Black rot Downy mildew Phomopsis <i>(cont.)</i>	Adament 50 WG	tebuconazole + trifloxystrobin	3 11	3 - 7.2 oz	12 hours	14	Do not apply more than 48 oz per acre of Adament per season or more than 6 applications per season.
	Black rot Downy mildew Bunch rot Powdery mildew Phomopsis	Topguard EQ	azoxystrobin + flutriafol	11 3	5 - 6 fl oz	12 hours (5 days for cane tying, turning or girdling)	14	For powdery mildew, begin applications at 6- to 10-inch shoots.
	Phytophthora root rot Pythium Fusarium Rhizoctonia Powdery mildew Downy mildew	Fosphite	mono- and di-potassium salts of phosphorous acid	33		4 hours	0	Foliar, or aerial, or root dip, or irrigation or trunk injection. See label for rates and complete instructions.
	Bunch rot Dead arm Downy mildew	Flint 50 WG	trifloxystrobin	11	1.5 - 4 oz	12 hours	14	DO NOT APPLY FLINT OR ADAMENT TO CONCORD OR RELATED VARIETIES AS INJURY MAY RESULT!
		Ziram Granuflo	ziram	M3	3 - 4 lb	48 hours	21	
		Aliette WDG	aluminum tris	33	3 - 5 lb	12 hours	15	
		Reason 500 SC	fenamidone	11	2.7 fl oz	12 hours	30	
		Gavel 75 DF	mancozeb + zoxamide	M3 22	2 - 2.5 lb	48 hours	66	Apply Gavel in sufficient water to provide thorough coverage starting when new shoots are 1/2 to 1 1/2 inches long. Repeat when shoots are 3 to 5 inches long, when shoots are 8 to 10 inches long, and then at 7 - 10 day intervals.
		Topsin M WSB	thiophanate-methyl	1	0.75 - 1.5 lb	48 hours	14	
		Presidio	fluopicolide	43	3 - 4 fl oz	12 hours	21	

*(continued)*

### SMALL FRUIT DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>GRAPES (cont.)</b>								
Bud Break to Bloom <i>(cont.)</i>	Powdery mildew	Abound 2.08 FL	azoxystrobin	11	11 - 15.4 fl oz	4 hours	14	
		Quadris Top	azoxystrobin + difenoconazole	11 3	12 - 14 oz	12 hours	14	Apply at bud break and at 10 - 21 day intervals for powdery mildew. Do not make more than 2 sequential applications before changing to a fungicide with a different mode of action.
		Pristine	boscalid + pyraclostrobin	7 11	8 - 12.5 oz	12 hours (5 days for cane tying, turning or girdling)	14	DO NOT APPLY PRISTINE TO CONCORD, WORDEN, FREDONIA AND RELATED VARIETIES AS LEAF INJURY MAY RESULT – SEE LABEL.
		Rubigan EC	fenarimol	3	2 - 4 fl oz	12 hours	21	Begin at bud break and continue at 14 day intervals.
		Sovran 50 WG	kresoxim-methyl	11	3.2 - 4.8 oz	12 hours	14	Apply prior to disease on a 14 day interval. Rotate with other chemistry.
		Quintec	quinoxifen	13	4 oz	12 hours	14	Apply when conditions are favorable for disease but before disease develops. Apply on a 14 day interval. <b>(Do not apply to Concord grapes as injury may result.)</b>
		AmTide	tebuconazole	3	3 - 4 fl oz	12 hours	14	
		Adament 50 WG	tebuconazole + trifloxystrobin	3 11	3 oz	12 hours	14	
		Flint	trifloxystrobin	11	1.5 - 4 oz	12 hours	14	DO NOT APPLY FLINT OR ADAMENT TO CONCORD OR RELATED VARIETIES AS INJURY MAY RESULT!
		Procure 480 SC	triflumizole	3	4 - 8 fl oz	12 hours	14	
Bloom	Same as Bud Break							
<i>(continued)</i>	Botrytis bunch rot*	Quadris Top	azoxystrobin + difenoconazole	11 3	12 - 14 oz	12 hours	14	Suppression only.



### SMALL FRUIT DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>GRAPES (cont.)</b>								
Bloom (cont.)	Botrytis bunch rot* (cont.)	Topguard EQ	azoxystrobin + flutriafol	11 3	5 - 6 fl oz	12 hours (5 days for cane tying, turning or girdling)	14	Suppression only.
		Pristine	boscalid + pyraclostrobin	7 11	8 - 12.5 oz	12 hours (5 days for cane tying, turning or girdling)	14	DO NOT APPLY PRISTINE TO CONCORD, WORDEN, FREDONIA AND RELATED VARIETIES AS LEAF INJURY MAY RESULT – SEE LABEL.
		Vanguard 75 WG	cyprodinil	9	10 oz	12 hours	7	Begin Vanguard at early bloom. Continue through berry touch, veraison and pre-harvest on a 7 day interval.
		Botran 75 W	dicloran	14	2 lb	14 days	14	Cane turning and girdling are prohibited for 30 days after using Botran 75 W.
		Elevate 50 WG	fenhexamid	17	1 lb	12 hours	0	Do not make more than 2 consecutive applications.
		Rovral 4 FL	iprodione	2	1 - 2 pt	48 hours	7	Begin at early bloom. Continue through berry touch, veraison and pre-harvest.
		Scala	pyrimethanil	9	18 fl oz	12 hours	7	
		Adament 50 WG	tebuconazole + trifloxystrobin	3 11	6 oz	12 hours	14	DO NOT APPLY ADAMENT TO CONCORD OR RELATED VARIETIES AS INJURY MAY RESULT!
Shatter	Black rot Downy mildew Powdery mildew	Abound 2.08 FL	azoxystrobin	11	11 - 15.4 fl oz	4 hours	14	Apply Abound prior to disease on a 7 - 14 day interval. No more than 2 sequential applications before alternating with a fungicide with a different FRAC code.
		Quadris Top	azoxystrobin + difenoconazole	11 3	12 - 14 oz	12 hours	14	Avoid drift of Quadris Top to apples.
		Pristine	boscalid + pyraclostrobin	7 11	8 - 12.5 oz	12 hours (5 days for cane tying, turning or girdling)	14	

(continued)

**SMALL FRUIT DISEASES (Commercial) – continued**

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>GRAPES (cont.)</b>								
Shatter (cont.)	Black rot (cont.) Downy mildew Powdery mildew	Captan 50 WP	captan	M4	2 - 4 lb	72 hours	0	
		Rubigan EC	fenarimol	3	3 fl oz	12 hours	21	
		Sovran 50 WG	kresoxim-methyl	11	3.2 - 5.6 oz	12 hours	14	
		Dithane DF Rainshield	mancozeb	M3	1.5 - 2.5 lb	24 hours	66	
		Revus	mandipropamid	40	8 oz	4 hours	14	
		Revus Top	mandipropamid + difenoconazole	40 3	7 oz	12 hours	14	
		Scala	pyrimethanil	9	18 fl oz	12 hours	7	
		Adament 50 WG	tebuconazole + trifloxystrobin	3 11	3 - 7.2 oz	12 hours	14	DO NOT APPLY FLINT OR ADAMENT TO CONCORD OR RELATED VARIETIES AS INJURY MAY RESULT!
		Flint 50 WG	trifloxystrobin	11	1.5 - 4 oz	12 hours	14	
		Procure 480 SC	triflumizole	3	4 - 8 fl oz	12 hours	14	
		Ziram Granuflo	ziram	M3	3 - 4 lb	48 hours	21	
	Black rot Downy mildew Bunch rot Powdery mildew Phomopsis	Topguard EQ	azoxystrobin + flutriafol	11 3	5 - 6 fl oz	12 hours (5 days for cane tying, turning or girdling)	14	
		Fosphite	mono- and di- potassium salts of phosphorous acid	33		4 hours	0	Foliar, or aerial, or root dip, or irrigation or trunk injection. See label for rates and complete instructions.
First Cover to Veraison	Black rot Downy mildew Powdery mildew	Same as Shatter						

### SMALL FRUIT DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>GRAPES (cont.)</b>								
Veraison to Harvest	Botrytis bunch rot*	See Bloom section						
	Powdery mildew	Abound 2.08 FL	azoxystrobin	11	11 - 15.4 fl oz	4 hours	14	
		Topguard EQ	azoxystrobin + flutriafol	11 3	5 - 6 fl oz	12 hours (5 days for cane tying, turning or girdling)	14	Do not apply more than 6 times per season.
		Quadris Top	azoxystrobin + difenoconazole	11 3	12 - 14 oz	12 hours	14	
		Pristine	boscalid + pyraclostrobin	7 11	8 - 12.5 oz	12 hours (5 days for cane tying, turning or girdling)	14	DO NOT APPLY PRISTINE TO CONCORD, WORDEN, FREDONIA AND RELATED VARIETIES AS LEAF INJURY MAY RESULT!
		Rubigan EC	fenarimol	3	2 - 4 fl oz	12 hours	21	
		Sovran 50 WG	kresoxim-methyl	11	3.2 - 4.8 oz	12 hours	14	
		Quintec	quinoxifen	13	4 oz	12 hours	14	
		AmTide	tebuconazole	3	3 - 4 fl oz	12 hours	14	
		Adament 50 WG	tebuconazole + trifloxystrobin	3 11	3 oz	12 hours	14	
		Flint	trifloxystrobin	11	1.5 - 4 oz	12 hours	14	DO NOT APPLY FLINT OR ADAMENT TO CONCORD OR RELATED VARIETIES AS INJURY MAY RESULT!
		Procure 480 SC	triflumizole	3	4 - 8 fl oz	12 hours	14	
		Abound 2.08 FL	azoxystrobin	11	11 - 15.4 fl oz	4 hours	14	
		Pristine	boscalid + pyraclostrobin	7 11	8 - 12.5 oz	12 hours (5 days for cane tying, turning or girdling)	14	

(continued)

### SMALL FRUIT DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>GRAPES (cont.)</b>								
Veraison to Harvest (cont.)	Downy mildew	Captan 50 WP	captan	M4	3 - 4 lb	72 hours	0	
		Topguard EQ	azoxystrobin + flutriafol	11 3	5 - 6 fl oz	12 hours (5 days for cane tying, turning or girdling)	14	Apply preventatively or when conditions are favorable for disease development.
		Alude	mono- and di-potassium salts of phosphorous acid	33	2.5 - 5 pts/A	4 hours	0	Due to varietal sensitivity, test for sensitivity prior to use.
		Adament 50 WG	tebuconazole + trifloxystrobin	3 11	8 - 12.5 oz	12 hours	14	DO NOT APPLY FLINT OR ADAMENT TO CONCORD OR RELATED VARIETIES AS INJURY MAY RESULT!
	Phytophthora root rot Pythium, Fusarium Rhizoctonia Powdery mildew Downy mildew	Fosphite	mono- and di-potassium salts of phosphorous acid	33		4 hours	0	Foliar, or aerial, or root dip, or irrigation or trunk injection. See label for rates and complete instructions.
<b>BLUEBERRY</b>								
Dormant	Bacterial blight Phomopsis blight Mummy berry	Lime-sulfur spray	calcium polysulfides	M2	Rate depends on product name. See label.	48 hours	Dormant only	Apply at delayed dormant when leaf buds start to break.
		Kocide 3000	copper hydroxide	M1	1 - 2.5 lb	48 hours		Dormant application. Begin at bud swell.
	Phomopsis blight Mummy berry	Sulfurix	calcium polysulfides	M2	See label.	48 hours		
	Phytophthora root rot	Ridomil Gold EC	mefenoxam	4	3.6 pt or 0.25 pt/1,000 row ft	48 hours	0	Ridomil Gold EC will not revitalize plants with moderate to severe root rot symptoms.
Green Tip	Alternaria fruit rot Anthracnose Botryosphaeria canker Mummy berry Mummy berry (shoot blight) Phomopsis stem canker Powdery mildew Septoria blight	Abound	azoxystrobin	11	6 - 15.5 fl oz	4 hours	0	Abound applications should begin prior to disease development.
(continued)								

### SMALL FRUIT DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>BLUEBERRY (cont.)</b>								
Green Tip (cont.)	Botrytis gray mold* Mummy berry	Captan 50 WP	captan	M4	5 lb	72 hours	0	Begin Captan applications at bud swell and continue on a 7 - 10 day interval for botrytis and mummy berry.
	Alternaria leaf spot and fruit rot Anthracnose leaf spot and blotch Botrytis gray mold* Mummy berry Phomopsis leaf, twig and fruit blights Powdery mildew	Pristine	boscalid + pyraclostrobin	7 11	18.5 - 23 oz	4 hours	0	No more than 4 applications of Pristine per season.
	Phytophthora root rot Pythium Fusarium Rhizoctonia Powdery mildew Downy mildew	Fosphite	mono- and di-potassium salts of phosphorous acid	33		4 hours	0	Foliar, or aerial, or root dip, or irrigation or trunk injection. See label for rates and complete instructions.
	Septoria leaf spot Mummy berry Valdensinia leaf spot Anthracnose Botrytis blight* Alternaria fruit rot	Proline 480 SC	propiconazole	3	5.7 fl oz	12 hours	7	Apply either ground or chemigation at first sign of disease (supplemental label expires 2016).
	Mummy berry Powdery mildew Rust Septoria leaf and stem blight	Tilt	propiconazole	3	6 fl oz	12 hours	30	Begin Tilt applications at green tip on a 7 - 10 day interval.
Early Bloom	Mummy berry Stem canker Stem blight	Same as Green Tip						
	Phytophthora root rot Anthracnose fruit rot Alternaria fruit rot (suppression only) Phomopsis canker (suppression only)	Aliette WDG	aluminum tris	33	5 lb	12 hours	12	Begin foliar sprays in the spring at approximately the pink bud stage and continue on a 14 - 21 day interval.
(continued)								

### SMALL FRUIT DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>BLUEBERRY (cont.)</b>								
Early Bloom (cont.)	Alternaria leaf spot and fruit rot Anthracnose Botrytis gray mold*	Pristine	boscalid + pyraclostrobin	7 11	18.5 - 23 oz	4 hours	0	Begin applications prior to disease and continue on a 7 - 10 day interval. <b>Do not use Pristine in a tank mix.</b>
	Alternaria leaf spot and fruit rot Anthracnose Botrytis gray mold* Mummy berry	Switch 62.5 WG	cyprodinil + fludioxonil	9 12	11 - 14 oz	12 hours	0	Rotate Switch with another fungicide with a different FRAC code.
	Botrytis gray mold*	Elevate 50 WG	fenhexamid	17	1.5 lb	12 hours	0	Begin applications of Elevate at 10% bloom. Continue through harvest. Make applications every 7 days.
	Phytophthora root rot Pythium, Fusarium Rhizoctonia Powdery mildew Downy mildew	Fosphite	mono- and di-potassium salts of phosphorous acid	33		4 hours	0	Foliar, or aerial, or root dip, or irrigation or trunk injection. See label for rates and complete instructions.
	Septoria leaf spot Mummy berry Valdensinia leaf spot Anthracnose Botrytis blight* Alternaria fruit rot	Proline 480 SC	propiconazole	3	5.7 fl oz	12 hours	7	Apply either ground or chemigation at first sign of disease (supplemental label expires 2016).
	Phytophthora root rot	Alude	mono- and di-potassium salts of phosphorous acid	33	2.5 - 5 pts/A	4 hours	0	Begin foliar sprays in the spring at approximately the pink bud stage and continue on a 14 - 21 day interval.
Full Bloom to Early Petal Fall	Same as Early Bloom							
First and Second Cover	Same as Full Bloom to Early Petal Fall							
Third and Additional Covers	Same as First and Second Cover							
After Harvest	Same as Third and Additional Covers							

### SMALL FRUIT DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>BLACKBERRY, RASPBERRY, LOGANBERRY</b>								
Delayed Dormant	Anthracnose	Liquid lime-sulfur	calcium polysulfides	M2	6 - 12 gal	48 hours	Dormant only	Dormant application. Begin at bud swell.
	Cane and leaf rusts							
	Cane blight							
	Powdery mildew	Sulfurix	calcium polysulfides	M2	See label.	48 hours		Delayed dormant.
	Spur blight							
	Crown gall	None registered in Arkansas						
First Bloom through Petal Fall	Phytophthora root rot	Aliette WDG	aluminum tris	33	5 lb	12 hours	12	Begin applications of Aliette in the spring after bud break. Apply on a 45 - 60 day schedule.
	Anthracnose	Abound	azoxystrobin	11	6 - 15.5 oz	4 hours	0	
	Botryosphaeria canker (Abound only)	Pristine	boscalid + pyraclostrobin	7 11	18.5 - 23 oz	12 hours	0	
	Colletotrichum rot							
	Powdery mildew							
	Rosette (double blossom)	Cabrio EG	pyraclostrobin	11	14 oz	12 hours	0	Begin application at first sign of disease and continue on a 7 - 14 day interval. No more than 2 sequential applications before switching to a fungicide with a different FRAC code.
	Rust							
	Septoria leaf spot							
	Spur blight							
	Anthracnose	Switch 62.5 WG	cyprodinil + fludioxonil	9 12	11 - 14 oz	12 hours	0	Rotate Switch with another fungicide with a different FRAC code.
	Botrytis gray mold*							
	Botrytis gray mold*	Elevate 50 WG	fenhexamid	17	1.5 lb	12 hours	1	Begin applying Elevate or Rovral at 10% bloom and continue every 7 - 14 days until harvest.
Post Bloom through Harvest		Rovral 4 FL	iprodione	2	1 - 2 pt	24 hours	0	
	Anthracnose	Captan 80 WDG	captan	M4	2.5 lb	72 hours	3	Apply Captan when blossoms are in bud (young canes are 8 to 10 inches long). Make a second application two weeks later. Apply a fall spray after old canes are removed.
	Botrytis**							
	Spur blight							
	Phytophthora root rot	Fosphite	mono- and di-potassium salts of phosphorous acid	33		4 hours	0	Foliar, or aerial, or root dip, or irrigation. See label for rates and complete instructions.
	Pythium, Fusarium							
	Rhizoctonia							
	Powdery mildew							
	Downy mildew							
	Anthracnose	Same as First Bloom						
	Botrytis fruit rot*							
	Rust	Pristine	boscalid + pyraclostrobin	7 11	18.5 - 23 oz	12 hours	0	Follow label directions. May not control systemically infected plants but helps prevent spread of the fungus to new plants in the spring. See label.
		Cabrio	pyraclostrobin	11	14 oz	12 hours	0	



### SMALL FRUIT DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>STRAWBERRY</b>								
Pre-Bloom (early spring)	Leather rot Red stele	Aliette WDG	aluminum tris	33	2.5 - 5 lb	12 hours	Same day (12 hours)	Begin applications of Aliette in the spring after bud break. Apply on a 45 - 60 day schedule. See label for rate/dip instructions on new plants.
		Alude	mono- and di-potassium salts of phosphorous acid	33	2.5 - 5 pt/ 100 gal	4 hours	0	Begin applications two to three weeks after planting. See label for root dip instructions.
		Ridomil Gold SL	mefenoxam	4	1 pt	48 hours	0	For new plantings apply Ridomil Gold SL up to 3 times per crop. Make first application after planting. Make second application 30 days before harvest or at fruit set. Make third application during harvest. See label for established plantings.
	Phytophthora root rot Pythium, Fusarium Rhizoctonia Powdery mildew	Fosphite	mono- and di-potassium salts of phosphorous acid	33		4 hours	0	Foliar, or aerial, or root dip, or irrigation. See label for rates and complete instructions
	Anthracnose Botrytis gray mold* (suppression only) Leather rot Powdery mildew	Abound	azoxystrobin	11	6 - 15.5 oz	4 hours	0	Abound applications should begin prior to disease development on a 7 - 10 day schedule. For leather rot, apply on a 7 day schedule from late bloom through harvest.
		Topguard EQ	azoxystrobin + flutriafol	11 3	5 - 8 fl oz	12 hours	0	Do not apply more than 4 applications per year.
		Quadris Top	azoxystrobin + difenoconazole	11 3	12 - 14 oz	12 hours	0	
	Anthracnose Botrytis gray mold* Powdery mildew Strawberry leaf spot Leaf rust	Pristine	boscalid + pyraclostrobin	7 11	18.5 - 23 oz	12 hours	0	Begin Pristine applications no later than 10% bloom and continue on a 7 - 14 day schedule. See label.
		Captan 50 WP	captan	M4	6 lb	24 hours	0	Apply on a 7 - 14 day schedule depending on weather and continue through harvest. See label.
	Botrytis gray mold*							

(continued)

### SMALL FRUIT DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>STRAWBERRY (cont.)</b>								
Pre-Bloom (early spring) (cont.)	Anthracnose Botrytis gray mold*	CaptEvate68 WDG	captan + fenhexamid	M4 17	3.5 - 5.25 lb	12 hours	0	For anthracnose begin CaptEvate at flower bud emergence. For Botrytis gray mold begin at early bloom on a 7 - 10 day schedule.
	Anthracnose Botrytis gray mold* Powdery mildew	Switch 62.5 WG	cyprodinil + fludioxonil	9 12	11 - 14 oz (see label for anthracnose crown rot)	12 hours	0	
	Anthracnose Botrytis gray mold* Powdery mildew Strawberry leaf spot Leaf rust	Inspire Super	difenoconazole + cyprodinil	3 9	16 - 20 fl oz	12 hours	0	Apply Inspire Super at 7 - 14 day intervals. No more than two consecutive applications before switching to a product with a different mode of action.
	Botrytis fruit rot*	Elevate 50 WG	fenhexamid	17	1.5 lb	12 hours	0	
	Anthracnose Botrytis crown rot* Botrytis gray mold* Stem end rot Phomopsis soft rot Strawberry leaf spot	Rovral 4 FL	iprodione	2	1.5 - 2 pt	24 hours	See label.	Do not make more than one application of Rovral per season. Do not apply after first fruiting flower.
	Botrytis gray mold* Powdery mildew	Fontelis	penthiopyrad	7	10 - 24 fl oz	12 hours	0	Begin applications of Fontelis prior to disease development and continue on a 7 - 14 day interval.
	Anthracnose Powdery mildew Strawberry leaf spot Leaf rust	Tilt	propiconazole	3	4 fl oz	12 hours	0	Begin applications of Tilt when disease levels are no more than 5%.
	Anthracnose Botrytis gray mold* (suppression only) Powdery mildew Strawberry leaf spot	Cabrio EG	pyraclostrobin	11	14 oz	12 hours	0	Begin applications of Cabrio prior to bloom and continue at 7 - 14 day intervals.
	Botrytis gray mold*	Scala SC	pyrimethanil	9	18 fl oz	12 hours	0	Make applications of Scala before disease appears on a 7 - 14 day interval.
(continued)								

### SMALL FRUIT DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
STRAWBERRY (cont.)								
Pre-Bloom (early spring) (cont.)	Botrytis gray mold*	Thiram Granuflo	thiram	M3	3.4 - 4.4 lb	24 hours	3	Broadcast 3 - 5 lb of Thiram at 10 intervals. Good coverage of buds, blossoms and developing fruit required for control.
	Anthrachnose Powdery mildew Phomopsis soft rot	Flint	trifloxystrobin	11	2 - 3.2 oz	12 hours	7	Begin Flint applications and continue as needed preventively on a 7 - 14 day interval.
Early Bloom through Bloom	Leather rot Red stele	Aliette WDG	aluminum tris	33	2.5 - 5 lb	12 hours	Same day (12 hours)	Begin applications of Aliette in the spring after bud break. Apply on a 45 - 60 day schedule.
		Ridomil Gold SL	mefenoxam	4	1 pt	48 hours	0	For new plantings apply Ridomil Gold SL up to 3 times per crop. Make first application after planting. Make second application 30 days before harvest or at fruit set. Make third application during harvest. See label for established plantings.
	Anthrachnose Botrytis gray mold* (suppression only) Leather rot Powdery mildew	Topguard EQ	azoxystrobin + flutriafol	11 3	5 - 8 fl oz	12 hours	0	For leather rot, apply 2 applications on a 7 day schedule from late bloom through harvest.
	Phytophthora root rot Pythium Fusarium Rhizoctonia Powdery mildew	Fosphite	mono- and di- potassium salts of phosphorous acid	33		4 hours	0	Foliar, or aerial, or root dip, or irrigation. See label for rates and complete instructions.
	Botrytis gray mold* Leaf scorch Powdery mildew	Topsin M 70 WDG	thiophanate-methyl	1	0.75 - 1 lb	24 hours	1	Begin applications of Topsin M at early bloom and continue on a 7 - 10 day interval. See label for crown rot.
		Topsin M 70 WP	thiophanate-methyl	1	0.75 - 1 lb	24 hours	1	
		Anthrachnose Botrytis crown rot* Botrytis gray mold* Stem end rot Phomopsis soft rot Strawberry leaf spot	Same as Pre-Bloom				Check labels for PHI (post-harvest interval)	

### SMALL FRUIT DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>STRAWBERRY (cont.)</b>								
At Harvest	Botrytis fruit rot*	Quadris Top	azoxystrobin + difenoconazole	11 3	12 - 14 oz	12 hours	0	
		Pristine	boscalid + pyraclostrobin	7 11	18.5 - 23 oz	12 hours	0	
		Captan 50 WP	captan	M4	6 lb	24 hours	0	Apply Captan on a 7 - 14 day schedule depending on weather and continue through harvest. See label.
		CaptEstate68 WDG	captan + fenhexamid	M4 17	3.5 - 5.25 lb	12 hours	0	
		Elevate 50 WG	fenhexamid	17	1.5 lb	12 hours	0	
		Fontelis	penthiopyrad	7	10 - 24 fl oz	12 hours	0	Begin applications of Fontelis prior to disease development and continue on a 7 - 14 day interval.
		Scala SC	pyrimethanil	9	18 fl oz	12 hours	0	
		Topsin M 70 WDG	thiophanate-methyl	1	0.75 - 1 lb	24 hours	1	
		Topsin M 70 WP	thiophanate-methyl	1	0.75 - 1 lb	24 hours	1	
Post-Harvest and New Plantings	See Pre-Bloom to Harvest							

\*Botrytis gray mold has a high potential to develop resistance, and recent data suggest a high percentage of strains are resistant to several important fungicides. To help combat resistant strains from developing: (1) Limit the number of times fungicides of the same class are applied in one year. (2) Tank-mix a broad-spectrum fungicide such as captan or Thiram with Topsin-M (a benzimidazole fungicide) as Topsin-M does not have Botrytis activity due to resistance but is helpful for several early-season foliar diseases if present. (3) Resistance profiles vary from farm to farm and fungicides may have to be varied.

## SMALL FRUIT DISEASES (Home Garden)

Sherrie Smith

Disease	Product	Active Ingredient	FRAC Code	Rate	Comments
Fungal leaf and fruit diseases on grapes, blackberry, raspberry and strawberry	Ortho Home Orchard Spray	captan	M4	5 tbs/gal	Spray on a 7 - 14 day schedule from early bloom until harvest, depending on weather and disease. See labels for additional information. Good coverage is essential.
	Hi-Yield Captan 50 WP	captan	M4	2 tbs/gal	
	Hi-Yield Bordeaux Fungicide Mix	copper salts	M1	See label.	Apply at first sign of disease, 10 - 14 day interval. See label.
	Bayer Advanced Natria Disease Control	<i>Bacillus subtilis</i>	44	RTU*	Spray to runoff. See label.
	Bonide Copper Liquid Fungicide Concentrate	copper salts	M1	2 - 4 tsp/gal	See label.
	Bonide Lime Sulfur Spray	calcium polysulfide	M2	See label.	See label.
	Bonide Sulfur Plant Fungicide	sulfur	M2	1 - 3 tbs/gal	See label.
	Safer Brand Concern Garden Defense Concentrate	neem oil extract	---	1 fl oz/gal	7 - 14 days. Complete coverage important. RTU* also available. Organic uses.
	Bonide Citrus, Fruit and Nut Orchard Spray Concentrate	sulfur + pyrethrins	M2	2.5 - 5 oz/gal	7 - 10 days. Apply at first evidence of disease.
	Natural Guard Copper Soap Liquid Fungicide	copper octanoate	M1	0.5 - 2 oz/gal	7 - 10 days. Apply at first evidence of disease.
	Green Cure**	potassium bicarbonate	---	RTU*	Potassium bicarbonate primarily targets powdery mildew but is also labeled for downy mildew and anthracnose.
	Kaligreen** MilStop**	potassium bicarbonate potassium bicarbonate	--- ---	2.5 - 3 lbs/A 2.5 - 3 lbs/A	Approved for use in organic crops.
	Shultz Garden Safe Fungicide 3 in 1**	neem oil	---	See label.	
Fungal diseases of <u>grapes only</u>	Spectracide Immunox Plus	myclobutanil + insecticide	3	See label.	Spray on a 14 day schedule from very early bloom until 2 weeks before harvest. See label.
	Hi-Yield Bordeaux Fungicide Mix	copper salts	M1	8 - 9 tbs/gal	Apply in early spring. See label precautions.
	Bonide Mancozeb Flowable with Zinc	mancozeb	M3	3 - 4 tsp/gal	Begin at 1/2 inch new growth, continue at 7 - 10 days until bloom. See label.

\* RTU = Ready To Use

\*\* Approved for use in organic crops.

## FRUIT TREE DISEASES (Commercial)

Sherrie Smith and Jackie Lee

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>APPLE</b>								
Dormant to Silver Tip	Fire blight	Bordeaux Mixture	Basic copper sulfate	M1		12 hours	Dormant only	Dissolve 8 lbs copper sulfate in 50 gals water; add 8 lbs spray lime with agitation and more water; add 1 gal miscible superior oil last but prior to complete fill; add water with agitation to 100 gals; spray with constant agitation. Do not mix with other pesticides or spray when drying conditions are slow or after 1/4 inch green as severe injury may result.
		Kocide 2000	copper hydroxide	M1	6 - 12 lb	48 hours	Not after green tip	Make Kocide application between silver tip and green tip. Apply as a full cover spray for early season disease suppression. NOTE: Moderate to severe crop injury may occur from late application; discontinue use when green tip reaches 1/2 inch. Applications should be made in early spring before growth starts and in the fall after harvest, but before the ground freezes.
		Kocide 3000	copper hydroxide	M1	3.5 - 7 lb	48 hours	Not after green tip	
	Phytophthora crown, root and collar rots	Aliette WDG	aluminum tris	33	2.5 - 5 lb	12 hours	14	Apply Aliette at a 30 - 60 day interval when conditions favor disease development. See label.
		Ridomil Gold SL	mefenoxam	4	2 qt/A or 1.5 fl oz/ 1,000 sq ft	48 hours	1	New plants: Dip the entire root system in Ridomil Gold solution for 30 - 60 minutes prior to planting in the field. Established plantings: see label.
Green Tip	Alternaria blotch Brooks fruit spot Cedar apple rust (suppression) Flyspeck Frogeye leaf spot Powdery mildew Scab Sooty blotch White rot	Pristine	boscalid + pyraclostrobin	7 11	14.5 - 18.5 oz	12 hours	0	Begin applications of Pristine prior to disease development and continue on a 7 - 14 day interval. See label.
<i>(continued)</i>								

### FRUIT TREE DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>APPLE (cont.)</b>								
Green Tip (cont.)	Botrytis blossom end rot Flyspeck Fruit rots Scab Sooty blotch	Captan 50 WP	captan	M4	4 - 8 lb	24 hours	1	Apply at 7 - 10 day intervals as needed to maintain control in pre-bloom, bloom, petal fall and first cover. Apply at 10 - 14 day intervals for second and later covers.
	Scab	Vanguard WG	cyprodinil	9	4 - 6 oz	12 hours	0	For pome fruits EXCEPT PEAR, begin applications of Vanguard at green tip and continue on a 7 - 10 day schedule.
	Scab	Rubigan EC	fenarimol	3	8 - 12 fl oz	12 hours	30	When Rubigan EC is used to control scab, at least two consecutive applications should be applied.
	Alternaria blotch Brooks fruit spot Cedar apple rust (suppression) Flyspeck Frogeye leaf spot Powdery mildew Scab Sooty mold White rot	Sovran 50 WG	kresoxin-methyl	11	3.2 - 6.4 oz	12 hours	30	Begin Sovran at 1/2 inch green and repeat at 7 - 10 day intervals depending on the rate of shoot growth and level of disease pressure.
	Fabraea leaf spot Rusts Scab	Dithane F-45 Rainshield	mancozeb	M3	4.8 qt	24 hours	77	Begin applications of Dithane at 1/2 inch green tip and continue on a 7 - 10 day schedule through bloom.
		Dithane Rainshield DF	mancozeb	M3	6 lb	24 hours	77	
	Phytophthora Pythium Fusarium Rhizoctonia Powdery mildew	Fosphite	mono- and di-potassium salts of phosphorous acid	33		4 hours	0	Foliar, or aerial, or root dip, or irrigation or trunk injection. See label for rates and complete instructions. Do not apply during dormancy.
	Cedar apple rust Quince rust Powdery mildew Scab	Eagle 20 EW	myclobutanil	3	4 - 6 oz	24 hours	14	Begin applications of Eagle at green tip. For rust, begin applications at pink stage and continue through second cover. For powdery mildew, begin applications at tight cluster and continue through second cover spray.

(continued)



### FRUIT TREE DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>APPLE (cont.)</b>								
Green Tip (cont.)	Alternaria blotch Cedar apple rust Quince rust Powdery mildew Scab	Fontelis	penthiopyrad	7	14 - 20 fl oz	12 hours	28	Begin applications of Fontelis prior to disease and continue on a 7 - 21 day interval depending on targeted disease. See label.
	Scab	Scala SC	pyrimethanil	9	7 - 10 oz	12 hours	72	Begin applications of Scala at green tip and continue on a 7 day or longer interval. See label.
	Cedar apple rust Bitter rot Flyspeck Necrotic leaf blotch Quince rust Scab Sooty blotch	Adament 50 WG	tebuconazole + trifloxystrobin	3 11	4 - 5 oz	12 hours	14	Begin applications of Adament at green tip and continue as needed on a 7 - 10 day spray schedule.
	Flyspeck Fruit rots Scab Sooty blotch	Topsin M 70 WDG	thiophanate-methyl	1	1 - 1.5 lb	24 hours	1	Apply Topsin M at 5 - 10 day intervals from green tip through petal fall; continue at 7 - 14 day intervals in cover sprays.
		Topsin M 70 WP	thiophanate-methyl	1	1 - 1.5 lb	24 hours	1	
	Cedar apple rust Bitter rot Flyspeck Powdery mildew Quince rust Scab Sooty blotch White rot	Flint 50 WG	trifloxystrobin	11	2 - 2.5 oz	12 hours	14	Begin applications of Flint at green tip and continue as needed on a 7 - 10 day schedule.
1/2" Green Tip	Cedar apple rust Powdery mildew Scab	Procure 480 SC	triflumizole	3	8 - 16 fl oz	12 hours	14	Begin spraying Procure at first sign of mildew. Continue applications at 7 - 14 day intervals as needed through the terminal growth period. For scab, spray at 7 - 10 day intervals from 1/2" green tip stage through second cover or until primary scab sporulation is complete.
	Cedar apple rust Powdery mildew Quince rust	Ziram	ziram	M3	6 - 8 lb	48 hours	14	Apply Ziram from pre-bloom through cover sprays as needed.
	Scab	Same as Green Tip						Rotate fungicides for resistance management according to label.

### FRUIT TREE DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>APPLE (cont.)</b>								
Tight Cluster	Powdery mildew Scab	Same as Green Tip						Some materials listed in green tip are not labeled for powdery mildew. See label for most effective material(s).
Pink	Powdery mildew Rusts Scab	Same as Tight Cluster						Critical time for control of these diseases. Some of the materials listed are not labeled for powdery mildew. Follow label information.
Bloom	Fire blight	Fosphite	mono- and di-potassium salts of phosphorous acid	33		4 hours	0	Foliar. See label for rates and complete instructions.
		Agri-Mycin 17	streptomycin sulfate	25	12 - 48 oz	12 hours	30	Apply at first sign of blossoms and repeat on a 5 day schedule through petal fall on susceptible varieties. Warm wet weather during bloom favors the disease.
		Firewall	streptomycin sulfate	25	24 - 48 oz	12 hours	50	
	Powdery mildew Rusts Scab	Same as Pink						Spray trees every 3 - 4 days during blossom time. Apply sprays after petal fall every 10 - 14 days to control twig blight. (This could mean an additional 6 - 8 sprays after petal fall.)
Petal Fall	Fire blight Powdery mildew Rusts Scab	Same as Bloom	See label.					
First and Second Cover Sprays	Fruit rots Powdery mildew Rusts Scab	Same as Bloom						See label for PHI.
Third Cover	Flyspeck Fruit rots Scab Sooty blotch	Same as Second Cover						See label for PHI.
Summer Cover Sprays (10 - 14 day schedule)	Flyspeck Fruit rots Scab Sooty blotch	Same as Third Cover						See label for PHI.

### FRUIT TREE DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>PEAR</b>								
Pre-Bloom	Alternaria Bitter rot Black rot Blue mold Brooks spot Powdery mildew Rust (suppression only) Scab Sooty blotch White rot	Pristine	boscalid + pyraclostrobin	7 11	14.5 - 18.5 oz	12 hours	0	Begin applications of Pristine prior to disease development and continue on a 7 - 14 day interval. See label.
	Powdery mildew Rust Scab	Sovran 5 WG	kresoxim-methyl	11	3.2 - 6.4 oz	12 hours	30	Begin Sovran at 1/2 inch green and repeat at 7 - 10 day intervals depending on the rate of shoot growth and level of disease pressure.
	Phytophthora Pythium Fusarium Rhizoctonia Powdery mildew	Fosphite	mono- and di- potassium salts of phosphorous acid	33		4 hours	0	Foliar, or aerial, or root dip, or irrigation or trunk injection. See label for rates and complete instructions. Do not apply during dormancy.
	Scab	Scala SC	pyrimethanil	9	7 - 10 fl oz	12 hours	72	Begin applications of Scala at green tip and continue on a 7 day or longer interval. See label.
	Flyspeck Powdery mildew Rust Scab Sooty blotch	Adament 50 WG	tebuconazole + trifloxystrobin	3 11	4 - 5 oz	12 hours	14	Begin applications of Adament at green tip and continue as needed on a 7 - 10 day spray schedule.
	Powdery mildew Scab	Flint 50 WG	trifloxystrobin	11	2 - 2.5 oz	12 hours	14	Begin applications of Flint at green tip and continue as needed on a 7 - 10 day schedule.
	Bitter rot Fabraea leaf spot Flyspeck Quince rust Scab Sooty blotch	Ziram Granuflo	ziram	M3	6 - 8 lb	48 hours	14	Apply Ziram from pre-bloom through cover sprays as needed.

### FRUIT TREE DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>PEAR (cont.)</b>								
Bloom	Fire blight	Kocide 2000	copper hydroxide	M1	0.75 lb	48 hours	21	Apply Kocide every 5 days throughout bloom. <b>Russetting and fruit damage may occur in copper-sensitive varieties.</b>
		Kocide 3000	copper hydroxide	M1	3.5 - 7 lb	48 hours	21	
		Fosphite	mono- and di-potassium salts of phosphorous acid	33		4 hours	0	Foliar. See label for rates and complete instructions.
		Mycoshield	oxytetracycline calcium	41	1 lb/100 gal	12 hours	60	Begin applications of Mycoshield at 10% bloom and continue on at 4 - 6 day intervals. Use of Mycoshield may cause phytotoxicity to fruit and/or foliage of sensitive varieties, especially Asian varieties.
	Fabraea leaf spot Scab Sooty blotch	Firewall 17 WP	streptomycin sulfate	25	28.8 oz	12 hours	30	Spray trees at 20% - 30% bloom with Firewall. Spray trees every 3 - 4 days during blossom time. Apply sprays after petal fall every 10 - 14 days to control twig blight. (This could mean an additional 6 - 8 applications after blossom sprays.)
		Ferbam Granuflo	ferbam	M3	4 lb	24 hours	7	Make applications of Ferbam at pink, calyx, first and second cover sprays, and 1 pound in summer sprays. Do not apply in late-season cover sprays where unsightly residues may affect the fresh fruit finish of light-skinned pear varieties.
		Dithane F-45 Rainshield	mancozeb	M3	4.8 qt	24 hours	77	Do not apply Dithane after bloom. Do not graze livestock on treated areas.
		Dithane Rainshield DF	mancozeb	M3	6 lb	24 hours	77	
		Fosphite	mono- and di-potassium salts of phosphorous acid	33		4 hours	0	Foliar, or aerial, or root dip, or irrigation or trunk injection. See label for rates and complete instructions.
	Phytophthora Pythium Fusarium Rhizoctonia Powdery mildew							

(continued)

### FRUIT TREE DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
PEAR (cont.)								
Bloom <i>(cont.)</i>	Alternaria leaf spot Powdery mildew Quince rust Scab	Fontelis	penthiopyrad	7	14 - 20 fl oz	12 hours	28	Begin applications of Fontelis prior to disease and continue on a 7 - 21 day interval depending on targeted disease. See label.
	Powdery mildew Scab	Procure 480 SC	triflumizole	3	8 - 16 fl oz	12 hours	14	Begin spraying Procure at the pink or white stage. Continue applications at 7 - 14 day intervals.
Petal fall	Alternaria leaf spot Fire blight Flyspeck Powdery mildew Quince rust Scab	Same as Bloom						
First and Second Cover	Powdery mildew Rust Scab	Rubigan EC	fenarimol	3	3 - 4 fl oz	12 hours	30	Do not apply Rubigan to pears until after petal fall.
	Alternaria leaf spot Powdery mildew Quince rust Scab	Same as Petal Fall						
Summer Cover		Same as First and Second Cover					See labels for PHI restrictions.	
PEACH and NECTARINE								
Dormant	Phytophthora collar and root rot	Aliette	aluminum tris	33	5 lb	24 hours	365	Apply Aliette when conditions favor disease development.
		Ridomil Gold SL	mefenoxam	4	2 qt/A or 1.5 fl oz/ 1,000 sq ft	48 hours	0	Apply Ridomil under the tree canopy to cover the root zone two weeks after planting (new plantings) and in the spring before growth begins (established plantings).
<i>(continued)</i>								

### FRUIT TREE DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>PEACH and NECTARINE (cont.)</b>								
Dormant ( <i>cont.</i> )	Peach leaf curl	Bravo Ultrex	chlorothalonil	M5	2.8 - 3.8 lb	12 hours	Dormant Do not apply after shuck split	Make one application of Bravo in late autumn to early winter before hard freezing occurs. Make one or two additional applications in mid-late winter before bud swell in the spring.
	Shot hole	Bravo WeatherStik	chlorothalonil	M5	3 1/8 - 4 1/8 pt	12 hours		
	Bacterial blast	Kocide 2000	copper hydroxide	M1	6 - 12 lb	48 hours	21	Make first application of Kocide before fall rains and a second at late dormant.
	Bacterial canker	Kocide 3000	copper hydroxide	M1	3.5 - 7 lb	48 hours	21	
	Bacterial spot	Bordeaux Mixture	copper sulfate spray lime	M2	See label	12 hours	Dormant only	
	Coryneum blight							
	Leaf curl							
	Peach leaf curl	Ziram Granuflo	ziram	M2	3.75 - 8 lb	48 hours	14	Make dormant applications of Ziram after leaf drop and/or prior to bud swell.
Pink	Alternaria spot	Abound	azoxystrobin	11	11 - 15.5 fl oz	4 hours	0	Begin applications of Abound or Quadris Top at early bloom. See labels.
	Anthracnose							
	Brown rot							
	Powdery mildew							
	Rust							
	Scab							
	Shot hole							
	Alternaria spot	Quadris Top	azoxystrobin + difenoconazole	11 3	12 - 14 fl oz	12 hours	0	
	Anthracnose							
	Brown rot							
	Powdery mildew							
	Alternaria spot	Topguard EQ	azoxystrobin + flutriafof	11 3	6 - 8 fl oz	12 hours	7	For brown rot, begin applications at 1% - 5% bloom, followed by an application at 50% - 100% bloom.
	Anthracnose							
	Brown rot							
	Powdery mildew							
	Rust							
	Scab							
	Shot hole							

(continued)

### FRUIT TREE DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>PEACH and NECTARINE (cont.)</b>								
Pink (cont.)	Alternaria spot Anthracnose Brown rot Powdery mildew Rust Scab Shot hole	Pristine	boscalid + pyraclostrobin	7 11	14.5 - 18.5 oz	12 hours	0	Begin applications of Pristine prior to disease development and continue on a 7 - 14 day interval. See label.
	Brown rot Scab	Captan 50 WP	captan	M4	4 - 8 lb	24 hours	1	Apply Captan at full pink, bloom, petal fall, shuck stages, and in cover and pre-harvest sprays.
	Blossom blight Brown rot Scab	Indar 2 F	fenbuconazole	3	6 fl oz	12 hours	1	Begin applications of Indar at early red bud stage before infection occurs. See label.
	Blossom blight Jacket rot Scab Shot hole	Rovral 4 FL	iprodione	2	1 - 2 pt	24 hours	Do not apply after petal fall.	Do not make more than 2 applications of Rovral per season.
	Phytophthora Pythium Fusarium Rhizoctonia Powdery mildew	Fosphite	mono- and di-potassium salts of phosphorous acid	33		4 hours	0	Foliar, or aerial, or root dip, or irrigation or trunk injection. See label for rates and complete instructions. Do not apply during dormancy.
	Blossom blight Brown rot Powdery mildew Rust Shot hole	Eagle 20 EW	myclobutanil	3	2 - 3 fl oz/ 100 gal	24 hours	0	Do not apply more than 100 fl oz per acre per season.
	Alternaria spot Blossom blight Brown rot Powdery mildew Rust Scab Shot hole	Fontelis	penthiopyrad	7	14 - 20 fl oz	24 hours	0	Begin applications of Fontelis prior to disease and continue on a 7 - 14 day interval. See label.
	Brown rot	PropiMax EC	propiconazole	3	4 fl oz	12 hours	0	Apply PropiMax at early bloom, at 75% - 100% bloom, and at petal fall. See label.
	Brown rot Powdery mildew Rust	Tilt	propiconazole	3	4 fl oz	12 hours	0	Begin applications of Tilt at early bloom.

(continued)



### FRUIT TREE DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>PEACH and NECTARINE (cont.)</b>								
Pink (cont.)	Blossom blight Brown rot Jacket rot Shot hole	Scala SC	pyrimethanil	9	9 - 18 fl oz	12 hours	2	Begin applications of Scala at pink, red or white bud. See label.
	Blossom blight Brown rot Powdery mildew Rust Scab Shot hole	Gem 500 SC	trifloxystrobin	11	1.9 - 3.8 fl oz	12 hours	1	Begin applications of Gem at bud stage. If conditions are favorable for disease, apply again at full bloom and at petal fall or on a 14 - 21 day spray schedule.
	Alternaria spot Anthracnose Brown rot Jacket rot Powdery mildew Rust Scab Shot hole	Adament 50 WG	trifloxystrobin + tebuconazole	11 3	4 - 8 fl oz	12 hours	1	Begin applications when conditions are favorable for disease but before infection. Apply on a 7 - 14 day spray schedule.
	Blossom blight Brown rot Shot hole	Ziram Granuflo	ziram	M3	4.5 - 8 lb	48 hours	14	Apply at pre-bloom through cover sprays as needed.
Full Bloom	Alternaria spot Anthracnose Brown rot Powdery mildew Rust Scab Shot hole	Same as Pink						
	Bacterial spot	Mycoshield	oxytetracycline sulfate	41	0.75 - 1.5 lb	12 hours	21	Apply on a weekly schedule beginning at petal fall (< 5% shuck split) through first cover. See label for subsequent cover sprays.
Shuck Split	Alternaria spot Anthracnose Brown rot Powdery mildew Rust Scab Shot hole	Same as Full Bloom						
	Bacterial spot							

### FRUIT TREE DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>PEACH and NECTARINE (cont.)</b>								
First Cover		Same as Shuck Split						
Second Cover		Same as First Cover						
Additional Covers and Pre-Harvest		Same as Second Cover						
<b>PLUM</b>								
Dormant	Phytophthora collar and root rot	Aliette	aluminum tris	33	5 lb	24 hours	365	Apply Aliette when conditions favor disease development.
		Ridomil Gold SL	mefenoxam	4	2 qt or 1.5 fl oz/ 1,000 sq ft	48 hours	0	Apply Ridomil under the tree canopy to cover the root zone two weeks after planting (new plantings) and in the spring before growth begins (established plantings).
	Bacterial canker Bacterial spot Black knot Shot hole	Kocide 2000 Kocide 3000	copper hydroxide copper hydroxide	M1 M1	6 - 12 lb 3.5 - 7 lb	48 hours 48 hours	21 21	Make first application of Kocide before fall rains and a second at late dormant.
Pre-Bloom	Alternaria spot	Topguard EQ	azoxystrobin + flutriafol	11 3	6 - 8 fl oz	12 hours	7	For scab, start applications at petal fall.
	Anthracnose							
	Brown rot							
	Powdery mildew	Pristine	boscalid + pyraclostrobin	7 11	14.5 - 18.5 oz	12 hours	0	Begin applications of Pristine prior to disease development and continue on a 7 - 14 day interval. See label.
	Rust							
	Scab							
	Shot hole							
	Brown rot	Captan 50 WP	captan	M4	4 - 8 lb	24 hours	0	Apply Captan at full pink, bloom, petal fall, shuck stages, and in cover and pre-harvest sprays.
	Scab							
	Blossom blight	Indar 2 F	fenbuconazole	3	6 fl oz	12 hours	1	Begin applications of Indar at early red bud stage before infection occurs. See label.
	Brown rot							
	Scab							
	Blossom blight	Rovral 4 FL	iprodione	2	1 - 2 pt	24 hours	Do not apply after petal fall.	Do not make more than 2 applications of Rovral per season.
	Jacket rot							
	Scab							
	Shot hole							

(continued)

### FRUIT TREE DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>PLUM (cont.)</b>								
Pre-Bloom (cont.)	Blossom blight Brown rot Powdery mildew Rust Shot hole	Eagle 20 EW	myclobutanil	3	2 - 3 fl oz/ 100 gal	24 hours	0	Begin applications of Eagle at green tip before infection occurs. If conditions are favorable for disease development, reapply at full bloom and petal fall.
	Phytophthora Pythium Fusarium Rhizoctonia Powdery mildew	Fosphite	mono- and di- potassium salts of phosphorous acid	33		4 hours	0	Foliar, or aerial, or root dip, or irrigation or trunk injection. See label for rates and complete instructions. Do not apply during dormancy.
	Alternaria spot Blossom blight Brown rot Powdery mildew Rust Scab Shot hole	Fontelis	penthiopyrad	7	14 - 20 fl oz	24 hours	0	Begin applications of Fontelis prior to disease and continue on a 7 - 14 day interval. See label.
	Brown rot	PropiMax EC	propiconazole	3	4 fl oz	12 hours	0	Apply PropiMax at early bloom, at 75% - 100% bloom, and at petal fall. See label.
	Brown rot Powdery mildew Rust	Tilt	propiconazole	3	4 fl oz	12 hours	0	Begin applications of Tilt at beginning of bloom.
	Blossom blight Brown rot Jacket rot Shot hole	Scala SC	pyrimethanil	9	9 - 18 fl oz	12 hours	2	Begin applications of Scala at pink, red or white bud. See label.
	Black knot	Topsin M 70 WDG	thiophanate- methyl	1	1 - 1.5 lb	24 hours	1	Apply Topsin M at pre-bloom, petal fall, and at first, second, and third covers. Spray at 10 - 14 day intervals.
		Topsin M 70 WP	thiophanate- methyl	1	1 - 1.5 lb	24 hours	1	
	Blossom blight Brown rot Powdery mildew Rust Scab Shot hole	Gem 500 SC	trifloxystrobin	11	1.9 - 3.8 fl oz	12 hours	1	Begin applications of Gem at bud stage. If conditions are favorable for disease, apply again at full bloom and at petal fall, or on a 14 - 21 day spray schedule.

(continued)

### FRUIT TREE DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>PLUM (cont.)</b>								
Pre-Bloom (cont.)	Alternaria spot Anthracnose Brown rot Jacket rot Powdery mildew Rust Scab Shot hole	Adament 50 WG	trifloxystrobin + tebuconazole	11 3	4 - 8 fl oz	12 hours	1	Begin applications when conditions are favorable for disease but before infection. Apply on a 7 - 14 day spray schedule.
Full Bloom	Alternaria spot Anthracnose Brown rot Powdery mildew Rust Scab Shot hole	Abound	azoxystrobin	11	11 - 15.5 fl oz	4 hours	0	Begin applications of Abound at early bloom. See label.
		Topguard EQ	azoxystrobin + flutriafol	11 3	6 - 8 fl oz	12 hours	7	For powdery mildew, begin applications at petal fall.
	Alternaria spot Anthracnose Brown rot Powdery mildew Rust Scab Shot hole	Same as Pre-Bloom						
	Phytophthora Pythium Fusarium Rhizoctonia Powdery mildew	Same as Pre-Bloom						
Petal Fall		Same as Full Bloom						
Shuck Split		Same as Petal Fall						
First Cover		Same as Shuck Split						See label for PHI.
Second Cover through Pre-Harvest		Same as First Cover						See label for PHI.

## FRUIT TREE DISEASES (Home Garden)

Sherrie Smith

Disease	Product	Active Ingredient	FRAC Code	Rate	Comments
Fire Blight (Apples, Pears)	Agri-Strep	streptomycin	25	See label.	Follow label directions.
	Bonide Fire Blight Spray	streptomycin sulfate	25	1 tbs/2.5 gal	Apply at first bloom, then 3 - 4 days during.
	Ferti-lome Fire Blight Spray	streptomycin sulfate	25	1 tbs/2.5 gal	Apply at first bloom, then 3 - 4 days during.
	AgraQuest Serenade**	<i>Bacillus subtilis</i>	44	RTU*	See label.
Scab, Powdery Mildew, Rust, Sooty Blotch, Flayspeck (Apples, Pears)	Hi-Yield Captan 50 WP	captan	M4	2 tbs/gal	Start applying just before bloom and continue at 7 - 14 day intervals until harvest.
	Bonide Captan 50 WP	captan	M4	RTU*	Same as above.
	Ortho Home Orchard Spray	captan + insecticide	M4	5 tbs/gal	Same as above.
	Spectracide Immunox Plus	myclobutanil + insecticide	3	See label.	Same as above but do not apply within 14 days of harvest.
	AgraQuest Serenade**	<i>Bacillus subtilis</i>	44	RTU*	See label.
	Bonide Infuse	propiconazole	3	0.5 - 1 tbs/gal	See label.
	Bayer Advanced Natria Disease Control	<i>Bacillus subtilis</i>	44	RTU*	Spray to runoff. See label.
	Green Cure**	potassium bicarbonate	---	RTU*	Potassium bicarbonate primarily targets powdery mildew but is also labeled for downy mildew and anthracnose.
	Kaligreen**	potassium bicarbonate	---	2.5 - 3 lbs/A	
Brown Rot (Cherry, Plum, Peach, Nectarine)	Milstop**	potassium bicarbonate	---	2.5 - 3 lbs/A	
	Shultz Garden Safe Fungicide 3 in 1**	neem oil	---	See label.	
	Ortho Home Orchard Spray	captan + insecticide	M4	5 tbs/gal	Apply just prior to start of bloom and continue at 7 - 14 day intervals until harvest.
	Bonide Fruit Tree Spray Concentrate	captan + insecticide	M4	1.5 - 2.5 tbs/gal	
	Hi-Yield Captan 50 WP	captan	M4	2 tbs/gal	
	Bonide Captan 50 WP	captan	M4	RTU*	
	Spectracide Immunox	myclobutanil	3	1 tbs/gal	
Peach Leaf Curl (Peach, Nectarine)	Bonide Fung-onil Multipurpose Fungicide Concentrate	chlorothalonil	M5	1 tbs/gal	Apply at disease onset.
	Ortho Garden Disease Control	chlorothalonil	M5	2 tsp/gal	Apply at leaf drop in autumn and again in late winter prior to bud swell.
	Bonide Lime-Sulfur Concentrate	calcium polysulfides	M2	See label.	See label.
	Hi-Yield Bordeaux Mix	copper	M1	9 tbs/gal	Same as above.
	Bonide Fung-onil Multipurpose Fungicide	chlorothalonil	M5	1 tbs/gal	Apply at disease onset. See label.
	Garden Tech Daconil Concentrate	chlorothalonil	M5	2.25 tsp/gal	Apply after leaf drop in autumn. See label.
	Bonide Liquid Copper	copper octanoate	M1	RTU*	

\*RTU = Ready To Use

\*\*Approved for organic use

## GRAIN SORGHUM – SEEDLING DISEASES

Terry Spurlock

Disease	Product	Active Ingredient	FRAC Code	Rate/cwt	Comments
<b>Commercial and Distributor-Applied Seed Treatments</b>					
Pythium and Rhizoctonia diseases; fungal seed rots	Apron XL	mefenoxam	4	0.32 - 1.64 fl oz	Pythium diseases
	Vibrance	sedaxane	7	0.0008 - 0.0016 mg ai/seed	Rhizoctonia diseases
	Maxim 4 FS	fludioxonil	12	0.08 - 0.16 fl oz	Rhizoctonia and Fusarium diseases

## GRAIN SORGHUM – FOLIAR DISEASES

Terry Spurlock

Disease	Fungicide	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
Anthracnose, target spot and other foliar fungal diseases	Quadris	azoxystrobin	11	6 - 15.5 fl oz	14	Apply between boot/early heading to 50% flowering. When disease pressure is severe, use higher rate.
	Aproach	picoxystrobin	11	6 - 12 fl oz		Do not apply after flowering.
	Headline SC	pyraclostrobin	11	6 - 12 fl oz		Apply no later than 25% flowering
	Quilt Xcel	azoxystrobin + propiconazole	11 3	10.5 - 14 fl oz	21 (grain)	Apply between boot/early heading to 50% flowering. When disease pressure is severe, use higher rate.
	Priaxor	pyraclostrobin + fluxapyroxad	11 7	4 - 8 fl oz	21	Do not apply more than 8 fl oz of Priaxor per season.

## ORNAMENTAL DISEASES (Commercial)

Sherrie Smith

Disease	Product	Active Ingredient	FRAC Code	Rate	Re-entry Interval	Comments
Bacterial blight ( <i>Xanthomonas campestris</i> ) Fire blight	Aliette	aluminum tris	33	See label.	12 hours	See label.
Bacterial leaf, twig blight Bacterial leaf spot <i>Pseudomonas syringae</i>	Junction	mancozeb + copper hydroxide	M3 M1	1.5 lb/100 gal (1/2 tbs/gal)	24 hours	Do not apply Junction in a spray solution having less than 6.5 pH as phytotoxicity may occur.
	Junction WSP	mancozeb + copper hydroxide	M3 M1	2.5 lb/100 gal	48 hours	
	Alude	salts of phosphorus acid	33	See label.	4 hours	Rate depends on whether used as soil drench or foliar spray. See label.
Downy mildew	Aliette WDG	aluminum tris	33	See label.	12 hours	Rate depends on whether used as soil drench or foliar spray. See label.
	Heritage	azoxystrobin	11	1 - 4 oz/100 gal	4 hours	See label for specific rates. Do not allow drift to apples or crabapples.
	Segway	cyazofamid	21	1.5 - 6 fl oz/100 gal	12 hours	
	Stature SC	dimethomorph	40	6.12 - 12.25 fl oz/ 100 gal	12 hours	DO NOT make more than 8 applications of Stature SC per crop per season for greenhouse-grown ornamentals.
	Fenstop	fenamidone	11	7 - 14 fl oz/100 gal	12 hours	See label for rates for drench applications.
	Adorn	fluopicolide	43	1 - 4 fl oz/100 gal	12 hours	Adorn must be tank-mixed with another labeled fungicide for resistance management.
	Subdue MAXX	mefenoxam	4	See label.	48 hours	Rate of Subdue MAXX depends on whether used as soil drench or foliar spray. See label.
	Segovis	oxanthiapiprolin	U15	0.6 - 2.4 fl oz/100 gal	4 hours	Make no more than 2 consecutive applications of Segovis before switching to another non-U15 group fungicide.
	Affirm WDG	polyoxin D zinc salts	19	0.7 oz ai/acre	4 hours	Do not apply more than 3 applications per season.
	Insignia SC	pyraclostrobin	11	3 - 12.2 fl oz/100 gal	12 hours	Use preventatively.
(continued)	Insignia	pyraclostrobin	11	8 - 16 fl oz/100 gal	12 hours	Use preventatively.

### ORNAMENTAL DISEASES (Commercial) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate	Re-entry Interval	Comments
Downy mildew ( <i>cont.</i> )	Alude	salts of phosphorus acid	33	See label.	4 hours	Rate depends on whether used as soil drench or foliar spray. See label.
	Compass O 50 WDG	trifloxystrobin	11	0.5 - 4 oz/100 gal	12 hours	Start applications when conditions are favorable for disease development.
Phytophthora Pythium	Aliette	aluminum tris	33	See label.	12 hours	Rate depends on whether used as soil drench or foliar spray. See label.
	Heritage (not labeled for pythium except turf)	azoxystrobin	11	1 - 4 oz/100 gal	4 hours	See label for specific rates. Do not allow drift to apples or crabapples.
	Mural	azoxystrobin + benzovindiflupyr	11 7	3 - 7 oz/100 gal	12 hours	Rate depends on whether used as soil drench or foliar spray. See label.
	Segway	cyazofamid	21	1.5 - 6 fl oz/100 gal	12 hours	Group 21 fungicide. Crown rots and damping off. 14 - 28 day interval.
	Stature SC (not labeled for pythium)	dimethomorph	40	6.12 - 12.25 fl oz/ 100 gal	12 hours	DO NOT make more than 8 applications of Stature SC per crop per season for greenhouse-grown ornamentals.
	Banrot 40 WP/8 G	etridiazole + thiophanate-methyl	14 1	3 - 12 oz/100 gal	12 hours	<b>For use in commercial greenhouses only. Rate depends on crop. See label.</b>
	Fenstop	fenamidone	11	7 - 14 fl oz/100 gal	12 hours	See label for rates for drench applications.
	Hurricane	fludioxonil + mefenoxam	12 4	See label.	48 hours	Do not apply more than 2 pt of drench mixture per sq foot of application.
	Hurricane WDG	fludioxonil + mefenoxam	12 4	0.75 - 1.5 oz/100 gal	48 hours	Rate depends on application method. See label.
	Adorn	fluopicolide	43	1 - 4 fl oz/100 gal	12 hours	Adorn must be tank-mixed with another labeled fungicide for resistance management.
	Subdue MAXX	mefenoxam	4	See label.	48 hours	
	Segovis (not labeled for pythium)	oxanthiapiprolin	U15	0.6 - 2.4 fl oz/100 gal	4 hours	Make no more than 2 consecutive applications before switching to another non-U15 group fungicide.
	Insignia SC	pyraclostrobin	11	3 - 12.2 fl oz/100 gal	12 hours	Use preventatively.
	Insignia	pyraclostrobin	11	8 - 16 fl oz/100 gal	12 hours	

(continued)



### ORNAMENTAL DISEASES (Commercial) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate	Re-entry Interval	Comments
Phytophthora ( <i>cont.</i> ) Pythium	Alude	salts of phosphorus acid	33	See label.	4 hours	Rate depends on whether used as soil drench or foliar spray. See label.
	Compass O 50 WDG (not labeled for pythium)	trifloxystrobin	11	0.5 - 4 oz/100 gal	12 hours	Start applications when conditions are favorable for disease development.
	Strike Plus 50 WDG	trifloxystrobin + triadimefon	11 3	3 - 9 oz/100 gal	12 hours	Apply as a full coverage spray to the point of drip. Repeat at 14 - 28 day intervals.
Black root rot ( <i>Thielaviopsis</i> spp.)	Banrot 40 WP/8 G	etridiazole + thiophanate-methyl	14 1	3 - 12 oz/100 gal	12 hours	<b>For use in commercial greenhouses only. Rate depends on crop. See label.</b>
	Medallion	fludioxonil	12	1 - 4 oz/100 gal (foliar spray)	12 hours	See label for specific instructions on growing media mix and medium drench.
	Medallion WDG	fludioxonil	12	1 - 4 oz/100 gal	12 hours	See label for specific instructions on growing media mix and medium drench.
	Affirm WDG	polyoxin D zinc salts	19	0.7 oz ai/acre	4 hours	Do not apply more than 3 applications per season.
	Compass O 50 WDG	trifloxystrobin	11	0.5 - 4 oz/100 gal	12 hours	Start applications when conditions are favorable for disease development.
	Terraguard SC	triflumizole	3	2 - 8 fl oz/100 gal (1/4 - 1 tsp/gal)	12 hours	For optimum disease control, applications should be made prior to or at the first sign of disease.
Rhizoctonia aerial blights and root rots	Heritage	azoxystrobin	11	1 - 4 oz/100 gal	4 hours	See label for specific rates. Do not allow drift to apples or crabapples.
	Daconil Ultrix	chlorothalonil	M5	1.4 lbs/100 gal	12 hours (for next 6.5 days see label for special precautions)	Begin application at first evidence of disease activity.
	Pegasus HPX	chlorothalonil	M5	1 3/8 pt/100 gal	12 hours (for next 6.5 days see label for special precautions)	Fruits and other structures which may be borne on treated plants must not be eaten.
	Pegasus DFX	chlorothalonil	M5	1.25 lb/100 gal	12 hours (for next 6.5 days see label for special precautions)	Fruits and other structures which may be borne on treated plants must not be eaten.

(continued)

### ORNAMENTAL DISEASES (Commercial) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate	Re-entry Interval	Comments
Rhizoctonia aerial blights and root rots <i>(cont.)</i>	Pegasus 6 L	chlorothalonil	M5	1 3/8 pt/100 gal	12 hours (for next 6.5 days see label for special precautions)	Fruits and other structures which may be borne on treated plants must not be eaten.
	Banrot 40 WP/8 G	etridiazole + thiophanate-methyl	14 1	3 - 12 oz/100 gal	12 hours	<b>For use in commercial greenhouses only. Rate depends on crop. See label.</b>
	Palladium	cyprodinil + fludioxonil	9 12	2 - 4 oz/100 gal	12 hours	For stem diseases, ensure full coverage of all stems and inner areas of plant to the soil/media level.
	Medallion	fludioxonil	12	1 - 4 oz/100 gal (foliar spray)	12 hours	For indoor drench applications use up to 30 oz Medallion per 1,000 sq ft.
	Medallion WDG	fludioxonil	12	1 - 4 oz/100 gal	12 hours	See label for specific instructions on growing media mix and medium drench.
	Hurricane	fludioxonil + mefenoxam	12 4	See label.	48 hours	Do not apply more than 2 pt of drench mixture per sq foot of application.
	Prostar 70 WP	flutolanil	7	3 - 12 oz/100 gal	12 hours	Observe for phytotoxicity prior to each application and 2 weeks after final application.
	26 GT	iprodione	2	1 - 13 fl oz	12 hours	Rate depends on application method. See label. Do not use as a drench on impatiens or pothos.
	26019 N/G	iprodione	2	See label.	12 hours	
	26019	iprodione	2	1 - 6.5 lb/acre	12 hours	
	3336 EG	thiophanate-methyl	1	12 - 24 oz/100 gal	12 hours	May be used as a foliar, root dip or soil drench application. See label.
	3336 WP	thiophanate-methyl	1	12 - 24 oz/100 gal	12 hours	
	3336 F	thiophanate-methyl	1	12 - 24 fl oz/100 gal	12 hours	

*(continued)*

### ORNAMENTAL DISEASES (Commercial) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate	Re-entry Interval	Comments
Rhizoctonia aerial blights and root rots ( <i>cont.</i> )	TwoSome	thiophanate-methyl + iprodione	1 2	17 - 34 fl oz/100 gal	24 hours	May be used as a foliar, root dip or soil drench application. See label.
	26/36	thiophanate-methyl + iprodione	1 2	17 - 34 fl oz/100 gal	12 hours	
	Compass O 50 WDG	trifloxystrobin	11	0.5 - 4 oz/100 gal	12 hours	Start applications when conditions are favorable for disease development.
	Terraguard SC	triflumizole	3	2 - 8 fl oz/100 gal (1/4 - 1 tsp/gal)	12 hours	For optimum disease control, applications should be made prior to or at the first sign of disease.
Soilborne Fusarium	Heritage	azoxystrobin	11	1 - 4 oz/100 gal	4 hours	See label for specific rates. Do not allow drift to apples or crabapples.
	Palladium	cyprodinil + fludioxonil	9 12	2 - 4 oz/100 gal	12 hours	For stem diseases, ensure full coverage of all stems and inner areas of plant to the soil/media level.
	Banrot 40 WP/8 G	etridiazole + thiophanate-methyl	14 1	3 - 12 oz/100 gal	12 hours	<b>For use in commercial greenhouses only. Rate depends on crop. See label.</b>
Southern blight ( <i>Sclerotium rolfsii</i> )	Heritage	azoxystrobin	11	1 - 4 oz/100 gal	4 hours	See label for specific rates. Do not allow drift to apples or crabapples.
	Palladium	cyprodinil + fludioxonil	9 12	2 - 4 oz/100 gal	12 hours	For stem diseases, ensure full coverage of all stems and inner areas of plant to the soil/media level.
	Medallion	fludioxonil	12	1 - 4 oz/100 gal (foliar spray)	12 hours	For indoor drench applications use up to 30 oz Medallion per 1,000 sq ft.
	Medallion WDG	fludioxonil	12	1 - 4 oz/100 gal	12 hours	See label for specific instructions on growing media mix and medium drench.
	Torque	tebuconazole	3	4 - 10 fl oz/100 gal	12 hours	Apply every 14 days for a total of 3 applications beginning at the first sign of disease.

### ORNAMENTAL DISEASES (Commercial) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate	Re-entry Interval	Comments	
Actinopelte leaf spot	Heritage	azoxystrobin	11	1 - 4 oz/100 gal	4 hours	See label for specific rates. Do not allow Heritage drift to apples or crabapples.	
Alternaria	Daconil Ultrix	chlorothalonil	M5	1.4 lbs/100 gal	12 hours (for next 6.5 days see label for special precautions)	Fruits and other structures which may be borne on chlorothalonil-treated plants must not be eaten.	
Anthraco nose							
Ascochyta blight							
Bipolaris leaf spot							
Black spot (roses)							
Botrytis	Pegasus HPX	chlorothalonil	M5	1 3/8 pt/100 gal	12 hours (for next 6.5 days see label for special precautions)		
Bulb basal rot and Neck rot							
Cephalosporium							
Cercospora leaf spot	Pegasus DFX	chlorothalonil	M5	1.25 lb/100 gal	12 hours (for next 6.5 days see label for special precautions)		
Cercosporidium leaf spot	Pegasus 6 L	chlorothalonil	M5	1 3/8 pt/100 gal			
Corynespora leaf spot							
Coryneum blight	Concert II	chlorothalonil + propiconazole	M5 3	26 - 35 fl oz/100 gal		Do not use Concert II in greenhouses. Apply every 21 days before disease development.	
Curvularia flower spot							
Cylindrocladium stem canker							
Dactylaria leaf spot	Palladium	cyprodinil + fludioxonil	9 12	2 - 4 oz/100 gal	12 hours	Foliar applications or excessive runoff of Palladium sprays may cause stunting or chlorosis to geranium at higher rates.	
Didymellina leaf spot							
Drechslera leaf spot							
Fabraea leaf spot							
Fusarium leaf spot							
Gloeosporium black leaf spot	Decree 50 WDG (botrytis only)	fenhexamid	17	0.75 - 1.5 lb/100 gal	12 hours	Preliminary test sprays should be used when treating poinsettia with Degree due to plant sensitivity.	
Iris leaf spot	Prostar 70 WP (rusts only on this list)	flutolanil	7	3 - 12 oz/100 gal	12 hours	Observe for phytotoxicity prior to each application of Prostar and 2 weeks after final application.	
Marssonina leaf spot							
Monolinia blossom/ twig blight							
Mycosphaerella ray blight	Medallion	fludioxonil	12	1 - 4 oz/100 gal (foliar spray)	12 hours	See Medallion labels for specific instructions on growing media mix and medium drench.	
Myrothecium leaf spot, Brown rot							
Nematostoma leaf blight	Medallion WDG	fludioxonil	12	1 - 4 oz/100 gal	12 hours		
Phyllosticta leaf spot							
Ramularia leaf spot	26 GT	iprodione	2	1 - 13 fl oz	12 hours	Do not use as a drench on impatiens or pothos.	
Septoria leaf spot							
Sphaeropsis	26019 N/G	iprodione	2	See label	12 hours	Rate depends on application method. See label.	
Stagnospora leaf scorch							
Volutella leaf blight							
Powdery mildew	26019	iprodione	2	1 - 6.5 lb/acre	12 hours	Rate depends on application method. See label.	
Rusts ( <i>Gymnosporangium</i> spp.)							
Scab ( <i>Venturia inaequalis</i> )	Mancozeb 4 FL	mancozeb	M3	1.2 qt/100 gal	24 hours	Begin spraying when plants are well leafed out or at the first sign of disease at 7 - 10 day intervals. Do not use on food plants.	
Taphrina blister							
(continued)							

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### ORNAMENTAL DISEASES (Commercial) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate	Re-entry Interval	Comments
Actinopelte leaf spot ( <i>cont.</i> )	Protect DF	mancozeb	M3	1 - 2 lb/100 gal	24 hours	
Alternaria						
Anthracnose						
Ascochyta blight	Junction	mancozeb +	M3	1.5 lb/100 gal	24 hours	Do not apply Junction in a spray solution having less than 6.5 pH as phytotoxicity may occur.
Bipolaris leaf spot		copper hydroxide	M1	(1/2 tbs/gal)		
Black spot (roses)						
Botrytis						
Bulb basal rot and Neck rot	Junction WSP	mancozeb + copper hydroxide	M3 M1	2.5 lb/100 gal	48 hours	
Cephalosporium						
Cercospora leaf spot						
Cercosporidium leaf spot	Eagle 20 EW	myclobutanil	3	6 - 12 fl oz/100 gal	24 hours	
Corynespora leaf spot						
Coryneum blight						
Curvularia flower spot	Affirm WDG	polyoxin D zinc salts	19	0.7 oz ai/acre	4 hours	Do not apply more than 3 applications of Affirm per season.
Cylindrocladium stem canker						
Dactylaria leaf spot						
Didymellina leaf spot	MilStop	potassium bicarbonate	---	See label.	1 hour	Do not use on pansy at early stages of growth.
Drechslera leaf spot						
Fabraea leaf spot						
Fusarium leaf spot	Kaligreen (powdery mildew only)	potassium bicarbonate	---	1 - 3 lbs/100 gal	4 hours	Use the higher rate when disease pressure is severe.
Gloeosporium black leaf spot						
Iris leaf spot						
Marssonina leaf spot	Banner MAXX	propiconazole	3	2 - 24 fl oz/100 gal	24 hours	Rate depends on crop and disease. See label.
Monolinia blossom/ twig blight						
Mycosphaerella ray blight	ProPensity 1.3 ME	propiconazole	3	2 - 4 fl oz/100 gal	24 hours	
Myrothecium leaf spot, Brown rot						
Nematostoma leaf blight	Insignia SC	pyraclostrobin	11	3 - 12.2 fl oz/100 gal	12 hours	Use preventatively.
Phyllosticta leaf spot						
Ramularia leaf spot						
Septoria leaf spot	Insignia	pyraclostrobin	11	8 - 16 fl oz/100 gal	12 hours	
Sphaeropsis						
Stagnospora leaf scorch						
Volutella leaf blight						
Powdery mildew	Pageant	pyraclostrobin + boscalid	7 11	4 - 18 oz/100 gal	12 hours	Use preventatively.
Rusts ( <i>Gymnosporangium</i> spp.)						
Scab ( <i>Venturia inaequalis</i> )	Pageant TR	pyraclostrobin + boscalid	7 11	1 - 2 cans/sq ft	12 hours	Apply when foliage is dry and temperature is between 60°-80°F.
Taphrina blister						

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### ORNAMENTAL DISEASES (Commercial) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate	Re-entry Interval	Comments
Actinopelte leaf spot ( <i>cont.</i> )	Torque	tebuconazole	3	4 - 10 fl oz/100 gal	12 hours	Apply every 14 days for a total of 3 applications beginning at the first sign of disease.
Alternaria						
Anthracnose						
Ascochyta blight						
Bipolaris leaf spot	3336 EG	thiophanate-methyl	1	12 - 24 oz/100 gal	12 hours	
Black spot (roses)						
Botrytis	3336 WP	thiophanate-methyl	1	12 - 24 oz/100 gal	12 hours	
Bulb basal rot and Neck rot						
Cephalosporium	3336 F	thiophanate-methyl	1	12 - 24 fl oz/100 gal	12 hours	
Cercospora leaf spot						
Cercosporidium leaf spot	TwoSome	thiophanate-methyl + iprodione	1	17 - 34 fl oz/100 gal	24 hours	Not effective on <i>Cylindrocladium spathiphylli</i> .
Corynespora leaf spot			2			
Coryneum blight						
Curvularia flower spot	26/36	thiophanate-methyl + iprodione	1	17 - 34 fl oz/100 gal	12 hours	Not effective on <i>Cylindrocladium spathiphylli</i> . Do not use as a drench on impatiens, petunias or pothos.
Cylindrocladium stem canker			2			
Dactylaria leaf spot						
Didymellina leaf spot						
Drechslera leaf spot						
Fabraea leaf spot						May be used as a foliar, root dip or soil drench application. See label.
Fusarium leaf spot						
Gloeosporium black leaf spot	Bayleton 50	triadimefon	3	5.5 oz/275 - 550 gal See label for green-house rates	12 hours	Do not use on edible portions of plants.
Iris leaf spot						
Marssonina leaf spot						
Monolinia blossom/ twig blight						
Mycosphaerella ray blight	Bayleton FLO	triadimefon	3	5.5 oz/275 - 550 gal See label for green-house rates	12 hours	
Myrothecium leaf spot, Brown rot						
Nematostoma leaf blight						
Phyllosticta leaf spot						
Ramularia leaf spot	Strike Plus 50 WDG	trifloxystrobin + triadimefon	11	3 - 9 oz/100 gal	12 hours	Apply as a full coverage spray to the point of drip. Repeat at 14 - 28 day intervals.
Septoria leaf spot			3			
Sphaeropsis						
Stagnospora leaf scorch	Compass O 50 WDG	trifloxystrobin	11	0.5 - 4 oz/100 gal	12 hours	Start applications when conditions are favorable for disease development.
Volutella leaf blight						
Powdery mildew						
Rusts ( <i>Gymnosporangium</i> spp.)	Terraguard SC	triflumizole	3	2 - 8 fl oz/100 gal (1/4 - 1 tsp/gal)	12 hours	For optimum disease control, applications should be made prior to or at the first sign of disease.
Scab ( <i>Venturia inaequalis</i> )						
Taphrina blister						

## CONIFER DISEASES (Commercial)

Sherrie Smith

Disease	Product	Active Ingredient	FRAC Code	Rate	Re-entry Interval	Comments
Phytophthora Pythium	Heritage (not labeled for pythium except turf)	azoxystrobin	11	1 - 4 oz/100 gal	4 hours	See label for specific rates. Do not allow drift to apples or crabapples.
	Mural	azoxystrobin + benzovindiflupyr	11 7	3 - 7 oz/100 gal	12 hours	Rate depends on whether used as soil drench or foliar spray. See label.
	Adorn	fluopicolide	43	1 - 4 fl oz/100 gal	12 hours	Adorn must be tank-mixed with another labeled fungicide for resistance management.
	Subdue MAXX	mefenoxam	4	1 - 2 fl oz/100 gal	48 hours	Drench rate.
	Segovis (not labeled for pythium)	oxanthiapiprolin	U15	0.6 - 2.4 fl oz/ 100 gal	4 hours	Make no more than 2 consecutive applications before switching to another non-U15 group fungicide.
Phomopsis blight ( <i>Phomopsis juniperovora</i> )	Heritage	azoxystrobin	11	1 - 4 oz/100 gal	4 hours	Apply every 7 - 28 days.
	Mural	azoxystrobin + benzovindiflupyr	11 7	4 - 7 oz/100 gal	12 hours	Apply every 7 - 21 days.
	Protect DF	mancozeb	M3	1 - 2 lb/100 gal	24 hours	For needlecasts, make one application in spring when new shoot growth is 1/2 - 2 inches in length. See label for additional applications.
	Mancozeb 4 FL	mancozeb	M3	1.2 qt/100 gal	24 hours	
	Junction	mancozeb + copper hydroxide	M3 1	1.5 lb/100 gal (1/2 tbs/gal)	24 hours	Do not apply Junction in a spray solution having less than 6.5 pH as phytotoxicity may occur.
	ProPensity 1.3 ME	propiconazole	3	2 - 24 fl oz/100 gal	24 hours	Apply every 14 - 21 days.
	3336 EG	thiophanate-methyl	1	12 - 24 oz/100 gal	12 hours	For needlecasts, make one application in spring when new shoot growth is 1/2 - 2 inches in length. See label for additional applications.

(continued)

### CONIFER DISEASES (Commercial) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate	Re-entry Interval	Comments
Phomopsis blight ( <i>cont.</i> ) ( <i>Phomopsis juniperovora</i> )	3336 WP	thiophanate-methyl	1	12 - 24 oz/100 gal	12 hours	For needlecasts, make one application in spring when new shoot growth is 1/2 - 2 inches in length. See label for additional applications.
	3336 F	thiophanate-methyl	1	12 - 24 fl oz/100 gal	12 hours	Begin treatment in the fall at first sign of disease.
Kabatina blight ( <i>Kabatina juniperi</i> )	Protect DF	mancozeb	M3	1 - 2 lb/100 gal	24 hours	Begin treatment in the fall at first sign of disease.
	3336 F	thiophanate-methyl	1	12 - 24 fl oz/100 gal	12 hours	Begin treatment in the fall at first sign of disease.
	3336 WP	thiophanate-methyl	1	12 - 24 oz/100 gal	12 hours	Begin treatment in the fall at first sign of disease.
	3336 EG	thiophanate-methyl	1	12 - 24 oz/100 gal	12 hours	Begin treatment in the fall at first sign of disease.
Cercospora needle blight	Mancozeb 4 FL	mancozeb	M3	1.2 qt/100 gal	24 hours	
	Junction	mancozeb + copper hydroxide	M3 M1	1.5 lb/100 gal (1/2 tbs/gal)	24 hours	Do not apply Junction in a spray solution having less than 6.5 pH as phytotoxicity may occur.
Botrytis seedling blight	Daconil Ultrix	chlorothalonil	M5	1.25 - 5 lb/acre	12 hours (for next 6.5 days see label for special precautions)	For needlecasts, make one application in spring when new shoot growth is 1/2 - 2 inches in length. See label for additional applications.
	Pegasus HPX	chlorothalonil	M5	1.5 - 5.5 pt/acre	12 hours (for next 6.5 days see label for special precautions)	See label for application rates per disease and repeat applications.
	Pegasus DFX	chlorothalonil	M5	1.36 - 5 lb/acre	12 hours (for next 6.5 days see label for special precautions)	



### CONIFER DISEASES (Commercial) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate	Re-entry Interval	Comments
Phoma	Daconil Ultrix	chlorothalonil	M5	1.25 - 5 lb/acre	12 hours (for next 6.5 days see label for special precautions)	For needlecasts, make one application in spring when new shoot growth is 1/2 - 2 inches in length. See label for additional applications.
	Pegasus HPX	chlorothalonil	M5	1.5 - 5.5 pt/acre	12 hours (for next 6.5 days see label for special precautions)	See label for application rates per disease and repeat applications.
	Pegasus DFX	chlorothalonil	M5	1.36 - 5 lb/acre	12 hours (for next 6.5 days see label for special precautions)	
	3336 F	thiophanate-methyl	1	12 - 24 fl oz/100 gal	12 hours	
	3336 WP	thiophanate-methyl	1	12 - 24 fl oz/100 gal	12 hours	
	3336 EG	thiophanate-methyl	1	6 - 24 fl oz/100 gal	12 hours	
Tip blight ( <i>Sirococcus</i> spp.)	Heritage	azoxystrobin	11	1 - 4 oz/100 gal	4 hours	Apply every 7 - 28 days.
	Mural	azoxystrobin + benzovindiflupyr	11 7	4 - 7 oz/100 gal	12 hours	Apply every 7 - 21 days.
	Daconil Ultrix	chlorothalonil	M5	1.25 - 5 lb/acre	12 hours (for next 6.5 days see label for special precautions)	For needlecasts, make one application in spring when new shoot growth is 1/2 - 2 inches in length. See label for additional applications.
	Pegasus HPX	chlorothalonil	M5	1.5 - 5.5 pt/acre	12 hours (for next 6.5 days see label for special precautions)	See label for application rates per disease and repeat applications
	Pegasus DFX	chlorothalonil	M5	1.36 - 5 lb/acre	12 hours (for next 6.5 days see label for special precautions)	
	ProPensity 1.3 ME	propiconazole	3	2 - 24 fl oz/100 gal	24 hours	Apply every 14 - 21 days.

(continued)

### CONIFER DISEASES (Commercial) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate	Re-entry Interval	Comments
Tip blight ( <i>cont.</i> ) ( <i>Sirococcus</i> spp.)	Banner MAXX II	propiconazole	3	2 - 8 fl oz/100 gal	12 hours	
	Banner MAXX	propiconazole	3	5 - 8 fl oz/100 gal	24 hours	
	Concert	propiconazole + chlorothalonil	3 M5	0.06 - 69 fl oz/100 gal	12 hours	Rate depends on disease. See label.
	Concert II	propiconazole + chlorothalonil	3 M5	9 - 69 fl oz/100 gal	12 hours	Rate depends on disease. See label.
	Bayleton FLO	triadimefon	3	2 - 8 fl oz/100 gal	12 hours	
	Bayleton 50	triadimefon	3	1 - 16 fl oz/100 gal	12 hours	
Monochaetia canker	Mancozeb 4 FL	mancozeb	M3	1.2 qt/100 gal	24 hours	
	Junction	mancozeb + copper hydroxide	M3 M1	1.5 lb/100 gal (1/2 tbs/gal)	24 hours	Do not apply Junction in a spray solution having less than 6.5 pH as phytotoxicity may occur.
Pestalotia	Protect DF	mancozeb	M3	1 - 2 lb/100 gal	24 hours	See label for additional applications.
Dothistroma needle blight	Mancozeb 4 FL	mancozeb	M3	1.2 qt/100 gal	24 hours	
	Junction	mancozeb + copper hydroxide	M3 M1	1.5 lb/100 gal (1/2 tbs/gal)	24 hours	Do not apply Junction in a spray solution having less than 6.5 pH as phytotoxicity may occur.

### CONIFER DISEASES (Commercial) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate	Re-entry Interval	Comments
<b>For diseases listed below see individual labels.</b>						
Scleroderris canker ( <i>Gremmenilla abietina</i> )	Heritage (rusts)	azoxystrobin	11	1 - 4 oz/100 gal	4 hours	Apply every 7 - 28 days.
Interior needlecast ( <i>Mycosphaerella</i> spp. and <i>Phaeocryptopus nudus</i> )	Mural (Lophodermium, Swiss needlecast, rusts)	azoxystrobin + benzovindiflupyr	11 7	4 - 7 oz/100 gal	12 hours	Apply every 7 - 21 days.
Swiss needlecast ( <i>Phaeocryptopus guamannii</i> )	Daconil Ultrix (Swiss needlecast, Interior needle blight, Scleroderris canker, Rhizosphaera, Scirrhia, Cyclaneusma, Lophodermium, Rhabdocline, rust)	chlorothalonil	M5	1.25 - 5 lb/acre	12 hours (for next 6.5 days see label for special precautions)	For needlecasts, make one application in spring when new shoot growth is 1/2 - 2 inches in length. See label for additional applications.
Rhizosphaera needlecast ( <i>Rhizosphaera</i> spp.)						
Scirrhia brown spot ( <i>Mycosphaerella dearnessii</i> )						
Cyclaneusma and Lophodermium needlecast	Pegasus HPX (Swiss needlecast, Scleroderris canker, Rhizosphaera, Scirrhia, Cyclaneusma, Lophodermium, Rhabdocline, rust)	chlorothalonil	M5	1.5 - 5.5 pt/acre	12 hours (for next 6.5 days see label for special precautions)	See label for application rates for Pegasus per disease and repeat applications.
Rhabdocline needlecast						
Ismiella						
Naemacyclus						
Diplodia tip blight						
Sphaeropsis tip blight	Protect DF (Naemacyclus, Ismiella, Diplodia, Sphaeropsis, rusts)	mancozeb	M3	1 - 2 lb/100 gal	24 hours	For needlecasts, make one application in spring when new shoot growth is 1/2 - 2 inches in length. See label for additional applications.
Rusts: Cronartium						
Endocronartium harknessii						
Gymnosporangium	Mancozeb 4 FL (Lophodermium, Scirrhia brown spot, rusts)	mancozeb	M3	1.2 qt/100 gal	24 hours	
Melampsora						
Melamsoridium						
Peridium spp.	Eagle 20 EW <b>(rusts only)</b>	myclobutanil	3	8 fl oz/100 gal	24 hours	Apply as full coverage to the point of drip.
Phragmidium						
Puccinia	ProPensity 1.3 ME (Sirococcus, Sphaeropsis, rusts)	propiconazole	3	2 - 24 fl oz/100 gal	24 hours	Apply ProPensity every 14 - 21 days.
Weir's cushion rust ( <i>Chrysomyxa weirii</i> )	Banner MAXX (Sirococcus, Sphaeropsis, rusts)	propiconazole	3	2 - 8 fl oz/100 gal	24 hours	
<i>(continued)</i>						

### CONIFER DISEASES (Commercial) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate	Re-entry Interval	Comments
Scleroderma canker ( <i>cont.</i> ) ( <i>Gremmeniella abietina</i> )	Banner MAXX II (Sirococcus, Sphaeropsis, rusts)	propiconazole	3	5 - 8 fl oz/100 gal	12 hours	
Interior needlecast ( <i>Mycosphaerella</i> spp. and <i>Phaeocryptopus nudus</i> )	Concert (Sirococcus, Sphaeropsis, rusts)	propiconazole + chlorothalonil	3 M5	0.06 - 69 fl oz/100 gal	12 hours	Rate depends on disease. See label.
Swiss needlecast ( <i>Phaeocryptopus guamannii</i> )	Concert II (Sirococcus, Sphaeropsis, rusts)	propiconazole + chlorothalonil	3 M5	9 - 69 fl oz/100 gal	12 hours	Rate depends on disease. See label.
Rhizosphaera needlecast ( <i>Rhizosphaera</i> spp.)	Concert II (Sirococcus, Sphaeropsis, rusts)	propiconazole + chlorothalonil	3 M5	9 - 69 fl oz/100 gal	12 hours	Rate depends on disease. See label.
Scirrhia brown spot ( <i>Mycosphaerella dearnessii</i> )	3336 F (Diplodia, Sphaeropsis, rusts)	thiophanate-methyl	1	12 - 24 fl oz/100 gal	12 hours	For needlecasts, make one application of thiophanate-methyl in spring when new shoot growth is 1/2 - 2 inches in length. See label for additional applications.
Cyclaneusma and Lophodermium needlecast	3336 F (Diplodia, Sphaeropsis, rusts)	thiophanate-methyl	1	12 - 24 fl oz/100 gal	12 hours	Rate depends on disease. See label.
Rhabdochloa needlecast	3336 F (Diplodia, Sphaeropsis, rusts)	thiophanate-methyl	1	12 - 24 fl oz/100 gal	12 hours	Rate depends on disease. See label.
Ismiella	3336 F (Diplodia, Sphaeropsis, rusts)	thiophanate-methyl	1	12 - 24 fl oz/100 gal	12 hours	Rate depends on disease. See label.
Naemacyclus	3336 F (Diplodia, Sphaeropsis, rusts)	thiophanate-methyl	1	12 - 24 fl oz/100 gal	12 hours	Rate depends on disease. See label.
Diplodia tip blight	3336 EG (Diplodia, Sphaeropsis, rusts)	thiophanate-methyl	1	6 - 24 fl oz/100 gal	12 hours	Rate depends on disease. See label.
Sphaeropsis tip blight	3336 EG (Diplodia, Sphaeropsis, rusts)	thiophanate-methyl	1	6 - 24 fl oz/100 gal	12 hours	Rate depends on disease. See label.
Rusts: Cronartium	3336 EG (Diplodia, Sphaeropsis, rusts)	thiophanate-methyl	1	6 - 24 fl oz/100 gal	12 hours	Rate depends on disease. See label.
Endocronartium harknessii	3336 EG (Diplodia, Sphaeropsis, rusts)	thiophanate-methyl	1	6 - 24 fl oz/100 gal	12 hours	Rate depends on disease. See label.
Gymnosporangium	3336 EG (Diplodia, Sphaeropsis, rusts)	thiophanate-methyl	1	6 - 24 fl oz/100 gal	12 hours	Rate depends on disease. See label.
Melampsora	Bayleton FLO (Lophodermium, Sirococcus tip blight, rusts)	triadimefon	3	2 - 8 fl oz/100 gal	12 hours	Rate depends on disease. See label.
Melamsoridium	Bayleton FLO (Lophodermium, Sirococcus tip blight, rusts)	triadimefon	3	2 - 8 fl oz/100 gal	12 hours	Rate depends on disease. See label.
Peridium spp.	Bayleton FLO (Lophodermium, Sirococcus tip blight, rusts)	triadimefon	3	2 - 8 fl oz/100 gal	12 hours	Rate depends on disease. See label.
Phragmidium	Bayleton FLO (Lophodermium, Sirococcus tip blight, rusts)	triadimefon	3	2 - 8 fl oz/100 gal	12 hours	Rate depends on disease. See label.
Puccinia	Bayleton 50 (Lophodermium, Sirococcus tip blight, rusts)	triadimefon	3	1 - 16 fl oz/100 gal	12 hours	For rusts, begin when needles break through the fascicle sheath. Make applications at 14 - 21 day intervals.
Weir's cushion rust ( <i>Chrysomyxa weirii</i> )	Bayleton 50 (Lophodermium, Sirococcus tip blight, rusts)	triadimefon	3	1 - 16 fl oz/100 gal	12 hours	For rusts, begin when needles break through the fascicle sheath. Make applications at 14 - 21 day intervals.

## ORNAMENTAL DISEASES (Home Garden)

Sherrie Smith

Disease	Product	Active Ingredient	FRAC Code	Rate	Comments
Powdery Mildew Black Spot Rusts	AgraQuest Serenade**	<i>Bacillus subtilis</i>	44	RTU*	Approved for organic use.
	Bayer Advanced Natria Disease Control**	<i>Bacillus subtilis</i>	44	RTU*	Approved for organic use.
Scab	Ferti-lome Broad Spectrum Lawn and Garden Fungicide	chlorothalonil	M5	4 - 14 tsp/gal	Rate depends on crop. See label.
Cercospora Spot Petal Blights	Ferti-lome Broad Spectrum Lawn and Garden Fungicide RTU	chlorothalonil	M5	RTU*	For best results, thorough coverage is needed.
General Fungal Diseases	Hi-Yield Vegetable, Flower, Fruit, and Ornamental Fungicide	chlorothalonil	M5	5 - 14 tsp/gal	Rate depends on crop. See label.
	Ortho Max Garden Disease Control Concentrate	chlorothalonil	M5	See label.	Apply at first sign of disease and repeat weekly if conditions favor disease, every 14 days otherwise as needed.
	Ortho Disease B Gon Garden Fungicide	chlorothalonil	M5	See label.	For best results, thorough coverage is needed.
	Garden Tech Daconil Fungicide Conc.	chlorothalonil	M5	2 1/4 tsp/gal	Bud break. 7 - 14 days.
	Garden Tech Daconil Fungicide RTU	chlorothalonil	M5	RTU*	Bud break. 7 - 14 days.
	Bonide Fung-onil Multipurpose Fungicide RTU	chlorothalonil	M5	RTU*	Apply at 7 - 14 days. Apply to runoff.
	Hi-Yield Bordeaux Mix Fungicide	copper, expressed as metallic copper	M1	8 - 9 tbs/gal	Avoid cool, damp weather applications – may cause injury.
	Ortho Ecosense Garden Disease Control**	copper octanoate	M1	RTU*	Approved for organic use.
	Concern Copper Soap Fungicide RTU	copper salts - fatty acids	M1	RTU*	See label.
	Phyton 27	copper sulphate pentahydrate	M2	1 - 5 oz/10 gal	Follow label directions carefully.
	Spectracide Immunox Plus Insect & Disease Control for Gardens	myclobutanil + permethrin	3	See label.	Do not spray if temperature is above 90°F as damage to some delicate plants can occur.
	Shultz Garden Safe Fungicide Concentrate	neem oil	---	See label.	Approved for organic use.
(continued)	Green Light Neem II Ready to Use**	neem oil + insecticide	---	RTU*	Approved for organic use.

### ORNAMENTAL DISEASES (Home Garden) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate	Comments
Powdery Mildew ( <i>cont.</i> )	Bonide Remedy	potassium bicarbonate	---	1 1/2 - 2 1/2 tbs/gal	Follow label directions carefully.
Black Spot	Green Cure**	potassium bicarbonate	---	RTU*	Approved for organic use.
Rusts	Kaligreen**	potassium bicarbonate	---	2.5 - 3 lbs/A	Approved for organic use.
Scab	MilStop**	potassium bicarbonate	---	2.5 - 3 lbs/A	Approved for organic use.
Cercospora Spot	Ferti-lome Liquid Systemic Fungicide II RTU	propiconazole	3	RTU*	For best results, thorough coverage is needed.
Petal Blights	Ferti-lome Liquid Systemic Fungicide II	propiconazole	3	1 - 2 tbs/gal	Apply at first sign of disease and repeat at 7 - 14 day intervals as needed.
General Fungal Diseases	Safer Brand Garden Fungicide	sulfur	M2	8 tbs/gal	See label.
	Ortho Elementals 3-in-1 Rose and Flower Care	sulfur + pyrethrins	M2	RTU*	SHAKE WELL BEFORE USING. DO NOT DILUTE.
	Bonide Rose Rx Systemic Drench	tebuconazole	3	1 - 2 fl oz/qt	Begin using in the spring when plants are actively growing.
	Bayer Advanced Garden – Disease Control for Roses, Flowers, Shrubs	tebuconazole	3	See label.	Apply at first evidence of disease activity.
	Bayer Advanced Garden – All-in-One Fungicide/Insecticide/Fertilizer	tebuconazole + insecticide	3	See label.	
	Ferti-lome 2-N-1 Systemic	tebuconazole + imidacloprid	3	1 - 2 fl oz/qt or gal	Rate depends on crop. See label.
	Bonide Infuse Systemic for Turf and Ornamentals	thiophanate-methyl	1	3 lbs/1,000 sq ft	See label.
	Ortho Rose and Flower Insect & Disease Control	triticonazole + acetamiprid	3	3 fl oz/gal	Do not apply if wind speed exceeds 10 mph.
Fire Blight	Ferti-lome Fire Blight Spray	streptomycin sulfate	25	1 tbs/2 1/2 gal	Begin at blooming period, then every 3 - 4 days during bloom. Spray timing and coverage important for fire blight control. Professional spray equipment and applications may be necessary for larger trees.
Virus Diseases	No chemicals available				

\*RTU = Ready To Use

\*\*Approved for organic use

## PEANUT SEEDLING DISEASES (Commercial Production)

Travis Faske

Disease	Fungicide	Active Ingredient	FRAC Code	Rate/cwt Seed	Comments
Commercial Seed Treatments					
Rhizoctonia solani and Pythium spp.	Dynasty PD	azoxystrobin + mefenoxam + fludioxonil	11	3 - 4 oz	
			4		
			12		
	Maxim 4 FS	fludioxonil	12	0.08 oz	
	CruiserMaxx Peanuts	thiamethoxam + mefenoxam + fludioxonil + azoxystrobin	---	3 - 4 oz	
			4		
			12		
			11		
	Rancona V PD	ipconazole + carboxin + metalaxyl	3	4 oz	
			7		
			4		
Pythium	Apron XL	mefenoxam	4	0.32 oz	
In-Furrow or Band Applications					
Rhizoctonia solani and Pythium spp.	Uniform	azoxystrobin + mefenoxam	11	0.34 oz/row ft	At planting.
			4		
Southern Blight (Sclerotium rolfsii)	Proline	prothioconazole	3	5.7 oz/A	Apply 4- to 6-inch band over the row at or near emergence.

## PEANUT NEMATODES (Commercial Production)

Travis Faske

Disease	Nematicide	Active Ingredient	Rate Per Acre	Comments
Nematodes	Velum Total	fluopyram	18 fl oz	Apply as in-furrow spray with 5 - 6 gal/ac water at planting.
	Telone II	1,3-dichloropropene	4 - 6 gal	Inject 12 inches below the soil surface. Allow 2 weeks before planting.

Nematodes are not currently a serious threat to peanut production in Arkansas; therefore, we do not routinely recommend nematicides, even though certain products are labeled for this use. The peanut root-knot nematode is extremely rare in the state. It is possible, however, that other nematode species such as the lesion nematode or the ring nematode may reach economic levels in some fields. If nematodes are suspected, soil samples should be collected in the fall (September-October) and sent to the Nematode Diagnostic Laboratory for analysis before the next crop is planted.

## PEANUT DISEASES (Commercial Production)

Travis Faske

Disease	Fungicide	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
<b>Seedling Diseases</b>						
Aspergillus crown rot ( <i>Aspergillus niger</i> ) <i>Pythium</i> spp. <i>Rhizoctonia solani</i>	Abound 2.08 SC or Azaka 2.08 SC	azoxystrobin	11	0.4 - 0.8 fl oz/ 1,000 row ft	14	Apply as in-furrow at planting.
<b>Leaf Spots</b>						
<b>Chemical Control of Leaf Spot Diseases:</b> <ol style="list-style-type: none"> <li>1. In any given field, circular-shaped spots can be found on peanut leaves; however, these spots may not be caused by the leaf spot pathogens. Sporulation (fuzzy tufts of fungal structures) can be seen with the aid of a hand lens on the upper leaf surfaces for ELS and lower leaf surface for LLS.</li> <li>2. Fungicides on peanut are applied to prevent leaf spot disease development, which typically begins 60 days after planting, when conditions favor disease development. Fungicide programs consist of repeated applications at 14 - 21 day intervals depending on disease development and weather conditions.</li> <li>3. Apply fungicides with sufficient water volume (15 to 20 GPA) to adequately cover foliage.</li> <li>4. Do not make consecutive applications of the same mode of action (i.e., same FRAC code number) except for those applications that contain chlorothalonil in a cropping season. It is recommended to tank mix fungicides with a single mode of action with chlorothalonil.</li> </ol>						
Early leaf spot ( <i>Cercospora arachidicola</i> )	Cercobin	thiophanate-methyl	1	10.9 fl oz	14	Very good activity on leaf spot diseases. ALWAYS mix with chlorothalonil.
Late leaf spot ( <i>C. personatum</i> )	Topsin or T-Methyl 70 W	thiophanate-methyl	1	8 oz	14	
	Topsin or T-Methyl 4.5 F	thiophanate-methyl	1	10 fl oz	14	
Web blotch ( <i>Phoma arachidicola</i> )	Thiophanate Methyl 85 WDG	thiophanate-methyl	1	6.4 oz	14	Good activity on leaf spots.
and	Alto 100 SL	cyproconazole	3	5.5 fl oz	30	
Rust ( <i>Puccinia arachidis</i> )	Topguard 1.04 SC	flutriafol	3	7 - 14 fl oz	14	
	Quash 50 WDG	metconazole	3	2.5 - 4 fl oz	14	
	Tilt 3.6 E (multiple generics)	propiconazole	3	4 fl oz	14	Good activity on leaf spots.
	tebuconazole 3.6 F (multiple generics)	tebuconazole	3	7.2 fl oz	14	
	Eminent 125 SL	tetraconazole	3	13 fl oz	14	Good activity on leaf spots.
	Fontelis 1.67 SC	penthiopyrad	7	12 - 24 fl oz	14	Good activity on leaf spots.
	Abound 2.08 SC or Azaka 2.08 SC	azoxystrobin	11	6 - 18.5 fl oz	14	
	Evito 480 SC or Aftershock 480 SC	fluoxastrobin	11	5.7 fl oz	14	
(continued)	Headline 2.09 SC	pyraclostrobin	11	6 - 15 fl oz	14	Very good activity on leaf spots.



**PEANUT DISEASES (Commercial Production) – continued**

Disease	Fungicide	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
<b>Leaf Spots (cont.)</b>						
Early leaf spot ( <i>cont.</i> ) ( <i>Cercospora arachidicola</i> )	Bravo Weather Stik, Chlorothalonil, Echo 6 F	chlorothalonil	M5	1 - 1.5 pt	14	Very good activity on leaf spots when applied prior to disease development. Use high rate when applied alone or low rate in tank mix.
Late leaf spot ( <i>C. personatum</i> )	Bravo Ultrex, Chlorothalonil 82.5 DF	chlorothalonil	M5	0.9 - 1.36 lb	14	
Web blotch ( <i>Phoma arachidicola</i> )	Provost 433 SC	prothioconazole + tebuconazole	3 + 3	7 - 8 fl oz	14	Very good activity on leaf spot diseases.
and	Artisan 3.6 F	flutolanil + propiconazole	7 + 3	26 - 32 fl oz	40	
Rust ( <i>Puccinia arachidis</i> )	Topguard EQ 4.0 SC	azoxystrobin + flutriafol	11 + 3	5 - 8 fl oz	14	
	Evito T 4 F	fluoxastrobin + tebuconazole	11 + 3	6 - 9 fl oz	14	
	Stratego 2.08 SC	trifloxystrobin + propiconazole	11 + 3	7 fl oz	14	
	Absolute 500 SC	trifloxystrobin + tebuconazole	11 + 3	3.5 fl oz	14	
	Elatus 45 WG	azoxystrobin + benzovindiflupyr	11 + 7	7.3 - 9.5 fl oz	30	
	Priaxor 4.17 SC	pyraclostrobin + fluxapyroxad	11 + 7	4 - 8 fl oz	14	
	Tilt Bravo SE 4.3 F	chlorothalonil + propiconazole	M5 + 3	1.5 - 2.25 pt	14	
	Muscle ADV 3.84 SC	chlorothalonil + tebuconazole	M5 + 3	2 pt	14	
	Echo 6 F – Eminent 125 SL Co-Pack	chlorothalonil + tetraconazole	M5 + 3	1.45 pt	14	
<b>Soilborne Diseases</b>						
<b>Chemical Control of Soilborne Peanut Diseases:</b>						
1. Southern blight is the most common soilborne disease of peanut in Arkansas, which is most active when weather conditions are hot and humid. 2. Fungicides on peanut are applied to prevent soilborne disease development, which typically begins 60 days after planting, when conditions favor disease development. Fungicide programs consist of repeated applications at 14 - 21 day intervals depending on disease development and weather conditions. 3. Apply fungicides with sufficient water volume (15 to 20 GPA) to penetrate canopy or before rainfall. Applications at night when leaves are folded have been shown to improve fungicide penetration into the lower canopy. 4. Do not make consecutive applications of the same mode of action (i.e., FRAC group number) except for those applications that contain chlorothalonil.						
Southern blight ( <i>Sclerotium rolfsii</i> )	Quash 50 WDG	metconazole	3	2.5 - 4 fl oz	14	Very good activity on southern blight.
	Tilt 3.6 E (multiple generics)	propiconazole	3	4 - 8 fl oz	14 - 21	
	tebuconazole 3.6 F (multiple generics)	tebuconazole	3	7.2 fl oz	14	Very good activity on southern blight.
	Convoy 3.8 F	flutolanil	7	16 - 32 fl oz	40	Excellent activity on southern blight.
	Fontelis 1.67 SC	penhiopyrad	7	12 - 24 fl oz	14	Excellent activity on southern blight.
(continued)	Abound 2.08 SC or Azaka 2.08 SC	azoxystrobin	11	12 - 24.5 fl oz	14	Good activity on southern blight.

**PEANUT DISEASES (Commercial Production) – continued**

Disease	Fungicide	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
<b>Soilborne Diseases (cont.)</b>						
Southern blight (cont.) ( <i>Sclerotium rolfsii</i> )	Headline 2.09 SC	pyraclostrobin	11	6 - 15 fl oz	14	Combine with triazole or flutolanil for effective southern blight control.
	Provost 433 SC	prothioconazole + tebuconazole	3 + 3	7 - 8 fl oz	14	Prothioconazole has very good activity on southern blight.
	Artisan 3.6 F	flutolanil + propiconazole	7 + 3	26 - 32 fl oz	40	
	Evito T 4 F	fluoxastrobin + tebuconazole	11 + 3	9 - 11 fl oz	14	
	Absolute 500 SC	trifloxystrobin + tebuconazole	11 + 3	7 fl oz	14	
	Priaxor 4.17 SC	pyraclostrobin + fluxapyroxad	11 + 7	8 fl oz	14	Good activity on southern blight.
	Muscle ADV 3.84 SC	chlorothalonil + tebuconazole	M5 + 3	2 pt	14	Very good activity on southern blight.
Limb rot ( <i>Rhizoctonia solani</i> )	Quash 50 WDG	metconazole	3	2.5 - 4 fl oz	14	
	tebuconazole 3.6 F (multiple generics)	tebuconazole	3	7.2 fl oz	14	Good activity on Rhizoctonia limb rot.
	Convoy 3.8 F	flutolanil	7	1 - 2 pt	40	Very good activity on Rhizoctonia limb rot.
	Fontelis 1.67 SC	penthiopyrad	7	12 - 24 fl oz	14	Very good activity on Rhizoctonia limb rot.
	Abound 2.08 SC or Azaka 2.08 SC	azoxystrobin	11	12 - 24.5 fl oz	14	Excellent activity on Rhizoctonia limb rot.
	Headline 2.09 SC	pyraclostrobin	11	9 - 15 fl oz	14	Combine with triazole or flutolanil for effective Rhizoctonia limb rot control.
	Provost 433 SC	prothioconazole + tebuconazole	3 + 3	7 - 8 fl oz	14	
	Artisan 3.6 F	flutolanil + propiconazole	7 + 3	26 - 32 fl oz	40	
	Evito T 4 F	fluoxastrobin + tebuconazole	11 + 3	9 - 11 fl oz	14	
	Absolute 500 SC	trifloxystrobin + tebuconazole	11 + 3	7 fl oz	14	
	Muscle ADV 3.84 SC	chlorothalonil + tebuconazole	M5 + 3	2 pt	14	
Sclerotinia blight ( <i>Sclerotinia minor</i> ) ( <i>S. sclerotiorum</i> )	Endura 70 WG	boscalid	7	8 - 10 oz	14	
	Omega 500 F	fluazinam	29	1 - 1.5 pt	30	Fields with a history of Sclerotinia blight should be treated beginning 60 to 70 days after planting or when conditions favor disease.

### PEANUT DISEASES (Commercial Production) – continued

Disease	Fungicide	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
<b>Pod Rots</b>						
<i>Pythium</i> spp.	Ridomil Gold SL	mefenoxam	4	4 - 8 fl oz	See label.	Pythium rot only. Apply at pegging or early pod set (45 to 60 DAP) followed by irrigation.
<i>Rhizoctonia solani</i>	Metastar 2 E	metalaxyl	4	2 - 4 pt		Pythium rot only.
	Ridomil Gold 2.5 G	mefenoxam	4	11.8 lb	See label.	Pythium rot only. Apply in 12-inch band at pegging or early pod set (45 to 60 DAP).
	Abound 2.08 SC or Azaka 2.08 SC	azoxystrobin	11	18 - 24.5 fl oz	14	Suppress Rhizoctonia pod rots. Apply 60 to 70 DAP. Do not make more than 2 sequential applications of FRAC group 11 fungicides.
	Fosphite 3.9 L or KPhite 4.4 L	phosphorus acid	33	1 - 4 qt	14	Pythium rot only. Apply at pegging (45 DAP) followed by irrigation.

### PEANUT DISEASES (Commercial Production) – AFLATOXIN

Travis Faske

Contamination	Biological Product	Active Ingredient	Rate/A	Comments
Aflatoxin Contamination by <i>Aspergillus flavus</i>	Afla-Guard	Atoxigenic strain of <i>A. flavus</i>	20 lb	Apply by ground 40 - 80 days after planting or canopy closure.

**Note:** Aflatoxin has not been an issue in Arkansas peanut production because the crop is 100% irrigated.

## DISEASES of COMMERCIAL PECANS

Sherrie Smith and Jackie Lee

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
Bud Break	Anthracnose Scab	Abound FL	azoxystrobin	11	6 - 12 fl oz	4 hours	45	Apply Abound when buds are bursting and first leaves are beginning to show.
	Downy leaf spot Liver spot Powdery mildew Scab Vein spot Zonate leaf spot	Quadris Top	azoxystrobin + difenoconazole	11 3	8 - 14 fl oz	12 hours	45	Apply Quadris Top on a 14 - 21 day schedule. Do not make more than 2 sequential applications.
	Anthracnose Downy leaf spot Powdery mildew Scab Zonate leaf spot	Topguard EQ	azoxystrobin + flutriafol	11 3	5 - 8 fl oz	12 hours	45	Apply at bud break for scab.
		Quilt Xcel	azoxystrobin + propiconazole	11 3	14 - 21 fl oz	12 hours	45	Do not apply Quilt Xcel after shuck split.
	Scab	Pristine	boscalid + pyraclostrobin	7 11	10.5 - 14.5 oz	12 hours	14	Make no more than 4 applications of Pristine per season.
	Downy leaf spot Gnomonia leaf spot Leaf blotch Powdery mildew Scab Vein spot	Enable 2 F	fenbuconazole	3	8 fl oz	12 hours	28	Apply when buds are bursting and first leaves are beginning to show. Do not apply after shuck split.
	Scab	Sovran	kresoxim-methyl	11	2.4 - 4.8 oz	12 hours	45	Apply when buds are bursting and first leaves begin to show. See label.
	Scab	Quash	metconazole	3	2.5 - 3.5 oz	12 hours	25	Begin applications of Quash when leaves reach one-half mature size.
	Phytophthora Pythium Fusarium Rhizoctonia Powdery mildew	Fosphite	mono- and di- potassium salts of phosphorous acid	33		4 hours	0	Foliar, or aerial, or root dip, or irrigation or trunk injection. See label for rates and complete instructions. Do not apply during dormancy.
	Phytophthora Scab	Alude	mono- and di- potassium salts of phosphorous acid	33	2.5 - 5 pts/A	4 hours	See label.	Apply with first irrigation in spring for Phytophthora. Repeat at 3 - 5 month intervals. For scab begin at bud break as preventative.

(continued)

### DISEASES of COMMERCIAL PECANS – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
Bud Break (cont.)	Downy leaf spot Leaf spot Liver spot Scab Vein spot Zonate leaf spot	PropiMax EC	propiconazole	3	6 - 8 fl oz	12 hours	Do not apply after shuck split.	Apply PropiMax on a 14-day schedule during bud break and re-pollination sprays. See label.
	Downy leaf spot Leaf spot Liver spot Powdery mildew Scab Vein spot Zonate leaf spot	Tilt	propiconazole	3	4 - 8 fl oz	12 hours	Do not apply after shuck split.	Apply Tilt on a 14-day schedule during bud break pre-pollination.
	Anthracnose Scab	Stratego	propiconazole + trifloxystrobin	3 11	10 oz	12 hours	30	Do not apply more than 2 sequential applications of Stratego before alternating with a fungicide with a different FRAC code.
	Brown leaf spot Downy leaf spot Fungal leaf scorch Leaf blotch Leaf spot Liver spot Powdery mildew Scab Sooty mold Vein spot Zonate leaf spot	Orbit 45 WP AGPAK/Super Tin* 80 WP AGPAK	propiconazole + triphenyltin	3 30	5 acres/ 20 oz Orbit 45 WP AGPAK + 18.75 oz Super Tin 80 WP AGPAK	48 hours	30	Apply Orbit and Super Tin AGPAKS when new leaves are unfolding. See label for restrictions.
	Scab	Headline SC	pyraclostrobin	11	6 - 7 oz	12 hours	14	Begin applications of Headline SC prior to disease development and continue on a 14-day interval.
		Merivon	fluxapyroxad + pyraclostrobin	7 11	5 - 6.5 oz	12 hours	14	
	Anthracnose Scab	Adament 50 WG	tebuconazole + trifloxystrobin	3 11	3 - 8 oz	12 hours	60	Begin applications of Adament when conditions are favorable for disease but before infection. Apply on a 7 - 14 day spray schedule.

(continued)

### DISEASES of COMMERCIAL PECANS – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
Bud Break (cont.)	Brown leaf spot Downy leaf spot Liver spot	Topsin M 70 WDG or	thiophanate-methyl	1	1 lb	12 hours	Do not apply after shuck split.	Begin applications of Topsin when first leaves are showing and repeat at 3 - 4 week intervals until shuck split.
	Powdery mildew Scab Stem end blight Vein spot Zonate leaf spot	Topsin M 70 WP	thiophanate-methyl	1	1 lb	12 hours		
	Brown leaf spot Downy leaf spot Leaf blotch Liver spot Powdery mildew Scab Sooty mold	Super Tin 80 WP*	triphenylin hydroxide	30	5 - 7.5 oz	48 hours	30	Begin applications of Super Tin at pre-pollination before leaves begin unfolding.
Second Pre-Pollination Spray	Same as Bud Break							Apply 14 days after pre-bud sprays. Follow labels.
First Cover Spray	Same as Bud Break							Apply 14 days after pre-pollination spray or when young nuts first appear.
Second Cover Spray	Same as First Cover							Apply 3 weeks after first cover spray.
Third Cover Spray	Same as Second Cover							Apply 2 - 3 weeks after second cover spray.
Fourth Cover Spray	Same as Third Cover							Apply 2 - 3 weeks after third cover spray.
Fifth Cover Spray	Same as Fourth Cover							Apply 2 - 3 weeks after fourth cover spray.
Sixth Cover Spray	Same as Fifth Cover							Apply 2 - 3 weeks after fifth cover spray. A seventh spray may be needed if rainy weather persists in late August, but fungicides should not be applied after shucks begin to open.

\*Super Tin is a restricted use pesticide – see label for warnings.

## RICE – SEEDLING DISEASES

Yeshe Wamishe

Disease	Fungicide	Active Ingredient	FRAC Code	Rate/cwt Seed	Comments
Pythium diseases	Allegiance FL	metalaxyl	4	0.75 - 1.5 fl oz	Apply with commercial seed-treating equipment.
	Apron XL	mefenoxam	4	0.32 - 0.64 fl oz	Apply with commercial seed-treating equipment. Use higher rates for early planting or other severe disease situations.
Rhizoctonia seedling diseases, general seed rots	RTU-Vitavax-Thiram	carboxin + thiram	7 + M3	6.8 fl oz	Apply with commercial seed-treating equipment or use as a pour-on hopper-box treatment.
	Vitavax 200	carboxin + thiram	7 + M3	4 fl oz	Apply with commercial seed-treating equipment.
	Maxim 4 FS	fludioxonil	12	0.08 - 0.16 fl oz	Apply with commercial seed-treating equipment. Use higher rates for severe disease situations.
Pythium, Rhizoctonia, general seed rots	Vitavax 200 + Allegiance FL	carboxin + thiram + metalaxyl	7 + M3 + 4	4 fl oz + 0.375 fl oz	Apply with commercial seed-treating equipment.
	Apron XL LS + Maxim 4 FS	mefenoxam +	4	0.32 - 0.64 fl oz +	Apply with commercial seed-treating equipment. Use higher rates for early planting or severe disease situations.
		fludioxonil	12	0.08 - 0.16 fl oz	
	Dynasty	azoxystrobin	11	0.153 - 1.53 fl oz	Commercial seed treaters only. Usually sold with Apron XL and Maxim on rice to improve seedling disease control. To reduce seedborne blast, data suggests rates of Dynasty above 0.75 fl oz per cwt. The use of a seed treatment fungicide to minimize seedborne blast does not mean complete control of the disease later in the season and the field should still be scouted for blast disease and managed with deeper flood and foliar fungicides. CruiserMaxx Rice may be used for a wider range of ai's.
	Trilex 2000	trifloxystrobin + metalaxyl	11 4	1 - 2 oz	See label.
	EverGol Energy	prothioconazole + penflufen + metalaxyl	3 7 4	1 oz	Commercial seed treatment only.
	CruiserMaxx Rice	thiamethoxam +	---	7 fl oz/cwt	
		azoxystrobin +	11		
		fludioxonil + mefenoxam	12 4		

## RICE – FUNGICIDES

Yeshe Wamishe

Disease	Fungicide	Active Ingredient	FRAC Code	Rate/Acre	Comments <sup>1</sup>
<i>Fungicides to control sheath blight should be applied when effective scouting indicates more than 35% positive stops in susceptible to very susceptible varieties or more than 50% positive stops in moderately susceptible varieties between panicle differentiation and early heading. Maximum benefit from a single fungicide application will be achieved when made before the disease has damaged the upper 3 leaves of the canopy.</i>					
Sheath Blight	Quadris 2.08 FL Stratego	azoxystrobin	11	8.5 - 12.5 fl oz	Lower rates may not provide adequate control under some conditions. Do not apply near fishponds or apple orchards. Read and follow label application directions carefully. Use higher rates or two applications for severe sheath blight conditions on highly susceptible varieties – SEE LABEL FOR RESTRICTIONS.
		trifloxystrobin + propiconazole	11 3	16 - 19 fl oz	
	Quilt Xcel	azoxystrobin + propiconazole	11 3	14 - 27 fl oz	Tested rates for Quilt Xcel were 17.5 fl oz (contains about 10 fl oz Quadris and 5 fl oz Tilt) and 21 fl oz (contains 12 fl oz Quadris and 6 fl oz Tilt) in Arkansas.
	GEM	trifloxystrobin	11	3.8 - 4.7 fl oz	SEE LABEL FOR RESTRICTIONS AND DIRECTIONS.
	Sercadis	fluxapyroxad	7	4.5 - 6.8 fl oz	SEE LABEL FOR RESTRICTIONS AND DIRECTIONS.
Kernel Smut and False Smut	Elegia	flutolanil	7	32 fl oz	SEE LABEL FOR RESTRICTIONS AND DIRECTIONS.
	Artisan	flutolanil + propiconazole	7 3	40 fl oz	SEE LABEL FOR RESTRICTIONS AND DIRECTIONS.
	Tilt 3.6 EC Propimax Stratego	propiconazole	3	6 fl oz	Apply at early to late boot but before heading begins as a preventive treatment for kernel smut and/or to suppress false smut. Propiconazole fungicides can be tank-mixed with certain sheath blight fungicides or follow them as needed. Fields most likely to benefit will be those planted to a susceptible variety and fertilized heavily with nitrogen. SEE LABEL FOR RESTRICTIONS AND DIRECTIONS.
		propiconazole	3	6 fl oz	
		trifloxystrobin + propiconazole	11 3	19 fl oz	
	Quilt Xcel	azoxystrobin + propiconazole	11 3	15.75 - 27 fl oz	
Neck Blast <sup>2</sup> (susceptible varieties – see notes and comments)	Quadris 2.08 FL	azoxystrobin	11	12.5 fl oz	Keep permanent flood depth of at least 4 inches to suppress early leaf blast and neck blast. Fungicides for neck blast work best if applied twice, the 1st at late boot and the 2nd when panicles of the main tillers are 50%-75% heading but when the neck is still in boot. SEE LABELS FOR RESTRICTIONS AND DIRECTIONS.
	GEM	trifloxystrobin	11	3.1 - 4.7 fl oz	
	Stratego	trifloxystrobin + propiconazole	11 3	19 fl oz	
	Quilt Xcel	azoxystrobin + propiconazole	11 3	21 - 27 fl oz	

<sup>1</sup> Assumes proper application and typical weather. Adverse conditions may decrease the performance of fungicides. Fungicide performance is greatly enhanced when plants are grown using proper cultural practices including maintaining continuous deep flood (especially after the very early boot stage of growth) and use of recommended N rates for the variety. Proper cultural practices greatly enhance the field resistance of rice cultivars.

<sup>2</sup> No thresholds have been developed for blast. The presence of leaf, collar and/or neck lesions in the field or nearby fields of susceptible varieties triggers consideration of a fungicide treatment. Water management and flood depth greatly influence the development of blast. Refer to the latest variety ratings available through the county Extension office for further information. All varieties should be inspected occasionally prior to heading as the blast fungus can adapt and attack resistant varieties.

**NOTE ON FUNGICIDES AND OTHER RICE DISEASES:** We do not currently recommend fungicides for control of other rice diseases in Arkansas. Current fungicides used in rice are not recommended for bacterial panicle blight. Please consult the latest fungicide label for information on control of other rice diseases if deemed necessary.



## SOYBEAN – SEED TREATMENTS

Terry Spurlock

Disease	Fungicide	Active Ingredient	FRAC Code	Rate/cwt Seed	Comments
Seed Rots Damping-Off Complex (Seedling Diseases) (Pythium, Rhizoctonia, etc.)	Trilex 2000	trifloxystrobin + metalaxyl	11 4	1.6 fl oz	
	CruiserMaxx	mefenoxam + fludioxonil + thiamethoxam	4	2.95 fl oz	Dealer only.
			12		
			---		
	CruiserMaxx Vibrance	thiamethoxam + mefenoxam + fludioxonil + sedaxane	---	3.22 fl oz	Commercial seed treatment only.
			4		
			12		
	Maxim 4 FS or Allegiance LS or Apron XL	fludioxonil metalaxyl mefenoxam	7	0.08 - 0.16 fl oz	For on-farm or commercial use with slurry or mist treaters.
			4	1.2 - 2.4 fl oz	
			4	0.16 - 0.64 fl oz	
	Vitavax M + Allegiance LS	carboxin + thiram + molybdenum + metalaxyl	M3	9 - 12 fl oz	For on-farm or commercial use with slurry or mist treaters or as a planter-box treatment.
			---		
			4	1.2 - 2.4 fl oz	
	ApronMaxx RFC	mefenoxam + fludioxonil	4	1.5 fl oz	
			12		
	ApronMaxx RTA + Moly	mefenoxam + fludioxonil + molybdenum	4	5 fl oz	
			12		
			---		
	EverGol Energy	prothioconazole + penflufen + metalaxyl	3 7 4	1 oz	Commercial seed treatment only.
	Stamina	pyraclostrobin	11	0.4 fl oz	For use by commercial seed treaters only.
	Vibrance	sedaxane	7	0.08 - 0.16 fl oz	Specific for Rhizoctonia pathogens.
	ILeVO	fluopyram	7	0.15 - 0.25 mg ai/seed	Suppression of seedling infection of sudden death syndrome. Commercial seed treatment only. Do not feed as forage or hay to livestock

**NOTE:** Metalaxyl and mefenoxam have activity against Pythium and Phytophthora fungi while all others listed are more active against Rhizoctonia, Fusarium and various fungi. A combination of the two chemistries provides broadest spectrum control. If an inoculant is to be used, it should be applied after fungicide seed treatments have dried and/or right before planting. Seed treatments often have not resulted in improved stands or yields in University trials unless less-than-optimum planting conditions are prevalent (early planting, heavy clay soils, cool, wet conditions, etc.).

## SOYBEAN – FOLIAR DISEASES

Travis Faske and Terry Spurlock

Disease	Fungicide	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
Aerial Blight	Quadris 2.08 SC or Equation 2.08 SC	azoxystrobin	11	6 - 15.5 fl oz	14	Apply at first sign of disease for maximum control. Applications after significant disease development will result in poor control. Use the high rates under conditions favorable for severe disease development, dense plant canopies or when highly susceptible varieties are planted.
	Headline 2.09 SC*	pyraclostrobin	11	6 - 12 fl oz	21	
	Quadris Top SB 2.72 SC*	azoxystrobin + difenoconazole	11 + 3	8 - 14 fl oz	14	
	Quilt Xcel 2.2 SC*	azoxystrobin + propiconazole	11 + 3	10.5 - 14 fl oz	See label	
	Affiance 1.5 SC*	azoxystrobin + tetraconazole	11 + 3	14 fl oz	14	
	Aproach Prima 2.34 SC*	picoxystrobin + cyproconazole	11 + 3	5 - 6.8 fl oz	30	
	Stratego 2.08 SC*	trifloxystrobin + propiconazole	11 + 3	10 fl oz	21	
	Stratego YLD 4.18 SC*	trifloxystrobin + prothioconazole	11 + 3	4 - 4.6 fl oz	21	
	Priaxor 4.17 SC*	pyraclostrobin + fluxapyroxad	11 + 7	4 - 8 fl oz	21	

### Frogeye Leaf Spot:

Apply in presence of disease for maximum control on susceptible varieties. Applications between R3 and R4 growth stages have been effective when conditions favor disease on susceptible variety. A strobilurin fungicide (FRAC Code 11) alone will not adequately control strains for frogeye leaf spot that are resistant to this class of fungicide.

**General Seed Quality:** An application between R2 and late R5 has been used by seed producers for general seed quality protection.

Anthracnose, Frogeye leaf spot, Pod and stem blight, Cercospora leaf blight, and general seed quality diseases	Cercobin	thiophanate-methyl	1	10.9 - 21.8 fl oz	21	
	Thiophanate-Methyl 85 WDG	thiophanate-methyl	1	0.4 - 0.8 lb	21	
	Topsin 4.5 L	thiophanate-methyl	1	10 - 20 fl oz	21	
	Topsin 70 WDG	thiophanate-methyl	1	0.5 - 1 lb	21	
	Alto 100 SL	cyproconazole	3	4 - 5.5 fl oz	30	
	Topguard 1.04 SC	flutriafol	3	7 - 14 fl oz	21	
	Tilt, or Bumper, or multiple generics 41.8 EC	propiconazole	3	4 - 6 fl oz	See label	
	Proline 480 SC	prothioconazole	3	2.5 - 3 fl oz	21	
	Domark 230 ME	tetraconazole	3	4 - 5 fl oz	See label	
	Vertisan 1.67 EC	penthiopyrad	7	10 - 30 fl oz	14	
	Quadris 2.08 SC or Equation 2.08 SC	azoxystrobin	11	6 - 15.5 fl oz	14	
	Evito 480 SC or Aftershock 480 SC	fluoxastrobin	11	2 - 5.7 fl oz	30	
	Aproach 2.08 SC	picoxystrobin	11	6 - 12 fl oz	14	
	Headline 2.09 SC	pyraclostrobin	11	6 - 12 fl oz	21	
	GEM	trifloxystrobin	11	3 - 3.5 fl oz	21	
	Topsin XTR 4.3 F	thiophanate-methyl + tebuconazole	1 + 3	20 fl oz	21	
	Quadris Xtra	azoxystrobin + cyproconazole	11 + 3	5 - 6.8 fl oz	30	
	Quadris Top SB 2.72 SC	azoxystrobin + difenoconazole	11 + 3	8 - 14 fl oz	14	
(continued)						

# SOYBEAN – FOLIAR DISEASES (continued)

Disease	Fungicide	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
Anthracnose, ( <i>cont.</i> ) Frogeye leaf spot, Pod and stem blight, Cercospora leaf blight, and general seed quality diseases	Quadris Top SBX 3.76 SC	azoxystrobin + difenoconazole	11 + 3	7 fl oz	14	
	Topguard EQ 4.29 SC	azoxystrobin + flutriafol	11 + 3	5 - 7 fl oz	21	
	Custodia	azoxystrobin + tebuconazole	11 + 3	8.6 fl oz	21	
	Quilt Xcel 2.2 SE	azoxystrobin + propiconazole	11 + 3	10.5 - 14 fl oz	See label	
	Affiance 1.5 SC	azoxystrobin + tetraconazole	11 + 3	10 - 14 fl oz	14	
	Fortix 3.22 SC or Preemptor 3.22 SC	fluoxastrobin + flutriafol	11 + 3	5 - 6 fl oz	30	
	Evito T 4.0 SC	fluoxastrobin + tebuconazole	11 + 3	4 - 6 fl oz	30	
	Zolera FX	fluoxastrobin + tetraconazole	11 + 3	4.4 - 6.8 oz	30	
	Aproach Prima 2.34 SC	picoxystrobin + cyproconazole	11 + 3	5 - 6.8 fl oz	30	
	Stratego 2.08 SC	trifloxystrobin + propiconazole	11 + 3	10 fl oz	21	
	Stratego YLD 4.18 SC	trifloxystrobin + prothioconazole	11 + 3	4 - 4.6 fl oz	21	
	Priaxor 4.17 SC	pyraclostrobin + fluxapyroxad	11 + 7	4 - 8 fl oz	21	
	Trivapro A 0.83 EC + Trivapro B 2.2 SE	benzovindiflupyr + azoxystrobin + propiconazole	7 + 11 + 3	4 fl oz 10.5 fl oz	14	
Soybean Rust	Alto 100 SL	cyproconazole	3	4 - 5.5 fl oz	30	When soybean rust is present and conditions favor disease development, use high rates combined with additional triazole for improved rust control.
	Topguard 1.04 SC	flutriafol	3	7 - 14 fl oz	21	
	Tilt, or Bumper, or multiple generics 41.8 EC	propiconazole	3	4 - 6 fl oz	See label	
	Proline 480 SC	prothioconazole	3	2.5 - 3 fl oz	21	
	tebuconazole (multiple generics 3.6 F)	tebuconazole	3	3 - 4 fl oz	21	
	Domark 230 ME	tetraconazole	3	4 - 5 fl oz	See label	
	Quadris 2.08 SC	azoxystrobin	11	6 - 15.5 fl oz	14	
	Evito 480 SC or Aftershock	fluoxastrobin	11	2 - 5.7 fl oz	30	
	Headline 2.09 SC	pyraclostrobin	11	6 - 12 fl oz	21	
	Topsin XTR 4.3 F	thiophanate-methyl + tebuconazole	1 + 3	20 fl oz	21	
	Quadris Xtra	azoxystrobin + cyproconazole	11 + 3	5 - 6.8 fl oz	30	
	Quilt Xcel 2.2 SE	azoxystrobin + propiconazole	11 + 3	14 - 21 fl oz	See label	
	Affiance 1.5 SC	azoxystrobin + tetraconazole	11 + 3	10 - 14 fl oz	14	
	Aproach Prima 2.34 SC	picoxystrobin + cyproconazole	11 + 3	5 - 6.8 fl oz	30	
	Stratego 2.08 SC	trifloxystrobin + propiconazole	11 + 3	10 fl oz	21	
	Stratego YLD 4.18 SC	trifloxystrobin + prothioconazole	11 + 3	4 - 4.6 fl oz	21	
	Priaxor 4.17 SC	pyraclostrobin + fluxapyroxad	11 + 7	4 - 8 fl oz	21	

\*Use for control of aerial blight is based on other states' data.

## Management of Soybean Diseases – Fungicide Efficacy for Control of Foliar Soybean Diseases (April 2016)

The North Central Regional Committee on Soybean Diseases (NCERA-137) has developed the following information on foliar fungicide efficacy for control of major foliar soybean diseases in the United States. Efficacy ratings for each fungicide listed in the table were determined by field-testing the materials over multiple years and locations by the members of the committee. Efficacy ratings are based upon level of disease control achieved by product and are not necessarily reflective of yield increases obtained from product application. Efficacy depends upon proper application timing, rate and application method to achieve optimum effectiveness of the fungicide as determined by labeled instructions and overall level of disease in the field at the time of application. Differences in efficacy among fungicide products were determined by direct comparisons among products in field tests and are based on a single application of the labeled rate as listed in the table, unless otherwise noted. **This table includes systemic fungicides available that have been tested over multiple years and locations. The table is not intended to be a list of all labeled products<sup>1</sup>.** Efficacy categories: NR = Not Recommended; P = Poor; F = Fair; G = Good; VG = Very Good; E = Excellent; NL = Not Labeled for use against this disease; U = Unknown efficacy or insufficient data to rank product efficacy.

**NOTE: This guideline was a composite of several field trials from multiple states across the U.S. soybean belt and may not always reflect fungicide efficacy observed in Arkansas.**

Fungicide(s)				Aerial Web Blight	Anthrac-nose	Brown Spot	Cercospora Leaf Blight <sup>2</sup>	Frogeye Leaf Spot <sup>3</sup>	Phomopsis/ Diaporthe (Pod and Stem Blight)	Soybean Rust	Harvest Restriction <sup>4</sup>
Class	Active Ingredient (%)	Product/ Trade Name	Rate/A (fl oz)								
QoI Strobilurins Group 11	Azoxystrobin 22.9%	Quadris 2.08 SC	6 - 15.5	VG	VG	G	F	P	U	G-VG	14 days
	Fluoxastrobin 40.3%	Aftershock 480 SC Evito 480 SC	2 - 5.7	VG	G	G	F	P	U	U	R5 (beginning seed) 30 days
	Picoxystrobin	Approach 2.08 SC	6 - 12	VG	G	G	F	P	U	G	14 days
	Pyraclostrobin 23.6%	Headline 2.09 EC/SC	6 - 12	VG	VG	G	F	P	U	VG	21 days
DMI Triazoles Group 3	Cyproconazole 8.9%	Alto 100 SL	2.75 - 5.5	U	U	VG	F	F	U	VG	30 days
	Flutriafol 11.8%	Topguard 1.04 SC	7 - 14	U	VG	VG	F	VG	U	VG-E	21 days
	Propiconazole 41.8%	Tilt 3.6 EC Multiple Generics <sup>5</sup>	4 - 6	P	VG	G	NL	F	NL	VG	R6
	Prothioconazole 41.0%	Proline 480 SC	5 - 5.7	NL	NL	NL	NL	G-VG	NL	VG	21 days
	Tetraconazole 20.5%	Domark 230 ME Multiple Generics	4 - 5	NL	VG	VG	F	G-VG	U	VG-E	R5 (beginning seed)
MBC Thiophanates Group 1	Thiophanate-methyl	Topsin-M Multiple Generics	10 - 20	U	U	U	F	VG	U	G	21 days
SDHI Carboximides Group 7	Boscalid 70%	Endura 0.7 DF	3.5 - 11	U	NL	VG	U	P	NL	NL	21 days

(continued)

## Management of Soybean Diseases – Fungicide Efficacy for Control of Foliar Soybean Diseases (April 2016) – (continued)

Fungicide(s)				Aerial Web Blight	Anthrac-nose	Brown Spot	Cercospora Leaf Blight <sup>2</sup>	Frogeye Leaf Spot <sup>3</sup>	Phomopsis/ Diaporthe (Pod and Stem Blight)	Soybean Rust	Harvest Restriction <sup>4</sup>
Class	Active Ingredient (%)	Product/ Trade Name	Rate/A (fl oz)								
Mixed Modes of Action Group 11 + 3 or 7	Azoxystrobin 18.2% Difenoconazole 11.4%	Quadris Top 2.72 SC	8 - 14	U	U	U	U	VG	U	VG	14 days
	Azoxystrobin 19.8% Difenoconazole 19.8%	Quadris Top SBX 3.76 SC	7 - 7.5	U	U	U	U	G-VG	U	U	14 days
	Azoxystrobin 7.0% Propiconazole 11.7%	Avaris 1.66 SC Quilt 1.66 SC HM-0812 1.66 SC	14 - 20.5	U	U	G	U	F	U	VG	21 days
	Azoxystrobin 13.5% Propiconazole 11.7%	Quilt Xcel 2.2 SE	10.5 - 21	E	VG	G	F	F	U	VG	R6
	Benzovindiflupyr 10.27% Azoxystrobin 13.5% Propiconazole 11.7%	Trivapro A 0.83 + Trivapro B 2.2 SE	A = 4 B = 10.5	U	U	VG	U	VG	U	U	14 days R6
	Cyproconazole 7.17% Picoxystrobin 17.94%	Aproach Prima 2.34 SC	5 - 6.8	U	U	U	U	G	U	U	14 days
	Flutriafol 19.3% Fluoxastrobin 14.84%	Fortix SC Preemptor SC	4 - 6	U	U	U	U	G	U	U	R5 (beginning seed)
	Pyraclostrobin 28.58% Fluxapyroxad 14.33%	Priaxor 4.17 SC	4 - 8	E	VG	E	F	F	U	VG	21 days
	Pyraclostrobin 28.58% Fluxapyroxad 14.33% Tetraconazole 20.50%	Priaxor D 4.17 SC 1.9 SC	4 (each compo- nent)	U	U	U	U	G	U	U	21 days R5 (beginning seed)
	Trifloxystrobin 32.3% Prothioconazole 10.8%	Stratego YLD 4.18 SC	4 - 4.65	VG	VG	VG	F	F	U	VG	21 days
	Tetraconazole 7.48% Azoxystrobin 9.35%	Affiance 1.5 SC	10 - 14	U	VG	VG	F	G	U	U	R5 14 days

<sup>1</sup> Multiple fungicides are labeled for soybean rust only, powdery mildew and alternaria leaf spot, including tebuconazole (multiple products) and Laredo (myclobutanil). Contact fungicides such as chlorothalonil may also be labeled for use.

<sup>2</sup> Cercospora leaf blight efficacy relies on accurate application timing, and standard R3 application timings may not provide adequate disease control. Fungicide efficacy may improve with earlier or later applications. Fungicides with a solo or mixed QoI or MBC mode of action may not be effective in areas where QoI or MBC resistance has been detected in the fungal population that causes Cercospora leaf blight.

<sup>3</sup> In areas where QoI-fungicide resistant isolates of the frogeye leaf spot pathogen are not present, QoI fungicides may be more effective than indicated in this table.

<sup>4</sup> Harvest restrictions are listed for soybean harvested for grain. Restrictions may vary for other types of soybean (edamame, etc.) and soybean for other uses such as forage or fodder.

<sup>5</sup> Multiple generic products containing this mode of action may also be labeled in some states.

*Many products have specific use restrictions about the amount of active ingredient that can be applied within a period of time or the amount of sequential applications that can occur. Please read and follow all specific use restrictions prior to fungicide use. This information is provided only as a guide. It is the responsibility of the pesticide applicator by law to read and follow all current label directions. Reference to products in this publication is not intended to be an endorsement to the exclusion of others that may be similar. Persons using such products assume responsibility for their use in accordance with current directions of the manufacturer. Members or participants in the NCERA-212 or NCERA-208 group assume no liability resulting from the use of these products.*

## SOYBEAN – NEMATODES

Travis Faske

Nematode	Nematicide	Formulation	Active Ingredient	Rate/Acre	Comments
Soybean Cyst, Root-Knot, Reniform, and Lesion	Telone II <sup>1</sup>	Liquid	1,3-dichloropropene	3 - 6 gal	Inject 12 inches below planting depth and seal immediately with appropriate bedding equipment. Wait 7 - 14 days before planting.
	Avicta 500 FS	Seed treatment	abamectin	3 oz/cwt	For use by commercial seed treaters only. Use in conjunction with moderately resistant cultivars. Avicta Complete Beans is Avicta 500 FS + CruiserMaxx.
	Poncho/Votivo	Seed treatment	clothianidin + <i>Bacillus firmus</i> I-1582	0.13 mg ai/seed	Commercial seed treatment equipment only.
	Clariva <i>pn</i>	Seed treatment	<i>Pasturia nishizawae</i>	2 fl oz/cwt	Biological control specific to soybean cyst nematodes. Clariva Complete Beans implies Clariva <i>pn</i> + CruiserMaxx + Vibrance.

<sup>1</sup>Use where nematode pressure is severe.

**RESTRICTED USE PESTICIDES** – For sale and use only by licensed/certified applicators or persons under their direct supervision. **These are dangerous pesticides – use caution in handling and read and follow current label directions.** If nematodes are suspected to be causing problems, a diagnostic soil sample should be taken to your county agent for submission to the Cooperative Extension Service Nematode Diagnostic Laboratory. **A small fee is required.**

**NOTE:** The economic value of using nematicides on Arkansas soybeans is sometimes questionable. The value of soybeans in today's market must be considered. Planting resistant varieties or using crop rotation offers more economical control.

## EDAMAME – SEEDLING DISEASES

Terry Spurlock

Disease	Fungicide	Active Ingredient	FRAC Code	Rate/cwt Seed	Comments
Seed Treatment					
Pythium and Rhizoctonia diseases (seed rots, damping-off)	Maxim 4 FS	fludioxonil	12	0.08 - 0.16 fl oz	For commercial seed treatment.
	Apron XL	mefenoxam	4	0.32 fl oz	
In-Furrow Application					
Phytophthora diseases	Ridomil Gold SL	mefenoxam	4	0.08 - 0.28 fl oz	
Rhizoctonia and Phytophthora diseases	Uniform	azoxystrobin +	11	0.34 fl oz	
		mefenoxam	4		

## EDAMAME – FOLIAR DISEASES

Travis Faske and Terry Spurlock

Disease	Fungicide	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
Aerial Blight	Quadris 2.08 SC	azoxystrobin	11	6 - 15.5 fl oz	0	
Anthracnose, Asian Soybean Rust, Cercospora Leaf Spot	Quadris 2.08 SC	azoxystrobin	11	6 - 15.5 fl oz	0	Do not make more than 2 sequential applications of FRAC 11 fungicide.
	Headline	pyraclostrobin	11	6 - 9 oz	7	Begin applications prior to disease development, then at 7 - 14 day intervals. See label restrictions.
	Fontelis	penthiopyrad	7	14 - 30 fl oz	0	Do not exceed 72 fl oz/acre per year. See label.
	Priaxor	fluxapyroxad + pyraclostrobin	7 11	4 - 8 fl oz	7	7 - 14 day intervals. See label restrictions.
Ascochyta Blight, Alternaria Leaf and Pod Spot	Endura	boscalid	7	8 - 11 oz	7	Maximum of 2 applications per season. 5 - 14 day intervals. Begin application prior to disease development or at beginning of flowering.

## EDAMAME – NEMATODES

Travis Faske

Nematode	Nematicide	Formulation	Active Ingredient	Rate/Acre	Comments
Root-Knot, Reniform, and Soybean Cyst Nematode	Telone II	liquid	1,3-dichloropropene	3 gal	Inject 12 inches below planting depth and seal immediately with appropriate bedding equipment. Wait 7 - 14 days before planting.
	Avicta Complete Beans	seed treatment	abamectin + thiamethoxam + fludioxonil + mefenoxam	6.2 fl oz/cwt	Use where nematode pressure is low to moderate.

## TOMATO DISEASES (Commercial Production)

Terry Spurlock and Jackie Lee

Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Comments
<b>TRANSPLANT PRODUCTION</b>						
Bacterial Speck and Bacterial Spot						
(Seed Disinfection for transplant production)	Bleach	5.25% sodium hypochlorite		1 part bleach + 4 parts water		Wash tomato seed in bleach solution for 45 minutes with constant agitation. Air dry disinfected seed on a clean bench immediately.
Transplant Protection	Agrimycin 17	streptomycin sulfate	25	1 lb in 100 gal water		Spray transplants every 10 days from first leaf until transplanted. For use only in transplant production beds.
Early Blight, Gray Mold and Late Blight (transplants)	Bravo Ultrex 82.5 WDG	chlorothalonil	M5	1.3 - 1.8 lb	2 days	Starting at emergence, spray transplants every week until transplanted. Good coverage is essential.
	Bravo WeatherStik 6 F			1 3/8 - 2 pt	2 days	
	Bravo 500 4.17 F			2 - 3 pt	2 days	
	Scala SC	pyrimethanil	9	7 fl oz	12 hours	See label for restrictions and warnings.
	Dithane DF (Rainshield NT) Manzate 75 DF Penncozeb 75 DF	mancozeb	M3	1.5 - 2 lb 1.5 - 2 lb 0.75 - 2 lb	1 day 1 day 1 day	Starting at emergence, spray transplants every week until transplanted. Good coverage is essential. Latron surfactant is recommended to improve coverage.
	<b>OR plus</b> Serenade MAX	<i>Bacillus subtilis</i>	44	1 - 2 lb	0 day	Do not use without a tank mix partner of one of the previously listed products.



### TOMATO DISEASES (Commercial Production) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>FIELD PRODUCTION</b>							
Early Blight	Quadris 2.08	azoxystrobin	11	5 - 6.2 fl oz	4 hr	0	Apply at first sign of disease and repeat every 7 - 21 days. Do not make more than one application of strobilurins before rotating to a fungicide with a different mode of action. No more than 5 applications per acre per year. See label for incompatible spray mixtures.
Late Blight Septoria Leaf Spot	Quadris Opti	azoxystrobin + chlorothalonil	11 M5	1.6 pt	4 hr	0	
	Cabrio 20 EG	pyraclostrobin	11	8 - 12 oz	12 hr	0	Use 8 - 16 oz for late blight. Maximum amount per season is 96 oz. See label for other information.
	Flint 50 WG	trifloxystrobin	11	2 - 4 oz	12 hr	3	Apply at first sign of disease and repeat every 7 - 10 days. Use the higher rate for late blight. Suppression only for Septoria. See label for other precautions and restrictions.
	Bravo Ultrex 82.5 WDG	chlorothalonil	M5	1.3 - 1.8 lb	2 days	0	Apply at 7 - 10 day interval after first appearance of disease. Do not mix chlorothalonil with Copper-Count N, Foil, DIPEL, Triton, AG98 or Latron surfactants.
	Bravo WeatherStik 6 F			1 3/8 - 2 pt	2 days	0	
	Bravo 500 4.17 F			2 - 3 pt	2 days	0	
	Gavel 75 DF	mancozeb + zoxamide	M3 22	1.5 - 2 lb	2 days	5	See label for restrictions and warnings.
	<b>OR plus</b> Serenade MAX	<i>Bacillus subtilis</i>	44	1 - 2 lb	4 hr	0	Do not use without a tank mix partner of one of the previously listed products.
	Tanos 50 WG	famoxadone + cymoxanil	11 27	6 - 8 oz		3	
Early Blight Late Blight Septoria Leaf Spot <b>and</b> Bacterial Speck Bacterial Spot Bacterial Canker	mancozeb <b>OR</b> chlorothalonil <b>OR</b> azoxystrobin <b>plus</b> Kocide 2000 Kocide 4.5 LF Nu-Cop 3 L Champion WP <b>OR</b> BasiCop WP Champ 4.6 F Tenn-Cop 5 E Cuprofix Ultra 40 Disperss		M3 or M5 or 11	See above	See above	See above	See above
		copper hydroxide	M1	1.5 - 3 lb 1 1/3 - 2 1/3 pt 1 1/3 - 2 1/3 pt 2 lb	1 day	0	Spray on a 7 - 10 day schedule as above.
		fixed copper	M1	2 - 4 lb 1 1/3 - 2 1/3 pt 3 pt	1 day	0	
		copper sulfate	M1	1.25 - 3 lb	12 hr	0	

**TOMATO DISEASES (Commercial Production) – continued**

Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>FIELD PRODUCTION (cont.)</b>							
Anthracnose Early Blight Septoria Leaf Spot Powdery Mildew	Quadris Top	azoxystrobin + difenoconazole	11 + 3	8 fl oz	12 hr	0	
	Aftershock, Evito 480 SC	fluoxastrobin	11	2 - 5.7 fl oz	12 hr	3	
	Priaxor	fluxapyroxad + pyraclostrobin	7 + 11	4 - 8 fl oz	12 hr	7	Use 6 - 8 fl oz for powdery mildew control.
	Inspire Super	difenoconazole + cyprodinil	3 + 9	16 - 20 fl oz	12 hr	0	
	Fontelis	penthiopyrad	7	10 - 24 fl oz	12 hr	0	
Late Blight only	Quadris 2.08	azoxystrobin	11	3.1 - 6.2 fl oz	4 hr	0	Spray on a 5 - 7 day interval.
	Quadris Opti	azoxystrobin + chlorothalonil	11 M5	1.6 pt	4 hr	0	See above.
	Cabrio 20 EG	pyraclostrobin	11	8 - 16 oz	12 hr	0	Do not make more than one application before alternating to a non-strobilurin fungicide.
Late Blight and Buckeye Rot	Quadris 2.08	azoxystrobin	11	5 - 6.2 fl oz	4 hr	0	Apply prior to disease development and repeat every 5 - 7 days. Do not make more than one application of strobilurins before rotating to a fungicide with a different mode of action. No more than 5 applications per acre per year. See label for incompatible spray mixtures.
	Quadris Opti	azoxystrobin + chlorothalonil	11 M5	1.6 pt	4 hr	0	
	Gavel 75 DF	mancozeb + zoxamide	M3 22	1.5 - 2 lb	2 days	5	See label for restrictions and warnings.
	Ridomil Gold MZ	mefenoxam	4	2.5 lb	48 hr	14	Apply every 14 days if conditions favor late blight or buckeye rot (cool, wet weather). No more than 3 applications per crop.
	Ridomil Gold-Copper	mefenoxam + copper	4 M1	2 lb	48 hr	14	Apply every 14 days if conditions favor late blight or buckeye rot (cool, wet weather). No more than 3 applications per crop.
	Gavel 75 DF	mancozeb + zoxamide	M3 + 22	1.5 - 2 lb		5	
	Quadris 2.08 F	azoxystrobin	11	5 - 6.2 oz		0	
	Quadris Opti 5.5 SC	azoxystrobin + chlorothalonil	11 M5	1.6 pt		0	
	Presidio 4 SC	fluopicolide	43	3 - 4 oz		2	

### TOMATO DISEASES (Commercial Production) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
<b>FIELD PRODUCTION (cont.)</b>							
Late Blight and Early Blight	Previcur Flex	propamocarb hydrochloride	28	0.7 - 1.5 pt	12 hr	5	See label for restrictions and warnings.
	Reason 500 SC	fenamidone	11	5.5 - 8.2 fl oz	12 hr	14	See label for restrictions and warnings.
Southern Blight	Blocker	PCNB	14	1.2 - 1.8 gal	12 hr	---	In-furrow or transplant application only.
Blossom End Rot		calcium chloride		4 lb/100 gal (4% solution)			Apply every 7 days for 4 weeks starting when symptoms are first noticed in the field. Apply spray only in the early morning when temperatures are cool to minimize any plant injury.

## TOMATO DISEASES (Home Garden)

Sherrie Smith

Disease	Product	Active Ingredient	FRAC Code	Rate/Gal	Days to Harvest	Comments
Bacterial Leaf and Fruit Spots	Hi-Yield Bordeaux Mix Fungicide	copper	M1	4 tbs	0	Apply every 7 - 14 days when diseases are threatening or development persists (wet weather, primarily). Thorough coverage of the plants and fruit is critical. Best to apply prior to disease. Allow 4 hours of drying time. Approved for organic use. For organic use.
	Hi-Yield Copper Fungicide	copper hydroxide	M1	3 - 5 tsp	0	
	Bonide Copper Dust	Read label.	M1	4 oz	0	
	Bonide Liquid Copper Fungicide Concentrate	copper sulfate	M1 + M2	0.5 - 2 oz	0	
	Bayer Advanced Natria Disease Control	<i>Bacillus subtilis</i>	44	RTU*	0	
Fungal Leaf and Fruit Spots including Early Blight and Septoria Leaf Spot	Ortho Garden Disease Control (Daconil)	chlorothalonil	M5	1 tbs	0	Apply every 7 - 14 days when diseases are threatening.
	Ferti-lome Liquid Fungicide	chlorothalonil	M5	2 tbs	0	Apply at first evidence of disease, then 7 - 10 days.
	Bonide Fung-onil Multipurpose Fungicide Concentrate	chlorothalonil	M5	1 - 1 1/2 tbs	0	Apply at first evidence of disease.
	Bonide Fung-onil RTU	chlorothalonil	M5	RTU*	0	Begin when conditions favor disease.
	Garden Tech Daconil Fungicide Concentrate	chlorothalonil	M5	See label.	0	Apply at first evidence of disease.
	Bonide Mancozeb Flowable w/Zinc	mancozeb	M3	2 - 5 tbs	5	See above.
	Hi-Yield Maneb Garden Fungicide	maneb	M3	1 - 2 tbs	5	See above.
	Green Light Tomato and Vegetable Spray	neem oil	M1			RTU*
	Bonide Remedy	potassium bicarbonate	---	See label.		Approved for organic use.
	Bayer Advanced Natria Disease Control	<i>Bacillus subtilis</i>	44	RTU*	0	Approved for organic use.
	Kaligreen**	potassium bicarbonate	---	See label.	1	Approved for organic use.
	Bonide Liquid Copper Fungicide Concentrate	copper salts	M1			Approved for organic use.
	Bonide Copper Dust (Bordo)	copper sulfate	---	2 - 5 oz	See label.	RTU*. Apply before disease appears, then 7 - 14 day intervals.
	Hi-Yield Bordeaux	copper salts	M1	8 - 9 tbs		Spray to wet entire plant. Begin in spring.
	Bonide Sulfur Dust	sulfur	M2			Approved for organic use.
	Bonide Tomato and Vegetable Concentrate	sulfur + pyrethrins	M2	2.5 - 5 fl oz/gal	1	
	AgraQuest Serenade**	<i>Bacillus subtilis</i>	44	RTU*	0	Best to apply prior to disease. Allow 4 hours of drying time. Approved for organic use.
Blossom End Rot	Stop-Rot	calcium chloride	---	Read label.		Apply a 4% calcium chloride solution to plants and fruit as soon as symptoms are noticed. Spray in early morning every 7 days for 4 weeks. Thorough coverage is important.
	Ferti-lome Yield Booster Blossom End Rot Control					
	Green Light Blossom-End Rot Spray					

\*RTU = Ready To Use

\*\*Approved for organic use

## TURF DISEASES (Commercial)

Terry Spurlock

Disease	Product	Active Ingredient	FRAC Code	Rate/1,000 sq ft	Comments
Brown Patch	Heritage 50 WG	azoxystrobin	11	0.2 - 0.4 oz	Apply in 2 - 4 gals water/1,000 sq ft every 14 - 28 days as a preventative during warm, humid weather favorable for the disease. Use the higher rate and shorter interval if disease is evident and conditions are very favorable.
	Insignia 20 WG	pyraclostrobin	11	0.5 - 0.9 oz	
	Compass 50 WG	trifloxystrobin	11	0.15 - 0.25 oz	14 day interval at first sign of disease.
	Renown	chlorothalonil + azoxystrobin	M5 + 11	2.5 - 4.5 oz	14 - 21 day interval. See label. Not for residential use.
	Endorse 2.5 WP	polyoxin D	19	4 oz	Apply in a minimum of 0.5 gal/1,000 sq ft. Repeat on a 7 - 14 day interval as needed.
	Medallion 50 WP	fludioxonil	12	0.25 - 0.5 oz	Begin applications before disease development and repeat on 7 - 14 day intervals. May be used with Banner Maxx for extended control of various leaf spots.
	Daconil WeatherStik	chlorothalonil	M5	3 - 7 fl oz	Apply in 2 - 5 gals water/1,000 sq ft at 7 - 10 day intervals as a preventative (before disease is noticed). Use high rate on 7 day schedule once disease is evident. See label for fairway rates. Not for residential use.
	Daconil Ultrex	chlorothalonil	M5	1.8 - 3.25 oz	See label. Protectant qualities. Not for residential use.
	Chipco 26019 50 W	iprodione	2	1.5 - 2 oz	Apply in 2 - 5 gals water/1,000 sq ft at 14 - 21 day intervals as a preventative. See label for restrictions. Iprodione is not for residential use.
	Eagle 40 WSP	myclobutanil	3	0.6 - 1.2 oz	
	Fore 80 W	mancozeb	M3	4 - 8 oz	Apply in 3 - 5 gals water/1,000 sq ft every 7 - 14 days as a preventative. A non-ionic surfactant should be used. Use 7 day interval if disease is severe.
	Fore Flowable	mancozeb	M3	6.4 - 12.8 fl oz	
	Banner MAXX	propiconazole	3	1 - 2 fl oz	Apply in 2 - 5 gals water/1,000 sq ft at 7 - 21 day intervals as a preventative. <b>Can be tank-mixed with certain contact fungicides – see label for details. Do not exceed 2 fl oz rate on bermudagrass and St. Augustinegrass.</b>
	Concert	propiconazole + chlorothalonil	3 + M5	3 - 5.5 oz	Begin applications in May or June before disease is present. Not for residential use.
	Spectro 90 WDG	chlorothalonil + thiophanate-methyl	M5 1	3 - 8 oz	Best applied when conditions favor disease. Repeat as needed at 14 - 21 days as indicated on label. Not for residential use.

(continued)

### TURF DISEASES (Commercial) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate/1,000 sq ft	Comments
Brown Patch (cont.)	Cleary's 3336 F	thiophanate-methyl	1	2 - 4 oz	Apply in 3 - 5 gals water/1,000 sq ft every 7 - 14 days at first sign of disease. See label.
	26/36 Fungicide	iprodione + thiophanate-methyl	2 + 1	2 - 4 oz	See label. Iprodione is not for residential use.
	Secure	fluzinam	29	0.5 oz	Not labeled for home lawn (turf) or any other residential turf. See label restrictions.
	Terraclor 75 WP	PCNB	14	7 - 10 oz	Apply preventively in fall or spring followed by a second application in 3 - 4 weeks. Not for residential use.
	Prostar 70 WP	flutolanil	7	2 - 3 oz	Apply in 2 - 5 gals water at first sign of disease with a non-ionic surfactant. Repeat as needed every 14 - 21 days.
	Bayleton 50 WSP	triadimefon	3	0.5 - 1 oz	
	Tartan	trifloxystrobin + triadimefon	11 + 3	1 - 2 oz	Begin applications prior to or in early stages of disease onset. 14 - 28 day interval.
	Rhapsody	<i>Bacillus subtilis</i>	44	2 - 10 oz	2 gals/1,000 sq ft. Begin when conditions are conducive for disease. Can be used for organic production.
Dollar Spot	Daconil WeatherStik	chlorothalonil	M5	3 - 7 fl oz	Apply in 2 - 5 gals water/1,000 sq ft at 7 - 10 day intervals as a preventative (before disease is noticed). Use high rate on 7 day schedule once disease is evident. See label for fairway rates. Not for residential use.
	Daconil Action	chlorothalonil + acibenzolar-S-methyl	M5 P1	1 - 3.5 fl oz	See label restrictions. Not for residential use.
	Chipco 26019 50 W	iprodione	2	1.5 - 2 oz	Apply in 2 - 5 gals water/1,000 sq ft at 14 - 21 day intervals as a preventative. See labels for restrictions.
	Eagle 40 WSP	myclobutanil	3	0.6 - 1.2 oz	Iprodione is not for residential use.
	Fore 80 W	mancozeb	M3	4 - 8 oz	Apply in 3 - 5 gals water/1,000 sq ft every 7 - 14 days as a preventative. A non-ionic surfactant should be used. Use 7 day interval if disease is severe.
	Fore Flowable	mancozeb	M3	6.4 - 12.8 fl oz	
	Banner MAXX	propiconazole	3	1 - 2 fl oz	Apply in 2 - 5 gals water/1,000 sq ft at 7 - 21 day intervals as a preventative. <b>Can be tank-mixed with certain contact fungicides – see label for details. Do not exceed 2 fl oz rate on bermudagrass and St. Augustinegrass.</b>
	Spectro 90 WDG	chlorothalonil + thiophanate-methyl	M5 1	3 - 8 oz	Best applied when conditions favor disease. Repeat as needed at 14 - 21 days as indicated on label. Not for residential use.
	Cleary's 3336 F	thiophanate-methyl	1	2 - 4 oz	Apply in 3 - 5 gals water/1,000 sq ft every 7 - 14 days at first sign of disease.
(continued)	Insignia	pyraclostrobin	11	0.9 oz	Suppression only. 14 - 28 day interval.

### TURF DISEASES (Commercial) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate/1,000 sq ft	Comments
Dollar Spot (cont.)	Tartan	trifloxystrobin + triadimefon	11 + 3	1 - 2 oz	Begin applications prior to or in early stages of disease onset. 14 - 28 day interval.
	Emerald	boscalid	7	0.13 - 0.18 oz	Begin applications prior to or in early stages of disease onset. 14 - 28 day interval.
	Trinity	triticonazole	3	0.5 - 2 oz	See label. Apply in 1 - 5 gals/1,000 sq ft.
	Rhapsody	<i>Bacillus subtilis</i>	44	2 - 10 oz	2 gals/1,000 sq ft. Begin when conditions are conducive for disease. Can be used for organic production.
	Junction DF	mancozeb + copper hydroxide	M3 + M1	2 - 4 oz	Begin at disease onset, then at 5 day intervals. See label.
	Secure	fluzinam	29	0.5 oz	Not labeled for home lawn (turf) or any other residential turf. See label restrictions.
Rhizoctonia Large Patch (zoysia and bermuda)	Heritage 50 WG	azoxystrobin	11	0.4 oz	Apply in 2 - 5 gals water/1,000 sq ft between September 10 and October 10 and again between March 15 and April 15. In very severe instances, an additional application may be made about 4 weeks after the first fall application.
	Prostar 70 WP	flutolanil	7	3 oz	
	Eagle 40 WSP	myclobutanil	3	1.2 oz	
	Trinity	triticonazole	3	0.5 - 2 oz	See label restrictions.
	Bayleton 50 WSP	triadimefon	3	1 oz	Follow label directions closely.
Fairy Ring (suppression)	Prostar 70 WP	flutolanil	7	2.2 - 4.5 oz	Apply in 3 - 5 gals water/1,000 sq ft at first sign of disease and repeat in 28 days if necessary. Apply as soon as possible after initial symptoms. Reapply after 28 days if needed.
	Heritage 50 WG	azoxystrobin	11	0.4 oz	
	Insignia	pyraclostrobin	11	0.9 oz	
	Headway	azoxystrobin + propiconazole	11 + 3	3 oz	Apply at 4 gals/1,000 sq ft at first disease evidence.
	Tourney	metconazole	3	0.37 oz	Apply at 4 gals/1,000 sq ft. Reapply at 21 days.
	Affirm WDG	polyoxin D zinc salt	19	1 oz	2 - 3 applications at 7 day intervals. Use a wetting agent.
	Pillar G	pyraclostrobin + triticonazole	3 + 11	3 lbs	14 - 28 day intervals. Use a wetting agent.
	Torque	tebuconazole	3	0.6 oz	66 - 132 GPA water volume. See label directions.

### TURF DISEASES (Commercial) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate/1,000 sq ft	Comments
Pythium Blight (also Pythium Root and Crown Rots)	Heritage 50 WG	azoxystrobin	11	0.4 oz	Apply in 2 - 4 gals water/1,000 sq ft every 10 - 14 days as a preventative. Use the 10 day interval during prolonged hot, wet weather. Do not make more than 2 sequential applications.
	Koban 30 W Terrazole 35 WP	etridiazole	14	2 - 4.5 oz	Apply to established turf in 5 gals water/1,000 sq ft every 5 - 10 days as a preventative. Water in immediately.
	Chipco Aliette Signature Prodigy	fosetyl-AI	33	4 - 8 oz	Apply in 5 gals water/1,000 sq ft every 5 - 10 days at the first sign of disease and when conditions favor the disease. See label for tank-mixing suggestions.
	Fore 80 W	mancozeb	M3	8 oz	Apply in 1 - 5 gals water/1,000 sq ft every 14 - 21 days as a preventative when hot, wet conditions persist. Use high rate and 14 day interval when disease is present. Allow foliage to dry before watering or mowing.
	Subdue MAXX	mefenoxam	4	0.5 - 1 fl oz	Apply to established turf every 10 - 21 days in 3 - 5 gals water/1,000 sq ft as a preventative during hot, wet weather. See label for tank mix information.
	Banol 66.5 L	propamocarb	28	1.33 - 4 fl oz	Apply in 2 - 5 gals water/1,000 sq ft every 7 - 21 days as a preventative during hot, wet weather.
	Alude	salts of phosphorus acid	33	5 - 10 oz	Apply at 14 - 21 day intervals. See label.
	Junction DF	mancozeb + copper hydroxide	M3 + M1	2 - 4 oz	Begin at disease onset, then at 5 day intervals. See label.
	Stellar	fluopicolide + propamocarb	43 + 28	1.2 fl oz	Apply when conditions favor disease development.
Leaf Rust Gray Leaf Spot (St. Augustinegrass, ryegrass, tall fescue)	Heritage 50 WG	azoxystrobin	11	0.2 - 0.4 oz	Apply at first sign of disease and repeat every 2 - 4 weeks until conditions become less favorable. See label on all products listed for further information. Apply at first sign of disease, then at 14 day intervals. See label.
	Compass 50 WG	trifloxystrobin	11	0.15 - 0.25 oz	
	Banner MAXX	propiconazole	3	2 - 4 fl oz	
	Bayleton 50 WSP	triadimefon	3	0.5 - 1 oz	
	Torque	tebuconazole	3	0.6 - 1.1 fl oz	See label.
	Insignia 20 WG	pyraclostrobin	11	0.5 - 0.9 oz	Apply when conditions are favorable for disease.
	Eagle 20 EW	myclobutanil	3	1.2 fl oz	14 - 28 day intervals. See label.
Leaf Spots	Heritage 50 WG	azoxystrobin	11	0.2 - 0.4 oz	Apply at first sign of disease and repeat every 2 - 4 weeks until conditions become less favorable.
	Compass 50 WG	trifloxystrobin	11	0.15 - 0.25 oz	
	Insignia	pyraclostrobin	11	0.5 - 0.9 oz	
	Fore 80 W	mancozeb	M3	4 oz	Apply as above but on a 1 - 2 week schedule.
	Banner MAXX	propiconazole	3	2 - 4 fl oz	Apply as above but on a 2 - 3 week schedule.
	Chipco 26019 50 WP	iprodione	2	2 oz	Apply as above but on a 2 - 3 week schedule. Not for residential use.
	Eagle 40 WSP	myclobutanil	3	0.6 oz	See label.
Southern Blight	Prostar 70 WP	flutolanil	7	1.5 oz	Apply at first sign of disease and repeat in 4 weeks.
	Heritage 50 WG	azoxystrobin	11	0.2 - 0.4 oz	



### TURF DISEASES (Commercial) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate/1,000 sq ft	Comments
Spring Dead Spot (bermuda only; provides suppression)	Heritage 50 WG	azoxystrobin	11	0.4 oz	Make one application in early fall (two if disease history is very severe) in 2 - 4 gals water/1,000 sq ft.
	Eagle 40 WSP	myclobutanil	3	1.2 oz	Use lower rate in September, higher rate in October-November to help prevent symptoms the following spring. Apply 1 - 2 months before dormancy. Irrigate 0.25 - 0.50 in. after application. 1 - 3 applications begin Sept./Oct. See label. For prevention. Apply in fall and spring. See label.
	Rubigan	fenarimol	3	4 - 6 oz	
	Disarm 480 SC	fluoxastrobin	11	0.36 oz	
	ProPensity 1.3 ME Torque	propiconazole tebuconazole	3 3	4 oz 0.6 oz	
Summer Patch	Heritage 50 WG	azoxystrobin	11	0.2 - 0.4 oz	Apply in 2 - 4 gals water/1,000 sq ft every 14 - 28 days as a preventative starting in late spring. Use the higher rate in areas with severe disease history.
	Compass 50 WG	trifloxystrobin	11	0.15 - 0.25 oz	
	Eagle 40 WSP	myclobutanil	3	0.6 - 1.2 oz	
	Insignia 20 WG	pyraclostrobin	11	0.5 - 0.9 oz	
Take-All Patch	Heritage 50 WG	azoxystrobin	11	0.4 oz	Apply two applications in the fall and two in early spring at 28 day intervals. Apply in 2 - 4 gals water/1,000 sq ft.
	Rubigan	fenarimol	3	4 oz	
	Eagle 40 WSP	myclobutanil	3	1.2 oz	See label. Apply at 28 day intervals. For prevention. Apply in fall and spring. See label.
	Insignia	pyraclostrobin	11	0.9 oz	
	Disarm 480 SC	fluoxastrobin	11	0.36 oz	
	Torque	tebuconazole	3	0.6 oz	
Yellow Patch (cool season brown patch)	Heritage 50 WG	azoxystrobin	11	0.2 - 0.4 oz	Apply one application in late fall (two at 28 day intervals if severe disease history).
	Prostar 70 WP	flutolanil	7	1.5 oz	Apply at first sign of disease and repeat as needed.
	Daconil 2787 4 F	chlorothalonil	M5	3 - 11 fl oz	Apply at first sign of disease and repeat as needed. Not for residential use.
	Daconil 2787 WDG	chlorothalonil	M5	1.75 - 6.5 oz	Apply at first sign of disease and repeat as needed. Not for residential use.
	Daconil Ultrex	chlorothalonil	M5	1.8 - 7.4 oz	Apply at first sign of disease and repeat as needed. Not for residential use.
	Fore 80 W	mancozeb	M3	4 oz	Apply at first sign of disease and repeat as needed.
	Fore Flowable Renown	mancozeb chlorothalonil + azoxystrobin	M3 M5 11	6.4 fl oz 2.5 - 4.5 oz	14 - 28 day interval. See label. Not for residential use.
Nematodes	MultiGuard Protect	furfural		0.126 - 0.184 gal (5.5 - 8 gal/A)	Apply up to 6 applications per year at 14 - 28 day intervals. Irrigate immediately after application with 1/4 - 1/2 acre inch water using overhead sprinklers.
	Indemnify	fluopyram	7	0.195 - 0.39 fl oz (8.49 - 16.98 oz/A)	Do not apply more than 17.1 fl oz/A per year. Irrigate to depth of the root zone. Minimum time between applications is 14 days.
	Nimitz Pro G	fluensulfone		60 - 120 lbs/A	Do not apply more than 240 lbs of product per acre per calendar year.

**CAUTION: Chlorothalonil, Iprodione, Vinclozolin and PCNB are prohibited on home lawns (turf).**

# HOME LAWN DISEASES

Sherrie Smith

Disease	Product	Active Ingredient	FRAC Code	Rate	Comments
Ascochyta Leaf Blight Cercospora Dollar Spot Rust	Natural Guard Copper Soap Liquid Fungicide	copper octanoate	M1	1.5 - 6 oz/ 2.5 gal/ 1,000 sq ft	See label.
<b>See individual labels for the following diseases:</b>	Ferti-lome F-Stop Liquid (not granules)	myclobutanil	3	Dilute 5 1/3 fl oz of product in 1 gal of water to treat 250 sq ft of lawn area	Repeat application once every 2 to 4 weeks or at the first sign of new disease development.
Anthracnose Alternaria Leaf Spot Ascochyta Blight Bipolaris Brown Blight Brown Ring Patch Copper Spot Coprinus Snow Mold Curvularia Dichondra Rust Dollar Spot Drechslera Exserohilium Fusarium Patch (Pink Snow Mold) Gray Leaf Spot Helminthosporium Leaf Smut Red Leaf Spot Red Thread Rusts Septoria Leaf Spot Stripe Smut Summer Patch Yellow Spot Zonate Leaf Spot	H & I Agritech GreenCure	potassium bicarbonate	---	1 - 2 tbs/gal	Start application at first sign of disease.
	Ferti-lome Liquid Systemic Fungicide II	propiconazole	3	3 - 5 fl oz in 1 gal of water per 250 sq ft of lawn	Apply every 14 days.
	Ferti-lome Liquid Systemic Fungicide II RTU*	propiconazole	3	RTU*	Apply every 14 days.
	Spectracide Immunox Fungus Plus Insect Control for Lawns	propiconazole + lambda-cyhalothrin	3	10 lbs/2,500 sq ft	See label.
	Bayer Advanced Fungus Control of Lawns	propiconazole	3	10 lbs/5,000 sq ft	Repeat applications dependent on disease. See label.
	Scotts Lawn Fungus Control	thiophanate-methyl	1	RTU*	Do not apply if wind speed exceeds 10 mph.
	Bonide Infuse Systemic Disease Control Lawn and Landscape	thiophanate-methyl	1	7.5 lbs/5,000 sq ft	Apply every 14 days at first sign of disease.
	Scotts Lawn Disease Control Ready-Spray RTU*	triticonazole	3	RTU*	32 oz bottle will treat 800 - 1,600 sq ft
Take-all Patch ( <i>Gaeumannomyces graminis</i> var. <i>graminis</i> )	Spectracide Immunox Fungus Plus Insect Control for Lawns	propiconazole + lambda-cyhalothrin	3	10 lbs/2,500 sq ft	See label.
	Bayer Advanced Fungus Control of Lawns	propiconazole	3	10 lbs/5,000 sq ft	Repeat applications dependent on disease. See label.
	Ferti-lome Liquid Systemic Fungicide II	propiconazole	3	3 - 5 fl oz in 1 gal of water per 250 sq ft of lawn	Apply twice in the fall (September-October) and twice in the spring (April-May).

(continued)

### HOME LAWN DISEASES – continued

Disease	Product	Active Ingredient	FRAC Code	Rate	Comments
Take-all Patch (cont.) ( <i>Gaeumannomyces graminis</i> var. <i>graminis</i> )	Ferti-lome Liquid Systemic Fungicide II RTU*	propiconazole	3	RTU*	Apply twice in the fall (September-October) and twice in the spring (April-May).
	Scotts Lawn Fungus Control	thiophanate-methyl	1	RTU*	Do not apply if wind speed exceeds 10 mph.
	Bonide Infuse Systemic Disease Control Lawn and Landscape	thiophanate-methyl	1	7.5 lbs/5,000 sq ft	Apply every 14 days at first sign of disease.
	Scotts Lawn Disease Control Ready-Spray RTU*	triticonazole	3	RTU*	32 oz bottle will treat 800 - 1,600 sq ft
Large Patch Zoysia Patch ( <i>Rhizoctonia solani</i> )	Spectracide Immunox Fungus Plus Insect Control for Lawns	propiconazole + lambda-cyhalothrin	3	10 lbs/2,500 sq ft	See label.
	Scotts Lawn Fungus Control	thiophanate-methyl	1	RTU*	Do not apply if wind speed exceeds 10 mph.
	Bonide Infuse Systemic Disease Control Lawn and Landscape	thiophanate-methyl	1	7.5 lbs/5,000 sq ft	Apply every 14 days at first sign of disease.
Brown Patch ( <i>Rhizoctonia</i> spp.)	Ferti-lome F-Stop Liquid (not granules)	myclobutanil	3	Dilute 5 1/3 fl oz of product in 1 gal of water to treat 250 sq ft of lawn area	Repeat application once every 2 to 4 weeks or at the first sign of new disease development.
	Ferti-lome Liquid Systemic Fungicide II	propiconazole	3	3 - 5 fl oz in 1 gal of water per 250 sq ft of lawn	Repeat treatment every 10 days if necessary.
	Ferti-lome Liquid Systemic Fungicide II RTU*	propiconazole	3	RTU*	Repeat treatment every 10 days if necessary.
	Spectracide Immunox Fungus Plus Insect Control for Lawns	propiconazole + lambda-cyhalothrin	3	10 lbs/2,500 sq ft	See label.
	Bayer Advanced Fungus Control of Lawns	propiconazole	3	10 lbs/5,000 sq ft	Repeat applications dependent on disease. See label.
	Bonide Infuse Systemic Disease Control Lawn and Landscape	thiophanate-methyl	1	7.5 lbs/5,000 sq ft	Apply every 14 days at first sign of disease.
Powdery Mildew	Ferti-lome F-Stop Liquid (not granules)	myclobutanil	3	Dilute 5 1/3 fl oz of product in 1 gal of water to treat 250 sq ft of lawn area	Repeat application once every 2 to 4 weeks or at the first sign of new disease development.
(continued)	H & I Agritech GreenCure	potassium bicarbonate	---	1 - 2 tbs/gal	Start application at first sign of disease.

### HOME LAWN DISEASES – continued

Disease	Product	Active Ingredient	FRAC Code	Rate	Comments
Powdery Mildew ( <i>cont.</i> )	Ferti-lome Liquid Systemic Fungicide II	propiconazole	3	3 - 5 fl oz in 1 gal of water per 250 sq ft of lawn	Repeat treatment every 10 days if necessary.
	Ferti-lome Liquid Systemic Fungicide II RTU*	propiconazole	3	RTU*	Repeat treatment every 10 days if necessary.
	Spectracide Immunox Fungus Plus Insect Control for Lawns	propiconazole + lambda-cyhalothrin	3	10 lbs/2,500 sq ft	See label.
	Bayer Advanced Fungus Control of Lawns	propiconazole	3	10 lbs/5,000 sq ft	Repeat applications dependent on disease. See label.
Spring Dead Spot ( <i>Leptosphaeria korrae</i> ) Necrotic Ring Spot ( <i>Leptosphaeria korrae</i> )	Ferti-lome F-Stop Liquid (not granules)	myclobutanil	3	Dilute 5 1/3 fl oz of product in 1 gal of water to treat 250 sq ft of lawn area	Repeat application once every 2 to 4 weeks or at the first sign of new disease development.
	Bonide Infuse Systemic Disease Control Lawn and Landscape	thiophanate-methyl	1	7.5 lbs/5,000 sq ft	Apply in the fall before dormancy and again in the spring.
	Scotts Lawn Disease Control Ready-Spray RTU*	triticonazole	3	RTU*	32 oz bottle will treat 800 - 1,600 sq ft
Downy Mildew	H & I Agritech GreenCure	potassium bicarbonate	---	1 - 2 tbs/gal	Start application at first sign of disease.

\*RTU = Ready To Use

## VEGETABLE DISEASES (Commercial Production)

Jackie Lee and Travis Faske

Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
<b>ASPARAGUS</b>						
Rust	Nova 40 W	myclobutanil	3	5 oz	See label.	Apply at first evidence of disease.
	Bravo WeatherStik	chlorothalonil	M5	2 - 4 pt	See label.	Follow label instructions.
	Sonata	<i>Bacillus pumilus</i> (bacteria)	---	2 - 4 qt	0	Can be used for organic production. See label.
Stemphylium Purple Spot	Flint 50 WG	trifloxystrobin	11	3 - 4 oz	0	
	Quadris	azoxystrobin	11	6 - 15.5 fl oz	100	
<b>BEANS (Snap and Pole)</b>						
Pythium Damping-Off	Ridomil Gold SL	mefenoxam	4	8 - 16 fl oz	2	Preplant incorporate in the top 2 inches. Also for this disease on lima and dry beans.
Pythium and Rhizoctonia Damping-Off	Trilex 2000	trifloxystrobin + metalaxyl	11 4	1 oz/cwt seed		
	Basicop WP Champ 4.6 F Tenn-Cop 5 E	fixed copper	M1	2 - 4 lb 1 1/3 - 2 1/3 pt 3 pt	1	Spray at first sign of disease; repeat on a 10 day schedule as needed.
White Mold (Sclerotinia)	Blocker 4 F	PCNB	14	4 pt	See label.	Do not apply after pod formation.
	Endura	boscalid	7	8 - 11 oz		
Gray Mold (Botrytis) and Rust	Bravo Ultrex	chlorothalonil	M5	2.7 lb	7	Apply at first sign of disease on a weekly schedule as needed.
	Equus	chlorothalonil	M5	1.37 - 2 pt		Follow label directions.
	Endura	boscalid	7	8 - 11 oz	See label.	Apply at first sign of disease.
Powdery Mildew and Rust	Microthiol Special	wettable sulfur	M2	7 lb	0	Apply at first sign of disease and repeat at 14 day intervals as needed.
	Endura 70 WG	boscalid	7	8 - 11 oz	7	7 - 10 day interval
	Headline 2.09 F	pyraclostrobin	11	6 - 9 fl oz	7	7 - 10 day interval
Gray Mold (Botrytis), Powdery Mildew and Rust	Priaxor	fluxapyroxad + pyraclostrobin	7 11	4 - 8 fl oz	7	
Root and Stem Rot ( <i>Rhizoctonia solani</i> )	Blocker 4 F	PCNB	14	2 - 3 pt	45	Apply in-furrow at planting.

**VEGETABLE DISEASES (Commercial Production) – continued**

Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
<b>BEANS (Dry)</b>						
Anthracnose, Downy Mildew, Rust	Bravo Ultrex Maneb 80 WP	chlorothalonil maneb	M5 M3	2.7 lb 1.5 - 2 lb	7 30	Apply at early bloom and repeat as needed at 7 - 10 day intervals.
Rust	tebuconazole (various trade names 3.6 F)	tebuconazole	3	4 - 6 fl oz	14	
Anthracnose, Ascochyta Blight	Quadris Opti	azoxystrobin + chlorothalonil	11 M5	1.6 - 2.4 pt		See label for important restrictions and application information.
Anthracnose, Ascochyta Blight, Powdery Mildew, Rust	Vertisan Priaxor	penthiopyrad fluxapyroxad + pyraclostrobin	7 7 11	10 - 20 fl oz 4 - 8 fl oz	21 21	
<b>BEANS (Dry) and FIELD PEAS (<i>Phaseolus</i> and <i>Vigna</i> spp.)</b>						
Anthracnose, Ascochyta Blight, Mycosphaerella Blight, Powdery Mildew, Rust	Headline	pyraclostrobin	11	5.5 - 8 fl oz	30	See label for important restrictions and application information.
	Endura	boscalid	7	8 - 11 oz	See label.	Follow label instructions. Not labeled on peas.
	Topsin M 4.5 F	thiophanate-methyl	1	10 fl oz	1	See label information.
	Quilt Xcel	azoxystrobin + propiconazole	11 3	10.5 - 14 fl oz	14	
Rust, White Mold	Proline 480 SC	prothioconazole	3	5.7 fl oz	7	
<b>BRASSICA (Leafy Greens)</b>						
White Rust ( <i>Albugo</i> ) Black Spot ( <i>Alternaria</i> )	Quadris 2.08	azoxystrobin	11	6 - 15.5 fl oz	0	Apply prior to disease and continue on a 7 - 14 day schedule. Do not make more than 2 consecutive applications of Quadris nor more than 3 total applications per acre per crop year. Do not apply more than 1.44 qts per acre per season.
Alternaria	Fontelis Quadris Top	penthiopyrad azoxystrobin + difenoconazole	7 11 3	14 - 30 fl oz 12 - 14 fl oz	3 1	
	Inspire Super	difenoconazole + cyprodinil	3 9	16 - 20 fl oz	7	
Downy Mildew	Revus	mandipropamid	40	8 fl oz		See label information.

### VEGETABLE DISEASES (Commercial Production) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
<b>CABBAGE, BROCCOLI, COLE CROPS</b>						
Alternaria Leaf Spot	Endura 70 WP	boscalid	7	6 - 9 oz	0	7 - 14 day schedule.
	Maneb 80 WP	maneb	M3	1.5 - 2 lb	7	7 - 14 day schedule.
	Ridomil Gold	mefenoxam +	4	1.5 pt	7	7 - 14 day schedule.
	Bravo SC	chlorothalonil	M5			
	Cabrio 20 EC	pyraclostrobin	11	12 - 16 oz	0	7 - 14 day schedule.
	Bravo Weatherstik	chlorothalonil	M5	1.5 - 3 pt	7	7 - 14 day schedule.
	Quadris 2.08	azoxystrobin	11	6 - 15 fl oz	0	7 - 14 day schedule.
	Switch 62.5 WG	cyprodinil + fludioxonil	9 12	11 - 14 oz	7	7 - 14 day schedule.
Downy Mildew	Ridomil Gold	mefenoxam +	4	1.5 pt	7	7 - 10 day interval until disease is under control.
	Bravo SC	chlorothalonil	M5			Alternate fungicides with different modes of action.
	Cabrio 20 EC	pyraclostrobin	11	12 - 16 oz	0	See label.
	Quadris 2.08	azoxystrobin	11	6 - 15 oz	0	See label.
	Aliette 80 WG	fosetyl-Al	33	2 - 5 lb	3	See label.
	Presidio 4 SC	fluopicolide	43	3 - 4 fl oz	2	See label.
	Reason 500 SC	fenamidone	11	5.5 - 8.2 fl oz	2	See label.
	Revus 2.08 SC	mandipropamid	40	8 fl oz	1	See label.
Pythium Damping-Off	Ridomil Gold SL	mefenoxam	4	0.25 - 0.5 pt	NA	Apply to soil at planting or transplanting.
Rhizoctonia Stem and Root Rot	Endura 70 WG	boscalid	7	6 - 9 oz	0	Apply at first sign of disease; may be repeated 7 - 14 days later.
<b>CANTALOUPE</b>						
Gummy Stem Blight, Powdery Mildew, Alternaria Leaf Spot	Fontelis	penthiopyrad	7	12 - 16 fl oz	1	
	Inspire Super	difenoconazole + cyprodinil	3 9	16 - 20 fl oz	7	
Gummy Stem Blight, Downy Mildew, Anthracnose, Alternaria Leaf Spot, Target Spot, Powdery Mildew	Quadris 2.08	azoxystrobin	11	11 - 15.4 fl oz	1	Apply at 7 - 14 day intervals prior to disease or at first sign. Alternate with a fungicide with different mode of action (e.g., Bravo) for downy mildew and spray on a 5 day schedule if conditions favor this disease. Cabrio rate for downy mildew control is 8 - 12 oz per acre. See label. Do not use adjuvants with Cabrio or tank mix with other pesticides or crop injury may result.
	Cabrio 20 EG	pyraclostrobin	11	12 - 16 oz	0	
	Quadris Opti	azoxystrobin + chlorothalonil	11 M5	3.2 pt		See label information.
	Quadris Top	azoxystrobin + difenoconazole	11 3	8 fl oz	1	
	Pristine	boscalid + pyraclostrobin	7 11	12.5 - 18.5 oz	See label.	See label.

(continued)

**VEGETABLE DISEASES (Commercial Production) – continued**

Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
<b>CANTALOUPE (cont.)</b>						
Gummy Stem Blight, ( <i>cont.</i> ) Downy Mildew, Anthracnose, Alternaria Leaf Spot, Target Spot, Powdery Mildew	Bravo Ultrex	chlorothalonil	M5	1.4 - 2.7 lb		Lower rate for downy mildew.
	Bravo WeatherStik	chlorothalonil	M5	2 - 3 pt		Lower rate for downy mildew.
	Mancozeb 80 W	mancozeb	M3	2 - 3 lb	5	Various brands including Dithane, Penncozeb, Manzate, etc.
	Maneb 80 W	maneb	M3	1 - 2 lb	5	Various brands and formulations.
	Topsin M 4.5 F	thiophanate-methyl	1	10 fl oz	1	See label.
	Cuprofix Ultra 40 Disperss	copper sulfate	M1	1.25 - 2 lb	0	See label.
Gummy Stem Blight, Downy Mildew, Anthracnose, Alternaria Leaf Spot, Powdery Mildew	Ridomil Gold Bravo SC	mefenoxam + chlorothalonil	4 M5	2.5 - 3.25 pt	0	
	Ridomil Gold MZ	mefenoxam + mancozeb	4 M3	2.5 lb	5	
Alternaria Leaf Spot Cercospora Leaf Spot Downy Mildew Fruit and Stem Rot	Gavel 75 DF	mancozeb + zoxamide	M3 22	1.5 - 2 lb	5	See label for important restrictions and application information.
Downy Mildew	Ridomil Gold Bravo SC	mefenoxam + chlorothalonil	4 M5	2 lb	7	Apply at 14 day intervals and alternate with mancozeb, maneb, Quadris or Flint.
	Flint 50 WG	trifloxystrobin	11	4 oz	0	Apply in alternation with Bravo, Ridomil Gold Bravo.
	Tanos	famoxadone + cymoxanil	11 27	8 oz	3	REI = 12 hours. Must tank mix with fungicides of different mode of action (non group 11). See label.
	Previcur Flex	propamocarb hydrochloride	28	1.2 pt	2	REI = 12 hours. Must tank mix with another downy mildew fungicide. See label.
	Curzate 60 DF	cymoxanil	27	3.2 oz	3	REI = 12 hours. Must tank mix with fungicides of different mode of action (non group 11). See label.
	Acrobat 50 WP	dimethomorph	40	6.4 oz	0	Allow sprays to dry before harvest begins. REI = 12 hours. See label.
	Forum 4.18 F	dimethomorph	40	6 fl oz	0	
	Gavel 75 DF	mancozeb + zoxamide	M3 22	1.5 - 2 lb	5	Some varieties are sensitive to Gavel – see label.
	Presidio 4 SC	fluopicolide	43	3 - 4 oz	2	
	Reason 500 SC	fenamidone	11	5.5 oz	14	
	Revus 2.08 SC	mandipropamid	40	8 fl oz	0	
Cabrio 20 EG Pristine		pyraclostrobin	11	8 - 12 oz	0	
		boscalid + pyraclostrobin	7 11	12.5 - 18.5 oz	0	



### VEGETABLE DISEASES (Commercial Production) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
<b>CANTALOUPE (cont.)</b>						
*Powdery Mildew	Rally 40 WSP	myclobutanil	3	2.5 - 5 oz	0	Do not apply more than 1.5 lb Rally per acre per crop.
	Flint 50 WG	trifloxystrobin	11	1.5 - 2 oz	0	Apply at first sign of disease on 7 day schedule. Alternate with Bravo or other fungicides with different modes of action.
	Cabrio 20 EG	pyraclostrobin	11	12 - 16 oz	0	See label.
	Pristine	boscalid + pyraclostrobin	7 11	12.5 - 18.5 oz		See label. Best applied as a preventative.
	Quintec	quinoxifen	13	4 - 6 oz	3	
	Torino	cyflufenamid	U6	3.4 oz	0	Resistance to <i>Sphaerotheca</i> is known.
Pythium Damping-Off	Ridomil Gold SL	mefenoxam	4	8 - 16 fl oz		Apply to the soil at planting or transplanting.
	Uniform	azoxystrobin + mefenoxam	11 4	0.34 oz/ 1,000 row ft		In-furrow spray. Also effective for Rhizoctonia seedling blight.
<b>CORN (Sweet)</b>						
Rusts, Leaf Spot Diseases	Mancozeb 80 W	mancozeb	M3	2 - 3 lb	5	Various brands including Dithane, Penncozeb, Manzate, etc.
	Maneb 80 W	maneb	M3	1 - 2 lb	5	Various brands and formulations.
	Tilt 3.6 EC	propiconazole	3	4 fl oz	14	Begin applications at first sign of disease and continue on a 7 - 14 day schedule. Read label for restrictions.
	Propimax EC	propiconazole	3	4 fl oz	14	
	Headline	pyraclostrobin	11	6 - 12 fl oz	7	
	Quadris 2.08 SC	azoxystrobin	11	6.2 - 9 fl oz	7	
	Prosaro 421 SC	prothioconazole + tebuconazole	3 3	6.5 fl oz	2	
	Stratego YLD	trifloxystrobin + prothioconazole	11 3	4 - 5 fl oz	0	
	Stratego	propiconazole + trifloxystrobin	3 11	10 fl oz	14	
	Quilt Xcel	azoxystrobin + propiconazole	11 3	10.5 - 14 fl oz		
	Evito 480 SC or Aftershock	fluoxastrobin	11	2 - 5.7 fl oz	7	See label.
	Priaxor	fluxapyroxad + pyraclostrobin	7 11	4 - 8 fl oz	7	
	Headline AMP	pyraclostrobin + metconazole	11 3	10 - 14.4 fl oz	7	

# VEGETABLE DISEASES (Commercial Production) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
<b>CUCUMBERS</b>						
Angular Leaf Spot	Maneb 80 W	maneb	M3	1 - 2 lb	5	Apply at first sign of disease and alternate with fungicides for anthracnose on a 7 - 10 day schedule. Various brands available.
Anthracnose, Alternaria Leaf Spot, Gummy Stem Blight, Downy Mildew, Target Spot	Quadris Top	azoxystrobin + difenoconazole	11 3	12 - 14 fl oz	1	
Anthracnose, Alternaria Leaf Spot, Gummy Stem Blight, Downy Mildew, Target Spot, Scab	Quadris 2.08 SC	azoxystrobin	11	11 - 15.4 fl oz	1	Apply at 7 - 14 day intervals prior to disease or at first sign. Alternate with a fungicide with different mode of action (e.g., Bravo) for downy mildew and spray on a 5 day schedule if conditions favor this disease. Cabrio rate for downy mildew control is 8 - 12 oz per acre. See label. Do not use adjuvants with Cabrio or tank mix with other pesticides or crop injury may result.
	Cabrio 20 EG	pyraclostrobin	11	12 - 16 oz	0	
	Quadris Opti	azoxystrobin + chlorothalonil	11 M5	3.2 pt		See label information.
	Bravo Ultrex	chlorothalonil	M5	1.4 - 2.7 lb		Lower rate for downy mildew.
	Bravo WeatherStik	chlorothalonil	M5	2 - 3 pt		Lower rate for downy mildew.
	Equus 720 SST	chlorothalonil	M5	2 - 3 pt	See label instructions.	Apply at first true leaf, then at 7 day intervals. Temperature restrictions on watermelon. See label information.
	Mancozeb 80 W	mancozeb	M3	2 - 3 lb	5	Various brands including Dithane, Penncozeb, Manzate, etc.
	Maneb 80 W	maneb	M3	1 - 2 lb	5	Various brands and formulations.
	Pristine	boscalid + pyraclostrobin	7 11	12.5 - 18.5 oz		See label.
	Fontelis	penthiopyrad	7	12 - 16 fl oz	1	
Alternaria Leaf Spot, Anthracnose, Gummy Stem Blight, Powdery Mildew	Inspire Super	difenoconazole + cyprodinil	3 9	16 - 20 fl oz	7	
Alternaria Leaf Spot Downy Mildew	Reason 500 SC	fenamidone	11	5.5 - 8.2 fl oz	14	See label information.
Downy Mildew Pythium	Previcur Flex	propamocarb hydrochloride	28	1.2 pt	2	

**VEGETABLE DISEASES (Commercial Production) – continued**

Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
<b>CUCUMBERS (cont.)</b>						
Alternaria Leaf Spot Cercospora Leaf Spot Downy Mildew Fruit and Stem Rot	Gavel 75 DF	mancozeb + zoxamide	M3 22	1.5 - 2 lb	5	See label for important restrictions and application information.
Downy Mildew	Ridomil Gold Bravo	mefenoxam + chlorothalonil	4 M5	2 lb	7	Apply at 14 day intervals and alternate with mancozeb, maneb, Quadris or Flint.
	Flint 50 WG	trifloxystrobin	11	4 oz	0	Apply in alternation with Bravo, Ridomil Gold Bravo.
	Tanos	famoxadone + cymoxanil	11 27	8 oz	3	REI = 12 hours. Must tank mix with fungicides of different mode of action (non group 11). See label.
	Previcur Flex	propamocarb hydrochloride	28	1.2 pt	2	REI = 12 hours. Must tank mix with another downy mildew fungicide. See label.
	Curzate 60 DF	cymoxanil	27	3.2 oz	3	REI = 12 hours. Must tank mix with fungicides of different mode of action (non group 11). See label.
	Acrobat 50 WP	dimethomorph	40	6.4 oz	0	Allow sprays to dry before harvest begins. REI = 12 hours. See label.
	Forum 4.18 F	dimethomorph	40	6 fl oz	0	
	Gavel 75 DF	mancozeb + zoxamide	M3 22	1.5 - 2 lb	5	
	Presidio 4 SC	fluopicolide	43	3 - 4 oz	2	
	Reason 500 SC	fenamidone	11	5.5 oz	14	
	Revus 2.08 SC	mandipropamid	40	8 fl oz	0	
*Powdery Mildew	Flint 50 WG	trifloxystrobin	11	1.5 - 2 oz	0	Apply at first sign of disease on 7 day schedule. Alternate with Bravo or other fungicides with different modes of action. Quadris has the same mode of action.
	Bravo Ultrex	chlorothalonil	M5	1.4 - 2.7 lb		
	Bravo WeatherStik	chlorothalonil	M5	2 - 3 pt		
	Quadris 2.08 SC	azoxystrobin	11	11 - 15.4 fl oz	1	
	Microthiol Disperss	wettable sulfur	M2	2 lb	0	Apply at first sign of disease and repeat at 14 day intervals as needed. Do not apply when temperature is above 90 degrees F. See label information for application.
	Pristine	boscalid + pyraclostrobin	7 11	12.5 - 18.5 oz		
	Nova 40 W or Rally 40 WSP	myclobutanil	3	2.5 - 5 oz	0	Do not apply more than 1.5 lb Rally per acre per crop.
	Procure 50 WP	triflumizole	3	4 - 8 oz	0	
	Quadris Opti 5.5 SC	azoxystrobin + chlorothalonil	11 M5	3.2 pt	1	
	Quintec Torino	quinoxifen cyflufenamid	13 U6	4 - 6 oz 3.4 oz	3 0	Resistance to <i>Sphaerotheca</i> is known.
Pythium Damping-Off	Ridomil Gold SL	mefenoxam	4	8 - 16 fl oz		Apply to the soil at planting or transplanting.
	Uniform	azoxystrobin + mefenoxam	11 4	0.34 oz/1,000 row ft		In-furrow spray also effective for Rhizoctonia seedling blight.

### VEGETABLE DISEASES (Commercial Production) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
<b>EGGPLANT</b>						
Anthracnose, Cercospora, Gray Leaf Spot, Powdery Mildew	Quadris Top	azoxystrobin + difenoconazole	11 3	8 - 14 fl oz	1	
Anthracnose Powdery Mildew	Quadris 2.08 SC	azoxystrobin	11	6.2 - 15.4 fl oz	0	Apply prior to disease and on a 7 - 14 day schedule as needed. Do not make more than 2 consecutive applications and do not make more than 4 applications per crop year. Do not apply more than 1.92 qts per acre per season. See Cabrio label.
	Cabrio 20 EG	pyraclostrobin	11	8 - 12 oz	0	
	Reason 500 SC Priaxor	fenamidone fluxapyroxad + pyraclostrobin	11 7 11	5.5 oz 4 - 8 fl oz	14 7	
Anthracnose Downy Mildew	Quilt	azoxystrobin + propiconazole	11 3	6 fl oz		
Alternaria, Powdery Mildew, Target Spot	Fontelis	penthioapyrad	7	14 - 24 fl oz	0	
Alternaria, Target Spot	Evito 480 SC or Aftershock	fluoxastrobin	11	2 - 5.7 fl oz	3	
<b>OKRA</b>						
Anthracnose Downy Mildew	Quadris 2.08 SC	azoxystrobin	11	6 - 15.5 fl oz	0	Apply prior to disease and on a 7 - 14 day schedule as needed. Do not make more than 2 consecutive applications and do not make more than 4 applications per crop year. Do not apply more than 1.92 qts per acre per season.
	Reason 500 SC	fenamidone	11	5.5 oz		
Seedling Disease	Quadris 2.08 SC	azoxystrobin	11	0.4 - 0.8 fl oz/ 1,000 row ft	N/A	In-furrow at planting or 7 inch band over the row shortly after emergence.
<b>ONION, GARLIC, LEEK, SHALLOT</b>						
Alternaria Blotch Powdery Mildew Downy Mildew	Cabrio 20 EG	pyraclostrobin	11	8 - 12 oz	7	Follow label directions closely.
	Pristine	boscalid + pyraclostrobin	7 11	12.5 - 18.5 oz	See label.	Follow label information for crops and diseases.
	Scala SC	pyrimethanil	9	9 - 18 oz		Use lower rate only in a tank mix with a broad-spectrum fungicide.
Downy Mildew	Revus	mandipropamid	40	8 fl oz		See label information.
Purple Blotch, Stemphylium, Botrytis	Inspire Super	difenoconazole + cyprodinil	3 9	16 - 20 fl oz	7	
	Quadris Top	azoxystrobin + difenoconazole	11 3	12 - 14 fl oz	3	
	Fontelis	penthioapyrad	7	14 - 24 fl oz	3	

**VEGETABLE DISEASES (Commercial Production) – continued**

Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
<b>PEAS (Southern and English)</b>						
Pythium Damping-Off	Ridomil Gold SL	mefenoxam	4	8 - 16 fl oz	2	Preplant incorporate in the top 2 inches.
Downy Mildew Cercospora Leaf Spot Anthracnose, Rust	Bravo WeatherStik	chlorothalonil	M5	1 3/8 - 2 pt	14	Apply at first sign of disease on a 7 - 10 day schedule as needed.
	Quilt	azoxystrobin + propiconazole	11 3	6 fl oz		
	Priaxor	fluxapyroxad + pyraclostrobin	7 11	4 - 8 fl oz	7	
Cercospora Leaf Spot, Anthracnose, Rust	Fontelis	penthiopyrad	7	14 - 30 fl oz	0	
Cercospora Leaf Spot, Anthracnose, Rust, Powdery Mildew	Vertisan	penthiopyrad	7	10 - 20 fl oz	21	
<b>PEPPER</b>						
Bacterial Spot	Kocide 2000 + Maneb 80 W	copper hydroxide + maneb	M1	1.5 - 2.25 lb +	0	Apply a week after transplanting and again at 5 - 10 day intervals if disease begins to develop and as needed. There are other forms of copper hydroxide and maneb available.
			M3	1 - 2 lb	7	
Downy Mildew Anthracnose	Quilt	azoxystrobin + propiconazole	11 3	6 fl oz		
Downy Mildew	Revus	mandipropamid	40	8 fl oz		See label information.
Downy Mildew, Pythium	Previcur Flex	propamocarb hydrochloride	28	1.2 pt	2	See label information.
Downy Mildew, Anthracnose Cercospora Leaf Spot	Maneb 80 W	maneb	M3	1 - 2 lb	7	Apply as needed on a 7 - 10 day schedule at first sign of disease.
Anthracnose Powdery Mildew	Quadris 2.08 SC	azoxystrobin	11	6 - 15.5 fl oz	0	Apply prior to disease and on a 7 - 14 day schedule as needed. Do not make more than 2 consecutive applications and do not make more than 4 applications per crop year. Do not apply more than 1.92 qts per acre per season. See Cabrio label.
	Cabrio 20 EG	pyraclostrobin	11	8 - 12 oz	0	
	Reason 500 SC Priaxor	fenamidone fluxapyroxad + pyraclostrobin	11 7 11	5.5 oz 4 - 8 fl oz	7	
Anthracnose, Cercospora, Gray Leaf Spot, Powdery Mildew	Quadris Top	azoxystrobin + difenoconazole	11 3	8 - 14 fl oz	1	
Alternaria, Powdery Mildew, Target Spot	Fontelis	penthiopyrad	7	14 - 24 fl oz	0	

### VEGETABLE DISEASES (Commercial Production) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
<b>PEPPER (cont.)</b>						
Alternaria, Target Spot	Evito 480 SC or Aftershock	fluoxastrobin	11	2 - 5.7 fl oz	3	
Southern Blight	Blocker 4 F	PCNB	14	4.5 - 7.5 pt/ 100 gal water	45	Use 1/2 pint transplant solution per plant. Do not exceed 7.5 lb PCNB per acre per season.
Pythium, Phytophthora Damping-Off	Ridomil Gold SL	mefenoxam	4	16 fl oz		Apply to the soil at planting or transplanting.
<b>POTATO (Seed Piece Protection)</b>						
Seed Piece and Sprout Rots	Maxim Potato Seed Protectant	fludioxonil	12	0.5 lb/100 lb seed pieces		Uniform coverage is essential.
<b>POTATO (Foliar Diseases)</b>						
Early Blight Late Blight Botrytis Rot	Quadris 2.08 SC	azoxystrobin	11	6.2 - 15.4 fl oz	1	Use higher rates on a weekly schedule under severe disease conditions; otherwise use a 14 day schedule and lower rates as needed. Alternate with fungicides of different modes of action.
	Scala	pyrimethanil	9	7 oz		Must tank mix with other effective fungicide. See label information.
	Bravo WeatherStik	chlorothalonil	M5	1 pt	0	Apply on a weekly schedule in alternation with other fungicides, as needed.
	Kocide 2000	copper hydroxide	M1	0.75 - 3 lb	0	Use higher rates if disease is severe.
	Mancozeb 80 W	mancozeb	M3	1 - 2 lb	14	Several brands and formulations.
	Manex with Zinc	maneb	M3	0.8 - 1.6 qt	14	Use higher rates if disease is severe. Other brands of maneb may be available.
Late Blight Early Blight	Gavel 75 DF	mancozeb + zoxamide	M3 22	1.5 - 2 lb	14	See label for important restrictions and application information.
	Previcur Flex	propamocarb hydrochloride	28	0.7 - 1.2 pt	14	See label.
	Headline	pyraclostrobin	11	6 - 9 fl oz	3	Use 6 - 12 fl oz for late blight. See label for other information.
	Reason 500 SC	fenamidone	11	5.5 fl oz	See label.	See label for additional information. Rates vary.
Late Blight, Early Blight, Powdery Mildew	Quadris Opti	azoxystrobin + chlorothalonil	11 M5	3.2 pt		See label information.

**VEGETABLE DISEASES (Commercial Production) – continued**

Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
<b>POTATO (Foliar Diseases) (cont.)</b>						
Powdery Mildew	Microthiol Disperss	wettable sulfur	M2	5 lb	0	Apply at first sign of disease and repeat at 14 day intervals as needed.
Early Blight, Powdery Mildew	Vertisan	penthioopyrad	7	10 - 24 fl oz	7	
	Quadris Top	azoxystrobin + difenoconazole	11 3	8 - 14 fl oz	14	
	Luna Tranquility	fluopyram + pyrimethanil	7 9	11.2 fl oz	7	
Downy Mildew	Revus	mandipropamid	40	8 fl oz		See label information.
Early Blight	Gem 500 SC	trifloxystrobin	11	2.9 - 3.8 fl oz	7	See label information.
	Evito 480 SC or Aftershock	fluoxastrobin	11	2 - 3.8 fl oz	7	
	Priaxor	fluxapyroxad + pyraclostrobin	7 11	4 - 8 fl oz	7	
<b>PUMPKIN</b>						
Angular Leaf Spot	Maneb 80 W	maneb	M3	1 - 2 lb	5	Apply at first sign of disease and alternate with fungicides for anthracnose on a 7 - 10 day schedule. Various brands available.
	Kocide 2000	copper hydroxide	M1	1 - 2.25 lb	0	Crop injury may occur at high rates.
Anthracnose	Quadris 2.08 SC	azoxystrobin	11	11 - 15.4 fl oz	1	Apply at 7 - 14 day intervals prior to disease or at first sign. Alternate with a fungicide with different mode of action (e.g., Bravo) for downy mildew and spray on a 5 day schedule if conditions favor this disease. Cabrio rate for downy mildew control is 8 - 12 oz per acre. See label. Do not use adjuvants with Cabrio or tank mix with other pesticides or crop injury may result.
Alternaria Leaf Spot	Cabrio 20 EG	pyraclostrobin	11	12 - 16 oz	0	
Gummy Stem Blight						
Downy Mildew						
Target Spot						
Scab						
Powdery Mildew						
	Bravo Ultrex	chlorothalonil	M5	1.4 - 2.7 lb		Lower rate for downy mildew.
	Bravo WeatherStik	chlorothalonil	M5	2 - 3 pt		Lower rate for downy mildew.
	Maneb 80 W	maneb	M3	1 - 2 lb	5	Various brands and formulations.
	Pristine	boscalid + pyraclostrobin	7 11	12.5 - 18.5 oz	See label.	Follow label. Best applied at first evidence of disease.
	Topsin M 4.5 F	thiophanate-methyl	1	10 fl oz	1	
Anthracnose,	Ridomil Gold	mefenoxam +	4	2.5 - 3.25 pt	0	
Alternaria Leaf Spot	Bravo SC	chlorothalonil	M5			
Gummy Stem Blight						
Downy Mildew						
Target Spot						
Alternaria Leaf Spot,	Fontelis	penthioopyrad	7	12 - 16 fl oz	1	
Anthracnose, Gummy						
Stem Blight, Powdery	Inspire Super	difenoconazole +	3	16 - 20 fl oz	7	
Mildew		cyprodinil	9			

**VEGETABLE DISEASES (Commercial Production) – continued**

Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
<b>PUMPKIN (cont.)</b>						
Anthracnose, Alternaria Leaf Spot, Gummy Stem Blight, Downy Mildew, Target Spot, Powdery Mildew	Quadris Top	azoxystrobin + difenoconazole	11 3	12 - 14 fl oz	1	
Downy Mildew	Ridomil Gold Bravo SC	mefenoxam + chlorothalonil	4 M5	2 lb	7	Apply at 14 day intervals and alternate with mancozeb, maneb, Quadris or Flint.
	Flint 50 WG	trifloxystrobin	11	4 oz	0	Apply in alternation with Bravo, Ridomil Gold Bravo.
	Tanos	famoxadone + cymoxanil	11 27	8 oz	3	REI = 12 hours. Rotate with Bravo or mancozeb. See label.
	Previcur Flex	propamocarb	28	1.2 pt	2	REI = 12 hours. Must tank mix with another downy mildew fungicide. See label.
	Curzate 60 DF	cymoxanil	27	3.2 oz	3	REI = 12 hours. Tank mix with chlorothalonil or mancozeb. See label.
	Acrobat 50 WP	dimethomorph	40	6.4 oz	0	Allow sprays to dry before harvest begins. REI = 12 hours. See label.
	Reason 500 SC	fenamidone	11	5.5 fl oz		Rates vary. See label.
	Ranman	cyazofamid	21	2.1 - 2.75 fl oz	See label.	Apply at 7 - 10 day interval beginning at flowering or at initial disease onset.
	Sonata	<i>Bacillus pumilus</i> (bacteria)	---	2 - 4 qt	0	Can be used for organic production. See label.
	Forum 4.18 F	dimethomorph	40	6 fl oz	0	Some varieties are sensitive to Gavel – see label.
	Gavel 75 DF	mancozeb + zoxamide	M3 22	1.5 - 2 lb	5	
	Presidio 4 SC	fluopicolide	43	3 - 4 oz	2	
*Powdery Mildew	Revus 2.08 SC	mandipropamid	40	8 fl oz	0	
	Rally 40 WSP	myclobutanil	3	2.5 - 5 oz	0	Do not apply more than 1.5 lb Rally per acre per crop.
	Flint 50 WG	trifloxystrobin	11	1.5 - 2 oz	0	Apply at first sign of disease on 7 day schedule. Alternate with Bravo or other fungicides with different modes of action. Quadris has the same mode of action.
	Quintec	quinoxifen	13	4 - 6 oz	3	Resistance to <i>Sphaerotheca</i> is known. Apply at first sign of disease and repeat at 14 day intervals as needed. Do not apply when temperature is above 90 degrees F.
Pythium Damping-Off	Torino	cyflufenamid	U6	3.4 oz	0	
	Microthiol Special	wettable sulfur	M2	2 lb	0	
Pythium Damping-Off	Ridomil Gold SL	mefenoxam	4	8 - 16 fl oz		Apply to the soil at planting or transplanting.
	Uniform	azoxystrobin + mefenoxam	11 4	0.34 oz/1,000 row ft		In-furrow spray. Also effective for Rhizoctonia seedling blight.



### VEGETABLE DISEASES (Commercial Production) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
<b>RADISH</b>						
Alternaria Leaf Spot Cercospora Leaf Spot Powdery Mildew White Rust	Cabrio 20 EG	pyraclostrobin	11	8 - 12 oz	0	Use 8 - 16 oz for white rust control. See label for other information.
Alternaria Leaf Spot Cercospora Leaf Spot Powdery Mildew Rust	Fontelis	penthiopyrad	7	16 - 30 fl oz		
Pythium Damping-Off Phytophthora Stem Rot White Rust	Ridomil Gold SL	mefenoxam	4	8 - 16 fl oz		Apply to the soil at planting or transplanting.
<b>SPINACH</b>						
Pythium Damping-Off White Rust	Ridomil Gold SL	mefenoxam	4	8 - 16 fl oz		Apply to the soil at planting or transplanting.
Downy Mildew	Aliette 50 WDG	fosetyl-Al	33	2 - 3.75 lb	3	Apply at first sign of disease and repeat on a 7 - 21 day schedule as needed. Beware of certain tank mixes – see label.
	Ridomil Gold-Copper	mefenoxam + copper hydroxide	4 M1	2.5 lb	21	Spray at first sign of disease. Apply 21 days after Ridomil EC preplant application and on a 14 day schedule afterwards as needed. See label for precautions.
Foliar Leaf Spots White Rust	Quadris 2.08 FL	azoxystrobin	11	6.2 - 15.4 fl oz	0	Apply at first sign of disease and then on a 7 - 14 day schedule. Follow resistance management guidelines on label.
Downy Mildew Powdery Mildew	Quadris 2.08 FL	azoxystrobin	11	12.3 - 15.4 fl oz	0	Apply preventively on a weekly basis. If possible, alternate applications with a fungicide with a different mode of action.
	Kocide 2000	copper hydroxide	M1	1.5 - 2 lb	0	Apply as needed. Use higher rate for heavier disease situations. Flecking may occur on leaves.
Downy Mildew White Rust	Reason 500 SC	fenamidone	11	5.5 - 8.2 oz		See label.
Alternaria Leaf Spot Cercospora Early Blight Late Blight Powdery Mildew Rust	Fontelis	penthiopyrad	7	14 - 24 fl oz	3	

# VEGETABLE DISEASES (Commercial Production) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
SQUASH						
Angular Leaf Spot	Kocide 2000	copper hydroxide	M1	1 - 2.25 lb		Crop injury may occur at high rates.
Anthracnose	Quadris 2.08 SC	azoxystrobin	11	11 - 15.4 fl oz	1	Apply at 7 - 14 day intervals prior to disease or at first sign. Alternate with a fungicide with different mode of action (e.g., Bravo) for downy mildew and spray on a 5 day schedule if conditions favor this disease. Cabrio rate for downy mildew control is 8 - 12 oz per acre. See label. Do not use adjuvants with Cabrio or tank mix with other pesticides or crop injury may result.
Alternaria Leaf Spot	Cabrio 20 EG	pyraclostrobin	11	12 - 16 oz	0	
Gummy Stem Blight						
Downy Mildew						
Target Spot						
Scab	Bravo Ultrex	chlorothalonil	M5	1.4 - 2.7 lb	5 See label.	Lower rate for downy mildew.
	Bravo WeatherStik	chlorothalonil	M5	2 - 3 pt		Lower rate for downy mildew.
	Maneb 80 W	maneb	M3	1 - 2 lb		Various brands and formulations.
	Pristine	boscalid + pyraclostrobin	7 11	12.5 - 18.5 oz		Follow label. Best if applied as a preventative.
Anthracnose, Alternaria Leaf Spot, Gummy Stem Blight, Downy Mildew, Target Spot	Quadris Top	azoxystrobin + difenoconazole	11 3	12 - 14 fl oz	1	
Alternaria Leaf Spot, Anthracnose, Gummy Stem Blight, Powdery Mildew	Fontelis Inspire Super	penthiopyrad difenoconazole + cyprodinil	7	12 - 16 fl oz	1	
			3	16 - 20 fl oz	7	
			9			
Downy Mildew Pythium	Previcur Flex	propamocarb hydrochloride	28	1.2 pt	2	
Alternaria Leaf Spot Cercospora Leaf Spot Downy Mildew Fruit and Stem Rot	Gavel 75 DF	mancozeb + zoxamide	M3 22	1.5 - 2 lb	5	See label for important restrictions and application information.
Downy Mildew	Ridomil Gold Bravo	mefenoxam + chlorothalonil	4 M5	2 lb	7	Apply at 14 day intervals and alternate with mancozeb, maneb, Quadris or Flint.
	Flint 50 WG	trifloxystrobin	11	4 oz	0	Apply in alternation with Bravo, Ridomil Gold Bravo.
	Tanos	famoxadone + cymoxanil	11 27	8 oz	3	REI = 12 hours. Must tank mix with contact fungicide with different mode of action (non group 11). See label.
	Reason 500 SC	fenamidone	11	5.5 - 8.2 fl oz	14	See label information.
	Previcur Flex	propamocarb	28	1.2 pt	2	REI = 12 hours. Must tank mix with another downy mildew fungicide. See label.
	Curzate 60 DF	cymoxanil	27	3.2 oz	3	REI = 12 hours. Must tank mix with contact fungicide with different mode of action (non group 11). See label for specific mixing information.
	Acrobat 50 WP	dimethomorph	40	6.4 oz	0	Allow sprays to dry before harvest begins. REI = 12 hours. See label.
	Cuprofix Ultra 40 Disperss	copper sulfate	M1	1.25 - 2 lb	0	

### VEGETABLE DISEASES (Commercial Production) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
<b>SQUASH (cont.)</b>						
*Powdery Mildew	Flint 50 WG	trifloxystrobin	11	1.5 - 2 oz	0	Apply at first sign of disease on 7 day schedule. Alternate with Bravo or other fungicides with different modes of action. Quadris has the same mode of action.
	Folicur 3.6 F	tebuconazole	3	4 - 6 fl oz	7	
	Rally 40 WSP	myclobutanil	3	2.5 - 5 oz	0	Do not apply more than 1.5 lb Rally per acre per crop.
	Bravo Ultrex	chlorothalonil	M5	1.4 - 2.7 lb		
	Bravo WeatherStik	chlorothalonil	M5	2 - 3 pt		
	Quadris 2.08 SC	azoxystrobin	11	11 - 15.4 fl oz	1	
	Microthiol Disperss	wettable sulfur	M2	2 lb	0	Apply at first sign of disease and repeat at 14 day intervals as needed. Do not apply when temperature is above 90 degrees F.
	Pristine	boscalid + pyraclostrobin	7 11	12.5 - 18.5 oz	See label.	Best if applied at first evidence of disease. Follow label information.
	Quintec	quinoxifen	13	4 - 6 oz	3	
	Torino	cyflufenamid	U6	3.4 oz	0	Resistance to <i>Sphaerotheca</i> is known.
Pythium Damping-Off	Ridomil Gold SL	mefenoxam	4	8 - 16 fl oz		Apply to the soil at planting or transplanting.
	Uniform	azoxystrobin + mefenoxam	11 4	0.34 oz/ 1,000 row ft		In-furrow spray. Also effective for Rhizoctonia seedling blight.
<b>SWEET POTATO</b>						
Downy Mildew	Headline	pyraclostrobin	11	6 - 12 fl oz	3	See label for restrictions and application information.
Leaf Spot	Quadris 2.08 SC	azoxystrobin	11	6 - 15.5 fl oz		
Powdery Mildew						
Scurf	Mertect 340-F	thiabendazole	1	107 oz/100 gal		Dip seedling roots into solution for 2 minutes and then plant.
Foot Rot						
Black Rot	Botran 75 W	dichloran	14	13.3 lb/100 gal		Same as above.
Post-Harvest Rhizopus	Botran 75 W	dichloran	14	1 lb/100 gal		Dip sweet potato in solution for 10 seconds and do not rinse before shipment or storage. If dipping is not feasible, the solution can be sprayed on. Good coverage is crucial.
Pythium Damping-Off	Ridomil Gold SL	mefenoxam	4	8 - 16 fl oz		Apply to the soil at planting or transplanting.
Early Blight	Scala	pyrimethanil	9	7 oz	7	See label information.
Botrytis Leaf Spot						

# VEGETABLE DISEASES (Commercial Production) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
<b>SWEET POTATO (cont.)</b>						
Early Blight and Late Blight	Reason 500 SC	fenamidone	11	5.5 - 8.2 oz		See label information.
Early Blight, Powdery Mildew	Vertisan	penthiopyrad	7	10 - 24 fl oz	7	
	Quadris Top	azoxystrobin + difenoconazole	11 3	8 - 14 fl oz	14	
Early Blight	Evito 480 SC or Aftershock	fluoxastrobin	11	2 - 3.8 fl oz	7	
<b>TOMATO – See tomato disease section</b>						
<b>WATERMELON</b>						
Gummy Stem Blight Downy Mildew Anthracnose Alternaria Leaf Spot Target Spot	Quadris 2.08 SC	azoxystrobin	11	11 - 15.4 fl oz	1	Apply at 7 - 14 day intervals prior to disease or at first sign. Alternate with a fungicide with different mode of action (e.g., Bravo) for downy mildew and spray on a 5 day schedule if conditions favor this disease. Cabrio rate for downy mildew control is 8 - 12 oz per acre. See label. Do not use adjuvants with Cabrio or tank mix with other pesticides or crop injury may result.
	Cabrio 20 EG	pyraclostrobin	11	12 - 16 oz	0	
	Quadris Top	azoxystrobin + difenoconazole	11 3	12 - 14 fl oz	1	
	Bravo Ultrex	chlorothalonil	M5	1.4 - 2.7 lb		
	Bravo WeatherStik	chlorothalonil	M5	2 - 3 pt		
	Equus 720	chlorothalonil	M5	2 - 3 pt		Apply at first true leaf stage or at first evidence of disease. Some weather restrictions apply to watermelons, etc. 7 day intervals.
	Mancozeb 80 W	mancozeb	M3	2 - 3 lb	5	Various brands including Dithane, Penncozeb, Manzate, etc.
	Maneb 80 W	maneb	M3	1 - 2 lb	5	Various brands and formulations.
	Pristine	boscalid + pyraclostrobin	7 11	12.5 - 18.5 oz	See label.	Follow label information.
Gummy Stem Blight Downy Mildew Anthracnose Alternaria Leaf Spot Powdery Mildew	Ridomil Gold Bravo SC	mefenoxam + chlorothalonil	4 M5	2.5 - 3.25 pt	0	
Alternaria Leaf Spot Anthracnose	Fontelis	penthiopyrad	7	12 - 16 fl oz	1	
Gummy Stem Blight Powdery Mildew	Inspire Super	difenoconazole + cyprodinil	3 9	16 - 20 fl oz	7	

# **VEGETABLE DISEASES (Commercial Production) – continued**

Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
<b>WATERMELON (cont.)</b>						
Alternaria Leaf Spot Cercospora Leaf Spot Downy Mildew Fruit and Stem Rot	Gavel 75 DF	mancozeb + zoxamide	M3 22	1.5 - 2 lb	5	See label for important restrictions and application information.
Anthracnose Alternaria Leaf Spot Gummy Stem Blight	Luna Experience	fluopyram + tebuconazole	7 3	8 - 17 fl oz	7	
Anthracnose Alternaria Leaf Spot	Luna Sensation	fluopyram + trifloxystrobin	7 11	7.6 fl oz	0	
Downy Mildew	Ridomil Gold Bravo SC	mefenoxam + chlorothalonil	4 M5	2 lb	7	Apply at 14 day intervals and alternate with mancozeb, maneb, Quadris or Flint.
	Flint 50 WG	trifloxystrobin	11	4 oz	0	Apply in alternation with Bravo, Ridomil Gold Bravo.
	Tanos	famoxadone + cymoxanil	11 27	8 oz	3	REI = 12 hours. Rotate with Bravo or mancozeb. See label.
	Previcur Flex	propamocarb	28	1.2 pt	2	REI = 12 hours. Must tank mix with another downy mildew fungicide. See label.
	Curzate 60 DF	cymoxanil	27	3.2 oz	3	REI = 12 hours. Tank mix with chlorothalonil or mancozeb. See label.
	Acrobat 50 WP	dimethomorph	40	6.4 oz	0	Allow sprays to dry before harvest begins. REI = 12 hours. See label.
	Reason 500 SC	fenamidone	11	5.5 oz	See label.	Rates may vary. Follow label.
	Forum 4.18 F	dimethomorph	40	6 fl oz	0	
	Gavel 75 DF	mancozeb + zoxamide	M3 22	1.5 - 2 lb	5	Some varieties are sensitive to Gavel – see label.
	Presidio 4 SC Reason 500 SC Revus 2.08 SC	fluopicolide fenamidone mandipropamid	43 11 40	3 - 4 oz 5.5 oz 8 fl oz	2 14 0	
*Powdery Mildew	Rally 40 WSP	myclobutanil	3	2.5 - 5 oz	0	Do not apply more than 1.5 lb Rally per acre per crop.
	Flint 50 WG	trifloxystrobin	11	1.5 - 2 oz	0	Apply at first sign of disease on 7 day schedule. Alternate with Bravo or other fungicides with different modes of action. Quadris has the same mode of action.
	Pristine	boscalid + pyraclostrobin	7 11	12.5 - 18.5 oz	See label.	Follow label. Best if applied at first evidence of disease.
(continued)	Quadris 2.08 SC	azoxystrobin	11	11 - 15.4 fl oz	1	

### VEGETABLE DISEASES (Commercial Production) – continued

Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Days to Harvest	Comments
<b>WATERMELON (cont.)</b>						
*Powdery Mildew ( <i>cont.</i> )	Luna Sensation	fluopyram + trifloxystrobin	7 11	4 - 7.6 fl oz	0	
	Luna Experience	fluopyram + tebuconazole	7 3	6 - 17 fl oz	7	
	Quintec	quinoxifen	13	4 - 6 oz	3	
	Torino	cyflufenamid	U6	3.4 oz	0	Resistance to <i>Sphaerotheca</i> is known.
Pythium Damping-Off	Ridomil Gold SL	mefenoxam	4	8 - 16 fl oz		Apply to the soil at planting or transplanting.
	Uniform	azoxystrobin + mefenoxam	11 4	0.34 oz/ 1,000 row ft		In-furrow spray. Also effective for <i>Rhizoctonia</i> seedling blight.

\***Powdery Mildew** of cucurbits is caused by two fungal genera, *Sphaerotheca* and *Erysiphe*, that can quickly (high risk) develop resistance to fungicides. Use a tank mix or premix with two modes of action (different FRAC Code numbers) and avoid sequential use of a single chemistry (same FRAC Code number) within the same season.

### VEGETABLE NEMATODES (Commercial Production)

Travis Faske

Nematode	Nematicide	Formulation	Active Ingredient	Rate/Acre	Comments
Root-Knot, Lesion, Stubby Root and Reniform	Telone II	Liquid	1,3-dichloropropene	See label.	Inject 12 inches below planting depth and seal immediately with appropriate bedding equipment. Wait 7 - 14 days before planting.
	Vydate L	Liquid	oxamyl	See label.	

**RESTRICTED USE PESTICIDES** – For sale and use only by licensed/certified applicators or persons under their direct supervision. **These are dangerous pesticides – use caution in handling and read and follow current label directions.** If nematodes are suspected to be causing problems, a diagnostic soil sample should be taken to the county agent for submission to the Cooperative Extension Service Nematode Diagnostic Laboratory. **A small fee is required.**

## VEGETABLE DISEASES (Home Garden)

Sherrie Smith

Disease	Product	Active Ingredient	FRAC Code	Amt/ Gal Water	Days to Harvest	Comments
Fungal Leaf Spots, Powdery and Downy Mildew, Fungal Blights  (Note: Copper fungicides are primarily effective against bacterial diseases.)	Serenade Garden Disease Control	<i>Bacillus subtilis</i>	44	RTU*	0 - 14 days (see label)	See label. Begin at disease onset.
	Ortho Garden Disease Control	chlorothalonil	M5	1 tbs	0 - 14 days (see label)	Apply in early morning or late evening using 1 gal spray per 250 sq ft of garden (10 x 25 ft). Good coverage is essential. Apply at first sign of disease and every 7 - 14 days as needed.
	Bonide Fung-onil RTU*	chlorothalonil	M5	1 tbs	0 - 14 days (see label)	Apply at first sign of disease and every 7 - 14 days as needed.
	Bonide Fung-onil Concentrate	chlorothalonil	M5	2 - 2.75 tsp/ 200 sq ft	0 - 14 days (see label)	Apply at first sign of disease and every 7 - 14 days as needed.
	Hi-Yield Daconil Vegetable and Flower Fungicide	chlorothalonil	M5	4 - 8 tsp/ 200 sq ft	0 - 14 days (see label)	Apply at first sign of disease and 7 - 10 days.
	Garden Tech Daconil Concentrate	chlorothalonil	M5	1.5 tsp - 1 tbs	0 - 14 days (see label)	Apply at first sign of disease and 7 - 10 days.
	Natural Guard Copper Soap RTU*	copper soap	M1	RTU*	Label	Apply at first evidence of disease. One quart will treat 10 square yards.
	Hi-Yield Copper Fungicide RTU*	copper hydroxide	M1	RTU*	Label	Begin at first evidence of disease, then 7 - 10 day intervals.
	Ortho Disease B Gon Copper Fungicide RTU*	copper octanoate	M1	RTU*	Label	One quart will treat 10 square yards.
	Bonide Copper Dust RTU*	copper sulfate	M1	RTU*	1 day	May be used RTU* as a powder, or mixed with water as a spray. See label for rates
(continued)	Bonide Mancozeb FL with Zinc Concentrate	mancozeb	M3	2 - 5 tsp	3 - 14 days (see label)	Use sufficient water for thorough coverage.
	Spectracide Immunox Multi-Purpose Fungicide Spray Concentrate for Gardens	myclobutanil	3	1 - 1.25 fl oz/gal	0 day	Apply when the disease first appears or if conditions favoring disease development (hot, moist weather) exist.

### VEGETABLE DISEASES (Home Garden) – continued

Disease	Product	Active Ingredient	FRAC Code	Amt/ Gal Water	Days to Harvest	Comments
Fungal Leaf (cont.) Spots, Powdery and Downy Mildew, Fungal Blights	Bon-Neem II Fungicide- Miticide-Insecticide RTU*	neem oil	---	RTU*	0 day	This product is most effective when applied on a 7 - 14 day schedule.
	GreenCure**	potassium bicarbonate	---	1 - 2 tbs	1 day	Potassium bicarbonate fungicide primarily targets powdery mildew on many vegetables. Labeled for organic use.
	Kaligreen**	potassium bicarbonate	---	2.5 - 3 lb/A	1 day	Labeled for organic use.
	MilStop**	potassium bicarbonate	---	2.5 - 3 lb/A	1 day	Labeled for organic use.
	Actinovate® Lawn and Garden** (foliar and Pythium, Phytophthora, Rhizoctonia, Fusarium root rots)	<i>Streptomyces lydicus</i> WYEC 108	---	1/2 - 2 tsp/ 2 gal	0 day	May be used as a foliar spray or root drench. See label.
	Bonide Sulfur Plant Fungicide**	sulfur	M2	1 - 3 tbs	0 day	Good coverage is essential. Labeled for organic use.
	Safer Brand Garden Fungicide	sulfur	M2	4 - 8 tbs	1 day	Do not apply when temperatures exceed 85 degrees F.
	Bonide Tomato and Vegetable Concentrate	sulfur + pyrethrins	M2	2.5 - 5 fl oz/gal	1 day	Thoroughly spray all areas of the plant, especially new shoots and undersides of leaves.
	Miracle-Gro Nature's Care 3-in-1 Insect, Disease, and Mite Control RTU*	sulfur + pyrethrins	M2	RTU*	1 day	Test for crop sensitivity before applying.
Virus Diseases	No chemical controls					

\* RTU = Ready To Use

\*\* Labeled for organic use. See publication *FSA7562, Alternative Plant Disease Management Practices for the Home Garden*, for additional materials.



## WHEAT – SEED TREATMENTS

Terry Spurlock

Disease	Fungicide	Active Ingredient	FRAC Code	Rate/cwt Seed	Comments
Loose Smut, Stagonospora Blotch (glume blotch), and other seedling diseases	Charter	triticonazole	3	3.1 fl oz	On-farm or commercial seed treaters. See label for details.
	Vibrance	sedaxane	7	0.08 - 0.16 fl oz	See label for details. Also labeled for oats and triticale.
	Maxim 4 FS	fludioxonil	12	0.08 - 0.16 fl oz	See label.
	Mertect 340-F	thiabendazole	1	0.17 oz/cwt	See label.
	Incentive RTA	difenoconazole + mefenoxam	3 + 4	2.5 - 10 fl oz	See label for details.
	Raxil MD	tebuconazole + metalaxyl	3 + 4	5 - 6.5 fl oz	On-farm or commercial seed treaters. Dilute 1:1 with water before application to seed. Already contains dye. Do not graze for 38 days after seed-ing. Also controls loose smut of oats – see label.
	Charter F2	triticonazole + metalaxyl	3 + 4	5.4 fl oz	See label.
	Rancona Crest	ipconazole + metalaxyl + imidacloprid	3 + 4	5 fl oz/cwt	Do not graze or feed livestock on treated areas for 45 days after planting.
	Rancona V RTU FS	ipconazole + carboxin + metalaxyl	3 + 7 + 4	4.6 fl oz/cwt	Do not graze or feed livestock on treated areas for 6 weeks after planting.
	Vibrance Extreme	difenoconazole + sedaxane + mefenoxam	3 + 7 + 4	2.8 - 5.6 fl oz	See label for details. Also labeled for oats and triticale.
	CruiserMaxx Vibrance Cereals	difenoconazole + sedaxane + mefenoxam + thiamethoxam	3 + 7 + 4 + ---	5 oz/cwt	Multiple seed and seedling diseases (see label). Also labeled for oats and triticale. Contains Cruiser 5 FS at 0.25 oz/cwt. Add additional 0.75 oz/cwt Cruiser 5 FS for aphid control and BYDV suppression.
	EverGol Energy	prothioconazole + penflufen + metalaxyl	3 + 7 + 4	1 oz	Commercial seed treatment only.
	Gaucho XT	tebuconazole + metalaxyl + imidacloprid	3 + 4 + ---	3.4 fl oz	See label.

**NOTE:** Wheat seed producers in Arkansas should always plant seed treated with one of the listed products to prevent a buildup of loose smut and Stagonospora glume blotch in the seed supply. Growers who plant saved seed should have it treated with one of the above, especially if the seed came from a field with these diseases or if either of the diseases was at epidemic levels in nearby fields during the spring.

## WHEAT – FOLIAR FUNGICIDES

Terry Spurlock

Disease	Fungicide	Active Ingredient	FRAC Code	Rate/Acre	Comments
Leaf Rust	Alto	cyproconazole	3	3 - 5.5 fl oz	See label.
Stagonospora (Glume) Blotch <sup>1</sup>	Caramba	metconazole	3	10 - 14 fl oz	No more than 2 applications/season. See label.
Septoria Leaf Blotch	Bumper, Propimax, Tilt	propiconazole	3	4 fl oz	Do not apply after Feekes GS 10.5. Do not apply more than 8 fl oz per acre per crop per season.
Powdery Mildew	tebuconazole (various trade names 3.6 F)	tebuconazole	3	4 fl oz	Maximum of 4 fl oz/acre per year.
Stripe Rust <sup>2</sup>	Quadris*	azoxystrobin	11	6 fl oz	Do not apply after Feekes GS 10.5. Do not harvest treated wheat for forage. Do not apply within 14 days of harvest for hay or 45 days for grain or straw. See label for other restrictions.
	Aftershock	fluoxastrobin	11	2.5 - 4 fl oz	10 - 14 day intervals. See label.
	Evito 480 SC	fluoxastrobin	11	2.5 - 4 fl oz	10 - 14 day intervals. See label.
	Headline*	pyraclostrobin	11	6 - 9 fl oz	Do not apply after Feekes GS 10.5 (beginning of flowering). See label. Headline is also labeled for control of black point of wheat.
	Quilt Xcel	azoxystrobin + propiconazole	11 + 3	10.5 - 14 fl oz	Do not apply after Feekes GS 10.5. Tank mixes with certain herbicides and fertilizers may result in crop injury – see label for all restrictions.
	Approach Prima	picoxystrobin + cyproconazole	11 + 3	3.4 - 6.8 fl oz	Do not apply more than 6.8 fl oz per acre per crop. Minimum time to harvest is 45 days for grain.
	Twinline	pyraclostrobin + metconazole	11 + 3	7 - 9 fl oz	Use high rate for stripe rust. Do not apply after Feekes GS 10.5. See label.
	Stratego 250 EC	trifloxystrobin + propiconazole	11 + 3	10 fl oz	Do not apply after Feekes GS 10.5.
	Stratego YLD	trifloxystrobin + prothioconazole	11 + 3	4 fl oz	See label for restrictions.
	Absolute 500 SC	trifloxystrobin + tebuconazole	11 + 3	5 fl oz	Do not apply more than 5 fl oz per season. Do not use adjuvants.
(continued)	Priaxor	pyraclostrobin + fluxapyroxad	11 + 7	4 - 8 fl oz	See label.

## WHEAT – FOLIAR FUNGICIDES – continued

Disease	Fungicide	Active Ingredient	FRAC Code	Rate/Acre	Comments
Leaf Rust ( <i>cont.</i> ) ( <i>Stagonospora</i> (Glume) Blotch <sup>1</sup> )	Prosaro	prothioconazole + tebuconazole	3 + 3	6.5 - 8.2 fl oz	See label.
Septoria Leaf Blotch Powdery Mildew Stripe Rust <sup>2</sup>	Trivapro A + Trivapro B	benzovindiflupyr + azoxystrobin + propiconazole	7 + 11 + 3	4 - 10.5 fl oz	Do not apply within 7 days of harvest.
Fusarium Head Blight (Scab) (suppression only) and control of other diseases listed above	Caramba	metconazole	3	13.5 - 17 fl oz	Apply at early flowering for optimal head blight suppression. See label.
	tebuconazole (various trade names 3.6 F)	tebuconazole	3	4 fl oz	Maximum of 4 fl oz/acre per year. Least effective option for Scab.
	Prosaro	prothioconazole + tebuconazole	3 + 3	6.5 - 8.2 fl oz	Apply from early flowering to 3 days after flowering for optimal head blight suppression. See label.

\*Only effective as a preventative treatment for stripe rust.

<sup>1</sup>Stagonospora (glume) blotch is more effectively controlled by seed treatment fungicides because it is primarily seedborne under Arkansas conditions and foliar symptoms are difficult to scout for in the spring. See Wheat Seed Treatment Table for details.

<sup>2</sup>All fields with active hot spots of stripe rust should be sprayed immediately if found prior to Feekes GS 10.5.

## WHEAT DISEASE THRESHOLDS

Terry Spurlock

***The following threshold system is a general guide for whether or not there is adequate disease pressure to justify fungicide use. The relative susceptibility of the variety, favorable weather conditions during the spring and location in Arkansas should also be considered. For current row crop information, sign up for the Arkansas Row Crop Updates at [www.arkansas-crops.com/](http://www.arkansas-crops.com/) or visit your local Cooperative Extension Service office.***

Feekes Growth Stage	Disease	Indicator Leaf	Treatment Threshold
GS 8	Leaf Rust	Flag-3 and above	1 pustule/leaf
	Septoria tritici leaf blotch	Flag-3 and above	25% of leaves infected
	Powdery Mildew	Flag-2 and above	5 pustules/leaf
	Stagonospora blotch	Flag-2 and above	10% of leaves infected
	Tan Spot	Flag-2 and above	25% of leaves infected
	Stripe Rust	Any leaf	1 pustule/20 leaves
GS 9 - GS 10.5	Leaf Rust	Flag-2 and above	1 pustule/leaf
	Septoria tritici leaf blotch	Flag-2 and above	25% of leaves infected
	Powdery Mildew	Flag-1 and above	5 pustules/leaf
	Stagonospora blotch	Flag-2 and above	10% of leaves infected
	Tan Spot	Flag-2 and above	25% of leaves infected
	Stripe Rust	Any leaf	1 pustule/20 leaves

## Efficacy of Fungicides for Wheat Disease Control Based on Appropriate Application Timing (*Revised 3-31-15*)

The North Central Regional Committee on Management of Small Grain Diseases (NCERA-184) has developed the following information on fungicide efficacy for control of certain foliar diseases of wheat for use by the grain production industry in the U.S. Efficacy ratings for each fungicide listed in the table were determined by field testing the materials over multiple years and locations by the members of the committee. Efficacy is based on proper application timing to achieve optimum effectiveness of the fungicide as determined by labeled instructions and overall level of disease in the field at the time of application. Differences in efficacy among fungicide products were determined by direct comparisons among products in field tests and are based on a single application of the labeled rate as listed in the table. The table includes the most widely marketed products and is not intended to be a list of all labeled products.

Fungicide(s)				Powdery Mildew	Stagonospora Leaf/Glume Blotch	Septoria Leaf Blotch	Tan Spot	Stripe Rust	Leaf Rust	Stem Rust	Head Scab	Harvest Restriction
Class	Active Ingredient	Product	Rate/A (fl oz)									
Strobilurin	Picoxystrobin 22.5%	Approach SC	6 - 12	G <sup>1</sup>	---	VG <sup>2</sup>	VG	E <sup>3</sup>	VG	VG	NL	Feekes 10.5
	Fluoxastrobin 40.3%	Evito 480 SC	2 - 4	G	---	---	VG	---	VG	---	NL	Feekes 10.5 and 40 days
	Pyraclostrobin 23.6%	Headline SC	6 - 9	G	VG <sup>2</sup>	VG <sup>2</sup>	E	E <sup>3</sup>	E	G	NL	Feekes 10.5
Triazole	Metconazole 8.6%	Caramba 0.75 SL	10 - 17	VG	VG	---	VG	E	E	E	G	30 days
	Propiconazole 41.8%	Tilt 3.6 EC <sup>4</sup>	4	VG	VG	VG	VG	VG	VG	VG	P	Feekes 10.5
	Prothioconazole 41%	Proline 480 SC	5 - 5.7	---	VG	VG	VG	VG	VG	VG	G	30 days
	Tebuconazole 38.7%	Folicur 3.6 F <sup>4</sup>	4	NL	NL	NL	NL	E	E	E	F	30 days
	Prothioconazole 19% Tebuconazole 19%	Prosaro 421 SC	6.5 - 8.2	G	VG	VG	VG	E	E	E	G	30 days
Mixed Modes of Action <sup>5</sup>	Metconazole 7.4% Pyraclostrobin 12%	TwinLine 1.75 EC	7 - 9	G	VG	VG	E	E	E	VG	NL	Feekes 10.5
	Fluxapyroxad 14.3% Pyraclostrobin 28.6%	Priaxor	4 - 8	G	VG	VG	E	VG	VG	G	NL	Feekes 10.5
	Propiconazole 11.7% Azoxystrobin 13.5%	Quilt Xcel 2.2 SE <sup>4</sup>	10.5 - 14	VG	VG	VG	VG	E	E	VG	NL	Feekes 10.5
	Prothioconazole 10.8% Trifloxystrobin 32.3%	Stratego YLD	4	G	VG	VG	VG	VG	VG	VG	NL	Feekes 10.5 35 days
	Cyproconazole 7.17% Picoxystrobin 17.94%	Approach Prima SC	3.4 - 6.8	VG	---	VG	VG	E	VG	---	NR	45 days

<sup>1</sup> Efficacy categories: NL = Not Labeled; NR = Not Recommended; P = Poor; F = Fair; G = Good; VG = Very Good; E = Excellent; --- = Insufficient data to make statement about efficacy of this product.

<sup>2</sup> Product efficacy may be reduced in areas with fungal populations that are resistant to strobilurin fungicides.

<sup>3</sup> Efficacy may be significantly reduced if solo strobilurin products are applied after stripe rust infection has occurred.

<sup>4</sup> Multiple generic products containing the same active ingredients also may be labeled in some states. Products including tebuconazole include: Embrace, Monsoon, Muscle 3.6 F, Onset, Orius 3.6 F, Tebucon 3.6 F, Tebustar 3.6 F, Tebuzol 3.6 F, Tegrol, and Toledo. Products containing propiconazole include: Bumper 41.8 EC, Fitness, Propiconazole E-AG, and PropiMax 3.6 EC. Products containing propiconazole + azoxystrobin include: Aframe Plus, Avaris 2XS.

<sup>5</sup> Products with mixed modes of action generally combine triazole and strobilurin active ingredients. Priaxor is an exception to this general statement and combines carboxamide and strobilurin active ingredients.

*This information is provided only as a guide. It is the responsibility of the pesticide applicator by law to read and follow all current label directions. No endorsement is intended for products listed nor is criticism meant for products not listed. Members or participants in the NCERA-184 committee assume no liability resulting from the use of these products.*

*University of Arkansas, United States Department of Agriculture, and County Governments Cooperating*



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