

VEGETABLE DISEASES (Commercial Production)

Stephen Vann, Jim Correll, Terry Kirkpatrick and Cliff Coker

Disease	Product	Active Ingredient	FRAC Code*	Rate/Acre	Days to Harvest	Comments
ASPARAGUS						
Rust	Nova 40W	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 50WG	trifloxystrobin	11	3 - 4 oz	0	
BEANS (Snap and Pole)						
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	Ridomil Gold PC GR granules	mefenoxam + PCNB	4 + 14	12 oz/1,000 ft of row		Apply with seed at planting.
	Trilex 2000	trifloxystrobin + metalaxyl	11 4	1 oz/cwt seed		
	Basicop WP Champ 4.6F Tenn-Cop 5E	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) and Gray Mold (Botrytis)	Rovral 50WP	iprodione	2	24 - 32 oz	14	Apply at early bloom (10%) and again 7 days later. Use at least 25 gpa volume. Do not apply Rovral after peak bloom. Also used for these diseases on lima and dry beans.
	Endura	boscalid	7	8 - 11 oz		See label.
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 70WG Headline 2.09F	boscalid pyraclostrobin	7 11	8 - 11 oz 6 - 9 fl oz	7 7	7 - 10 day interval 7 - 10 day interval
Root and Stem Rot (<i>Rhizoctonia solani</i>)	Terraclor 75WP	PCNB	14	1.4 - 2.2 oz/ 1,000 ft of row	45	Apply in-furrow at planting. Do not exceed 2 lbs per acre per crop.
	Terraclor 4FL	PCNB	14	2.2 - 3.3 fl oz/ 1,000 ft of row		

VEGETABLE DISEASES (Commercial Production) – continued

Disease	Product	Active Ingredient	FRAC Code*	Rate/Acre	Days to Harvest	Comments
BEANS (Dry)						
Anthracnose, Downy Mildew, Rust	Bravo Ultrex Maneb 80WP	chlorothalonil maneb	M5	2.7 lb	7	Apply at early bloom and repeat as needed at 7 - 10 day intervals.
			M3	1.5 - 2 lb	30	
Rust	Folicur 3.6F	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.
BEANS (Dry) and FIELD PEAS (<i>Phaseolus</i> and <i>Vigna</i> spp.)						
Anthracnose, Ascochyta Blight, <i>Mycosphaerella</i> 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 4.5F	thiophanate-methyl	1	10 fl oz	1	See label information.
	Quilt	azoxystrobin + propiconazole	11 3	6 fl oz		
Rust and White Mold	Proline 480SC	prothioconazole	3	5.7 fl oz	7	
BRASSICA (Leafy Greens)						
White Rust (<i>Albugo</i>) Black Spot (<i>Alternaria</i>)	Quadris 2.08FL	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.
Downy Mildew	Revus	mandipropamid	40	8 fl oz		See label information.
CABBAGE, BROCCOLI, COLE CROPS						
Alternaria Leaf Spot	Endura 70WP	boscalid	7	6 - 9 oz	0	7 - 14 day schedule.
	Maneb 80WP	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 20EC	pyraclostrobin	11	12 - 16 oz	0	7 - 14 day schedule.
	Bravo Weatherstik	chlorothalonil	M5	1.5 - 3 pt	7	7 - 14 day schedule.
	Quadris 2.08F	azoxystrobin	11	6 - 15 fl oz	0	7 - 14 day schedule.
	Switch 62.5WG	cyprodinil + fludioxonil	9 12	11 - 14 oz	7	7 - 14 day schedule.

VEGETABLE DISEASES (Commercial Production) – continued

Disease	Product	Active Ingredient	FRAC Code*	Rate/Acre	Days to Harvest	Comments
CABBAGE, BROCCOLI, COLE CROPS (cont.)						
Downy Mildew	Ridomil Gold Bravo SC	mefenoxam + chlorothalonil	4 M5	1.5 pt	7	7 - 10 day interval until disease is under control. Alternate fungicides with different modes of action.
	Cabrio 20EC	pyraclostrobin	11	12 - 16 oz	0	See label.
	Quadris 2.08F	azoxystrobin	11	6 - 15 oz	0	See label.
	Aliette 80WG	fosetyl-AI	33	2 - 5 lb	3	See label.
	Presidio 4SC	fluopicolide	43	3 - 4 fl oz	2	See label.
	Reason 500SC	fenamidone	11	5.5 - 8.2 fl oz	2	See label.
	Revus 2.08SC	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 70WG	boscalid	7	6 - 9 oz	0	Apply at first sign of disease; may be repeated 7 - 14 days later.
CANTALOUPE						
Gummy Stem Blight, Downy Mildew, Anthracnose, Alternaria Leaf Spot, Target Spot, Powdery Mildew	Quadris 2.08FL	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 20EG	pyraclostrobin	11	12 - 16 oz	0	
	Quadris Opti	azoxystrobin + chlorothalonil	11 M5	3.2 pt		See label information.
	Quadris Top	azoxystrobin + difenoconazole	11 3	10 - 14 oz		Alternate with other fungicides with different modes of action.
	Pristine	boscalid + pyraclostrobin	7 11	12.5 - 18.5 oz	See label.	See label.
	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 80W	mancozeb	M3	2 - 3 lb	5	Various brands including Dithane, Penncozeb, Manzate, etc.
	Maneb 80W	maneb	M3	1 - 2 lb	5	Various brands and formulations.
	Topsin M 4.5F	thiophanate-methyl	1	10 fl oz	1	See label.
	Cuprofix Ultra 40 Disperss	copper sulfate	M1	1.25 - 2 lb	0	See label.

VEGETABLE DISEASES (Commercial Production) – continued

Disease	Product	Active Ingredient	FRAC Code*	Rate/Acre	Days to Harvest	Comments
CANTALOUPE (cont.)						
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 SL	mefenoxam + mancozeb	4 M3	2.5 lb	5	
Alternaria Leaf Spot Cercospora Leaf Spot Downy Mildew Fruit and Stem Rot	Gavel 75DF	mancozeb + zoxamide	M3 22	1.5 - 2 lb	5	See label for important restrictions and applica- tion 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 50WG	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 60DF	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 50WP	dimethomorph	40	6.4 oz	0	Allow sprays to dry before harvest begins. REI = 12 hours. See label.
	Forum 4.18F	dimethomorph	40	6 fl oz	0	
	Gavel 75DF	mancozeb + zoxamide	M3 22	1.5 - 2 lb	5	Some varieties are sensitive to Gavel – see label.
	Presidio 4SC	fluopicolide	43	3 - 4 oz	2	
	Reason 500SC	fenamidone	11	5.5 oz	14	
	Revus 2.08SC	mandipropamid	40	8 fl oz	0	

VEGETABLE DISEASES (Commercial Production) – continued

Disease	Product	Active Ingredient	FRAC Code*	Rate/Acre	Days to Harvest	Comments
CANTALOUPE (cont.)						
Powdery Mildew Downy Mildew	Flint 50WG	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, Flint and Cabrio have the same mode of action.
	Cabrio 20EG	pyraclostrobin	11	8 - 16 oz	0	See label.
	Pristine	boscalid + pyraclostrobin	7 11	12.5 - 18.5 oz		See label. Best applied as a preventative.
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.
CORN (Sweet)						
Rusts, Leaf Spots	Mancozeb 80W	mancozeb	M3	2 - 3 lb	5	Various brands including Dithane, Penncozeb, Manzate, etc.
	Maneb 80W	maneb	M3	1 - 2 lb	5	Various brands and formulations.
	Tilt 3.6EC	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 2.09F	pyraclostrobin	11	6 - 12 fl oz	7	
	Quadris 2.08F	azoxystrobin	11	6.2 - 9 fl oz	7	
	Quilt 1.66SC	azoxystrobin + propiconazole	11 3	10.5 - 14 fl oz	14	
	Stratego 2.08SC	propiconazole + trifloxystrobin	3 11	10 fl oz	14	See label.
	Quilt Xcel	azoxystrobin + propiconazole	11 3	10.5 - 14 fl oz		

VEGETABLE DISEASES (Commercial Production) – continued

Disease	Product	Active Ingredient	FRAC Code*	Rate/Acre	Days to Harvest	Comments
CUCUMBERS						
Angular Leaf Spot	Maneb 80W	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.
	Basicop	copper	M1	3 - 4 lb	1	Apply at first sign of disease and alternate with fungicides for anthracnose on a 7 - 10 day schedule. Various brands available.
Bacterial Angular Leaf Spot	Basicop	copper	M1	2 lb	1	Apply at first sign of disease and spray as needed. Various brands available.
Anthracnose Alternaria Leaf Spot Gummy Stem Blight Downy Mildew Target Spot, Scab	Quadris 2.08FL	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 20EG	pyraclostrobin	11	12 - 16 oz	0	See label information.
	Quadris Opti	azoxystrobin + chlorothalonil	11 M5	3.2 pt		See label information.
	Quadris Top	azoxystrobin + difenoconazole	11 3	10 - 14 oz		Alternate with other fungicides with different modes of action.
	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	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 80W	mancozeb	M3	2 - 3 lb	5	Various brands including Dithane, Penncozeb, Manzate, etc.
	Maneb 80W	maneb	M3	1 - 2 lb	5	Various brands and formulations.
	Pristine	boscalid + pyraclostrobin	7 11	12.5 - 18.5 oz		See label.
Alternaria Leaf Spot Downy Mildew	Reason 500SC	fenamidone	11	5.5 - 8.2 fl oz	14	See label information.
Downy Mildew and Pythium	Previcur Flex	propamocarb hydrochloride	28	1.2 pt	2	
Alternaria Leaf Spot Cercospora Leaf Spot Downy Mildew Fruit and Stem Rot	Gavel 75DF	mancozeb + zoxamide	M3 22	1.5 - 2 lb	5	See label for important restrictions and application information.

VEGETABLE DISEASES (Commercial Production) – continued

Disease	Product	Active Ingredient	FRAC Code*	Rate/Acre	Days to Harvest	Comments					
CUCUMBERS (cont.)											
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 50WG	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 60DF	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 50WP	dimethomorph	40	6.4 oz	0	Allow sprays to dry before harvest begins. REI = 12 hours. See label.					
	Forum 4.18F	dimethomorph	40	6 fl oz	0						
	Gavel 75DF	mancozeb + zoxamide	M3 22	1.5 - 2 lb	5						
Powdery Mildew	Flint 50WG	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 Bravo WeatherStik Quadris 2.08FL Microthiol Disperss	chlorothalonil chlorothalonil azoxystrobin wettable sulfur	M5 M5 11 M2	1.4 - 2.7 lb 2 - 3 pt 11 - 15.4 fl oz 2 lb	1 0
	Pristine	boscalid + pyraclostrobin	7 11	12.5 - 18.5 oz	0						
						Nova 40W Procure 50WP Quadris Opti 5.5SC					
	Ridomil Gold SL Uniform	mefenoxam azoxystrobin + mefenoxam	4 11 4	8 - 16 fl oz 0.34 oz/1,000 row ft	Apply to the soil at planting or transplanting. In-furrow spray also effective for Rhizoctonia seedling blight.						
							EGGPLANT				
	Anthracnose Powdery Mildew	Quadris 2.08FL	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 20EG	pyraclostrobin	11	8 - 12 oz	0					
Reason 500SC		fenamidone	11	5.5 oz	14						
Anthracnose Downy Mildew	Quilt	azoxystrobin + propiconazole	11 3	6 fl oz							

VEGETABLE DISEASES (Commercial Production) – continued

Disease	Product	Active Ingredient	FRAC Code*	Rate/Acre	Days to Harvest	Comments
OKRA						
Anthracnose Downy Mildew	Quadris 2.08FL	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 500SC	fenamidone	11	5.5 oz		
Seedling Disease	Quadris 2.08F	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.
ONION, GARLIC, LEEK, SHALLOT						
Alternaria Blotch Powdery Mildew Downy Mildew	Cabrio 20EG	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.
PEAS (Southern and English)						
Pythium Damping-Off	Ridomil Gold SL	mefenoxam	4	8 - 16 fl oz	2	Preplant incorporate in the top 2 inches.
	Ridomil Gold PC GR granules	mefenoxam + PCNB	4 14	12 oz/1,000 ft of row		Apply with seed at planting.
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		
PEPPER						
Bacterial Spot	Kocide 2000 + Maneb 80W	copper hydroxide + maneb	M1 M3	1.5 - 2.25 lb + 1 - 2 lb	0 7	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.
Downy Mildew Anthracnose	Quilt	azoxystrobin + propiconazole	11 3	6 fl oz		
Downy Mildew	Revus	mandipropamid	40	8 fl oz		See label information.
Downy Mildew and Pythium	Previcur Flex	propamocarb hydrochloride	28	1.2 pt	2	See label information.
Downy Mildew, Anthracnose Cercospora Leaf Spot	Maneb 80W	maneb	M3	1 - 2 lb	7	Apply as needed on a 7 - 10 day schedule at first sign of disease.

VEGETABLE DISEASES (Commercial Production) – continued

Disease	Product	Active Ingredient	FRAC Code*	Rate/Acre	Days to Harvest	Comments
PEPPER (cont.)						
Anthracnose Powdery Mildew	Quadris 2.08FL	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 20EG	pyraclostrobin	11	8 - 12 oz	0	
	Reason 500SC	fenamidone	11	5.5 oz		
Pythium and Phytophthora Damping-Off	Ridomil Gold SL	mefenoxam	4	16 fl oz		Apply to the soil at planting or transplanting.
Southern Blight	Terraclor 75WP	PCNB	14	3 lb/100 gal for transplant solution	45	Use 1/2 pint transplant solution per plant. Do not exceed 20 lb PCNB per acre per season.
Mosaic Viruses	JMS Stylet-Oil	special oil	---	3 qt/100 gal water	0	See label for directions.
POTATO (Seed Piece Protection)						
Seed Piece and Sprout Rots	Maxim Potato Seed Protectant	fludioxonil	12	0.5 lb/100 lb seed pieces		Uniform coverage is essential.
POTATO (Foliar Diseases)						
Early Blight Late Blight Botrytis Rot	Quadris 2.08FL	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 80W	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.
	Ridomil Gold MZ	mefenoxam + mancozeb	4 M3	2.5 lb	14	Use on a 14 day schedule up to 3 times when conditions for disease are favorable. Also may control certain tuber rots if applied during flowering (see label).
Late Blight Early Blight	Gavel 75DF	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 500SC	fenamidone	11	5.5 fl oz	See label.	See label for additional information. Rates vary.

VEGETABLE DISEASES (Commercial Production) – continued

Disease	Product	Active Ingredient	FRAC Code*	Rate/Acre	Days to Harvest	Comments	
POTATO (Foliar Diseases) (cont.)							
Late Blight, Early Blight, Powdery Mildew	Quadris Opti	azoxystrobin + chlorothalonil	11 M5	3.2 pt		See label information.	
Powdery Mildew	Microthiol Disperss	wettable sulfur	M2	5 lb	0	Apply at first sign of disease and repeat at 14 day intervals as needed.	
Downy Mildew	Revus	mandipropamid	40	8 fl oz		See label information.	
Early Blight	Gem 500SC Gem	trifloxystrobin	11	2.9 - 3.8 fl oz 6 - 8 fl oz	7 7	See label information.	
PUMPKIN							
Angular Leaf Spot	Maneb 80W	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.	
	Fixed Copper	copper	M1	See label.	0	Spray at first appearance and continue on 7 - 10 day schedule as needed.	
Anthracnose Alternaria Leaf Spot Gummy Stem Blight Downy Mildew Target Spot Scab Powdery Mildew	Quadris 2.08FL	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 20EG	pyraclostrobin	11	12 - 16 oz	0		
	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 80W	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 4.5F	thiophanate-methyl	1	10 fl oz	1		
	Ridomil Gold Bravo SC	mefenoxam + chlorothalonil	4 M5	2.5 - 3.25 pt	0		
Anthracnose Alternaria Leaf Spot Gummy Stem Blight Downy Mildew Target Spot	Ridomil Gold MZ	mefenoxam + mancozeb	4 M3	2.5 lb	5		

VEGETABLE DISEASES (Commercial Production) – continued

Disease	Product	Active Ingredient	FRAC Code*	Rate/Acre	Days to Harvest	Comments
PUMPKIN (cont.)						
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 50WG	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 60DF	cymoxanil	27	3.2 oz	3	REI = 12 hours. Tank mix with chlorothalonil or mancozeb. See label.
	Acrobat 50WP	dimethomorph	40	6.4 oz	0	Allow sprays to dry before harvest begins. REI = 12 hours. See label.
	Reason 500SC	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 4.18F Gavel 75DF	dimethomorph mancozeb + zoxamide	40 M3 22	6 fl oz 1.5 - 2 lb	0 5	Some varieties are sensitive to Gavel – see label.
	Presidio 4SC Revus 2.08SC	fluopicolide mandipropamid	43 40	3 - 4 oz 8 fl oz	2 0	
Powdery Mildew	Flint 50WG	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.
	Microthiol Special	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.
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
RADISH						
Alternaria Leaf Spot Cercospora Leaf Spot Powdery Mildew White Rust	Cabrio 20EG	pyraclostrobin	11	8 - 12 oz	0	Use 8 - 16 oz for white rust control. See label for other information.
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.
SPINACH						
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 50WDG	fosetyl-AI	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 and White Rust	Quadris 2.08FL	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 and Powdery Mildew	Quadris 2.08FL	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 and White Rust	Reason 500SC	fenamidone	11	5.5 - 8.2 oz		See label.

VEGETABLE DISEASES (Commercial Production) – continued

Disease	Product	Active Ingredient	FRAC Code*	Rate/Acre	Days to Harvest	Comments	
SQUASH							
Angular Leaf Spot	Basicop	copper	M1	2 lb	1	Apply at first sign of disease and repeat as needed. Other brands and formulations exist.	
Anthracnose	Quadris 2.08FL	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 20EG	pyraclostrobin	11	12 - 16 oz	0		
Gummy Stem Blight		Quadris Top	azoxystrobin + difenoconazole	11 3	10 - 14 oz		Alternate with other fungicides with different modes of action.
Downy Mildew	Bravo Ultrex	chlorothalonil	M5	1.4 - 2.7 lb			Lower rate for downy mildew.
Target Spot, Scab	Bravo WeatherStik	chlorothalonil	M5	2 - 3 pt			Lower rate for downy mildew.
	Maneb 80W	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 if applied as a preventative.	
Alternaria Leaf Spot Downy Mildew	Reason 500SC	fenamidone	11	5.5 - 8.2 fl oz	14	See label information.	
Downy Mildew and Pythium	Previcur Flex	propamocarb hydrochloride	28	1.2 pt	2		
Alternaria Leaf Spot Cercospora Leaf Spot Downy Mildew Fruit and Stem Rot	Gavel 75DF	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 50WG	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.	
	Previcur Flex	propamocarb	28	1.2 pt	2	REI = 12 hours. Must tank mix with another downy mildew fungicide. See label.	
	Curzate 60DF	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 50WP	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
SQUASH (cont.)						
Powdery Mildew	Flint 50WG	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 3.6F	tebuconazole	3	4 - 6 fl oz	7	
	Bravo Ultrex	chlorothalonil	M5	1.4 - 2.7 lb		
	Bravo WeatherStik	chlorothalonil	M5	2 - 3 pt		
	Quadris 2.08FL	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.
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.
SWEET POTATO						
Downy Mildew Leaf Spot Powdery Mildew	Headline	pyraclostrobin	11	6 - 12 fl oz	3	See label for restrictions and application information.
	Quadris	azoxystrobin	11	6 - 15.5 fl oz		
Scurf Foot Rot Black Rot	Mertect 340-F	thiabendazole	1	107 oz/100 gal		Dip seedling roots into solution for 2 minutes and then plant.
	Botran 75W	dichloran	14	13.3 lb/100 gal		Same as above.
Post-Harvest Rhizopus	Botran 75W	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 Botrytis Leaf Spot	Scala	pyrimethanil	9	7 oz	7	See label information.
Early Blight and Late Blight	Reason 500SC	fenamidone	11	5.5 - 8.2 oz		See label information.
TOMATO – See tomato disease section						

VEGETABLE DISEASES (Commercial Production) – continued

Disease	Product	Active Ingredient	FRAC Code*	Rate/Acre	Days to Harvest	Comments	
WATERMELON							
Gummy Stem Blight Downy Mildew	Quadris 2.08FL	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.	
Anthracnose Alternaria Leaf Spot Target Spot	Cabrio 20EG	pyraclostrobin	11	12 - 16 oz	0		
	Quadris Top	azoxystrobin + difenoconazole	11 3	10 - 14 oz			Alternate with other fungicides with different modes of action.
	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	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 80W	mancozeb	M3	2 - 3 lb	5	Various brands including Dithane, Penncozeb, Manzate, etc.	
	Maneb 80W	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	Ridomil Gold Bravo SC	mefenoxam + chlorothalonil	4 M5	2.5 - 3.25 pt	0		
Anthracnose Alternaria Leaf Spot Powdery Mildew	Ridomil Gold MZ	mefenoxam + mancozeb	4 M3	2.5 lb	5		
Alternaria Leaf Spot Cercospora Leaf Spot Downy Mildew Fruit and Stem Rot	Gavel 75DF	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 50WG	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.	
(continued)	Previcur Flex	propamocarb	28	1.2 pt	2	REI = 12 hours. Must tank mix with another downy mildew fungicide. See label.	

VEGETABLE DISEASES (Commercial Production) – continued

Disease	Product	Active Ingredient	FRAC Code*	Rate/Acre	Days to Harvest	Comments
WATERMELON (cont.)						
Downy Mildew (<i>cont.</i>)	Curzate 60DF	cymoxanil	27	3.2 oz	3	REI = 12 hours. Tank mix with chlorothalonil or mancozeb. See label.
	Acrobat 50WP	dimethomorph	40	6.4 oz	0	Allow sprays to dry before harvest begins. REI = 12 hours. See label.
	Reason 500SC	fenamidone	11	5.5 oz	See label.	Rates may vary. Follow label.
	Forum 4.18F	dimethomorph	40	6 fl oz	0	
	Gavel 75DF	mancozeb + zoxamide	M3 22	1.5 - 2 lb	5	Some varieties are sensitive to Gavel – see label.
	Presidio 4SC	fluopicolide	43	3 - 4 oz	2	
	Reason 500SC Revus 2.08SC	fenamidone mandipropamid	11 40	5.5 oz 8 fl oz	14 0	
Powdery Mildew	Flint 50WG	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.
	Quadris 2.08FL	azoxystrobin	11	11 - 15.4 fl oz	1	
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.

*FRAC Code – Fungicides with the same FRAC Code have the same mode of action. See <http://www.frac.info/frac/index.htm> for an explanation of the FRAC Codes. Rotation of fungicides with different FRAC Codes could minimize the development of fungicide-resistant strains.