SMALL FRUIT DISEASES (Commercial)

Aaron Cato

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
GRAPES								
Dormant	Anthracnose Black rot Eutypa Phomopsis	Nu-Cop 50 DF	cupric hydroxide	M1	2 lb	24 hours	Dormant	Begin applications late dormancy before bud break.
		Rally 40WSP	myclobutanil	3	5 oz	24 hours	14	Apply as a directed spray immediately after pruning (within 24 hours). Do not apply more than a total of 24 oz of Rally 40WSP (0.6 lb ai) per acre per year including these applications and applications for control of other diseases.
		Liquid lime-sulfur (hard to find)	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 - 2 gallon per acre in sufficient water	48 hours	Dormant	Early sprays are critical for control of black rot if the disease has been a historical problem.
	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 FL	azoxystrobin	11	10 - 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	azoxystrobin	11	10-15.5 fl oz	4 hours	14	Quadris is extremely phytotoxic to certain apple varieties.
		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 – SEE LABEL.
		Captan 50 WP	captan	M4	2 - 4 lb	48 hours	0	
		Captan 4L	captan	M4	0.75-2 qts/acre			
		Sovran 50 WG	kresoxim-methyl	11	3.2 - 6.4 oz	12 hours	14	
		Manzate Pro-Stick	mancozeb	M3	1.5 - 4 lb	24 hours	66	
(continued)		Revus	mandipropamid	40	8 fl oz	4 hours	14	

SMALL FRUIT DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
GRAPES (cont.)								
Bud Break to Bloom *(cont.)*		Revus Top	mandipropamid + difenoconazole	40 + 3	7 fl oz	12 hours	14	
	Black rot Downy mildew Bunch rot Powdery mildew Phomopsis	Topguard EQ	azoxystrobin + flutriafol	11 + 3	5 - 8 fl oz	12 hours (5 days for cane tying, turning or girdling)	14	For powdery mildew, begin applications at 6- to 10-inch shoots. For downy mildew and phomopsis use 8 fl oz rate.
	Alternaria Rot Angular Leaf Spot Anthracnose Black Rot Bunch Rot Powdery Mildew Septoria Leaf Spot	Inspire Super	difenoconazole + cyprodinil	3 + 9	16 - 20 fl oz	12 hours	14	PRECAUTION: On V. labrusca, V. labrusca hybrids and other non-vinifera hybrids such as Concord and Thomcord where sensitivity is not known, the use of Inspire Super by itself or in tank mixtures with materials that may increase uptake (adjuvants, foliar fertilizers) may result in leaf burning or other phytotoxic effects.
	Black Rot Powdery Mildew	Rhyme	flutriafol	3	4-5 fl oz	12 hours	14	Begin application at 10-inch shoots. Repeat 14-21 day intervals.
	Phytophthora root rot Pythium Fusarium Rhizoctonia Powdery mildew Downy mildew	Fosphite	mono- and di-potassium salts of phosphorous acid	P07	1 - 3 qt/100 gallon	4 hours	0	Foliar, aerial, 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.
		Flint Extra	trifloxystrobin	11	3-3.8 fl oz/acre	12 hours	14	Do not apply flint extra to concord grapes or injury may occur.
		Ziram Granuflo	ziram	M3	3 - 4 lb	48 hours	21	
		Aliette WDG	aluminum tris	P07	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.

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SMALL FRUIT DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
GRAPES (cont.)								
Bud Break to Bloom *(cont.)*	Bunch rot Dead arm Downy mildew *(cont.)*	Topsin M WSB	thiophanate-methyl	1	0.75 - 1.5 lb	48 hours	7	
		Presidio	fluopicolide	43	3 - 4 fl oz	12 hours	21	A tank mix including a labeled rate of another labeled fungicide product with a different mode of action on the target pathogen must be used with Presidio Fungicide for resistance management.
	Powdery mildew	Abound FL	azoxystrobin	11	10 - 15.4 fl oz	4 hours	14	
		Quadris	azoxystrobin	11	10-15.5 fl oz	4 hours	14	Quadris is extremely phytotoxic to certain apple varieties
		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.
		Torino	cyflufenamid	U6	3.4-6.8 oz/ acre	4 hours	3	Do not exceed a total of 6.8 oz of Torino Fungicide per acre per year
		Inspire Super	difenoconazole + cyprodinil	3 + 9	16 - 20 fl oz	12 hours	14	For powdery mildew, begin Inspire Super at bud break and apply on a 10 - 21 day interval.
		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.
		Vivando	metrafenone	50	10.3-15.4 fl oz/acre	12 hours	14	Begin vivando applications at bud break prior to onset of disease. Must be applied before visual symptoms of powdery mildew appear. Do not mix with horticultural oils after flowering begins
		Quintec	quinoxyfen	13	4 oz	12 hours	21	Apply when conditions are favorable for disease but before disease develops. Apply on a 14 day interval. **(Do not apply to Concord grapes as injury may result.)**
		Prolivo 300SC	pyriofenone,	50	4-5 fl oz./acre	4 hours	0	See label for remarks.
		Luna Experience	fluopyram + tebuconazole	7 + 3	6-8.6 fl oz/acre	12 hours (5 days for cane tying, turning, or girdling)	14	

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SMALL FRUIT DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
GRAPES (cont.)								
Bud Break to Bloom *(cont.)*	Powdery mildew *(cont.)*	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.
		Flint Extra	trifloxystrobin	11	3-3.5 fl oz/acre	12 hours	14	Do not apply flint extra to concord grapes or injury may occur.
		Procure 480 SC	triflumizole	3	4 - 8 fl oz	12 hours	7	Apply in minimum of 50 GPA.
		wettable sulfur (various brands) 80-92% Sulfur	sulfur	M2	3-10 lbs/Acre	24 hours	See labels	Must be applied every 7-10 days. Dilute in 100 gallons of water per acre. Corrosive to sprayers and trellis wires. OMRI listed for organic. Do not apply within 2 weeks of oil or oil-based products or at temperature above 90F. May injury Concord and other Vitis labrusca cultivars.
Bloom	Same as Bud Break							
		Quadris	azoxystrobin,	11	10-15.5 fl oz	4 hours	14	Quadris is extremely phytotoxic to certain apple varieties. Supression of Botrytis bunch rot only.
	Botrytis bunch rot*	Quadris Top	azoxystrobin + difenoconazole	11 + 3	12 - 14 oz	12 hours	14	Suppression only.
		Topguard EQ	azoxystrobin + flutriafol	11 + 3	8 fl oz	12 hours (5 days for cane tying, turning or girdling)	14	Do not apply more than 6 times a season.
		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.
		Vangard 75 WG	cyprodinil	9	10 oz	12 hours	7	Begin Vangard at early bloom. Continue through berry touch, veraison and pre-harvest on a 7 day interval.
		Switch 62.5WG	cyprodinil + fludioxonil	9 + 12	11-14 oz/acre	12 hours	7	Begin applications of Switch 62.5WG at early bloom. Continue applications on a 21-day interval based on disease pressure. Up to three additional applications may be made at berry touch, veraison, or preharvest.
		Botran 75 W	dicloran	14	2 lb	14 days	14	Cane turning and girdling are prohibited for 30 days after using Botran 75 W.
		Inspire Super	difenoconazole + cyprodinil	3 + 9	16 - 20 fl oz	12 hours	14	PRECAUTION: On V. labrusca, V. labrusca hybrids and other non-viniferea hybrids such as Concord and Thomcord where sensitivity is not known, the use of Inspire Super by itself or in tank mixtures with materials that may increase uptake (adjuvants, foliar fertilizers) may result in leaf burning or other phytotoxic effects.
		Elevate 50 WG	fenhexamid	17	1 lb	12 hours	0	Do not make more than 2 consecutive applications.

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SMALL FRUIT DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
GRAPES (cont.)								
Bloom *(cont.)*	Botrytis bunch rot* *(cont.)*	Rovral 4 FL	iprodione	2	1 - 2 pt	24 hours	7	Begin at early bloom. Continue through berry touch, veraison and pre-harvest.
		Scala	pyrimethanil	9	18 fl oz	12 hours	7	
Shatter	Black rot Downy mildew Powdery mildew	Abound FL	azoxystrobin	11	10 - 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.
	Angular leaf spot Anthracnose Black rot Leaf blight Phomopsis Powdery mildew Rotbrenner Septoria	Aprovia	azoxystrobin + difenoconazole	11 3	8.6 - 10.5 fl oz	12 hours	21	For Phomopsis diseases, apply at bud break, before shoots are 0.5 inches in length, and then again when shoots are 5 - 6 inches in length.
		Quadris	azoxystrobin	11	10-15.5 fl oz	4 hours	14	Quadris is extremely phytotoxic to certain apple varieties.
		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	DO NOT APPLY PRISTINE TO CONCORD, WORDEN, FREDONIA AND RELATED VARIETIES AS LEAF INJURY MAY RESULT – SEE LABEL.
		Captan 4L	captan	M4	0.75-2 qts/ acre	48 hours	0	
		Sovran 50 WG	kresoxim-methyl	11	3.2 - 5.6 oz	12 hours	14	
		Dithane DF Rainshield	mancozeb	M3	1.5-4 lbs/acre	24 hours	66	Do not apply more than 24 lbs per acre per season.
		Revus	mandipropamid	40	7 oz	4 hours	14	
		Revus Top	mandipropamid + difenoconazole	40		12 hours	14	
		Scala	pyrimethanil	40 + 3	18 fl oz	12 hours	7	

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SMALL FRUIT DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
GRAPES (cont.)								
Shatter *(cont.)*	Angular leaf spot Anthracnose Black rot Leaf blight Phomopsis Powdery mildew Rotbrenner Septoria *(cont.)*	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	5 - 8 fl oz	12 hours (5 days for cane tying, turning or girdling)	14	
	Alternaria rot Angular leaf spot Anthracnose Black rot Bunch rot Powdery mildew Septoria leaf spot	Inspire Super	difenoconazole + cyprodinil	3 + 9	16 - 20 fl oz	12 hours	14	PRECAUTION: On V. labrusca, V. labrusca hybrids and other non-viniferea hybrids such as Concord and Thomcord where sensitivity is not known, the use of Inspire Super by itself or in tank mixtures with materials that may increase uptake (adjuvants, foliar fertilizers) may result in leaf burning or other phytotoxic effects.
	Phytophthora root rot Pythium Fusarium Rhizoctonia Powdery mildew Downy mildew	Fosphite	mono- and di-potassium salts of phosphorous acid	P07	1 - 3 qt/ 100 gallon	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						
Veraison to Harvest	Botrytis bunch rot*	See Bloom Section						
	Powdery mildew	Abound FL	azoxystrobin	11	10 - 15.4 fl oz	4 hours	14	
		Quadris	azoxystrobin	11	10-15.5 fl oz	4 hours	14	Quadris is extremely phytotoxic to certain apple varieties.
		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.

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SMALL FRUIT DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
GRAPES (cont.)								
Veraison to Harvest *(cont.)*	Powdery mildew *(cont.)*	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 – SEE LABEL.
		Sovran 50 WG	kresoxim-methyl	11	3.2 - 4.8 oz	12 hours	14	
		Quintec	quinoxyfen	13	4 oz	12 hours	21	Apply when conditions are favorable for disease but before disease develops. Apply on a 14 day interval. (Do not apply to Concord grapes as injury may result.)
		AmTide	tebuconazole	3	3 - 4 fl oz	12 hours	14	
		Luna Experience	fluopyram + tebuconazole	7 + 3	6-8.6 fl oz/ acre	12 hours (5 days for cane tying, turning, or girdling),	14	
		Flint 50 WG	trifloxystrobin	11	1.5 - 4 oz	12 hours	14	
		Procure 480 SC	triflumizole	3	4 - 8 fl oz	12 hours	7	Apply in minimum of 50 GPA.
	Downy mildew	Abound	azoxystrobin	11	11 - 15.4 fl oz	4 hours	14	
		Quadris	azoxystrobin	11	10 - 15.5 fl oz	4 hours	14	Quadris is extremely phytotoxic to certain apple varieties.
		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	48 hours	0	
		Topguard EQ	azoxystrobin + flutriafol	11 + 3	8 fl oz	12 hours (5 days for cane tying, turning or girdling)	14	

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SMALL FRUIT DISEASES (Commercial) – continued

Growth Stage	Disease	Product	Active Ingredient	FRAC Code	Rate/Acre	Re-entry Interval	Days to Harvest	Comments
GRAPES (cont.)								
	Alternaria rot Angular leaf spot Anthracnose Black rot Bunch rot Powdery mildew Septoria leaf spot	Inspire Super	difenoconazole + cyprodinil	3 + 9	16 - 20 fl oz	12 hours	14	PRECAUTION: On V. labrusca, V. labrusca hybrids and other non-viniferea hybrids such as Concord and Thomcord where sensitivity is not known, the use of Inspire Super by itself or in tank mixtures with materials that may increase uptake (adjuvants, foliar fertilizers) may result in leaf burning or other phytotoxic effects.
	Phytophthora root rot Pythium Fusarium Rhizoctonia Powdery mildew Downy mildew	Fosphite	mono- and di-potassium salts of phosphorous acid	P07	1 - 3 qt/ 100 gallon	4 hours	0	Foliar, or aerial, or root dip, or irrigation or trunk injection. See label for rates and complete instructions.
BLUEBERRY								
Dormant	Bacterial blight Phomopsis blight Mummy berry	Lime-sulfur spray (hard to find)	calcium polysulfides	M2	Rate depends on product name. See label.	48 hours	Dormant only	Apply at delayed dormant when leaf buds start to break.
	Phomopsis blight Mummy berry	Sulforix	calcium polysulfides	M2	See label.	48 hours		
		Kocide 3000	copper hydroxide	M1	1 - 2.5 lb	48 hours		Dormant application. Begin at bud swell.

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