GRAPE (*Vitis vinifera* 'White Riesling')
Botrytis Bunch Rot; *Botrytis cinerea*

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Efficacy of fungicides for management of grape bunch rot, 2024

Fungicide treatments were arranged in a randomized complete block design in a vineyard of 'White Riesling' planted in 1995 on a 7x11 ft spacing. White Riesling vines were trained to a Guyot (vertical shoot position) system and pruned from 3 to 5 Feb 2024. Shoot thinning and sucker removal by hand occurred on 10 May 2024 and continued through the rest of the growing season. Canes were cut above the top wire on 9 Jul and maintained at this height throughout the growing season. Each treatment was replicated on 5 sets of 5 vines. Fungicides were applied using a hooded boom sprayer at 150 psi resulting in 80 gal water/A. Approximately 2.8 gal of a spray suspension was applied per set of 25 vines. All materials were applied focused on the fruiting zone. Leaves were not removed from the fruiting zone of any vines. Treatments were applied on 18 Jun (10% bloom, BBCH 61), 19 Jul (bunch close, BBCH 77), 15 Aug (veraison, BBCH 82), and 10 Sep (pre-harvest, pre-rain). Applications for management of powdery mildew occurred on 8 May (Microthiol Disperss at 5 lb/A), 23 May (Microthiol Disperss at 5 lb/A plus Torino at 3.4 fl oz/A), 14 Jun (Microthiol Disperss at 5 lb/A plus Quintec at 6.4 fl oz/A), 28 Jun (Microthiol Disperss at 5 lb/A plus Vivando at 15.4 fl oz/A), 12 Jul (Microthiol Disperss at 5 lb/A plus Quintec at 6.4 fl oz/A) and 30 Jul (Microthiol Disperss at 5 lb/A plus Torino at 3.4 fl oz/A). Fungicide applications for powdery mildew control were also applied using a hooded boom sprayer at 150 psi. Casoron 4-G (150 lb/A; 30 lb/A in herbicide strip) was applied on 26 Mar for general pre-emergent weed management and GlyStar Plus was spot sprayed on 10 Apr for management of perennial weeds. Fertilizer (16-16-16 at 30 lb/A) was applied to vines on 9 Apr. Although vines were not netted, a Bird-X sonic bird deterrent system was used to discourage fruit predation. Incidence and severity of bunch rot was determined on 12 and 19 Sep and 1 Oct by examining 50 clusters from the center of each set of vines. Treatments were also evaluated by calculating the area under disease progress curve (AUDPC) which was calculated by multiplying the mean incidence or severity from three observation dates by the number of days between observations ($\Sigma[Y_{i+1} + Y_i)/2][X_{i+1}-X_i]$ where Y_i is incidence of bunch rot in percent at i*th* observation and X_i is the day of the i*th* observations). Values calculated between each pair of observations are added together to obtain a total AUDPC. Incidence and severity of bunch rot was determined on 1 Oct by harvesting 50 clusters (average 20.3° Brix) from the center of each set of vines.

There was no rain after the bloom or bunch close applications but a week after the veraison application there was a total of 0.45 in rainfall and another 0.40 in a week after the preharvest application. Bunch rot symptoms were first observed sporadically throughout the vineyard on 6 Sep. Highest incidence, severity and AUDPC of bunch rot was found on non-treated vines on all rating dates and was significantly higher than all other treatments. Lowest incidence, severity and AUDPC of bunch rot was found on vines treated with Miravis Prime and was significantly lower than all other treatments except for vines treated with the Amara/Switch/Elevate alternation on the first incidence rating date and the second severity rating date. No phytotoxicity was observed on vines treated with any fungicide.

Table 1. Incidence of grape bunch rot.

Treatment & rate/A or /100 gal as indicated below	Time of application*	Bunch rot**			
		% Incidence (12 Sep)	% Incidence (19 Sep)	% Incidence (1 Oct)	AUDPC
Non-treated …….	None……	45.2 a	77.6 a	92.4 a	1450 a
Amara at 2 qt plus Dyne-Amic at 6.4 fl oz/100 gal	All……...	20.0 b	41.6 b	47.6 b	751 b
Amara at 2 qt plus Dyne-Amic at 6.4 fl oz/100 gal then Switch WG at 14 oz then Elevate 50 WDG at 1 lb plus Dyne-Amic at 6.4 fl oz/100 gal	A and B C D……....	13.6 bc	32.0 b	41.2 b	599 c
Miravis Prime at 13.4 fl oz plus Dyne-Amic at 6.4 fl oz/100 gal then Elevate 50 WDG at 1 lb plus Dyne-Amic at 6.4 fl oz/100 gal then Switch WG at 14 oz then Elevate 50 WDG at 1 lb plus Dyne-Amic at 6.4 fl oz/100 gal	A B C D……....	8.0 c	16.8 c	22.4 c	322 d

* Treatments were applied on A = 18 Jun (10% bloom, BBCH 61), B = 19 Jul (bunch close, BBCH 77), C = 15 Aug (veraison, BBCH 82), and D = 10 Sep (pre-harvest, pre-rain).

** Means followed by the same letter do not differ significantly based on Fisher's protected LSD ($P \leq 0.05$) using Agricultural Research Manager (GDM Solutions, Inc.).

Table 2. Severity of grape bunch rot.

Treatment & rate/A or /100 gal as indicated below	Time of application*	Bunch rot**			
		% Severity (12 Sep)	% Severity (19 Sep)	% Severity (1 Oct)	AUDPC
Non-treated …….	None……	9.4 a	25.4 a	43.1 a	533 a
Amara at 2 qt plus Dyne-Amic at 6.4 fl oz/100 gal	All……...	4.5 b	13.4 b	21.3 b	271 b
Amara at 2 qt plus Dyne-Amic at 6.4 fl oz/100 gal then Switch WG at 14 oz then Elevate 50 WDG at 1 lb plus Dyne-Amic at 6.4 fl oz/100 gal	A and B C D……....	4.0 b	8.1 c	15.8 c	185 c
Miravis Prime at 13.4 fl oz plus Dyne-Amic at 6.4 fl oz/100 gal then Elevate 50 WDG at 1 lb plus Dyne-Amic at 6.4 fl oz/100 gal then Switch WG at 14 oz then Elevate 50 WDG at 1 lb plus Dyne-Amic at 6.4 fl oz/100 gal	A B C D……....	1.4 c	5.1 c	8.4 d	104 d

* Treatments were applied on A = 18 Jun (10% bloom, BBCH 61), B = 19 Jul (bunch close, BBCH 77), C = 15 Aug (veraison, BBCH 82), and D = 10 Sep (pre-harvest, pre-rain).

** Means followed by the same letter do not differ significantly based on Fisher's protected LSD ($P \leq 0.05$) using Agricultural Research Manager (GDM Solutions, Inc.).

Acknowledgements - We wish to thank Brent Warneke and Nicole DiManno for helping with shoot thinning and suckering.