

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

J. W. Pscheidt, B. Warneke and J. A. Whitney
Dept. of Botany and Plant Pathology
Oregon State University
Corvallis, OR 97331

Efficacy of fungicides for management of grape bunch rot, 2023

Fungicide treatments were arranged in a randomized complete block design in a vineyard of 'White Riesling' planted in 1985 on a 7x11 ft spacing. Vines were trained to a bilateral cordon with spur pruning. Vines were pruned from 11 to 12 Feb 2020. Shoot thinning and sucker removal by hand occurred on 18 May 2023. Suckers were also sprayed with Rely 280 at 1 fl oz/gal on 23 May and subsequent regrowth was removed periodically during the growing season. Canes were cut above the top wire on 14 Jul and maintained at this height throughout the growing season. Each treatment was replicated on 4 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 were applied per set of 20 vines. All materials were applied focused on the fruiting zone. Leaves were removed from the fruiting zone on the east side of all vines on 26 Jun. Treatments were applied on 12 Jun (30% bloom, BBCH 63), 16 Jun (70% bloom, BBCH 67), 11 Jul (bunch close, BBCH 77), 21 Aug (veraison, BBCH 82), and 23 Sep (preharvest). Applications for management of powdery mildew occurred on 14 Jun (Microthiol Disperss at 5 lb/A plus Torino at 3.4 fl oz/A), 28 Jun (Microthiol Disperss at 5 lb/A plus Quintec at 6 fl oz/A), 12 Jul (Microthiol Disperss at 5 lb/A plus Gatten at 6.4 fl oz/A), 25 July (Microthiol Disperss at 5 lb/A plus Vivando at 15.4 fl oz/A), 10 Aug (Microthiol Disperss at 5 lb/A plus Torino at 3.4 fl oz/A) and 24 Aug (Microthiol Disperss at 5 lb/A plus Quintec at 6 fl oz/A). Fungicide applications for powdery mildew control were applied using a hooded boom sprayer at 150 psi. A 2% solution of Mad Dog (55 fl oz/A) was applied to all rows on 18 Mar for weed control. No fertilizer was applied to vines this year. Although vines were not netted, a Bird-X sonic bird deterrent system was used to discourage fruit predation. Incidence of bunch rot was determined on 8 and 22 Sep and 3 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 from three observation dates by the number of days between observations ($\sum [Y_{i+1} + Y_i] / 2 [X_{i+1} - X_i]$ 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. Severity of bunch rot was determined on 3 Oct by harvesting 50 clusters (average 16.4° Brix) from the center of each set of vines.

Spring weather conditions were normal to dry in April and first week of May but then became very dry with little rainfall for the remainder of the season. After the first fungicide application there was a total of 0.12 in rainfall during bloom, 0.76 in after the veraison application and 2.1 in after the preharvest application. Bunch rot symptoms were first observed sporadically throughout the vineyard on 5 Sep. Highest incidence and severity of bunch rot was found on non-treated vines on all rating dates. The incidence of bunch rot on vines treated with EcoSwing or GWN-9999 was not significantly different from non-treated vines only on 8 Sep or 3 Oct rating dates, respectively. All treated vines had an AUDPC that was significantly lower than non-treated vines. The severity of bunch rot on vines treated with ProBlad Verde was not significantly different from non-treated vines. Lowest incidence of bunch rot was found on vines treated with ProBlad Verde for the first two ratings but on vines treated with the Switch/Elevate alternation on the last rating date but for all rating dates neither treatment was significantly different from the other. Lowest AUDPC was calculated for vines treated with ProBlad Verde, however, the AUDPC calculated for vines treated with the Switch/Elevate was not significantly different. Lowest severity of bunch rot was found on vines treated with the Switch/Elevate alternation, however, bunch rot on vines treated with GWN-9999 or EcoSwing was not significantly different. No phytotoxicity was observed on vines treated with any fungicide.

Treatment & rate/A or /100 gal as indicated below	Time of application*	Bunch rot**				
		% Incidence (8 Sep)	% Incidence (22 Sep)	% Incidence (3 Oct)	AUDPC	% Severity (3 Oct)
Non-treated but leaves were pulled.....	None.....	34.0 a	77.5 a	94.0 a	1724 a	12.7 a
GWN-9999 at 2 pt plus Nu-Film-P at 4 fl oz.....	All.....	19.0 b	38.0 bc	81.5 ab	1056 b	8.0 bc
EcoSwing at 2 pt plus Nu-Film-P at 4 fl oz.....	All.....	32.5 a	44.5 b	73.0 bc	1185 b	8.2 bc
ProBlad Verde at 45.7 fl oz plus Nu-Film-P at 4 fl oz.....	All.....	12.0 b	18.5 d	76.0 bc	733 c	9.8 ab
Switch WG at 14 oz <i>alternate</i>	A, D					
Elevate 50 WDG at 1 lb.....	C, E.....	13.5 b	27.5 cd	65.5 c	799 c	5.2 c

* Treatments were applied on A = 12 Jun (30% bloom, BBCH 63), B = 16 Jun (70% bloom, BBCH 67), C = 11 Jul (bunch close, BBCH 77), D = 21 Aug (veraison, BBCH 82), and E = 23 Sep (preharvest).

** 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.).