

GRAPE (*Vitis vinifera* 'Pinot Noir')
Powdery Mildew; *Uncinula necator*

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Fungicide efficacy for control of grape powdery mildew, 2008.

Fungicide treatments were arranged in a randomized complete block design in a block of 'Pinot Noir' planted in 1985 on a 7x10 ft spacing. Vines were trained to a bilateral cordon with spur pruning. Vines were pruned from 27 to 29 Feb. Shoot thinning to approximately 40 shoots/vine and sucker removal by hand occurred on 19 May. Each treatment was replicated on 4 sets of 5 vines. Treatments were applied approximately every 14 days using a hooded boom sprayer at 150 psi for the first 4 applications, and 200 psi for the remaining 3 applications. The rate of water used was 96 to 162 gal/A depending on amount of foliage present. Approximately 2.5 to 5.4 gal of spray suspension was used per 20 vines depending on time of year. Fungicides were applied on 30 May (6 inch shoots), 12 Jun (EL 12), 25 Jun (EL 15), 10 Jul (EL 29), 24 Jul (EL 33), 7 Aug (Bunch close) and 21 Aug (start of Veraison). Acramite 4 SC (10 oz/A) was applied to the entire block on 23 May using a hooded boom sprayer to control mites. Canes were cut above the top wire on 17 Jul and maintained at this height throughout the growing season. Diuron 4L (1 qt/A) was applied to the vine row on 18 Feb for weed control. Rely (2 qt/A) was applied to the vine row on 15 May for both sucker and weed control. No fertilizer was applied this year. No leaves were removed from the fruiting zone. According to the Gubler-Thomas powdery mildew forecasting model, there were 2 rain events between budbreak and end of bloom that were favorable for ascospore release and infection: 1 moderate infection period (2 Jun), and 1 low infection period (5 Jun). The risk index climbed above 60 in late June and remained high through out the summer (with only one day below 60) until mid Sep. Incidence and severity of powdery mildew on leaves were evaluated on 3 Jul (incidence only), 16 Jul, 31 Jul, 13 Aug and 28 Aug. Incidence and severity of powdery mildew on clusters were evaluated on 18 Jul, 1, 15 and 28 Aug. Powdery mildew disease data was collected by randomly examining 50 leaves or clusters from the middle 3 vines of each replicate. Comparisons among treatments for severity of powdery mildew on leaves and clusters were evaluated by calculating the area under disease progress curves (AUDPC). AUDPC was calculated by multiplying the mean severity from two 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 severity of mildew 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.

Symptoms of powdery mildew were first found on 2 Jun on widely scattered leaves on nontreated vines. Disease pressure in this block was considered high, especially on clusters since a short bloom period occurred between fungicide applications. All fungicide treated vines had significantly less powdery mildew on leaves when compared to nontreated vines. There was no significant difference among fungicide treatments with respect to powdery mildew on leaves. Only vines treated with Mettle had significantly less powdery mildew incidence on clusters than nontreated vines. All treated vines had significantly less powdery mildew severity on clusters when compared to nontreated vines. Lowest cluster severity was found on vines treated with Mettle, however, vines treated with Mana-Teb 20 EW were not significantly different. Lowest cluster AUDPC was found on vines treated with Mettle, however, vines treated with Mana-Teb formulations were not significantly different. The Mana-Teb 45 DF formulation was not significantly different than Elite 45 WP with respect to powdery mildew control. No phytotoxicity was observed on any treated vines.

Treatment and Rate/A**	% Leaves with Powdery Mildew (27 Aug)*		AUDPC* (Leaves)	% Clusters with Powdery Mildew (27 Aug)*		AUDPC* (Clusters)
	Incidence	Severity		Incidence	Severity	
Nontreated.....	100 a	90.5 a	20.18 a	100 a	100 a	32.6 a
Elite 45 WP at 4 oz.....	7.0 b	0.1 b	0.031 b	99.5 a	56.3 b	9.9 b
Mana-Teb 45 DF at 4 oz.....	5.5 b	0.1 b	0.022 b	94.0 a	42.0 bc	5.8 bc
Mana-Teb 20 EW at 8.6 fl oz....	4.0 b	0.1 b	0.011 b	92.5 a	24.8 cd	3.3 c
Mettle 125 SL at 5 fl oz.....	2.0 b	0.0+ b	0.002 b	71.5 b	10.6 d	1.8 c

* Means followed by the same letter do not differ significantly based on Fisher's protected LSD (P=0.05). The data represented as 0.0+ indicate the value was very low but not equal to zero.

** Fungicides were applied on 30 May (6 inch shoots), 12 Jun (EL12), 25 Jun (EL 15), 10 Jul (EL 29), 24 Jul (EL33), 7 Aug (Bunch close) and 21 Aug (start of Veraison).