

GRAPE (*Vitis vinifera* 'Pinot Gris')  
Powdery Mildew; *Erysiphe necator*

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### **Efficacy of fungicides for control of grape powdery mildew on Pinot Gris, 2008.**

Fungicide treatments were arranged in a randomized complete block design in a block of 'Pinot Gris' (on *V. rupestris* x *V. riparia* 101-14 rootstock) planted in 1998 on a 7x8 ft spacing. A single buffer rootstock vine was trained between each set of treatment vines and a buffer rootstock row separated each varietal row. Vines were trained to a Guyot system on 22 Feb. Each treatment was replicated on 4 sets of 5 vines. Treatments were applied approximately every 14 or 21 days, depending on the protocol, using a hooded boom sprayer at 150 psi for the first 4 applications and 200 psi thereafter. The rate of water used was 96 to 113 gal/A depending on amount of foliage present. Approximately 2.5 to 3.0 gal of spray suspension was used per 20 vines depending on time of year. Fungicides were applied on 29 May (6 inch shoots), 11 Jun (EL 14), 19 Jun, 25 Jun (EL 19), 9 Jul (EL 29), 23 Jul (EL 33), 30 Jul, 6 Aug (Bunch close) and 21 Aug (start of Veraison). No leaves were removed from the fruiting zone. Acramite 4 SC (10 oz/A) was applied to the entire block on 23 May using a hooded boom sprayer to control mites. Shoot thinning and sucker removal by hand occurred on 12 May. Canes were cut above the top wire on 7 Jul and maintained at this height throughout the growing season. Aim (2 oz/A) plus Sylgard 309 (4 oz/100 gal) was applied on 27 May for both weed and additional sucker control. Buccaneer (4 qt/A) was applied on 18 Jun to control weeds in the vine row. No fertilizer was applied this year. 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 16 Jul, 28 Jul, 13 Aug and 28 Aug. Incidence and severity of powdery mildew on clusters were evaluated on 18 Jul, 29 Jul, 15 Aug and 28 Aug. Powdery mildew disease data was collected by examining 50 arbitrarily selected leaves or clusters from the middle 3 vines of each replicate. Comparisons among treatments for severity of powdery mildew on 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 ( $\Sigma[Y_{i+1} + Y_i]/2][X_{i+1}-X_i]$  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 as a few heavily infected shoots. The type and amount of infection was reminiscent of flag shoots but these were not text book symptoms. All treated vines had significantly less powdery mildew on leaves or clusters when compared to nontreated vines. Only two leaves were found to have powdery mildew out of the 800 leaves examined all summer on vines treated every two weeks with BAS 560 plus Silwet alone (data not shown). Powdery mildew was not found on leaves on 28 Aug on vines treated every two weeks with BAS 560 plus Silwet alone, however, the amount of powdery mildew on leaves was not significantly different than on other fungicide treated vines. Overall there were no significant differences among the fungicide treatments with respect to any measure of powdery mildew. In this trial there was no significant difference in powdery mildew control between 2 or 3 week intervals using BAS 560 plus Silwet. No phytotoxicity was observed on any treated vines.

Treatment and Rate/A	Time of Application*	% Leaves with Powdery Mildew (28 Aug)**		% Clusters with Powdery Mildew (28 Aug) **		AUDPC** (Clusters)
		Incidence	Severity	Incidence	Severity	
Nontreated.....	None.....	80.5 a	19.4 a	98.5 a	64.8 a	14.5 a
BAS 560 F at 10.24 fl oz plus Silwet L-77 at 4 fl oz/100gal...	A, B, D,E, F, H, I.....	0.0 b	0.0 b	1.0 b	0.0+ b	0.0+ b
BAS 560 F at 10.24 fl oz plus Silwet L-77 at 4 fl oz/100gal ... altretrate	A,D, F, I					
Sovran 50 WDG at 3.2 oz plus Silwet L-77 at 4 fl oz/100gal...	B, E, H.....	0.5 b	0.0+ b	3.0 b	0.0+ b	0.0+ b
BAS 560 F at 15.36 fl oz plus Silwet L-77 at 4 fl oz/100gal...	A, C, E, G, I	0.5 b	0.0+ b	0.5 b	0.0+ b	0.0+ b
Pristine 38 WDG at 10.53 oz plus Silwet L-77 at 4 fl oz/100gal...	A, C, E, G, I	0.5 b	0.0+ b	0.5 b	0.0+ b	0.0+ b
BAS 560 F at 10.24 fl oz plus Silwet L-77 at 4 fl oz/100gal... alternate	A, E, I					
Pristine 38 WDG at 10.53 oz plus Silwet L-77 at 4 fl oz/100 gal...	C, G.....	1.5 b	0.0+ b	2.0 b	1.0 b	0.1 b

\* Fungicides were applied on A = 29 May (6 inch shoots), B = 11 Jun, C = 19 Jun, D = 25 Jun (EL19), E = 9 Jul (EL 29), F = 23 Jul (berry touch), G = 30 Jul, H = 6 Aug (bunch close) and I = 21 Aug (Start of Veraison).

\*\* 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.