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, 2007.

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. Each treatment was replicated on 5 sets of 5 vines. Pinot Gris vines were trained to a Guyot system on 8 and 9 Feb. Thiolux (6 lb/A) was applied to the entire block on 7 May using a hooded boom sprayer to control mites. Shoot thinning and sucker removal by hand occurred on 15 May. Treatments were applied approximately every 14 or 21days, depending on the protocol, using a hooded boom sprayer at 150 psi. The rate of water used was 96 to 103 gal/A depending on amount of foliage present. Approximately 3.1 to 3.4 gal of spray suspension was used per 25 vines depending on time of year. Fungicides were applied on 24 May (6 inch shoots), 7 Jun, 14 Jun, 21 Jun (Bloom), 5 Jul, 19 Jul (Bunch Close), 24 Jul, 1 Aug and 15 Aug (50% Veraison). No leaves were removed from the fruiting zone. Buccaneer (1qt/A) plus Goal 2XL (1qt/A) was applied on 15 Mar to control weeds in the vine row and Rely (3 qt/A) was applied on 18 May for both weed and sucker control. No fertilizer was applied this year. Canes were cut above the top wire on 2 Jul and maintained at this height throughout the growing season. According to the Gubler-Thomas powdery mildew forecasting model, there were 6 rain events between budbreak and end of bloom that were favorable for ascospore release and infection: 1 severe infection period (3 May), 4 moderate infection periods (1, 18, 20 May and 9 Jun), and 1 low infection period (23 May). The risk index briefly climbed above 60 in late May and again in early July but fell below 60 soon after. By mid July the risk index stayed above 60 and remained high through mid Sep (Figure 1). Incidence and severity of powdery mildew on leaves were evaluated on 4 Jul (incidence only), 23 Jul, and 8 Aug. Incidence and severity of powdery mildew on clusters were evaluated and 23 Jul, 7 and 18 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 in a nearby block of Pinot Noir as flag shoots on 21 May. Symptoms of powdery mildew were first found in this block of Pinot Gris on nontreated vines on 11 Jun, however, it is suspected they may have started 2 weeks earlier. All treated vines had significantly less powdery mildew on leaves or clusters when compared to nontreated vines. Powdery mildew was not found on leaves on 8 Aug on vines treated with Pristine or BAS 5600 plus Silwet, however, the amount of powdery mildew on leaves from vines treated with BAS 5600 alone were not significantly different. Lowest incidence on clusters was on vines treated with Pristine, however, the incidence on vines treated with BAS 5600 plus Silwet on a 2 week interval was not significantly different. Lowest severity on clusters was also on vines treated with Pristine, however, the incidence on vines treated with BAS 5600 (with or without Silwet) on a 2 week interval was not significantly different. In general, there was more powdery mildew on vines treated with BAS 5600 alone at 3 week intervals.

Note: Many vines in this block had a color change, darker purple berries during mid veraison, which was more similar to Pinot Noir rather than Pinot Gris on 27 Aug. We suspect there were several miss labeled plants that got mixed into this block.

Treatment and Rate/A	Time of Application*	% Leaves with Powdery Mildew (8 Aug)**		% Clusters with Powdery Mildew (18 Aug) **		AUDPC** (Clusters)
		Incidence	Severity	Incidence	Severity	
Nontreated…….	None……	100 a	35.3 a	100 a	100 a	25.7 a
Pristine 38 WDG at 10.5 oz plus Silwet L-77 at 4 fl oz/100 gal…	A, B, D, E, F, H, I….....	0.0 c	0.0 b	11.5 d	0.4 d	0.1 c
BAS 5600 F at 10.24 fl oz……	A, B, D, E, F, H, I….....	0.5 bc	0.5 b	28.0 c	0.5 cd	0.1 c
BAS 5600 F at 10.24 fl oz plus Silwet L-77 at 4 fl oz/100 gal ...	A, B, D, E, F, H, I….....	0.0 c	0.0 b	19.5 cd	0.5 cd	0.1 c
BAS 5600 F at 15.36 fl oz	A, C, E, G, I.	1.5 b	0.5 b	49.5 b	1.6 b	0.5 b
BAS 5600 F at 15.36 fl oz plus Silwet L-77 at 4 fl oz/100gal….	A, C, E, G, I.	0.0 c	0.0 b	31.5 c	0.9 c	0.3 bc

* Fungicides were applied on A = 24 May (6 inch shoots), B = 7 Jun, C = 14 Jun, D = 21 Jun (Bloom), E = 5 Jul, F = 19 Jul (Bunch Close), G = 24 Jul, H = 1 Aug and I = 15 Aug (50% Veraison).

** Means followed by the same letter do not differ significantly based on Fisher's protected LSD (P=0.05).