

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

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Efficacy of fungicides for control of grape powdery mildew on Pinot Noir, 2008.

Fungicide treatments were arranged in a randomized complete block design in a block of 'Pinot Noir' (on *V. rupestris* x *V. riparia* 101-14 rootstock) planted in 1998 on a 7x8 ft spacing. A single buffer rootstock plant was trained between each set of treatment vines and a buffer rootstock row separated each varietal row. Pinot Noir vines were trained to a Guyot system on 21 Feb. Each treatment was replicated on 5 sets of 5 vines. Treatments were applied approximately every 14 days using a hooded boom sprayer at 150 psi for the first 3 applications, and 200 psi for the remaining 4 applications. The rate of water used was 96 to 113 gal/A depending on amount of foliage present. Approximately 3.1 to 3.75 gal of spray suspension was used per 25 vines depending on time of year. Fungicides were applied on 29 May (6 inch shoots), 11 Jun (EL 14), 25 Jun (EL 19), 9 Jul (EL 29), 23 Jul (EL 33), 6 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. 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. 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 (figure 1). 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, 15 Aug 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 in nearby Pinot Gris vines and a different block of Pinot Noir on 2 Jun. All fungicide treated vines had significantly less powdery mildew on leaves or clusters when compared to nontreated vines. No leaves were found to have powdery mildew out of the 1,000 leaves examined all summer on vines treated with Pinpoint plus Sylgard (data not shown). Very little powdery mildew was found on leaves of vines treated with Flint or Pinpoint alone or Pinpoint plus Induce. Incidence of powdery mildew on clusters from vines treated with Pinpoint alone were significantly higher than on vines treated with Pinpoint plus a surfactant or Flint. There was no significant difference among fungicide treatments with respect to powdery mildew severity on clusters (either on 28 Aug or the AUDPC). A very subtle plant growth regulator effect could be seen on vines treated with Pinpoint plus a surfactant on 23 Jun. The effect was noticeable for a few weeks but was not severe enough to warrant rating vines.

Treatment and Rate/A**	% Leaves with Powdery Mildew (28 Aug)*		AUDPC* (Leaves)	% Clusters with Powdery Mildew (28 Aug)*		AUDPC* (Clusters)
	Incidence	Severity		Incidence	Severity	
Nontreated.....	88.8 a	45.0 a	6.422 a	99.6 a	83.4 a	21.20 a
Pinpoint 41 EC at 3.1fl oz.....	1.2 b	0.0+ b	0.003 b	42.4 b	1.9 b	0.305 b
Pinpoint 41 EC at 3.1 fl oz plus Induce at 32 oz/100 gal.....	0.0 b	0.0 b	0.003 b	3.2 c	0.1 b	0.013 b
Pinpoint 41 EC at 3.1 fl oz plus Sylgard 309 at 12 fl oz/100 gal.	0.0 b	0.0 b	0.000 b	4.4 c	0.1 b	0.008 b
Flint 50 WDG at 2 oz.....	0.0 b	0.0 b	0.001 b	1.2 c	0.0+ b	0.003 b

* 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.

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