

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

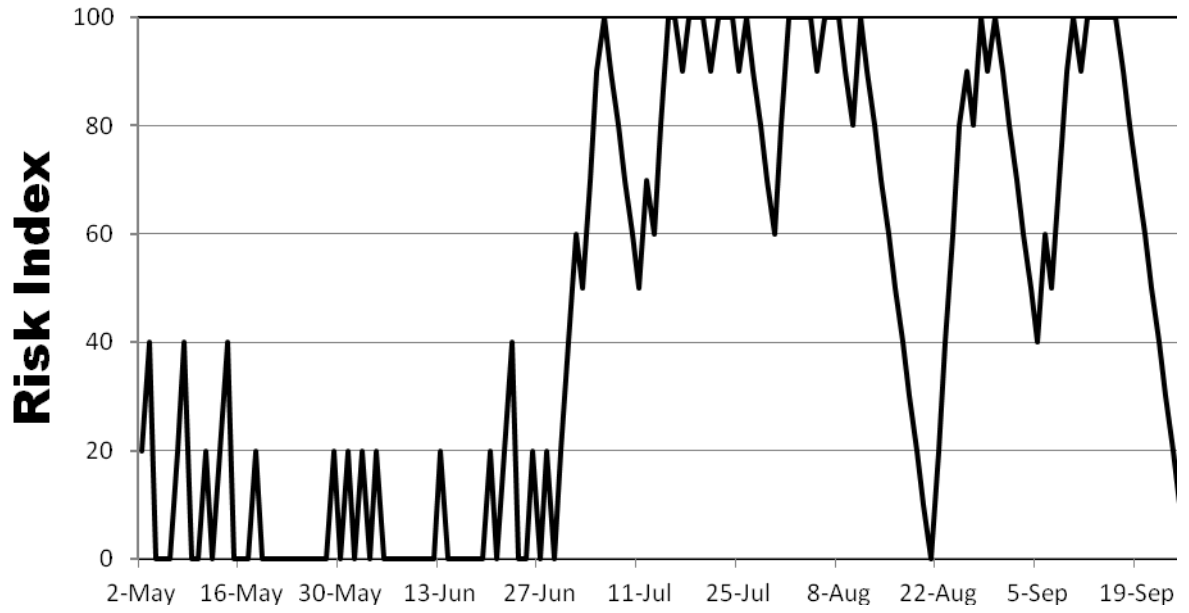
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### **Efficacy of fungicides for management of grape powdery mildew on Pinot Noir, 2016.**

Fungicide treatments were arranged in a randomized complete block design in a block of 'Pinot Noir' planted in 1985 on a 8x10 ft spacing. Pinot Noir vines were trained to a Guyot (vertical shoot position) system and pruned from 26 to 27 Jan. Shoot thinning and sucker removal by hand occurred on 5 May. Canes were cut above the top wire on 14 Jun and maintained at this height throughout the growing season. Each treatment was replicated on 4 sets of 5 vines. Treatments were applied approximately every 14 days using a hooded boom sprayer at 150 to 200 psi at a rate of 80 or 115 gal water/A depending on canopy growth such that 3.2 or 4 gal of spray suspension was used per 20 vines. Fungicides were applied on 6 May (BBCH 15), 21 May (BBCH 58), 3 Jun (BBCH 63), 16 Jun (BBCH 73), 30 Jun, and 14 Jul (BBCH 79). Rows were side dressed with a 16-16-16 fertilizer at 100 lb/A on 12 Apr. No leaves were removed from the fruiting zone. Makaze (generic glyphosate at 32 fl oz/A) plus AIM (2 fl oz/A) was applied on 2 Mar and Forefit 280 (64 fl oz/A) was applied on 10 May for management of weeds. Thiolux (6 lb/A) was applied 20 and 29 Apr, Envirdor (18 oz/A) was applied on 9 May and Movento (6 fl oz/A) was applied on 24 Jun all for management of erineum mites. According to the Gubler-Thomas powdery mildew forecasting model, there were 6 rain events between bud break and end of bloom that were favorable for ascospore release and infection: 1 severe infection period (14 May), 3 moderate infection periods (13, 21 and 23 Apr) and 2 low infection periods (4 May and 2 Jun). The risk index stayed low until the first week of Jul when it shot up past 60, remained high until 16 Aug when it dropped below 60 for 8 days during a hot period, then back above 60 through to the end of Sep (Figure 1). Incidence and severity of powdery mildew on leaves was evaluated on 2 Aug. Incidence and severity of powdery mildew on fruit was evaluated on 27 Jul. Powdery mildew disease data was collected by randomly examining 50 leaves or clusters from the middle 3 vines of each replicate.

Spring growing conditions were considered warmer and dryer than normal with several heat spikes including 83°F on 7 Apr, 85°F on 18 Apr, 87°F on 2 May, and 95°F on 4 Jun. Conditions resulted in accelerated vine growth 2 to 3 weeks ahead of average. Symptoms of powdery mildew were first found on 26 Apr as flag shoots and a few individual colonies in nearby blocks. All fungicide-treated vines had significantly less powdery mildew on leaves when compared to non-treated vines. Lowest incidence of powdery mildew on leaves was found on vines treated with Aprovia and Inspire Super but was not significantly different from other fungicide-treated vines. All fungicide-treated vines had a low severity of powdery mildew on leaves and were not significantly different from each other. Highest incidence of powdery mildew on clusters was found on non-treated vines but the amount found on vines treated with Viathon or Mettle were not significantly different. Lowest incidence of powdery mildew on clusters was found on vines treated with Torino alone. Lowest severity of powdery mildew on clusters was found on vines treated with Torino alone but the amount found on vines treated with Aprovia and Inspire Super were not significantly different. No phytotoxicity was observed on any treated vines.

Figure 1. Gubler-Thomas grape powdery mildew risk index for the 2016 growing season.



Treatment & Rate/A or /100 gal water as indicated	Time of Application*	% Leaves with Powdery Mildew (2 Aug)*		% Clusters with Powdery Mildew (27 Jul)*	
		Incidence	Severity	Incidence	Severity
Non-treated.....	None.....	100 a	87.0 a	100 a	100 a
Aprovia EC at 10.5 fl oz plus Hi-Wett at 2.5 fl oz alternate with Inspire Super at 20 fl oz plus Hi-Wett at 2.5 fl oz.....					
	A, C, E B, D, F.....	5.5 b	0.1 b	85.5 b	10.3 cd
Pristine 38 WDG at 10.5 oz plus Induce at 15 fl oz/100 gal alternate with Viathon 4.08 SC at 32 fl oz...					
	A, C, E B, D, F.....	10.0 b	0.2 b	93.5 ab	19.0 b
Torino SC at 3.4 fl oz plus Induce at 15 fl oz/100 gal ...					
	All.....	10.0 b	0.2 b	72.0 c	4.1 d
Mettle at 5 fl oz plus Induce at 15 fl oz/100 gal alternate with Torino SC at 3.4 fl oz plus Induce at 15 fl oz/100 gal ...					
	A, C, E B, D, F.....	11.5 b	0.2 b	88.5 ab	13.5 bc

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

\*\* Fungicides were applied on A = 6 May (BBCH 15), B = 21 May (BBCH 58), C = 3 Jun (BBCH 63), D = 16 Jun (BBCH 73), E = 30 Jun, and F = 14 Jul (BBCH 77).