

EFFICACY OF MESSENGER FOR CONTROL OF GRAPE POWDERY MILDEW ON PINOT NOIR, 2002: 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 with 6 buds per fruiting cane and 2 renewal spurs. Shoot adjustment occurred around 1 May. Each treatment was replicated on 5 sets of 5 vines. Treatments were applied using a hooded boom sprayer at 100 psi for the first 5 timings, and 200 psi for the last 3 applications. The rate of water used was 78 gal/A for the first application, 91 gal/A for the next 3, 118 gal/A for the next one and 204 for the last 3 applications. Approximately 2.6 to 6.7 gal of spray suspension was used per 25 vines depending on time of year. Fungicides were applied on 1 Jun (EL 13), 14 Jun (EL 17), 25 Jun (60% bloom), 10 Jul (EL 27), 24 Jul, 8 and 21 Aug (early veraison). An additional, early application of Messenger was applied on 7 May (EL 8). Also, all fungicide treated vines had an additional application of Thiloux 80 DF (4 lb/A) on 24 May. A nontreated control was not included. No leaves were removed from the fruiting zone. According to the Gubler-Thomas powdery mildew forecasting model, there were 8 rain events between budbreak (18 Apr) and end of bloom that were favorable for ascospore release and infection: 4 severe infection periods (19 and 27 May, 17 and 27 Jun), 2 moderate infection periods (26 Apr and 8 Jun), and 2 low infection periods (13 and 16 May). The risk index climbed above 60 on 24 Jun and remained high through mid Sep. Urea fertilizer was spread within vine rows on 11 Apr at 126 lb/A. Cassaron 4G (150 lb/A) was applied to control weeds in the vine row on 19-20 Feb. Roundup Ultra Max (38 oz/A) was applied starting 20 Feb and completed on 1 Mar to manage weeds which had already emerged. Incidence of powdery mildew on leaves was evaluated on 9 Jul, 23 Jul, 31 Jul, 14 Aug, 5 Sep and 12 Sep by randomly examining 100 leaves from the middle 3 vines of each replicate. Severity of powdery mildew on leaves was evaluated on 31 Jul, 14 Aug, 5 Sep and 12 Sep by randomly examining 100 leaves from the middle 3 vines of each replicate. Incidence and severity of powdery mildew on clusters was evaluated on 30 Jul, 6, and 23 Aug, respectively, by randomly examining 50 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.

Light frost conditions occurred on 4 and 8 May with light damage to this vineyard. Powdery mildew was first found widely scattered on a nearby block of nontreated Chardonnay vines on 19 Jun. These nontreated Chardonnay vines had the following powdery mildew ratings: leaf incidence of 100% on 21 Aug, leaf severity of 46% on 21 Aug, cluster incidence of 100% on 26 Aug and cluster severity of 100% on 26 Aug. It is unknown if nontreated Pinot Noir vines in this block would have developed similar levels. Powdery mildew disease levels were extremely low throughout this block of grapes. Vines treated with Messenger only had significantly more powdery mildew than all other vine treatments. There were no significant differences in powdery mildew among these other treatments. Tank mixing Messenger with Rally or Abound did not improve powdery mildew control. No phytotoxicity was observed on any vines treated with any fungicide.

Treatment and Rate/A**	% Leaves with Powdery Mildew (14 Aug)*		AUDPC* (Leaves)	% Clusters with Powdery Mildew (23 Aug)*		AUDPC* (Clusters)
	Incidence	Severity		Incidence	Severity	
Messenger 3 WDG 4.5 oz.....	40.8 a	0.9 a	0.6 a	50.0 a	1.2 a	0.1 a
Rally 40 W 5 oz	0.4 b	0.0 b	0.0 b	2.4 b	0.0 b	0.0 b
Rally 40 W 5 oz plus						
Messenger 3 WDG 4.5 oz....	0.0 b	0.0 b	0.0 b	2.4 b	0.0 b	0.0 b
Abound 12.8 fl oz.....	1.0 b	0.0 b	0.0 b	0.0 b	0.0 b	0.0 b
Abound 12.8 fl oz plus						
Messenger 3 WDG 4.5 oz....	0.2 b	0.0 b	0.0 b	4.8 b	0.1 b	0.0 b

* Means followed by the same letter do not differ significantly based on Fisher's protected LSD (P=0.05). Although most treatments had a little disease many of the treatments are listed with a 0.0 due to rounding off error.

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