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

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EFFICACY OF SERENADE FOR CONTROL OF GRAPE POWDERY MILDEW ON PINOT NOIR, 2000: Fungicide treatments were arranged in a randomized complete block design in a block 'Pinot Noir' planted in 1985 and 1995 on a 7x10 ft spacing. Vines were trained to a bilateral cordon with spur pruning. The number of buds was adjusted based on pruning weights at the rate of 30 buds/kg canes. Shoot thinning occurred from 18-22 May. Each treatment was replicated on 4 sets of 5 vines. Treatments were applied using a handgun sprayer at 200 psi at a rate of 100 gal water/A for the first application. All following applications were applied using a hooded boom sprayer at 300 psi at a rate of 150-200 gal water/A. Approximately 3.5 to 7.5 gal of spray suspension was used per 20 vines depending on time of year and growth of vines. Fungicides were applied on 23 May (6-12 inch shoots, EL growth stage 10-12), 3 and 13 Jun (prebloom, EL 17), 22 Jun (80% bloom, EL 25), 29 Jun (100% bloom, EL 26), 6 Jul (EL 28), 13 Jul, 21 Jul (bunch closure), 28 Jul, 3, 11 and 16 Aug. Leaves were not removed from the east side of the fruiting zone. According to the Gubler-Thomas powdery mildew forecasting model, there were 12 rain events between budbreak (20 Apr) and end of bloom that were favorable for ascospore release and infection: 4 severe infection periods (21 Apr, 9 May, 6 and 11 Jun), 4 moderate infection periods (28 Apr, 1, 7 and 27 May), and 4 low infection periods (24 Apr, 2, 4 and 29 May). Urea fertilizer was spread within vine rows on 14 Apr at 250 lb/A. The herbicide Roundup Original (12 oz/A) plus R-11 (12 oz/A) was applied to control weeds in the vine row on 27 Jun. Incidence of powdery mildew on leaves was evaluated on 21 Jun, 3 Jul, 10 Jul, 25 Jul and 14 Aug by randomly examining 50 leaves from the middle 3 vines of each replicate. Incidence and severity of powdery mildew on clusters was evaluated on 4 Aug by randomly examining 50 clusters from the middle 3 vines of each replicate. Comparisons among treatments for incidence of powdery mildew on leaves were evaluated by calculating the area under disease progress curves (AUDPC). AUDPC was calculated by multiplying the mean incidence 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 incidence 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.

Powdery mildew was first found very early in the year on 17 May on adjacent Chardonnay vines not treated for powdery mildew the previous year. The incidence of powdery mildew on nontreated Chardonnay leaves had jumped from 12% on 21 Jun to 83% on 3 Jul. During that same time period, vines treated with Serenade jumped from an average of 6% to 42% of the leaves with powdery mildew. Vines treated with Microthiol Disperss (80% sulfur) has significantly less powdery mildew than vines treated with Serenade or QRD 137 when all measures of disease were compared. Vines treated with the higher rate of Serenade or QRD 137 had significantly less leaf severity than vines treated with the low rate of these same materials. Overall, vines treated with Serenade had poor powdery mildew control. A new lot of Serenade was obtained for the 29 Jun application which was noticeable lighter in color and clumpy. No phytotoxicity was observed on any vines treated with any fungicide. Serenade solutions were excessively foamy under our conditions.

	% Leaves with Powdery Mildew*			% Clusters with Powdery Mildew*	
Treatment and Rate/A	Incidence (14 Aug)	Severity (14 Aug)	AUDPC* (Leaves)	Incidence (4 Aug)	Severity (4 Aug)
Microthiol Disperss 80 WG 8 lb…….	25 b	0.7 c	5.6 b	87 b	3.2 c
Serenade (QRD 132) at 4 lb.	100 a	31.0 a	38.8 a	100 a	67.7 a
Serenade (QRD 132) at 8 lb.	99 a	20.9 b	36.1 a	100 a	43.1 b
QRD 137 at 4 lb……..	99 a	30.7 a	41.3 a	100 a	68.1 a
QRD 137 at 8 lb……..	97 a	19.3 b	34.9 a	100 a	55.9 ab

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

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