

EFFICACY OF VARIOUS FUNGICIDES FOR CONTROL OF GRAPE POWDERY MILDEW ON CHARDONNAY, 2000: Treatments were arranged in a randomized complete block design in a block of 'Chardonnay' 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 16-17 May. Each treatment was replicated on 4 sets of 5 vines. Treatments were applied using a handgun sprayer at 300 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 to 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 25 May (6-12 inch shoots, EL growth stage 10-12), 13 Jun (prebloom, EL 17), 23 Jun (50% bloom, EL 23), 6 Jul (EL 28), 20 Jul (bunch closure), 2 Aug 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 and 25 Jul by randomly examining 50 leaves from the middle 3 vines of each replicate. Incidence and severity of powdery mildew on clusters was evaluated on 11 Jul and 3 Aug, respectively, 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 vines not treated for powdery mildew the previous year. All vines treated with fungicide had significantly less powdery mildew than nontreated vines with the exception of Trilogy Neem Oil treated vines only when the severity of cluster infections was evaluated. BAS 500 treated vines had the lowest leaf incidence of powdery mildew and AUDPC, however, powdery mildew on vines treated with Sovran and Rally or Flint and Rally were not significantly different. Vines treated with Flint and Rally had the lowest incidence or severity of powdery mildew on clusters, however, the incidence and severity on vines treated with Sovran and Rally or BAS 500 were not significantly different. Vines treated with Trilogy Neem Oil had poor powdery mildew control. No phytotoxicity was observed on any vines treated with any fungicide.

Treatment and Rate/A	Time of Application**	% Leaves with Powdery Mildew*	AUDPC*	% Clusters with Powdery Mildew*	
		Incidence (25 Jul)	(Leaves)	Incidence	Severity
Nontreated	None.....	97.0 a	26.3 a	85.0 a	98.4 a
Sovran 50 WG 3.2 oz. Alternate..	A, B, D, F				
Rally 40 WP 5 oz	C, E, G.....	14.5 c	2.2 c	1.0 c	4.6 b
BAS 500 20 WG at 8 oz.....	All.....	2.5 c	0.5 c	6.5 c	11.9 b
Flint 50 WG at 1.5 oz Alternate..	A, B, D, F				
Rally 40 WP 5 oz	C, E, G.....	12.5 c	1.8 c	0.0 c	4.0 b
Trilogy Neem Oil 70 EC at 2 gal.	All.....	67.5 b	16.9 b	58.0 b	88.4 a

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

** Fungicides were applied on A = 25 May (6-12 inch shoots, EL growth stage 10-12), B = 13 Jun (prebloom, EL 17), C = 23 Jun (50% bloom, EL 23), D = 6 Jul (EL 28), E = 20 Jul (bunch closure), F = 2 Aug and G = 16 Aug.

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