GRAPE (*Vitis vinifera* 'White Riesling')
Powdery Mildew; *Erysiphe necator*

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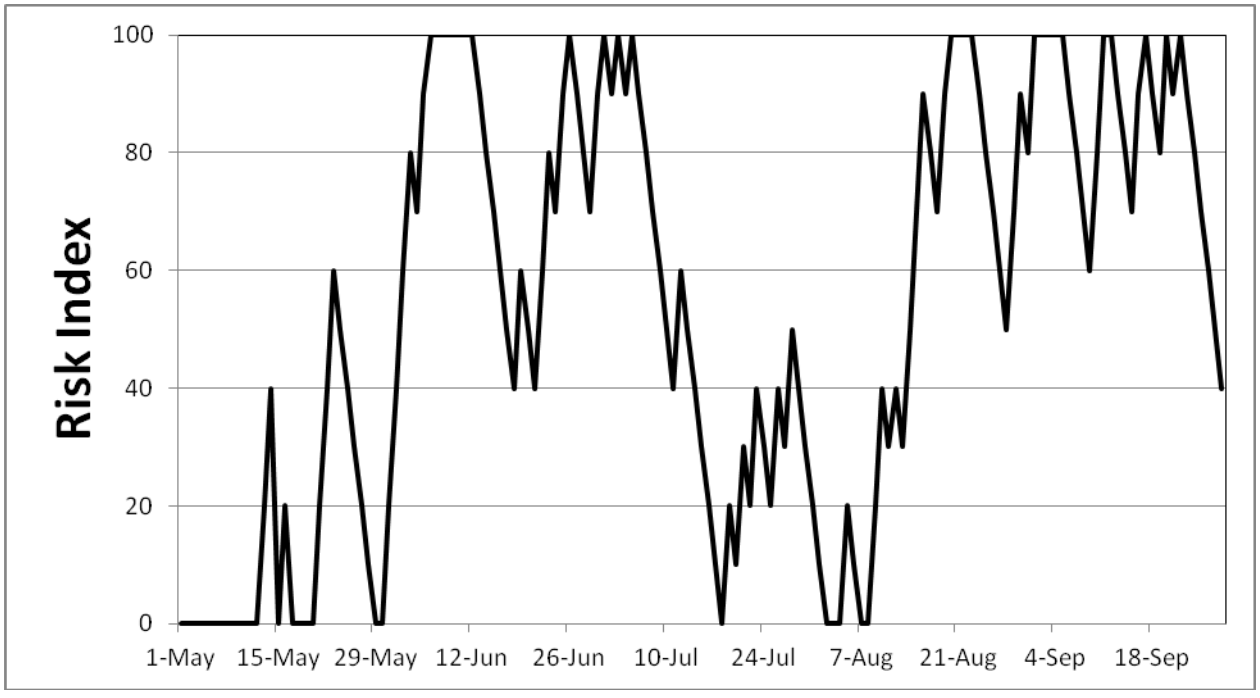
Efficacy of fungicide adjuvants for management of grape powdery mildew, 2014.

Fungicide treatments were arranged in a randomized complete block design in a block of 'White Riesling' planted in 1985 on a 8x10 ft spacing. Vines were trained to a bilateral cordon with spur pruning. Vines were pruned 18 to 24 Feb. Sucker removal and shoot thinning by hand occurred 28 May. Canes were cut above the top wire on 14 Jul and maintained at this height throughout the growing season. Each treatment was replicated on 4 sets of 5 vines. Treatments were applied using a hooded boom sprayer at 150 psi at a rate of 80 to 148 gal/A. Approximately 2.5 to 4.9 gal of spray suspension was used per 20 vines depending on time of year. Fungicides were applied on 30 May (BBCH 55), 18 Jun (BBCH 68), 2 Jul (BBCH 71), 16 Jul (BBCH 78), 30 Jul (BBCH 79), and 11 Aug (BBCH 80, start of Veraison). No fertilizer was applied this year. No leaves were removed from the fruiting zone. GoalTender (32 fl oz/A) plus Makaze (32 fl oz/A) was applied on 13 Mar and Chateau (8 oz/A) plus Reckon (48 fl oz/A) was applied on 2 Apr for management of weeds. According to the Gubler-Thomas powdery mildew forecasting model, there were 7 rain events between bud break and end of bloom that were favorable for ascospore release and infection: 2 severe infection periods (22 Apr and 8 May) and 5 moderate infection periods (21, 24 and 26 Apr, 3 and 18 May). The risk index varied from 0 to 60 during May but shot up past 60 in early Jun, remained high until Jul 12 when it dropped below 60 for a month during an usual hot period, then back above 60 on Aug 14 until the end of Sep (Figure 1). Incidence and severity of powdery mildew on leaves and clusters were evaluated on 21 Aug. Powdery mildew disease data was collected by randomly examining 50 leaves or clusters from the middle 3 vines of each replicate.

Although spring growing conditions had normal precipitation with warmer temperatures, the summer was characterized as unusually hot with many days over 90°F. Symptoms of powdery mildew were first found on 2 Jun as individual colonies in nearby blocks. All fungicide treated vines had significantly less powdery mildew on leaves when compared to nontreated vines. All fungicide treated vines had a similar incidence and severity of powdery mildew on leaves and were not significantly different from each other. There was no significant difference in powdery mildew incidence on clusters among the various treatments. All fungicide treated vines had significantly less powdery mildew severity on clusters when compared to nontreated vines. Vines treated with DualStick C had significantly less powdery mildew severity on clusters than on other fungicide treated vines. No phytotoxicity was observed on any vines treated with any material. However, a product called DualStick B reacted badly with trace amounts of OR-009 resulting in clogged screens and nozzles with a gummy-like participate.

Figure 1. Gubler-Thomas grape powdery mildew risk index for the 2014 growing season.



Treatment & Rate/A or /100 gal as indicated below **	% Leaves with Powdery Mildew (21 Aug)*		% Clusters with Powdery Mildew (21 Aug)*	
	Incidence	Severity	Incidence	Severity
Nontreated……..	100 a	49.9 a	100	94.3 a
Rally 40 WSP at 5 oz, alternate Flint 50 WG at 2 oz.....	21.0 b	0.5 b	98.5	27.5 b
Rally 40 WSP at 5 oz plus OR-009 at 32 fl oz/100 gal alternate Flint 50 WG at 2 oz plus OR-009 at 32 fl oz/100 gal ….	12.0 b	0.3 b	96.5	25.5 b
Rally 40 WSP at 5 oz plus DualStick C at 19 fl oz alternate Flint 50 WG at 2 oz plus DualStick C at 19 fl oz ……..	22.0 b	0.5 b	96.5	14.8 c

* Means followed by the same letter do not differ significantly based on Fisher's protected LSD (*P=0.05*). Means without letters do not differ significantly (*P=0.05*).

** Fungicides were applied on 30 May (BBCH 55), 18 Jun (BBCH 68), 2 Jul (BBCH 71), 16 Jul (BBCH 78), 30 Jul (BBCH 79), and 11 Aug (BBCH 80, start of Veraison).

Acknowledgements

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