Final Report: Evaluation of Vintec (*Trichoderma atroviride*_SC1) as Pruning Wound Protectants Against Selected Fungi Associated with Grapevine Trunk Diseases

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Report Summary

Grapevine trunk diseases (GTDs) represent a major threat to the future economic sustainability of table grapes and wine grapes. Several taxonomically unrelated groups of Ascomycete fungi cause trunk diseases in grapevines including *Eutypa lata* and *Neofusicoccum parvum.* (1). Following precipitation events, fungal spores (sexual and asexual) become airborne and colonize exposed wood vessels caused by pruning. Total disease control is virtually unattainable because of the huge number of wounds made on an individual grapevine and extended period of wound susceptibility but one mitigation practice is to apply a protectant to exposed pruning wounds (2, 3, 4, 5).

This trial was conducted at the UC Davis Plant Pathology Fieldhouse Facility (38.522591, -121.760719) from March to September 2019. Treatments were a randomized block design in a 8 year old Sauvignon Blanc vineyard.

Materials and Methods

A. Experimental design

Experimental design	Complete randomized block design
Experimental unit	2 spurs of each = 1 plot x 10 rep
Plot area	110 ft^2 (row spacing = 11 ft, vine spacing = 7 ft)
Application method	Hand held spray bottle

B. Experimental treatments

The treatments described in this report were conducted for experimental purposes only and crops treated in a similar manner may not be suitable for commercial or other use.

Flag	**Treatment Name**	**Application rate (per acre)**	**FP/10 vines (0.6L spray bottle)**	**Date applied**
GD	Vintec	0.7 oz/A	0.31 g	After pruning
YKC	Vintec	2.8 oz/A	1.25 g	After pruning
KC	Vintec	1.4 oz/A	0.625 g	After pruning
OKD	Rally + Topsin M + organosilicone surfactant	2.25 oz/A + 1.25 lbs/A	0.05 g + 0.45 g + 12 µl	After pruning
W	Untreated control	N/A	N/A	N/A

C. Map

12										YKC						YKC	OKD	GD							W						
11			YKC		KC	GD			KC							KC									W						
10	GD																								OKD		KC				
9						OKD			GD															KC						W	
13			OKD				OKD						W												YKC						
12							YKC							YKC			OKD					GD	YKC			W				OKD		
11			GD								YKC							KC								W					
10										KC										KC						OKD					
9						OKD	GD		W										YKC												
4													W																		
3													KC																		
2				W									W						KC												
1				YKC							GD		OKD		GD																

D. Application calendar

		March
Flag	**Treatment Name**	**21**
GD	Vintec	x
YKC	Vintec	x
KC	Vintec	x
OKD	Rally + Topsin M + organosilicone surfactant	x
W	Untreated control	N/A

E. Vine Management

During the application period, vines were irrigated by drip irrigation. Sucker shoot removal and leafing were done during the duration of trial.

F. Data Collection and Statistics

The efficacy of the treatments controlling the GTDs were recorded as the Mean Percentage of Infection (MPI). This was calculated by: (Number of GTD infected samples/Number of total samples) x 100. There were a total of 20 repetitions per GTD per treatment. Treatments were compared against the untreated control and a standard control. Means comparisons were made using Dunnett's test α=0.05.

Results

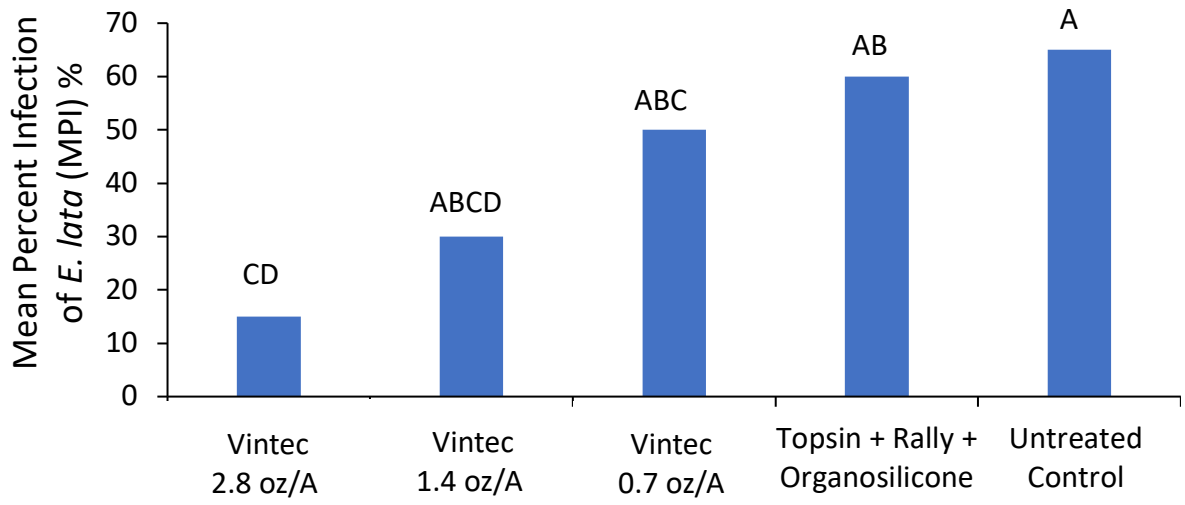

Figure 1. Evaluation of pruning wound treatments mean percent infection (MPI) rates with *E. lata* located at UC Davis Plant Pathology Field House, 2019. Bars represent the least mean square of percent infection. Bars with a different letter are different according

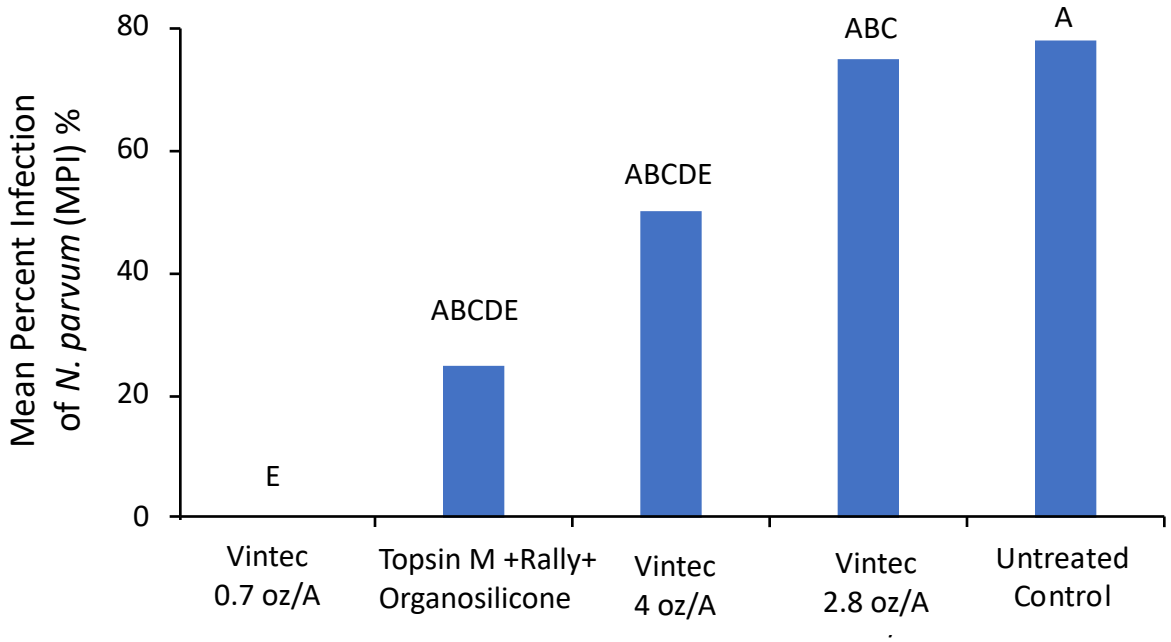

Figure 2. Evaluation of pruning wound treatments mean percent infection (MPI) rates with *N. parvum* located at UC Davis Plant Pathology Field House, 2019. Bars represent the least mean square of percent infection. Bars with a different letter are different according to Dunnett's test ($p = 0.05$).

Acknowledgements

Thanks to the various industry donors for providing testing materials. Thanks to Bryan Pellissier and Lexi Sommers-Miller for their field support.

Appendix

Flag color	Trade Name	Active Ingredient	Manufacturer
GD	Vintec	Trichoderma atroviride strain SC1	Bi-PA
YKC	Vintec	Trichoderma atroviride strain SC1	Bi-PA
KC	Vintec	Trichoderma atroviride strain SC1	Bi-PA

Literature Cited

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