

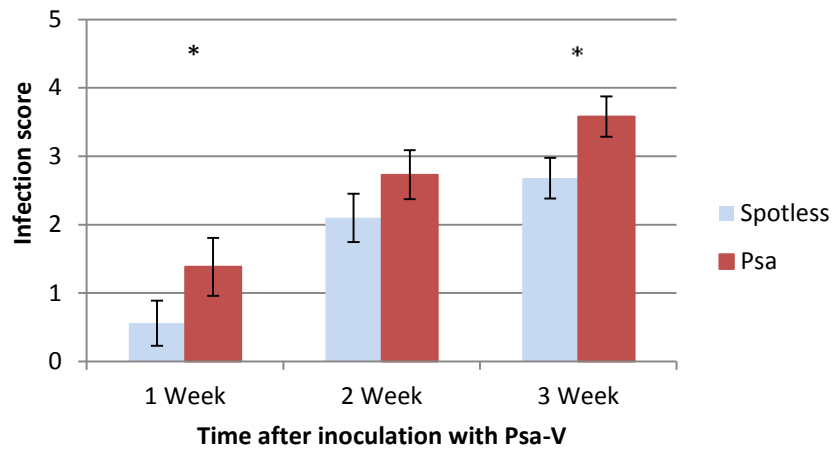
Product testing report

2 November 2011

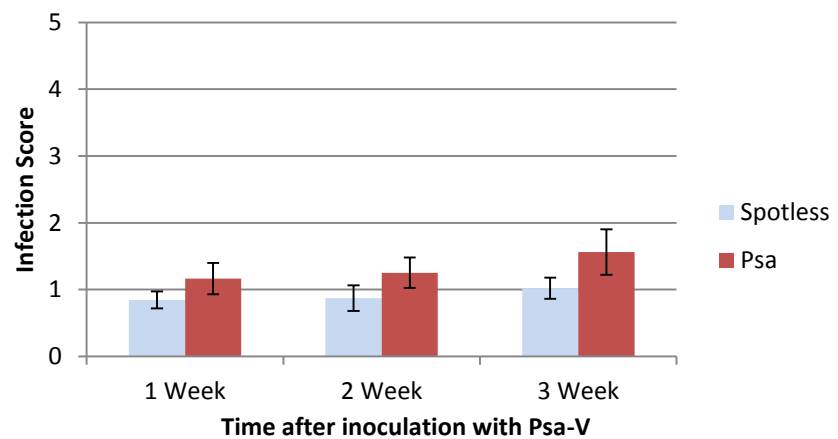
Spotless™		
Supplying company:	Omnia	
Active ingredients:	Benzalkonium ammonium chloride, Salicylic acid, Urea, Propiconazole	
Mode of action:	Protectant <input checked="" type="checkbox"/>	Biological <input type="checkbox"/> Elicitor <input checked="" type="checkbox"/>
Application rate:	3.5ml L ⁻¹ Note: The supplying company (Omnia) has recommended that a higher rate in addition to multiple applications prior to inoculation may be effective at controlling Psa-V in kiwifruit. This testing is about to commence and is expected to be completed late November.	

Test results	
Test	Greenhouse seedling tests
Method description	<p>Experiment 1: Protectant (9 June 2011 – 4 July 2011) Bruno seedlings were treated once with the product, allowed to dry then inoculated on the same day with Psa-V (at 10⁹ cfu ml⁻¹ concentration). Assessments were made at weekly intervals after inoculation. The degree of leaf spotting was determined visually using a 0 – 5 scale and is plotted as an 'infection score'.</p> <p>Experiment 2: Elicitor (4 August 2011 – 1 September 2011) Hort16A seedlings were treated once with the product seven days prior to inoculation with Psa-V (at 10⁹ cfu ml⁻¹ concentration). Assessments were made at weekly intervals after inoculation. The degree of leaf spotting was determined visually using a 0 – 5 scale and is plotted as an 'infection score'.</p> <p>Experiment 3: Elicitor (30 August 2011 – 30 September 2011) Hort16A, Hayward and Bruno seedlings were treated once with the product ten days prior to inoculation with Psa-V (at 10⁹ cfu ml⁻¹ concentration). Assessments were made at weekly intervals after inoculation. The degree of leaf spotting was determined visually using a 0 – 5 scale and is plotted as an 'infection score'.</p>
Results	<p>Experiment 1: Protectant Relative to the Psa inoculated control, Spotless™ reduced leaf spotting in Bruno seedlings with significant reductions one and three weeks after inoculation.</p> <p>Experiment 2: Elicitor Spotless™ reduced leaf spotting in Hort16A though not significantly.</p> <p>Experiment 3: Elicitor Spotless™ increased leaf spotting in Hort16A, with significantly higher leaf spotting in treated plants three weeks after inoculation. In Hayward leaf spotting was reduced, with significant reductions one and three weeks after inoculation. Leaf spotting was significantly reduced in Bruno seedlings treated with Spotless™.</p>
Key:	<p>0 = no leaf spotting 1 = up to 10% 2 = up to 25% 3 = up to 50% 4 = up to 75% 5 = 100% (of leaf area)</p>

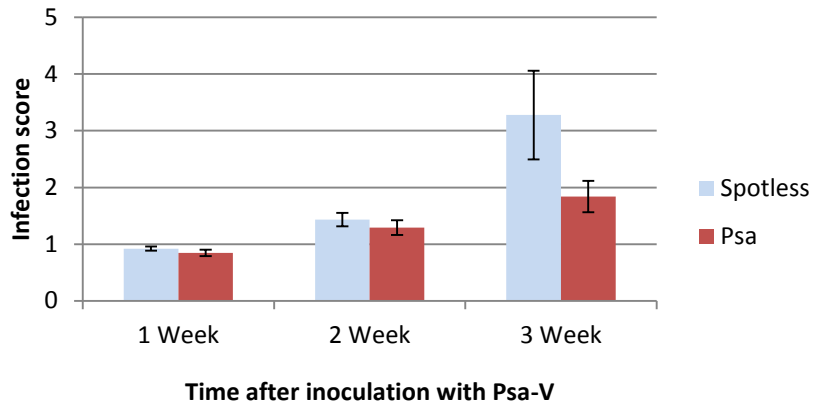
Bruno Experiment 1



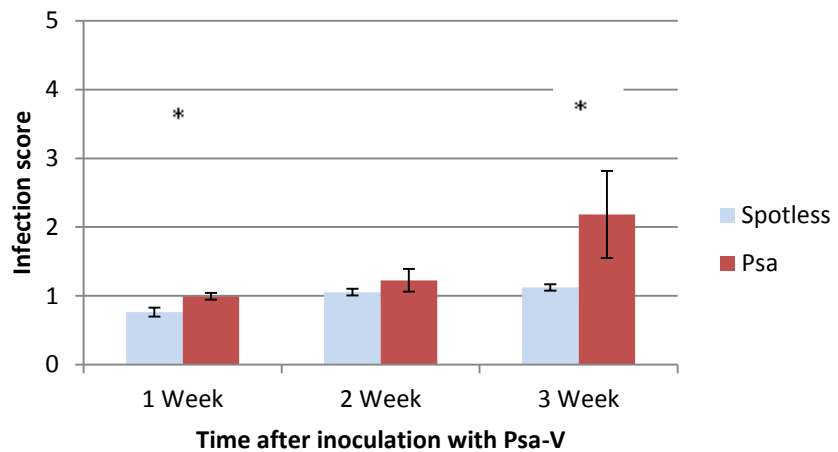
Hort16A Experiment 2



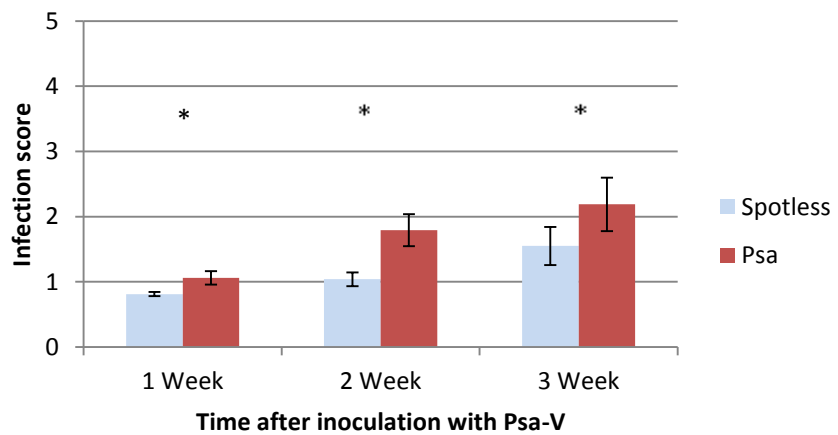
Hort16A Experiment 3



Hayward Experiment 3



Bruno Experiment 3



* Psa inoculated control and Spotless™ statistically significantly different at the 5% level according to ANOVA

Summary

Three weeks after inoculation with Psa-V leaf spotting results in Hort16A were inconsistent. Spotless™ either had no significant effect or significantly increased leaf spotting. Differences in results between experiments can be attributed to variability with the assay. Growers are advised to delay the use of Spotless™ on Hort16A until additional testing is complete.

Results for Hort16A conflicted with those for Hayward and Bruno; however, varietal differences are not unusual. Spotless™ applied to Bruno seedlings as a protectant significantly reduced leaf spotting. Spotless™ applied to Hayward and Bruno seedlings as an elicitor prior to inoculation with Psa-V also significantly reduced leaf spotting. Spotless™ remains in the KVH Summer Programme with a precautionary statement around use on Hort16A.

Comments

Standard screening protocols have been used to test products for efficacy against Psa-V to enable a high throughput of products. Protectant tests involve the product being applied to the plant with inoculation following on the same day. Elicitation tests involve the product being applied to the plants seven to ten days prior to inoculation. This method has largely involved testing products using information provided on product labels. In the future, products may be retested using protocols provided by supplying companies. Products which have previously shown some level of efficacy will be given priority for re-testing.

Data are presented for all assessment timings; however, evaluation of results is largely focused on the final three week assessment data. Disease symptoms will be better developed by this time and earlier assessments are considered to be less reliable. Results from greenhouse trials primarily serve as a screening tool to determine products that will progress to field trials. Care should be taken when extrapolating results to field conditions. Results in the field may differ due to different environmental conditions and differences in plant material.

Note – leaf spotting may not necessarily mean the plant is infected. It simply indicates that the plant has been challenged by Psa.

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