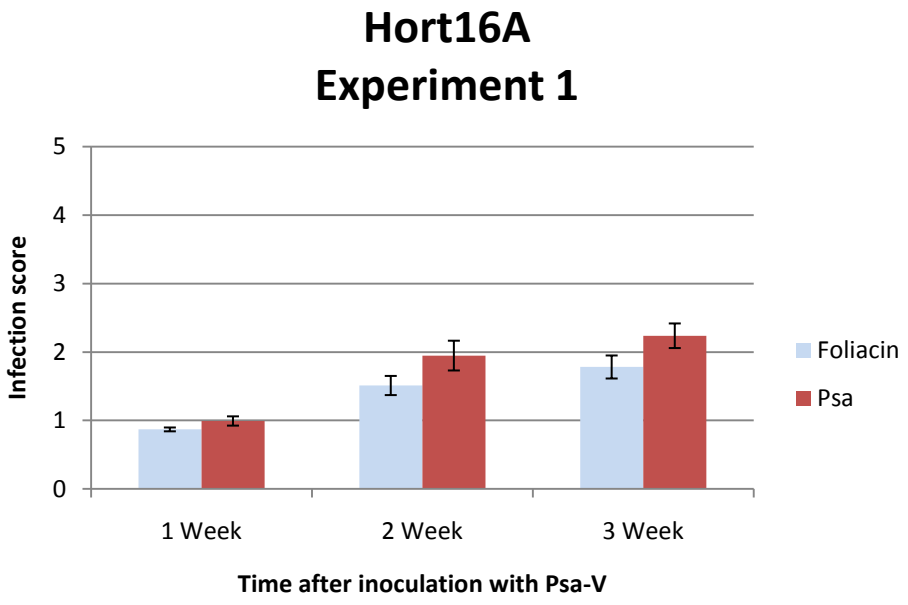
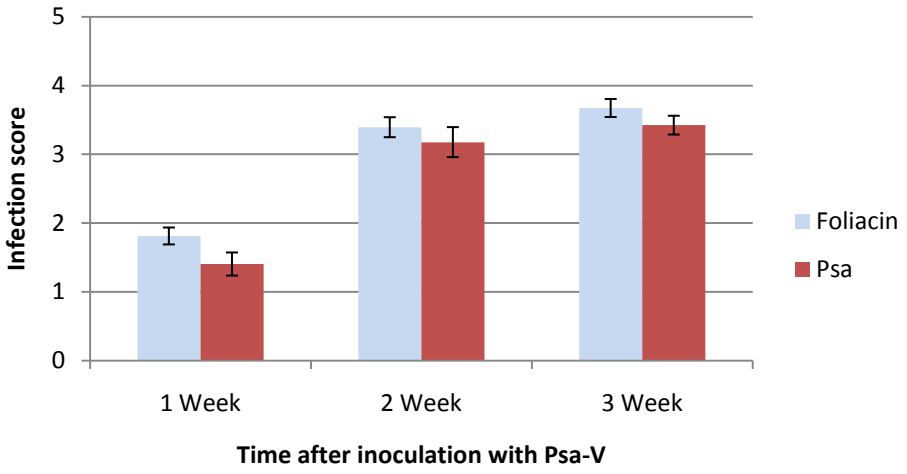
Product testing report

2 November 2011

Foliacin			
Supplying company:	BioStart		
Active ingredient:	Fermentation extract and minerals		
Mode of action:	Protectant ☐	Biological ☐	Elicitor ☒
Application rate:	500ml per 100L		

Test results	
Test	**Greenhouse seedling tests**
Method description	**Experiment 1: Elicitors (8 September 2011 – 6 October 2011)** Hort16A and Hayward seedlings were treated once with the product seven days prior to inoculation with Psa-V (at 10^9 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'.
Results Key: *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)*	**Experiment 1:** Foliacin did not signifiacantly influence the degree of leaf spotting in Hort16A or Hayward seedlings. 



*** Psa inoculated control and the treatment are statistically significantly different at the 5% level**

Summary

A single application of Foliacin (5ml L^{-1}) applied to Hort16A and Hayward seedlings, seven days prior to inoculation with Psa-V, did not significantly affect leaf spotting. There was little evidence that Foliacin significantly reduced leaf spotting following inoculation with Psa-V, therefore no further testing is planned with this product.

Comments

A standardised screening protocol has been used to test products for efficacy against Psa-V to enable a high throughput of products. Protectant or elicitation tests may be performed, depending on the mode of action of the product. Protectant tests involve the product being applied to the plant with inoculation following on the same day, once the product has dried. Elicitation tests involve the product being applied to the plants seven to ten days prior to inoculation with Psa-V. Assessments of leaf spotting are performed at weekly intervals after inoculation. This method has largely involved testing products using information provided on the product's label. 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 focussed 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. However, in the case of some elicitors, it is possible that the elicitation effect has been expended and that poor results at the 'three week' assessment time indicate reduced efficacy as a result of insufficient frequency of application.

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.

DISCLAIMER

Unless agreed otherwise in writing, ZESPRI Group Limited, Kiwifruit Vine Health Inc. and The New Zealand Institute for Plant & Food Research Limited does not give any prediction, warranty or assurance in relation to the accuracy of or fitness for any particular use or application of, any information or scientific or other result contained in this report. Neither Plant & Food Research nor any of its employees shall be liable for any cost (including legal costs), claim, liability, loss, damage, injury or the like, which may be suffered or incurred as a direct or indirect result of the reliance by any person on any information contained in this report.

LIMITED PROTECTION

CONFIDENTIALITY

This report contains valuable information in relation to the Psa management programme that is confidential to the business of Plant & Food Research, KVH and ZESPRI Group Limited. This report is provided solely for the purpose of advising on the progress of the Psa management programme, and the information it contains should be treated as "Confidential Information" in accord with the Plant & Food Research Agreement with ZESPRI Group Limited.