

# Product testing report

18 January 2012

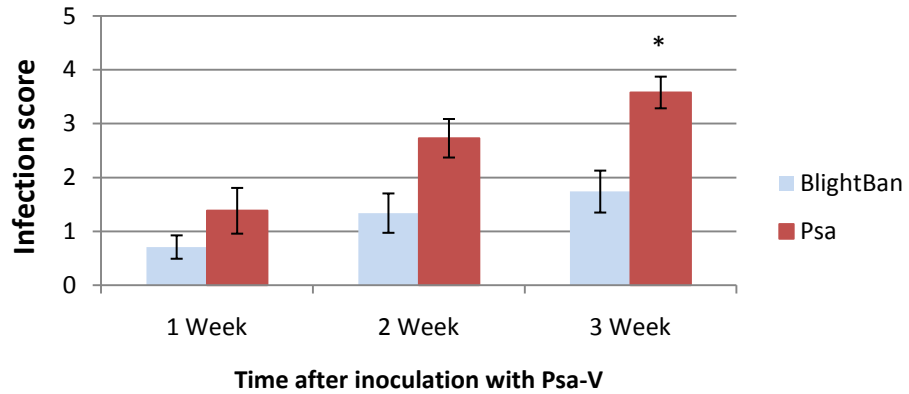
BlightBan A506		
Supplying company:	Plant and Food Research	
Active ingredient:	<i>Pseudomonas fluorescens</i>	
Testing protocol:	Protectant <input checked="" type="checkbox"/>	Biological <input checked="" type="checkbox"/> Elicitor <input type="checkbox"/>
Application rate (per 100L):	<b>Experiment 1:</b> $1.5 \times 10^{10}$ cfu ( $1.5 \times 10^5$ cfu/ml) <b>Experiment 2:</b> $9.3 \times 10^{11}$ cfu ( $9.3 \times 10^6$ cfu/ml) <b>Experiment 3:</b> $4.0 \times 10^{14}$ cfu ( $4.0 \times 10^9$ cfu/ml) & $7.3 \times 10^{14}$ cfu ( $7.3 \times 10^9$ cfu/ml) + 120g Sequestrene	

Test results	
Test	Greenhouse seedling tests
Method description	<p><b>Experiment 1: Protectant (9 June 2011 – 4 July 2011)</b> Bruno seedlings were treated once with the product and inoculated one day later with Psa-V (at <math>10^9</math> cfu ml<sup>-1</sup> 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><b>Experiment 2: Biological (12 September 2011 – 4 October 2011)</b> Hort16A and Hayward seedlings were treated once with the product and inoculated three days later with Psa-V (at <math>10^9</math> cfu ml<sup>-1</sup> 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><b>Experiment 3: Biological (28 November 2011 – 21 December 2011)</b> Bruno seedlings were treated once with the product applied alone and in partner with Sequestrene and inoculated two days later with Psa-V (at <math>10^9</math> cfu ml<sup>-1</sup> 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><b>Experiment 1:</b> In Bruno seedlings, application of BlightBan reduced leaf spotting, with significant reductions three weeks after inoculation with Psa-V.</p> <p><b>Experiment 2:</b> In Hort16A seedlings, application of BlightBan increased leaf spotting, with significant increases two and three weeks after inoculation. In Hayward seedlings, application of BlightBan had no affect on leaf spotting following inoculation with Psa-V.</p>

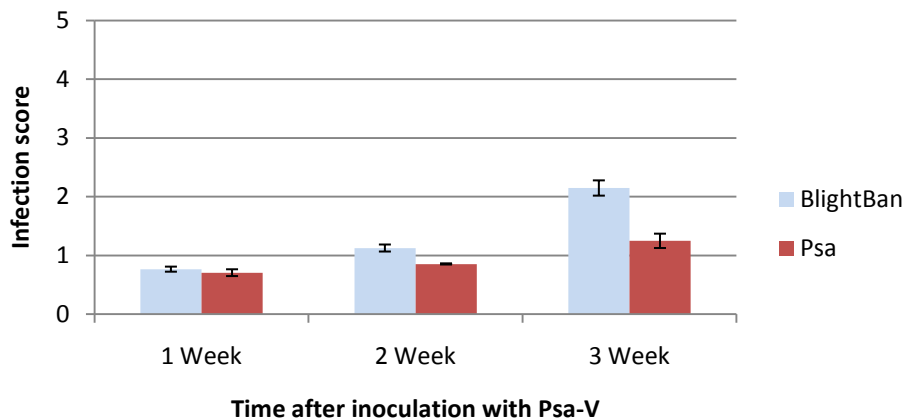
### Experiment 3:

In Bruno seedlings, BlightBan applied alone or in partner with Sequestrene did not significantly affect leaf spotting following inoculation with Psa-V.

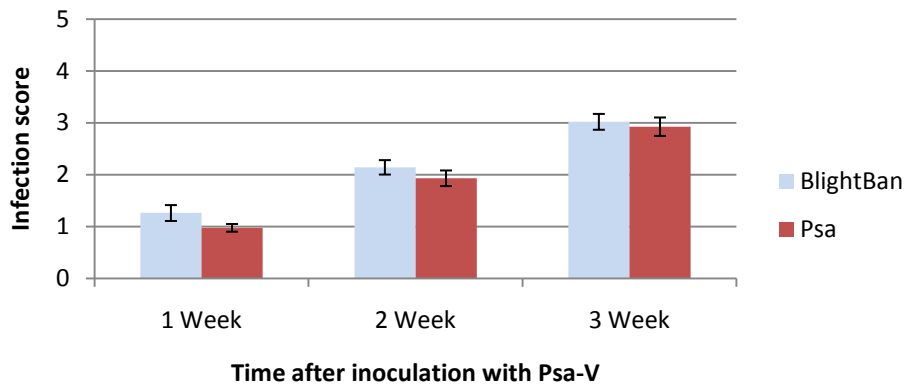
## Bruno Experiment 1



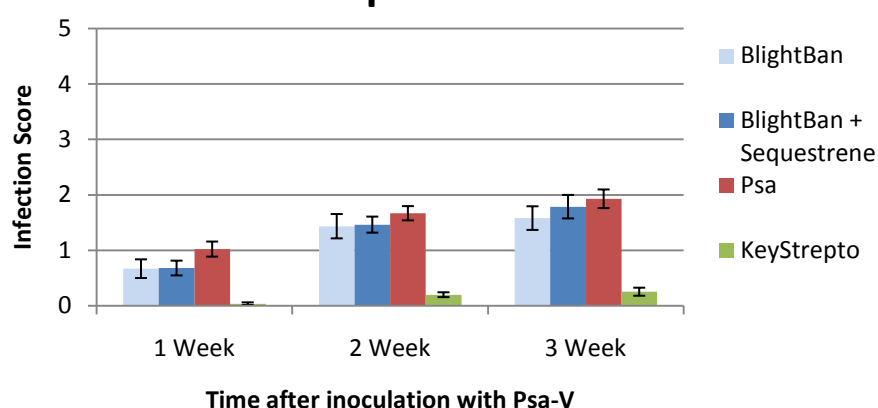
## Hort16A Experiment 2



## Hayward Experiment 2



## Bruno Experiment 3



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

### Summary

A single application of BlightBan to Bruno seedlings as a protectant significantly reduced leaf spotting in experiment 1. Single applications of BlightBan as a biological to Hort16A, Hayward and Bruno seedlings either significantly increased leaf spotting or had no effect. Addition of Sequestrene did not improve efficacy. No further testing is currently 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, biological 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. Biological tests involve the product being applied two to three days prior to inoculation with Psa-V. 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.**

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