

Product testing report

2 November 2011

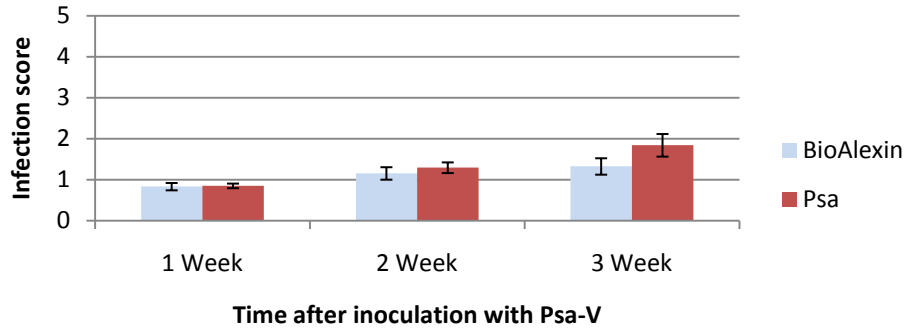
BioAlexin		
Supplying company:	Citrox (NZ) Ltd	
Active ingredient:	Natural ingredients (details not disclosed)	
Mode of action:	Protectant <input type="checkbox"/>	Biological <input type="checkbox"/> Elicitor <input checked="" type="checkbox"/>
Application rate:	120ml per 100L	

Test results													
Test	Greenhouse seedling tests												
Method description	<p>Experiment 1: Elicitor (4 August 2011 – 1 September 2011) Hort16A 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'.</p> <p>Experiment 2: 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 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'.</p>												
Results	<p>Experiment 1: In Hort16A, BioAlexin reduced leaf spotting, with significant reductions one week after inoculation with Psa-V.</p> <div style="text-align: center;"> <p>Hort16A Experiment 1</p> <table border="1"> <caption>Hort16A Experiment 1 Infection Scores</caption> <thead> <tr> <th>Time after inoculation with Psa-V</th> <th>BioAlexin</th> <th>Psa</th> </tr> </thead> <tbody> <tr> <td>1 Week</td> <td>~0.4</td> <td>~1.2</td> </tr> <tr> <td>2 Week</td> <td>~0.8</td> <td>~1.3</td> </tr> <tr> <td>3 Week</td> <td>~1.1</td> <td>~1.6</td> </tr> </tbody> </table> </div> <p>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)</p>	Time after inoculation with Psa-V	BioAlexin	Psa	1 Week	~0.4	~1.2	2 Week	~0.8	~1.3	3 Week	~1.1	~1.6
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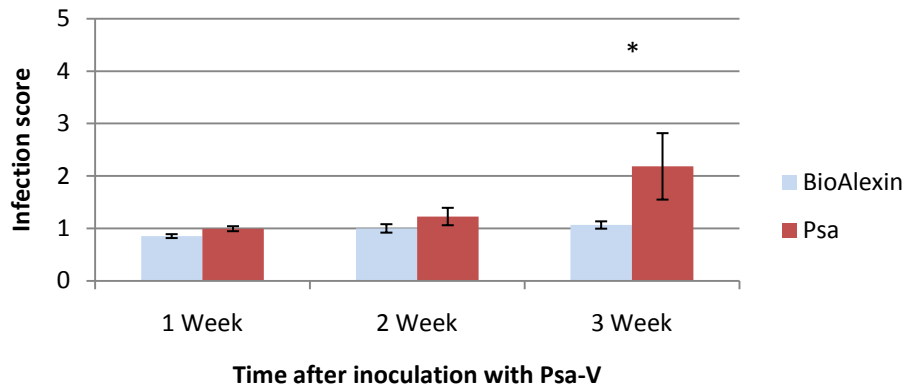
Experiment 2:

BioAlexin did not significantly affect leaf spotting in Hort16A. In Hayward seedlings leaf spotting was reduced, with significant reductions three weeks after inoculation with Psa-V. Leaf spotting was reduced in Bruno, with significant reductions two and three weeks after inoculation with Psa-V.

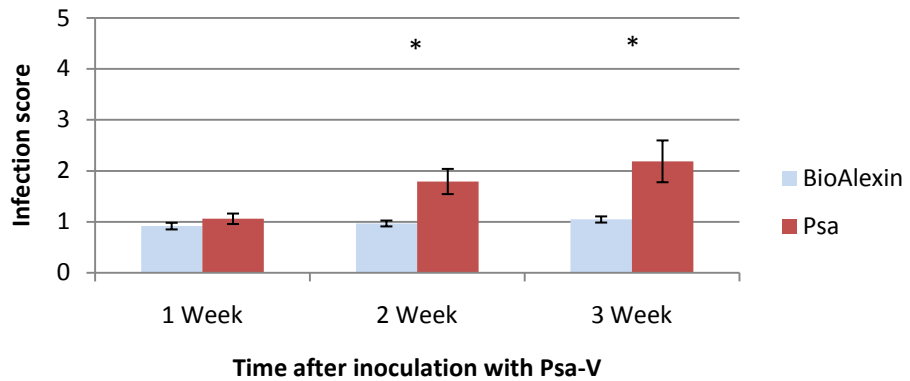
Hort16A Experiment 2



Hayward Experiment 2



Bruno Experiment 2



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

Summary

A single application of BioAlexin (1.2ml L^{-1}), followed by inoculation with Psa-V at seven to ten days post-treatment significantly reduced leaf spotting in Hayward and Bruno seedlings. Under the same test methodology, BioAlexin did not significantly reduce leaf spotting in Hort16A at the final assessment, three weeks after inoculation. BioAlexin demonstrated encouraging results in reducing leaf spotting following inoculation with Psa-V; therefore this product will progress to in-field pot trials.

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.

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