

Product testing report

07 May 2012

Regalia Maxx			
Supplying company:	Marrone Bio Innovations		
Active ingredient:	Giant knotweed plant extract		
Mode of action:	Protectant <input type="checkbox"/>	Biological <input type="checkbox"/>	Elicitor <input checked="" type="checkbox"/>
Application rate (per 100L):	500mL		

Test results																	
Test	Greenhouse seedling tests																
Method description	<p>Experiment 1: Elicitor (7 March 2012 – 2 April 2012) Bruno seedlings were treated once with the product seven days prior to inoculation with Psa-V (at 10^{10} 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>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)</p>	<p>Experiment 1: In Bruno seedlings, application of Regalia Maxx did not reduce leaf spotting following inoculation with Psa-V.</p> <div style="text-align: center;"> <h3>Bruno Experiment 1</h3> <p>The bar chart displays the Infection Score (Y-axis, 0 to 5) over time (X-axis: 1 Week, 2 Week, 3 Week) for three treatments: Regalia Maxx (blue), Psa (red), and Water (green). Error bars are included for each data point. The scores for Regalia Maxx and Psa are very similar, both starting at approximately 1.0 at 1 week and increasing to about 1.7 at 3 weeks. The Water treatment is not represented by a bar, indicating a score of 0.</p> <table border="1"> <caption>Bruno Experiment 1 - Infection Scores</caption> <thead> <tr> <th>Time after inoculation with Psa-V</th> <th>Regalia Maxx</th> <th>Psa</th> <th>Water</th> </tr> </thead> <tbody> <tr> <td>1 Week</td> <td>~1.0</td> <td>~1.0</td> <td>0</td> </tr> <tr> <td>2 Week</td> <td>~1.3</td> <td>~1.2</td> <td>0</td> </tr> <tr> <td>3 Week</td> <td>~1.7</td> <td>~1.7</td> <td>0</td> </tr> </tbody> </table> </div>	Time after inoculation with Psa-V	Regalia Maxx	Psa	Water	1 Week	~1.0	~1.0	0	2 Week	~1.3	~1.2	0	3 Week	~1.7	~1.7	0
Time after inoculation with Psa-V	Regalia Maxx	Psa	Water														
1 Week	~1.0	~1.0	0														
2 Week	~1.3	~1.2	0														
3 Week	~1.7	~1.7	0														

Summary

A single application of Regalia Maxx to Bruno seedlings did not reduce leaf spotting following inoculation with Psa-V. 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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