

Product testing report

04 May 2012

Oxine			
Supplying company:	Bio-Cide Distribution Limited		
Active ingredient:	Stabilised chlorine dioxide		
Mode of action:	Protectant <input checked="" type="checkbox"/>	Biological <input type="checkbox"/>	Elicitor <input type="checkbox"/>
Application rate (per 100L):	50ml Oxine + 5g citric acid + 25mL Latron B1956		

Test results													
Test	Greenhouse seedling tests												
Method description	<p>Experiment 1: Protectant (14 March 2012 – 2 April 2012) Bruno seedlings were treated once with the product, allowed to dry and inoculated 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>												
Results	<p>Experiment 1: In Bruno seedlings, application of Oxine did not significantly reduce the degree of leaf spotting following inoculation with Psa-V.</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 style="text-align: center;">Bruno Experiment 2</p> <table border="1"> <caption>Bruno Experiment 2 - Infection Scores</caption> <thead> <tr> <th>Time after inoculation with Psa-V</th> <th>Oxine + Citric acid</th> <th>Psa</th> </tr> </thead> <tbody> <tr> <td>1 Week</td> <td>~0.7</td> <td>~0.9</td> </tr> <tr> <td>2 Week</td> <td>~1.0</td> <td>~1.1</td> </tr> <tr> <td>3 Week</td> <td>~1.2</td> <td>~1.5</td> </tr> </tbody> </table>	Time after inoculation with Psa-V	Oxine + Citric acid	Psa	1 Week	~0.7	~0.9	2 Week	~1.0	~1.1	3 Week	~1.2	~1.5
Time after inoculation with Psa-V	Oxine + Citric acid	Psa											
1 Week	~0.7	~0.9											
2 Week	~1.0	~1.1											
3 Week	~1.2	~1.5											

Summary

A single application of Oxine to Bruno seedlings using the supplier's instructions had no significant effect on leaf spotting following inoculation with Psa-V in both experiments. 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.

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 ZESPRI Group Limited, Kiwifruit Vine Health Inc., Plant & Food Research nor any of their 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

This report may be reproduced in full, but not in part, without prior consent of the authors or of the Chief Executive Officer, The New Zealand Institute for Plant & Food Research Ltd, Private Bag 92169, Auckland Mail Centre, Auckland 1142, New Zealand and ZESPRI Group Limited, 400 Maunganui Road, PO Box 4043, Mt. Maunganui, New Zealand.

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.