Fungicide Resistance Management Strategies

Developed by the CropLife Australia Fungicide Resistance Management Review Group and industry researchers

Valid as at 7 June 2017

Crop(s): Grape
Pest(s): Downy Mildew

Resistance Management Strategy for:
Group 4 (Phenylamide);
Group 11 (Quinone outside Inhibitor);
Group 21 (Quinone inside Inhibitor);
Group 40 (Carboxylic acid amide); and
Group 45 (Quinone outside inhibitor, stigmatellin binding type) fungicides

1. Apply all these fungicides preventatively. Group 4 fungicides should be applied before the first sign of oilspots or as soon as possible after an infection period.

2. Mixtures - co-formulations or tank mixes with label rate of alternative mode of action

3. Apply a maximum of two consecutive applications of any one group.

4. Start preventative disease control sprays using non-Group 4 protectant fungicides, typically when shoots are 10-20cm long. Continue spraying at intervals of 7-21 days depending on disease pressure, label directions and rate of vine growth.

5. Limit the use of Group 4 fungicides to periods when conditions favour disease development. Always apply Group 4 fungicides in mixtures.

<table>
<thead>
<tr>
<th></th>
<th>Group 4</th>
<th>11</th>
<th>21 (+ M1)</th>
<th>40</th>
<th>45 (+40)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. number of consecutive applications</td>
<td>2</td>
<td>none</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Max. number of solo sprays</td>
<td>none</td>
<td>2</td>
<td>3</td>
<td>2 (50%)</td>
<td>none</td>
</tr>
<tr>
<td>Max. number of sprays per season</td>
<td>4-mix</td>
<td>2</td>
<td>3</td>
<td>4-mix (50%¹)</td>
<td>4-mix</td>
</tr>
<tr>
<td>Areas of higher agronomic risk</td>
<td>mix</td>
<td>mix</td>
<td>n/a</td>
<td>mix</td>
<td>n/a</td>
</tr>
</tbody>
</table>

¹: 50% of the maximum number of applications allowed for Group 4 fungicides.

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6. **Group 40** - do not apply as the last spray of the season.
   
   **Group 40** - apply a maximum of 50% of the total number of downy sprays

7. **Group 11** – If applied alone, do not make consecutive applications.

8. **Group 11** – apply a maximum of 2 sprays per season, including mixtures.