Insecticide Resistance Management Strategies
Developed by the CropLife Australia Insecticide Resistance Management Review Group
Valid as at 28 September 2011

Crop(s): Banana
Insect(s): Banana Weevil Borer

Components of the strategy:

1. Use only clean planting material.
2. If replanting into an old banana block allow at least 6 months fallow after old banana material has rotted down.
3. Remove weeds and trash around banana stools to allow maximum effectiveness of insecticides and reduce sheltering sites for weevils. Application of insecticide to trash may lead to reduced control of banana weevil borer.
4. Cut up fallen and harvested pseudostems to reduce weevil-breeding sites.
5. Monitor regularly for banana weevil borer activity by trapping (when adult weevils are active) or corm damage ratings.
6. Only use insecticides when populations reach or exceed accepted threshold levels. Refer local DPI guidelines.
7. Only use insecticides at the registered rate of application and apply at times when the particular product will have the maximum impact, i.e. use contact insecticides only when adult weevil borers are active.
8. Do not use insecticides from the same insecticide group continuously for more than one year.
9. Consider the impact of the use of other pesticides such as nematicides on banana weevil borers.

<table>
<thead>
<tr>
<th>Group*</th>
<th>Chemical sub-group</th>
<th>Example chemical</th>
<th>Year 1 use</th>
<th>Year 2 use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A or 1B</td>
<td>Carbamates or Organophosphates</td>
<td>oxamyl or cadusafos, chlorpyrifos, prothiofos, terbufos</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>2B</td>
<td>Phenylpyrazoles (Fiproles)</td>
<td>fipronil</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>3A</td>
<td>Synthetic pyrethroids</td>
<td>bifenthrin</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>4A</td>
<td>Neo-nicotinoids</td>
<td>imidacloprid, clothianidin</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Refer: CropLife Australia Insecticide Resistance Management Review Group Mode of Action Classification for Insecticides

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Phone: 02 6230 6399    Email: info@cropLifeaustralia.org.au    Fax: 02 6230 6355    Website: www.cropLifeaustralia.org.au
Crop(s) : Banana (cont.)
Insect(s) : Banana Weevil Borer (cont.)

Guidelines:

1. The resistance management strategy may start at any point in the product group rotation. (Years 1 or 2)
2. The product(s) used in any one year should not be followed by product(s) from the same insecticide group in the next year.
3. Products from different insecticide groups should not be applied during the same period for banana weevil borer control.
4. If product(s) from Group 1A or Group 1B are being used for nematode control in a block of bananas, then product(s) from Groups 1A or 1B should not be used for control of banana weevil borer control the following year. Thus, if cadusafos, terbufos, oxamyl or other Group 1A or Group 1B product is used for nematode control in one year, these or other Group 1A or Group 1B products should not be used for banana weevil borer control the following year.
5. Where there is evidence of banana weevil borer resistance to a product, or group of products, these should not be used again for banana weevil borer control until there has been use of products from the other Mode of Action groups for a period of 2 years.
6. Soil applications of fipronil or bifenthrin for rust thrips control should be considered as applications for banana weevil borer in terms of the resistance management strategy. Do not use either chemical by soil application separately for rust thrips and banana weevil borer in the same year.