Pesticide Safety 2012 - MRL's and Frost

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MRLs – what are they and why do they matter
MRL vs Tolerance

• When pesticides registered by US EPA – tolerance is established
  – Amount of residue that is ok on harvested crop
  – If you obey the label, you should not have a problem meeting this
  – Research to determine the labeling to meet tolerance done through IR-4

• MRL – “maximum residue level” is the same as tolerance but in foreign countries
Harmonization (or not)

- Problems may come when the MRL for a potential foreign market is less than the US EPA tolerance
- Not always a problem if the use pattern gives residues that meet the MRL
- BUT in some cases the MRL is so much lower (or virtually zero) that you can’t meet it with the current use pattern
<table>
<thead>
<tr>
<th>Trade Name</th>
<th>Tolerance</th>
<th>Codex</th>
<th>EU</th>
<th>Australia</th>
<th>Canada</th>
<th>Japan</th>
<th>New Zealand</th>
<th>Taiwan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abound</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td>Sevin</td>
<td>3</td>
<td>5</td>
<td>0.05</td>
<td>3</td>
<td>10</td>
<td>7</td>
<td>5</td>
<td>0.5</td>
</tr>
<tr>
<td>Bravo</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>10</td>
<td>2</td>
<td>5</td>
<td>10</td>
<td>0.7</td>
</tr>
<tr>
<td>Lorsban</td>
<td>1</td>
<td>1</td>
<td>0.05</td>
<td>1</td>
<td>0.1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Diazinon</td>
<td>0.5</td>
<td>0.2</td>
<td>0.2</td>
<td>0.5</td>
<td>0.25</td>
<td>0.1</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Admire</td>
<td>0.05</td>
<td>0.05</td>
<td>0.05</td>
<td></td>
<td>0.04</td>
<td>0.05</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Avaunt</td>
<td>0.9</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0.9</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Quinstar</td>
<td>1.1</td>
<td>Petition</td>
<td>0.05</td>
<td>Petition</td>
<td>Petition</td>
<td>Petition</td>
<td>Petition</td>
<td></td>
</tr>
<tr>
<td>Oberon</td>
<td>2</td>
<td></td>
<td>0.02</td>
<td>Petition</td>
<td>Petition</td>
<td>Petition</td>
<td>Petition</td>
<td></td>
</tr>
</tbody>
</table>
What’s being done

• CMC subcommittee
  – Identifies important compounds from a list of those that are not harmonized
• CMC contractor
  – works on the political negotiations to achieve harmonization
Impact on growers

• Handler bans certain uses
  – Example – Quinstar no use for EU fruit
    • EU MRL is 0.05 ppm (under consideration); US is 15 ppm for the Section 18, Section 3 proposed at 1.1
Date restrictions

• No use after a certain date
• Based on reducing residue to meet MRLs that are lower than US
  – Example – Lorsban US tolerance is 1 ppm; EU is 0.05 ppm
New compounds

• Generally cannot begin MRL petition work until EPA approves US label
• Problem for new registrations in international trade
• Trying to work in tandem for most promising ones
Important older compounds

• Bravo
  – US tolerance is 5 ppm
  – EU and Canada MRL – 2 ppm
  – Solution?
    • Use pattern
    • 2012 IR-4 project; also for CODEX re-registration
Important older compounds

• Sevin
  – US tolerance is 3 ppm
  – EU MRL – 0.05 ppm
  – Solution?
    • 2012 IR-4 project to get new EU MRL
OS Restrictions 2012 (draft)

• All MA = Export Processed = Incentive
• BUT Many Restrictions
  – No Quinclorac or Princep
  – No Maneb
  – No Belay
  – No Oberon, Rimon or Evito
  – No Orthene or Lorsban after 6/22
  – No Altacor after 7/15
  – No Sevin or Bravo after 8/1
  – Longer PHI for Assail (60 d) and Imidan (40 d)
Cranberry Industry Fresh Fruit Pesticide Analysis.

<table>
<thead>
<tr>
<th></th>
<th>Percent of Samples with Detects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MA</td>
</tr>
<tr>
<td>Diazinon</td>
<td>0%</td>
</tr>
<tr>
<td>Lorsban</td>
<td>37%</td>
</tr>
<tr>
<td>Orthene</td>
<td>0%</td>
</tr>
<tr>
<td>Bravo</td>
<td>82%</td>
</tr>
<tr>
<td>Carbaryl</td>
<td>61%</td>
</tr>
<tr>
<td>EBDC</td>
<td>26%</td>
</tr>
</tbody>
</table>
### 2006 USDA-AMS-Pesticide Data survey for insecticide residue in fresh cranberries (316 samples)

<table>
<thead>
<tr>
<th>Insecticide [overall % OSC contracts using insecticide 2005]</th>
<th>Trade name</th>
<th>% samples w/ detections</th>
</tr>
</thead>
<tbody>
<tr>
<td>tebufenozide [10.4]</td>
<td>Confirm</td>
<td>6.3</td>
</tr>
<tr>
<td>acephate [25.2] methamidophos (acephate metabolite)</td>
<td>Orthene</td>
<td>25.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15.5</td>
</tr>
<tr>
<td>chlorpyrifos [48.0]</td>
<td>Lorsban</td>
<td>22.5</td>
</tr>
<tr>
<td>methoxyfenozide [27.5]</td>
<td>Intrepid</td>
<td>13.9</td>
</tr>
<tr>
<td>spinosad [14.1]</td>
<td>SpinTor</td>
<td>2.5 (&gt; tolerance)</td>
</tr>
<tr>
<td>carbaryl [39.3]</td>
<td>Sevin</td>
<td>3.8</td>
</tr>
<tr>
<td>1-naphthol (carbaryl metabolite)</td>
<td></td>
<td>47.6</td>
</tr>
<tr>
<td>thiamethoxam [16.0]</td>
<td>Actara</td>
<td>1.2</td>
</tr>
<tr>
<td>diazinon [79.0]</td>
<td>Diazinon</td>
<td>0.0</td>
</tr>
</tbody>
</table>
Frost

• Tolerances at State bog as of 4/6
  – EB bud swell, 22°F
  – H bud swell, 22°F
  – BL bud swell, 25°F (a few 27°F)
  – ST bud swell, 25°F
Floral initial

Outer bud scales

Vegetative meristem
Floral initial

Outer bud scales

Vegetative meristem

Floral initial
Protecting on really cold nights

• Windy
  – Frost flood?
  – Just up into the vines, can hold over if pre-bud break

• Sprinkling and making ice
  – Don’t want all ice/no water
  – If ice evaporates lose ~7X heat compared what released to when it froze
When to turn off in the AM?

- 3-5 degrees above tolerance
- Do not have to melt all ice
  - If sun on ice and 3-5 degrees above tolerance, shut down
  - Ice will be wet so only normal heat loss on melting
    - That’s why the 3-5 degrees