Volunteer Potato Management

Gavin Graham
IPM Weed Management Specialist
gavin.graham@gnb.ca
(506) 453-3486
Volunteer Potato

• Impossible to remove all tubers during harvest procedure, up to 10% remain
  – Non-harvested fields will be unique challenge

• Sprout in following season
  – Competition for next crop
  – Disease/insect host
  – Daughter tubers
Prevention

• Harvest Management
• Tillage
  – Keep tubers at surface
• Hope for cold
  – 50 chilling hours, -2 °C at tuber
  – Depth of burial
  – Snow cover will insulate soil, beside windbreaks typically have more volunteers
Previous NB Trials

• Focused on in crop grain control
• Overwintering populations
• ‘Seeded’ cereal stands
• Inconsistent emergence
• Inconsistent results
• Daughter tuber effects?
2015 Trial Methods

• Establish a ‘commercial’ planting of Russet Burbank
  – May not be similar to ‘volunteers’
  – No crop competition
• Spray stage at right
• Ratings and Yields

<table>
<thead>
<tr>
<th>Days</th>
<th>% Control</th>
<th>Kg tubers/row</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 Days</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 Days</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23 Days</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36 Days</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Untreated

- Normal Growth
- Flower buds start 15 Day after application
Round-up (900 g ai/ha)

• Best control overall
• Seed piece effects at right

97 %  95 %  95 %  89 %  1.9 kg

7 Days  15 Days  23 Days  36 Days  Tubers
Callisto

- Symptoms slower
- Late resprouting, but strong yield impact (80%)

<table>
<thead>
<tr>
<th></th>
<th>7 Days</th>
<th>15 Days</th>
<th>23 Days</th>
<th>36 Days</th>
<th>Tubers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yield Impact</td>
<td>53%</td>
<td>90%</td>
<td>94%</td>
<td>78%</td>
<td>5.3 kg</td>
</tr>
</tbody>
</table>
# MCPA - Low

- Slowed initially
- Delayed flowering

<table>
<thead>
<tr>
<th>Days</th>
<th>7 Days</th>
<th>15 Days</th>
<th>23 Days</th>
<th>36 Days</th>
<th>Tubers</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>28</td>
<td>25</td>
<td>10</td>
<td>3</td>
<td>22.1 kg</td>
</tr>
</tbody>
</table>

![Images showing plant growth over time](image.jpg)
**MCPA - High**

- Slight control improvement over low rate
- No yield impact

<table>
<thead>
<tr>
<th>Days</th>
<th>% Control</th>
<th>Yield (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>26%</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>33%</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>9%</td>
<td></td>
</tr>
</tbody>
</table>

23.3 kg tubers
**Trophy**

- Improved over MCPA amine
- 20% reduction in yield

<table>
<thead>
<tr>
<th>7 Days</th>
<th>15 Days</th>
<th>23 Days</th>
<th>36 Days</th>
<th>Tubers</th>
</tr>
</thead>
<tbody>
<tr>
<td>44 %</td>
<td>59 %</td>
<td>46 %</td>
<td>15 %</td>
<td>19.7 kg</td>
</tr>
</tbody>
</table>
**Pixxaro**

- Good suppression early
- Yield slightly decreased

<table>
<thead>
<tr>
<th>Days</th>
<th>Percentage</th>
<th>Tubers</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 Days</td>
<td>60 %</td>
<td></td>
</tr>
<tr>
<td>15 Days</td>
<td>56 %</td>
<td></td>
</tr>
<tr>
<td>23 Days</td>
<td>54 %</td>
<td></td>
</tr>
<tr>
<td>36 Days</td>
<td>25 %</td>
<td></td>
</tr>
<tr>
<td></td>
<td>19.4 kg</td>
<td>Tubers</td>
</tr>
</tbody>
</table>
**Infinity**

- Quick symptoms early
- Potatoes re-grew, but 40% yield effect

<table>
<thead>
<tr>
<th>7 Days</th>
<th>15 Days</th>
<th>23 Days</th>
<th>36 Days</th>
<th>Tubers</th>
</tr>
</thead>
<tbody>
<tr>
<td>80 %</td>
<td>75 %</td>
<td>58 %</td>
<td>30 %</td>
<td>14.1 kg</td>
</tr>
</tbody>
</table>
Refine

- Good suppression early
- Potato recovery

74 %  70 %  59 %  21 %  16.0 kg

7 Days  15 Days  23 Days  36 Days  Tubers
Refine + MCPA

• Slight improvement over Refine alone
2015 Trial Discussion

- Round-up best treatment for visual control and daughter tuber yield
- Callisto had some regrowth but good control of daughter tubers
- MCPA amine was not effective
- Pixxaro and Trophy had visual suppression early, but little change to final tuber yield
- Infinity, Refine and Refine + MCPA had slightly improved suppression, but more reduction on tuber yields
Discussion

- Crop competition may have ‘improved’ control and daughter tuber reductions
- Chieftain ‘spacers’ behaved differently
- Spray before volunteers get too large
Advice for Non-Harvested Fields

• Management will depend on situation
  – Need for cash crop or cover crop?
  – Potential for enough cold temp. at tuber level?
• Best for volunteers: Late seeded cover crop
  – Early tillage/herbicide to control first flush of potatoes
  – Establish well, herbicide / mow / terminate if needed
• Best for cash crop: Field corn, ideally HR
  – Glyphosate, Callisto good options, may need 2 spray
• Cereals, RR soybeans less reliable control
  – Avoid IP soybean, pea