DISEASE AND INSECT MANAGEMENT
Insects Presented

- Sugarbeet Root Maggot
- Wireworm
- Springtails
- Cutworms
Diseases Presented

- Fusarium
- Rhizoctonia
- Rhizomania
- Aphanomyces
Sugarbeet Root Maggot Management
SBRM Fly Management

- SBRM life cycle is egg, larvae, pupa then adult.

- SBRM requires 600 degree days to develop from larvae to adults.

- Peak fly emergence was June 18, 2009 & in June 7, 2008.
SBRM Damage
Postemergence Maggot Control
Auburn, ND 2009

Check

Counter 10 lb

Poncho Beta

Counter 10 lb + Lorsban 4E 1 pt/ac

Poncho Beta + Lorsban 4E 1 pt/ac
Seed Treatments vs. Counter Maggot Control - St. Thomas, ND 2009

Cruiser  NipsIt  Poncho Beta

Counter 10 lb  CHECK
First Application Control Practices

- **Counter** is the recommended product to be used in heavy SBRM areas!

<table>
<thead>
<tr>
<th>Insecticide</th>
<th>Recommended rates (product/ac) for expected population levels</th>
<th>Timing Options</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>Moderate</td>
</tr>
<tr>
<td>Counter 15G</td>
<td>5.9 lb.</td>
<td>10.0 lb.</td>
</tr>
<tr>
<td>Poncho Beta</td>
<td>Seed Applied</td>
<td>*NR</td>
</tr>
<tr>
<td>Lorsban 15G</td>
<td>6.7 lb.</td>
<td>10.0 lb.</td>
</tr>
<tr>
<td>Temik 15G</td>
<td>6.7 lb.</td>
<td>10.0 lb.</td>
</tr>
</tbody>
</table>

RUP – Restricted Use Pesticide

*NR – Not Recommended without a 2nd application of an insecticide
SBRM Control Practices

- In moderate to heavy SBRM a second application of insecticide may include:
  
  * Lorsban-4E at 1-2 pts/ac
  * Thimet or Counter – at 5-8 lbs; 10 to 14 days prior to peak fly emergence.

- Fly counts are posted on ACSC website
# 3 Year Insecticide Analysis

by Mark Boetel

<table>
<thead>
<tr>
<th>Product</th>
<th>Rate</th>
<th>RSA</th>
<th>Tons/Acre</th>
<th>Net Sucrose</th>
<th>Gross/Ac</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counter 15G</td>
<td>12 lb</td>
<td>6087</td>
<td>23.8</td>
<td>14.2</td>
<td>643</td>
</tr>
<tr>
<td>Counter 15G</td>
<td>10 lb</td>
<td>5837</td>
<td>23.3</td>
<td>14.0</td>
<td>601</td>
</tr>
<tr>
<td>Poncho Beta</td>
<td>W/Seed</td>
<td>4903</td>
<td>20</td>
<td>13.6</td>
<td>488</td>
</tr>
<tr>
<td>Cruiser 5FS</td>
<td>W/Seed</td>
<td>4709</td>
<td>19.1</td>
<td>13.6</td>
<td>474</td>
</tr>
<tr>
<td>NipsIt Inside</td>
<td>W/Seed</td>
<td>4581</td>
<td>18.6</td>
<td>13.6</td>
<td>461</td>
</tr>
<tr>
<td>Check</td>
<td>NA</td>
<td>3931</td>
<td>16.6</td>
<td>13.1</td>
<td>372</td>
</tr>
</tbody>
</table>
ROOT MAGGOT RISK* FOR 201

*Based on fly counts & root damage ratings
WIREWORMS

Stand Losses due to Wireworm can range from 1% to total replant

Larvae Range from 1/2" to 1 1/2" long
Wireworm Control

• No threshold for wireworms in sugarbeets has been established.

• Four insecticides are registered for wireworm control in sugarbeets.
  – Counter 15G at 5.9 lbs to 11.9 lbs / acre
  – Mustang Max at 4.0 oz / acre in furrow or T-band.
  – Lorsban 15G at 10 – 13 lbs / acre. (suppression only)
  – Poncho Beta – Seed Applied. (Low infestation)
Springtails

Can cause problems in moist, high O.M. soil, cool springs, AND where no insecticide was used at planting
Field With Springtail Damage
Springtail Damage
Springtail Control

• No insecticide is labeled for springtail control in sugarbeet.

• Springtail insect pressure continues to increase.

• Counter has the most consistent control

• Poncho Beta provides fair control
Cutworm Management

• Feeding habits
  – Feed below soil surface when soil is dry
  – Feed above soil surface when soil is wet

• If the soil is crusted over, break up the crust during insecticide application.
Sugarbeet Damaged By Cutworms

Cutworm Injury
Cass County
8-17-01
Cutworm Insecticide
Recommendations

- Asana XL* – 5.8 – 9.6 fl Oz  PHI=21 days
- Sevin 4F – 1.5 qts  PHI=28 days
- Lorsban 4E *- 2 pts  PHI=30 days
- Mustang Max *– 4 oz  PHI=50 days

- Lorsban provides the most consistent control
- *Restricted use Pesticide
FUSARIUM
FUSARIUM

- Usually found in wet, poorly structured soils
- First appears as interveinal yellowing on older leaves.
- Optimum soil temp above 75 degrees F
- Can be confused with Verticillium Wilt
Fusarium Management With Disease Resistant Varieties

- Disease root rating of 3.5 or less.
- Crystal - 658RR
  871RR, 761RR, 539RR
- Beta - 88RR03
  88RR13, 85RR02
- SES Vander Have
  H 36811RR
RHIZOCTONIA
Rhizoctonia Control Strategies

• Lengthen crop rotations (3 years or more)
• Grow wheat or barley the year prior to sugarbeets
• Plant resistant varieties
• Keep soil out of crowns during cultivation
• Apply Quadris or Proline in a timely manner
## 2009 Harvest Results

**By Jason Branter (UMNROC)**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rating (0-7)</th>
<th>Yield (T/A)</th>
<th>Sucrose (lb recov/A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-inoculated</td>
<td>1.6</td>
<td>32.4</td>
<td>8496</td>
</tr>
<tr>
<td><em>R. solani</em>-inoculated:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No fungicide</td>
<td>6.5</td>
<td>9.4</td>
<td>1922</td>
</tr>
<tr>
<td>Quadris</td>
<td>1.7</td>
<td>34.1</td>
<td>9508</td>
</tr>
<tr>
<td>Quadris 2x</td>
<td>1.6</td>
<td>34.7</td>
<td>9044</td>
</tr>
<tr>
<td>Quadris/Proline</td>
<td>1.7</td>
<td>33.9</td>
<td>8583</td>
</tr>
</tbody>
</table>
Innoculated – No Quadris
Innoculated – Quadris Applied
Fungicide Timing And Placement

• Apply fungicide on 4-8 leaf beets as soil temp reaches **65 degrees**.
• Quadris or Proline are **ineffective** if applied after infection occurs.
• Effective if infection starts at crown but not when infection starts below soil surface.
• Quadris & Proline provide excellent control of Rhizoctonia in conventional & RR beets.
Fungicide Timing & Placement

- Quadris or Proline can tank mixed with Roundup
- Banding is more effective than broadcasting

- **Do not** tank mix with Conventional microrate products.

- Spray Quadris or Proline 3-4 days after spraying the Micro-rates.
2007 Daily Soil Temperature
2009 Crop Daily Soil Temperature
Note blackening of petioles.
RHIZOMANIA
Identification – Detection

• Virus carried by a fungus
• Large number of small lateral roots
• Root may be small with dark veins or rot
• Leaves bright in color and extend upright
• Leaves thick and wilt easily in dry periods
• The infection blocks water and nutrients uptake
2009 Rhizomania Field
2009 Rhizomania
Rhizomania Management

- Rhizomania will survive in the soil indefinitely.

- Improved genetics

- Best Control is Resistant Varieties
Aphanomyces

- Is a water fungus that attacks roots of sugarbeet plants
- Seedling stage known as early season.
- Adult stage known as “late season”
Management of Aphanomyces

- Variety selection with a (root disease rating of 4.9 or less).
- Apply tachigaren at 45 grams in moderate to severe aphanomyces fields
- Tachigaren protects seeds 3-4 weeks
- Liming has also shown good results in reducing the impact of this disease.
Split field comparison
10 tons lime vs. No lime
Value of Lime on Reducing Impact of Aphanomyces on Sugarbeets
Questions