

# 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!

Insecticide	Recommended rates (product/ac) for expected population levels			Timing Options
	Low	Moderate	High	
Counter 15G RUP	5.9 lb.	10.0 lb.	11.9 lb.	Planting-time or Post
Poncho Beta	Seed Applied	*NR	*NR	Planting time
Lorsban 15G RUP	6.7 lb.	10.0 lb.	13.4 lb.	Planting-time or Post
Temik 15G RUP	6.7 lb.	10.0 lb.	14.0 lb.	Planting-time & Post

RUP – Restricted Use Pesticide

\*NR – Not Recommended without a 2<sup>nd</sup> application of an insecticide

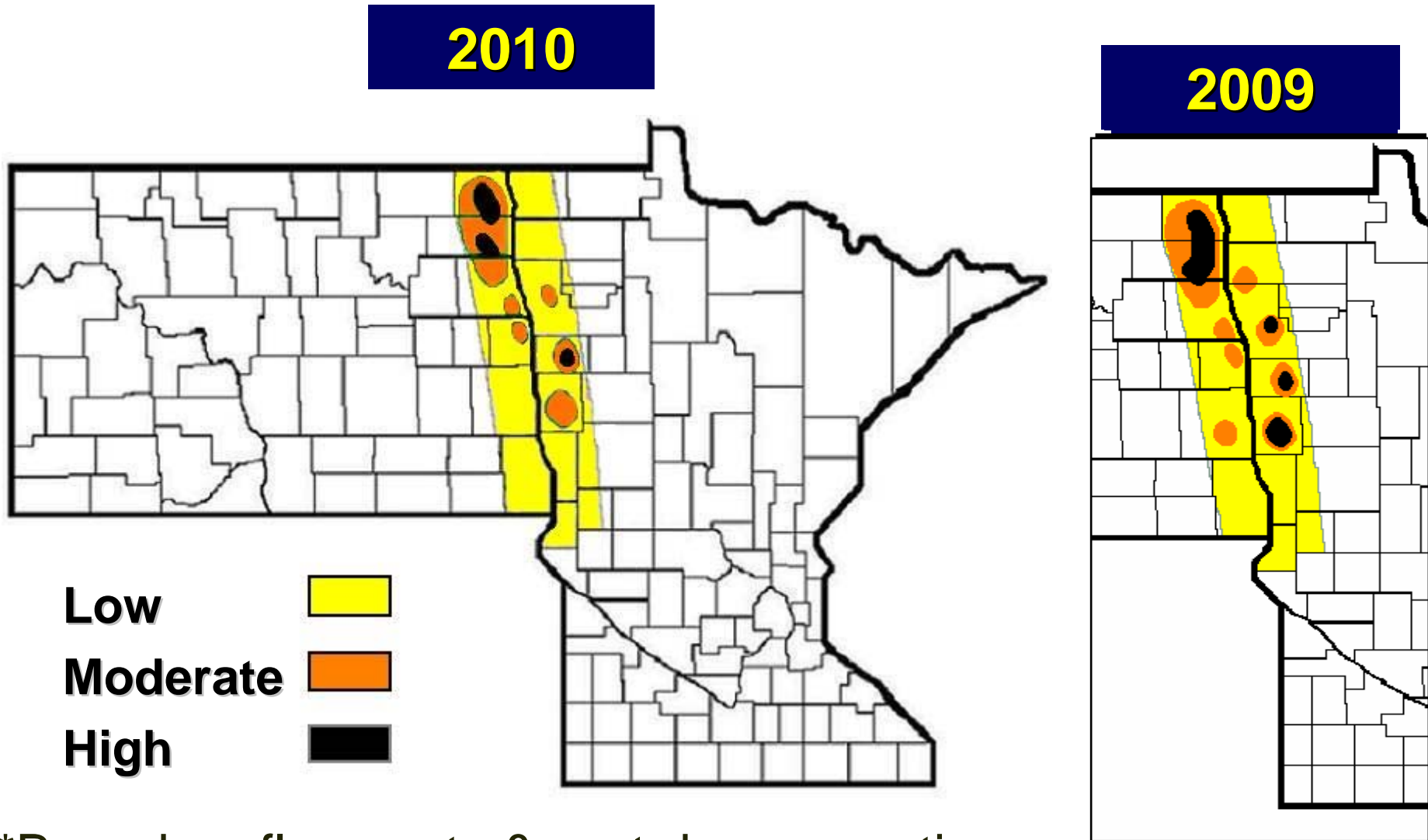
# SBRM Control Practices

- 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

<b>Product</b>	<b>Rate</b>	<b>RSA</b>	<b>Tons/Acre</b>	<b>Net Sucrose</b>	<b>Gross/Ac</b>
<b>Counter 15G</b>	<b>12 lb</b>	<b>6087</b>	<b>23.8</b>	<b>14.2</b>	<b>643</b>
<b>Counter 15G</b>	<b>10 lb</b>	<b>5837</b>	<b>23.3</b>	<b>14.0</b>	<b>601</b>
<b>Poncho Beta</b>	<b>W/Seed</b>	<b>4903</b>	<b>20</b>	<b>13.6</b>	<b>488</b>
<b>Cruiser 5FS</b>	<b>W/Seed</b>	<b>4709</b>	<b>19.1</b>	<b>13.6</b>	<b>474</b>
<b>NipsIt Inside</b>	<b>W/Seed</b>	<b>4581</b>	<b>18.6</b>	<b>13.6</b>	<b>461</b>
<b>Check</b>	<b>NA</b>	<b>3931</b>	<b>16.6</b>	<b>13.1</b>	<b>372</b>

# ROOT MAGGOT RISK\* FOR 201



\*Based on fly counts & root damage ratings

# WIREWORMS



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

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



# 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)

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Treatment	Rating (0-7)	Yield (T/A)	Sucrose (lb recov/A)
Non-inoculated	<b>1.6</b>	<b>32.4</b>	<b>8496</b>
<i>R. solani</i> -inoculated:			
No fungicide	<b>6.5</b>	<b>9.4</b>	<b>1922</b>
Quadris	<b>1.7</b>	<b>34.1</b>	<b>9508</b>
Quadris 2x	<b>1.6</b>	<b>34.7</b>	<b>9044</b>
Quadris/Proline	<b>1.7</b>	<b>33.9</b>	<b>8583</b>

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# Innoculated – No Quadris



# Innoculated – Quadris Applied



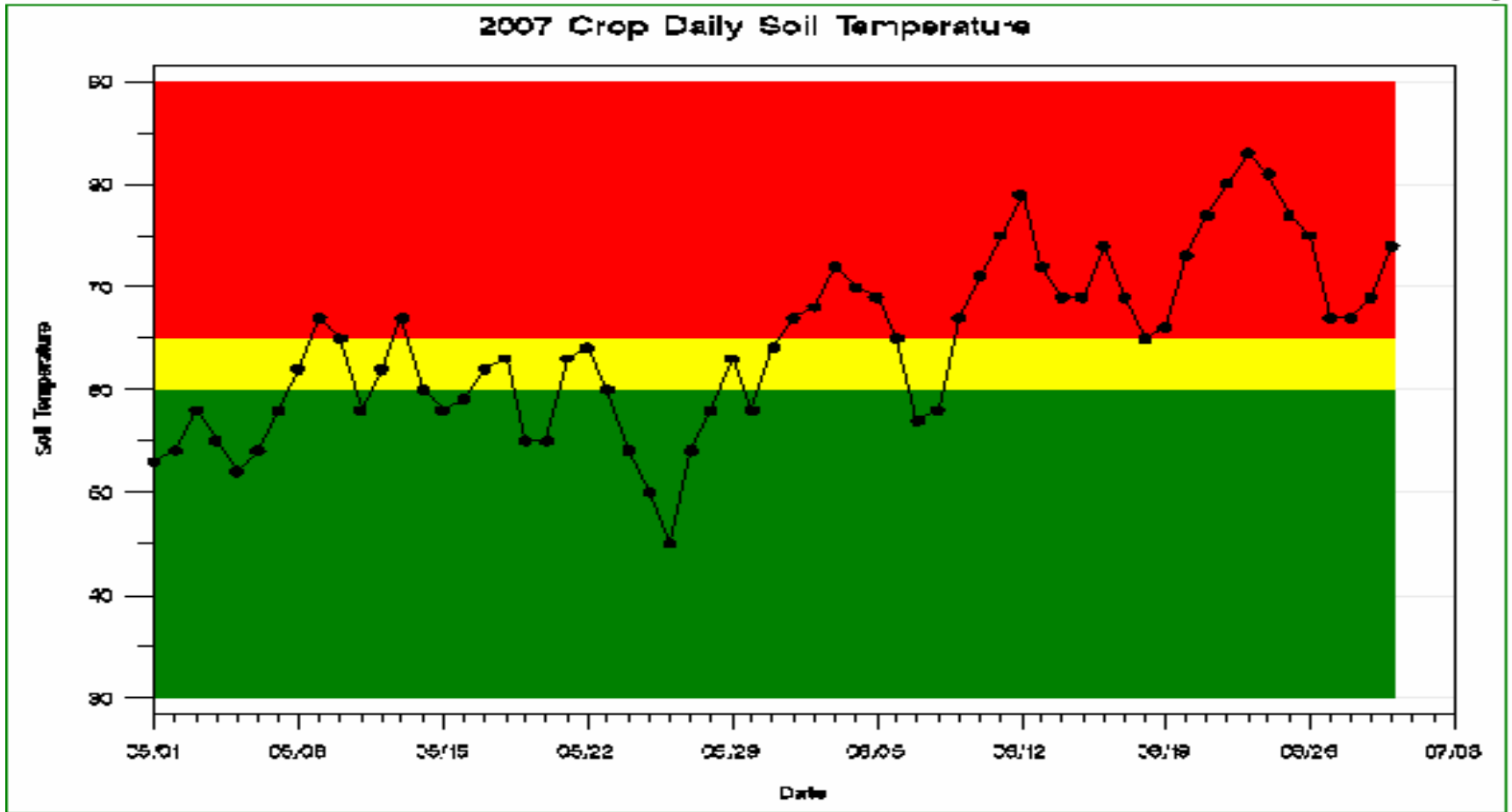
# Fungicide Timing And Placement

- 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

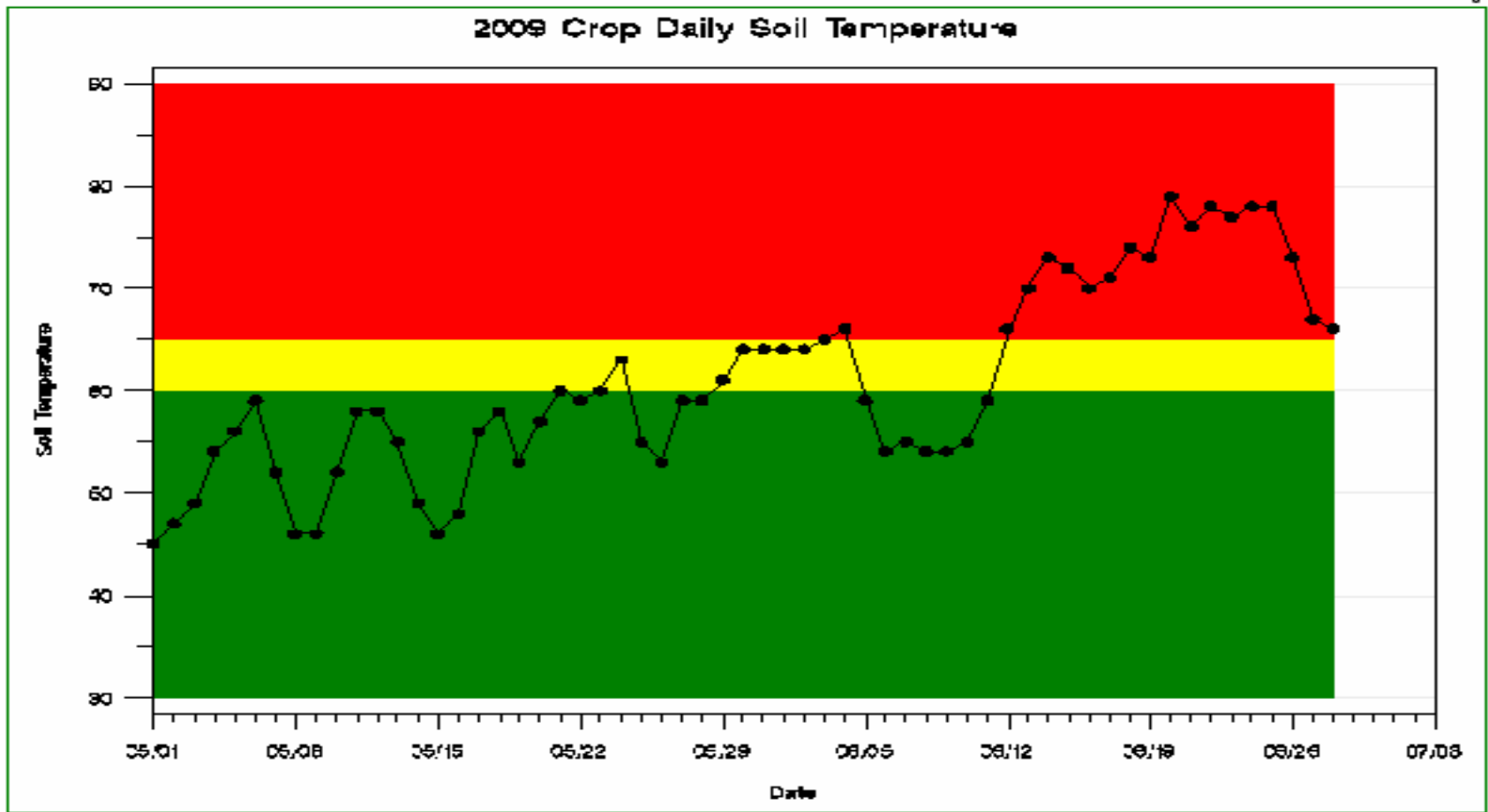
- Quadris or Proline can tank mixed with Roundup
- Banding is more effective than broadcasting
- **Do not** tank mix with Conventional microrate products.
- Spray Quadris or Proline **3-4 days** after spraying the Micro-rates.

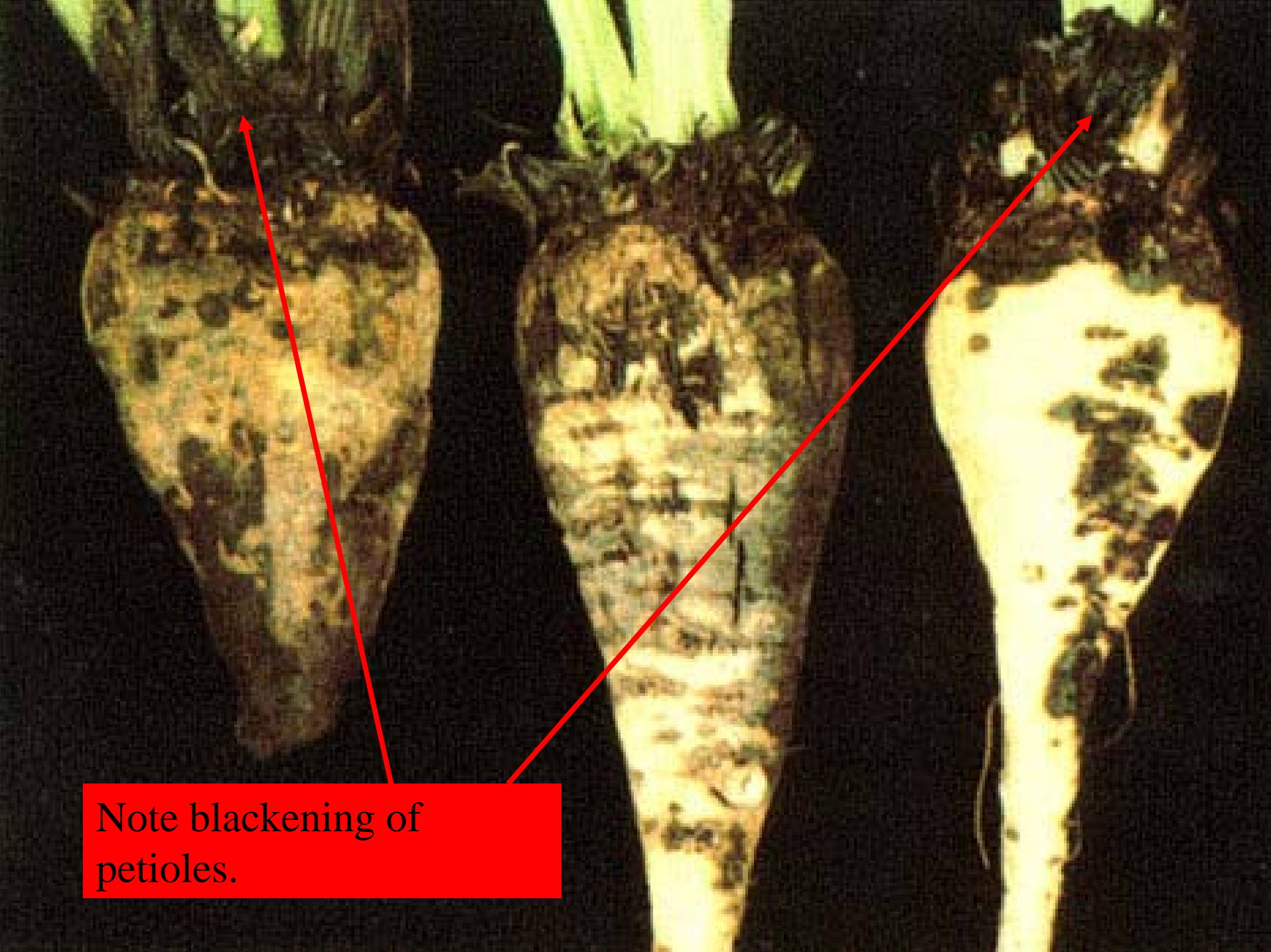
# 2007 Daily Soil Temperature





# 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



Resistant    Resistant    Susceptible    Susceptible



# 2009 Rhizomania Field



# 2009 Rhizomania



# Rhizomania Management

- Rhizomania will survive in the soil indefinitely.
- Yield & quality losses of \$100-150/acre in 2009.
- Improved genetics
- Best Control is Resistant Varieties

# Aphanomyces



- Is a water fungus that attacks roots of sugarbeet plants
- Seedling stage know as early season.
- Adult stage know 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

