Fungicides for Southern Blight: Results of 3 Years Testing and Updates to the SC Watermelon Spray Guide

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This Morning’s Outline

1. Southern Blight on Tomato, Pepper, and Eggplant
2. Watermelon Disease Survey
3. Systemic Fungicides for GSB
4. Anthracnose on Watermelon and Cucumber
5. Fusarium Wilts on (Irish) Potato
6. Crop Rotation for Vegetable Disease Control
Southern Blight on Tomato, Pepper, Eggplant

- **Priaxor**, 8 fl oz
  - 5 & 7 weeks after transplanting (WAT)
  - $72/season
- **Fontelis**, 16 fl oz, then **Cabrio**, 24 fl oz
  - Fontelis 1 & 3 WAT
  - Cabrio 5 & 7 WAT
  - $156/season
- **Is spraying necessary?**
Watermelon Disease Survey 2015-16

Estimated probability of pathogen occurrence

- DM
- GSB
- PM
- CLS
- ANT
- CR
- Virus
- NoPa

2015
2016
2016 Fall
Do Fungicides Matter in the Real World?

In 2 of 3 seasons:

• Fewer leaves with GSB with systemic fungicides
  • Sprayed either 1 or 2 weeks before sampling
• Fewer leaves with PM with protectant fungicides
• Fewer leaves with PM with PM-specific fungicides (Luna Experience, Quintec, Pristine)
Improved Control of GSB with Systemic Fungicide

**Lesion Diameter (mm)**

<table>
<thead>
<tr>
<th></th>
<th>Water</th>
<th>Bravo</th>
<th>Inspire Super</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter</td>
<td>20.0</td>
<td>15.0</td>
<td>10.0</td>
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</tbody>
</table>

**% Spots Sporulating**

<table>
<thead>
<tr>
<th></th>
<th>Water</th>
<th>Bravo</th>
<th>Inspire Super</th>
</tr>
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<tbody>
<tr>
<td>Sporulating</td>
<td>100.0</td>
<td>80.0</td>
<td>40.0</td>
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</table>

**% Sporulating Area (mm²)**

<table>
<thead>
<tr>
<th></th>
<th>Water</th>
<th>Bravo</th>
<th>Inspire Super</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area</td>
<td>35.0</td>
<td>30.0</td>
<td>10.0</td>
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</table>
Anthracnose on Watermelon

• Associated with back-to-back watermelon crops
• More common in last 6 years because of drier spring weather?
• **Chlorothalonil** (Bravo, Equus, Initiate) or **mancozeb** (Dithane, Manzate, Penncozeb, Roper)
• Organic: nothing works
Severe Yield Loss to Anthracnose is Possible without the Right Fungicides

<table>
<thead>
<tr>
<th></th>
<th>Fall 2013</th>
<th>Spring 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best Fung.</td>
<td>38 cwt</td>
<td>186 cwt</td>
</tr>
<tr>
<td>None</td>
<td>1 cwt</td>
<td>50 cwt</td>
</tr>
<tr>
<td>Diff</td>
<td>37 cwt</td>
<td>136 cwt</td>
</tr>
<tr>
<td>Value/A</td>
<td>$740</td>
<td>$1904</td>
</tr>
<tr>
<td>Fungicide Applications</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Fungicide + Appl. Cost/A</td>
<td>$139</td>
<td>$90 (39-158)</td>
</tr>
<tr>
<td>Return/A*</td>
<td>$601</td>
<td>$1814</td>
</tr>
<tr>
<td>Return per $1 on Fungicide</td>
<td>$4.33</td>
<td>$20.09</td>
</tr>
</tbody>
</table>

*on yield above no fungicide yield
Crop Rotation is a MUST

- Rotate away from similar crops for 12-24 months
- Don’t replant same type of crop into used mulch
- Promptly destroy crop residue after last harvest
- Destroy spring crop residue before planting a fall crop
Fusarium Wilt of Potato

*Fusarium solani* f. sp. *eumartii* on ‘Yukon Gold’
Fusarium Wilt of Potato

*Fusarium oxysporum* f. sp. *tuberosi* on ‘German Butterball’ and ‘Yukon Gold’
Fusarium Wilts of Potato

- Uncommon today due to improved seed production practices and tissue culture
- Can be carried in seed tubers
  - Look for vascular discoloration
  - Discard any tubers or cut pieces
- Not previously reported in SC
- Wet season 2016
- Both *Fusaria* persist in soil
- No info on resistance of varieties
  - Caution about yellow potatoes
Acknowledgement of Funding Sources

- USDA, Agricultural Marketing Service, Specialty Crop Block Grant through SCDA, 2013, #12-25-B-1695 (Anthracnose and Powdery Mildew on Watermelon)
- USDA, AMS, Specialty Crop Block Grant through SCDA, 2014, #14-SCBGP-SC-0045 (Southern Blight on Tomato)
- USDA, AMS, Specialty Crop Block Grant through SCDA, 2015, #15-SCBGP-SC-0013 (Watermelon Disease Survey)
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