Diagnosing Target Spot of Cotton

Jason Brock
Department of Plant Pathology
The University of Georgia
Foliar Diseases

- Leaf spot caused by *Stemphylium* spp. are most common
  - not a serious problem in GA or FLA
  - primarily a problem in potassium-deficient cotton

- Fungi associated with other minor leaf spots
Tifton Plant Disease Clinic

Number of Cotton Samples

0 20 40 60 80 100 120 140
<table>
<thead>
<tr>
<th>Year</th>
<th>Stemphylium</th>
<th>Alternaria</th>
<th>Cercospora</th>
<th>Ascochyta</th>
<th>Corynespora</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2005</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2006</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2007</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2008</td>
<td>8</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2009</td>
<td>9</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>2010</td>
<td>15</td>
<td>2</td>
<td>8</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>2011</td>
<td>27</td>
<td>8</td>
<td>9</td>
<td>1</td>
<td>16</td>
</tr>
<tr>
<td>2012</td>
<td>18</td>
<td>7</td>
<td>7</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>2013</td>
<td>7</td>
<td>2</td>
<td>28</td>
<td>8</td>
<td>68</td>
</tr>
</tbody>
</table>
Wet Mount Slide

A. Place a drop of H$_2$O on a slide.
B. Place a small section of plant tissue in the H$_2$O.
C. Chop, chop the sample.
D. Lower a cover slip over the droplet.
E. Gently apply pressure to the top of the cover slip.
Tape Mount Slide

• Useful for examining objects on the surface of the plant.

• Use clear tape.

• Preserves the spore arrangement.
Target spot

Target spot, *Corynespora cassiicola*

- Chocolate brown spots on a leaf that frequently demonstrate a pattern of concentric rings
- Leaves typically retain their green or green-yellow color.
- Lesions are also found on the boll bracts and possibly on the bolls themselves.
Target spot
Corynesporea
Ascochyta wet weather blight

Ascochyta blight, caused by *Ascochyta gossypii*

- presence of tan lesions bordered by a dark ring
- embedded in the lesion are dark fungal structures that appear like pepper grains
Ascochyta wet weather blight
Corynespora vs. Phoma
Stemphylium & Alternaria Leaf Spot

Stemphylium leaf spot, *Stemphylium solani*  
Alternaria leaf spot, *Alternaria macrospora*

- sudden reddening of the foliage and the rapid appearance of numerous spots  
- spots with ashy-gray centers and a dark purple margin  
- centers of the spots frequently detach from the leaf giving the leaf a shot-hole appearance  
- tend to be smaller than those of target spot; typically do not have concentric rings
Stemphylium & Alternaria Leaf Spot
Corynespora vs. Alternaria
Corynespora vs. Stemphylium
anthracnose
Corynespora vs. Colletotrichum
Cercospora leaf spot, *Cercospora gossypina*

- often linked to a nutrient deficiency and may form a disease complex with *Alternaria mascrospora* and *Stemphylium solani*.
- Spots begin as small, reddish lesions that larger circular lesions with light brown centers
- zonation similar to that of target spot may be observed
Cercospora leaf spot
Corynespora vs. Cercospora
Something New & Different

Phomopsis leaf spot

Rhizoctonia leaf spot