Summaries of Southeastern University Fungicide Efficacy Trials

The University of Georgia

The University of Florida
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National Soybean Rust Symposium
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Interpreting 2005 Results For the Grower

- When should I spray? What if I am late in spraying?
- Which fungicide works best?
- Can I use the less expensive fungicides?
- Is there a benefit to tank mixing fungicides?
- Will there be any unusual effects from the fungicides?
- What if I did spray? Did I improve yield?
- What if I sprayed and didn’t get any rust or other disease? Did I waste my money?
- What if I sprayed and my neighbor didn’t?
Basic Experimental Design in Georgia

- Randomized complete block. 4-6 replications.
- Row spacing: 3 feet.
- Typically, unsprayed borders between treated plots.
- Spray initiation: disease likely in area AND reproductive growth.
- Spray volume and pressure: 20 gal/A and 50 p.s.i.
- 8002 flat fan tips
- Backpack sprayer or mounted boom sprayer.
- In most trials, 1st spray- R1 stage, 2nd spray- 3 wks later (~R3).
Disease Assessment

• Incidence of rust per 20 random terminal leaflets/plot.

• Severity on each leaf:
  – 0 = no rust
  – 1 = less than 5%
  – 2 = 5-15%
  – 3 = 15-35%
  – 4 = 35-67.5%
  – 5 = greater than 67.5%

• Estimated % defoliation.

• Yield.
Fungicide Trials in Georgia and Florida, 2005
All Rust Epidemics Were Not Equal....
Infrared - Lang Farm 1

Lang Farm 2 < 100 yards

Only plots left with foliage

Apparent start of epidemic
All Treatments Were Not Equal....

ATTAPULGUS
Timing of Application: Lang Farm #1, Tifton

- DPL 7870 RR
- Plant Date: wk of 16 May
- Rust in Area: 18 July
- First App.: 20 July
- Second App.: 12 August
- Folicur (4 fl oz) + Topsin (16 fl oz)
Timing of Application: Lang Farm #1, Tifton

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Timing of Application: Appling County

- Variety: DKH 7242 RR
- Plant Date: early May
- Rust in Area: 26 August
- First App.: 21 July
- Second App.: 19 August
- Headline SBR (7.8 fl oz)
Timing of Application: Appling County

- Variety: DKH 7242 RR
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Is there a “BEST” fungicide?

Laredo: 6-7 fl oz
Stratego: 8-10 fl oz
Folicur: 4 fl oz
Echo: 24 fl oz
Headline SBR: 7.8 fl oz
Headline: 9.0 fl oz
Quadris: 10.8
Sparta: 4 fl oz
Impact: 7 fl oz
Domark: 4 fl oz
Is there a “BEST” fungicide?

Laredo: 7 fl oz  
Quilt: 14 fl oz  
Stratego: 10 fl oz  
Folicur: 4 fl oz  
Echo: 24 fl oz  
Headline SBR: 7.8 fl oz  
Headline: 6.1 fl oz
Can We Use “Cheaper” Fungicides?

- Lang Farm #1
- DPL 7870 RR
- Plant Date: wk of 16 May
- Rust in Area: 18 July
- First App.: 20 July
- Second App.: 12 Aug
- Echo (24 fl oz)
- Stratego (10 fl oz)
- Folicur (4 fl oz)

![SBR Leaf Severity 26 Sep](chart.png)

- Control
- Echo (R1) + Folicur (R3)
- Stratego (R1 & R3)
- Folicur 4.0 oz (R1 & R3)
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Benefit to Mixing Triazoles with Strobilurins?

- Attapulgus
- DPL 7870 RR
- Plant Date: wk of 16 May
- Rust in Area: 26 July
- First App.: 18 July
- Second App.: 9 August
- Folicur (4 fl oz)
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![Yield (bu/A) Graph]

- Control
- Headline SBR (R1 & R3)
- Headline (R1) + Headline SBR (R3)
- Folicur (R1 + R3)
- Headline (R1)
Benefit to Mixing Triazoles with Strobilurins?

- Attapulgus
- DPL 7870 RR
- Plant Date: wk of 16 May
- Rust in Area: 26 July
- First App.: 18 July
- Second App.: 9 August
- Folicur (4 fl oz)
- Headline SBR (7.8 fl oz)
- Headline (6.1 fl oz)
Greening Effect

- Appear primarily where pyraclostrobin applied.

- Perhaps to lesser degree with azoxystrobin.

- Soybeans from greener plots required a bit more cleaning after harvest.

- % Moisture of harvest was about the same.
Greener Longer....

Headline + Folicur
Interveinal Chlorosis

- Only in plots where *tebuconazole* and *metconazole* used.
- Appeared similar to symptoms of nematode damage.
- In severe cases, remained all season.
- Did not seem to adversely affect yields.
### Did it Pay to Spray Where Rust Appeared?

<table>
<thead>
<tr>
<th>Trial</th>
<th>Yield- Best Trt</th>
<th>Yield- Unsprayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attapulgus*</td>
<td>56.8 bu/A</td>
<td>38.0 bu/A</td>
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<tr>
<td>Lang Test 1</td>
<td>51.3 bu/A</td>
<td>42.6 bu/A</td>
</tr>
<tr>
<td>Lang Test 2</td>
<td>44.7 bu/A</td>
<td>39.6 bu/A</td>
</tr>
<tr>
<td>Appling County*</td>
<td>74.6 bu/A</td>
<td>58.5 bu/A</td>
</tr>
<tr>
<td>Ponder Farm</td>
<td>29.7 bu/A</td>
<td>26.8 bu/A</td>
</tr>
</tbody>
</table>

*Statistically significant.
# Did it Pay to Spray Without Disease?

## Midville Soybean Fungicide Trial

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsprayed</td>
<td>49.2 bu/A</td>
</tr>
<tr>
<td>Folicur (3.16 fl oz)</td>
<td>53.1 bu/A</td>
</tr>
<tr>
<td>Headline SBR (7.8 fl oz)</td>
<td>46.0 bu/A</td>
</tr>
</tbody>
</table>
Growers Can’t Lose Focus on the Basics

• Grow the crop!
• Be careful of production changes.
• Manage fertility.
• Manage insects.
• Manage diseases.

Tifton rust fungicide trial completely defoliated by velvet bean caterpillar.
Lessons for Growers from 2005

• Growers can effectively manage rust with fungicides.

• Soybean rust is UNFORGIVING to mistakes.

• First spray may be more CRITICAL than second spray. Make it count!

• Early reproductive growth seems appropriate for 1st spray IF rust appears…..

• Impossible to say what is “best”, but Folicur, Headline SBR, and Domark look very good.

• Laredo, Quilt, Headline, Sparta, and Stratego effective, but ranking to fungicides listed above will require more evaluations.

• Role of chlorothalonil in soybean rust management is unclear.
The Southeastern USA Team

- **Auburn**: Ed Sikora
- **Florida**:
  - Jim Marois, David Wright, Carrie Harmon, Gail Wisler
- **Clemson**: John Mueller
- **Georgia**:
  - Layla Sconyers, Dan Phillips, Phil Jost, Roger Boerma, Jason Brock, John Sherwood, Rick Jackson, Michael Foster, Bob Kemerait
  - Billy Mills and Crew at Attapulgus Research Farm
  - **Growers** Mr. Billy Wayne Sellers and Mr. Glen Waller
Questions?