SOYBEAN YIELD BY STATE - 2007
Control of Late-Season Fungal Diseases in the South

- Fungicide use variable by State prior to 2005
- Routine practice in Louisiana and Mississippi
- Relatively uncommon in Alabama and Georgia
- Fungal diseases are more common & damaging
- Can reduce both grain yield and quality
- Increase production costs, lower yields, and reduced prices made soybean a marginal crop in some states
Cercospora Blight & Purple Seed Stain
Frogeye Leaf Spot
Disease Pressure in the North


1. Yield loss in soybeans caused by foliar pathogens is rare in the Upper Midwest

2. Though foliar diseases are often present they usually do not cause a significant impact on yield

3. In 1 out of 3 years in Iowa foliar diseases resulted in minor yield loss compared to other diseases

4. In the upper Midwest, preventative fungicide applications may not produce an economic return
History of Fungicide use for Foliar diseases of Soybean in U.S.

- Two distinct periods of fungicide use:
  - Before Rust (prior to 2005)
  - After Rust (beginning in 2005)
- Benomyl, thiophanate-methyl and chlorothalonil
- Quadris receives label for soybean
- Hurricane Ivan, 2004 - Soybean rust
- Emergency exemptions then full registration for multiple products
Fungicides registered for soybeans

- Alto
- Bravo
- Domark
- Echo
- Equus
- Folicur
- Headline
- Laredo
- Orius
- Proline
- Quadris
- Quadris Xtra
- Quilt
- Stratego
- Tilt
- Topguard
- Topsin M
Why the increase in fungicide use?

- Fear of the soybean rust
- Intense educational programs
- Greater awareness of other foliar diseases
- Grower exposure to benefits of fungicides
- Multiple effective fungicides available
- High market prices for soybeans
- Interest in potential “plant health” benefits
U.S. Soybean Prices Paid to Farmers
(1982-2009)
Big Results. Costs Peanuts.

LAMAR

334-281-0780
Survey Questions

- Fungicide use on soybean before and after SBR
- Estimate acres treated
- Fungicides most commonly used
- Preventative disease management?
- General comments
Percentage of soybean acres treated with a fungicide before 2005 (Est)

- Blue: Under 5% treated
- Green: 5-25% treated
- Yellow: 26-45% treated

12-7-09
Percentage of soybean acres treated with a fungicide since 2005 (Est.)

- Under 5% treated
- 5-15% treated
- 16-30% treated
- Over 60% treated
Percentage of acres sprayed with fungicides, 2009 (Est.)

- Alabama: 75%
- Georgia: 
- Iowa: 10%
- Illinois:
Actual acres sprayed, 2009 (Est.)

*Planted acres in 2009: AL: 450,000; GA: 470,000; Iowa: 9.8 million; IL: 9.1 million
Preventative fungicide management programs

- DO NOT recommend
- Recommend

12-7-09
Estimate of fungicides most commonly applied

- Strobilurin
- Triazole
- S+T mix

% fungicide applied

- Strobilurin
- Triazole
- S+T mix
Quadris applied at two rates and at two growth stages for Frogeye leaf spot

<table>
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<th>Frogeye severity (0-9)</th>
<th>Control</th>
<th>3.1 oz- R3</th>
<th>6.2 oz- R3</th>
<th>3.1 oz- R5</th>
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Tallassee, AL, 2004
Quadris at low rates applied at two plant growth stages for Frogeye leaf spot.
R3 spray – 8/19 & 10-days later 8/29
Disease rating on 10/1 (43-33 DAA)
When to consider a Fungicide - AL

- Determine field history
- Know the varieties resistance package
- Estimate the fields yield potential
- Weather conditions during bloom to early pod set
- Apply a strobilurin at R3-R4; prior to disease development
- Be aware of SBR activity in region
- Consider a strobilurin/triazole mix or a triazole alone if SBR is an imminent threat
- Consider a triazole alone if SBR is present in a field and a fungicide has not been used previously
Fungicide use in the North

- Seed production fields
- Threat of white mold
- General disease management
- Plant health
- Physiological yield bump?
- Significant disease pressure
- Grower experimentation
Draper, 2005; summary of results from 65 trial in 13 States with MG’s 00 to 4.
2006 Participating States - “Northern" Soybean Fungicide Summary

15 States + Ontario
130 Trials (Location x Cultivar)
Large Strip and Small Plot
All Replicated

Compiled by Arv Grybauskas and Liz Reed, UMD
Fungicides for Yield Enhancement


- Evaluated a strobilurin and triazole alone and in combination in absence of foliar disease for effect on growth and yield in Iowa

- Fungicides applied at R1, R3 and R5; low level disease
Conclusions

- Fungicides did not produce a non-fungicidal physiological effect or associated yield improvement.
- A low probability exists that a fungicide will increase yield by mechanism other then disease control.
- Environmental conditions & disease levels should be used as a guide for fungicide applications.
“If soybeans are $9-plus a bushel, I can tell the whole state to spray twice and 80% would. At $5 beans I would be lucky to get 50% to spray once unless rust is just rampant in Georgia.”

“Georgia rust sells South Carolina fungicides”

Dr. John Mueller
Clemson University
Thanks to Soybean Rust

- Allowed us do a better job of managing soybeans
- Given greater awareness of the presence of all foliar diseases & their impact on yield
- SBR put fungicides on growers radar screens
- The higher value of soybeans makes applying a fungicide more economical & affects growers’ willingness to try fungicides
- Due to timely fungicide sprays, SBR disasters in the south have been avoided
WHY?