

# Summaries of Southeastern University Fungicide Efficacy Trials



**The University of Georgia**

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J. Mueller

National Soybean Rust Symposium

15 November 2005

# 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

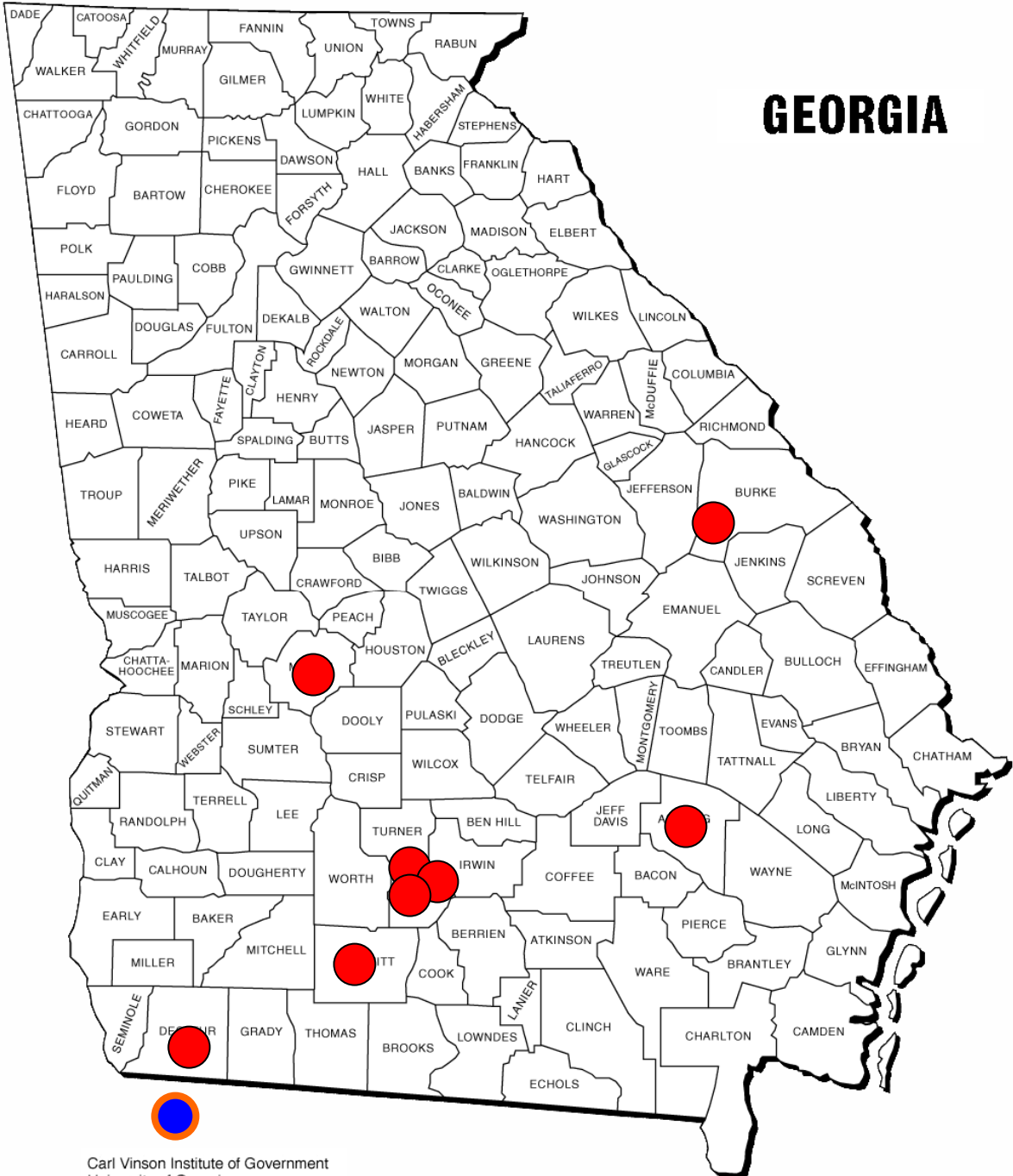
- Randomized complete block. 4-6 replications.
- Row spacing: 3 feet.
- Typically, unsprayed borders between treated plots.
- Spray initiation: disease likely in area AND reproductive growth.
- Spray volume and pressure: 20 gal/A and 50 p.s.i.
- 8002 flat fan tips
- Backpack sprayer or mounted boom sprayer.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



# GEORGIA



## Fungicide Trials in Georgia and Florida, 2005

# All Rust Epidemics Were Not Equal....



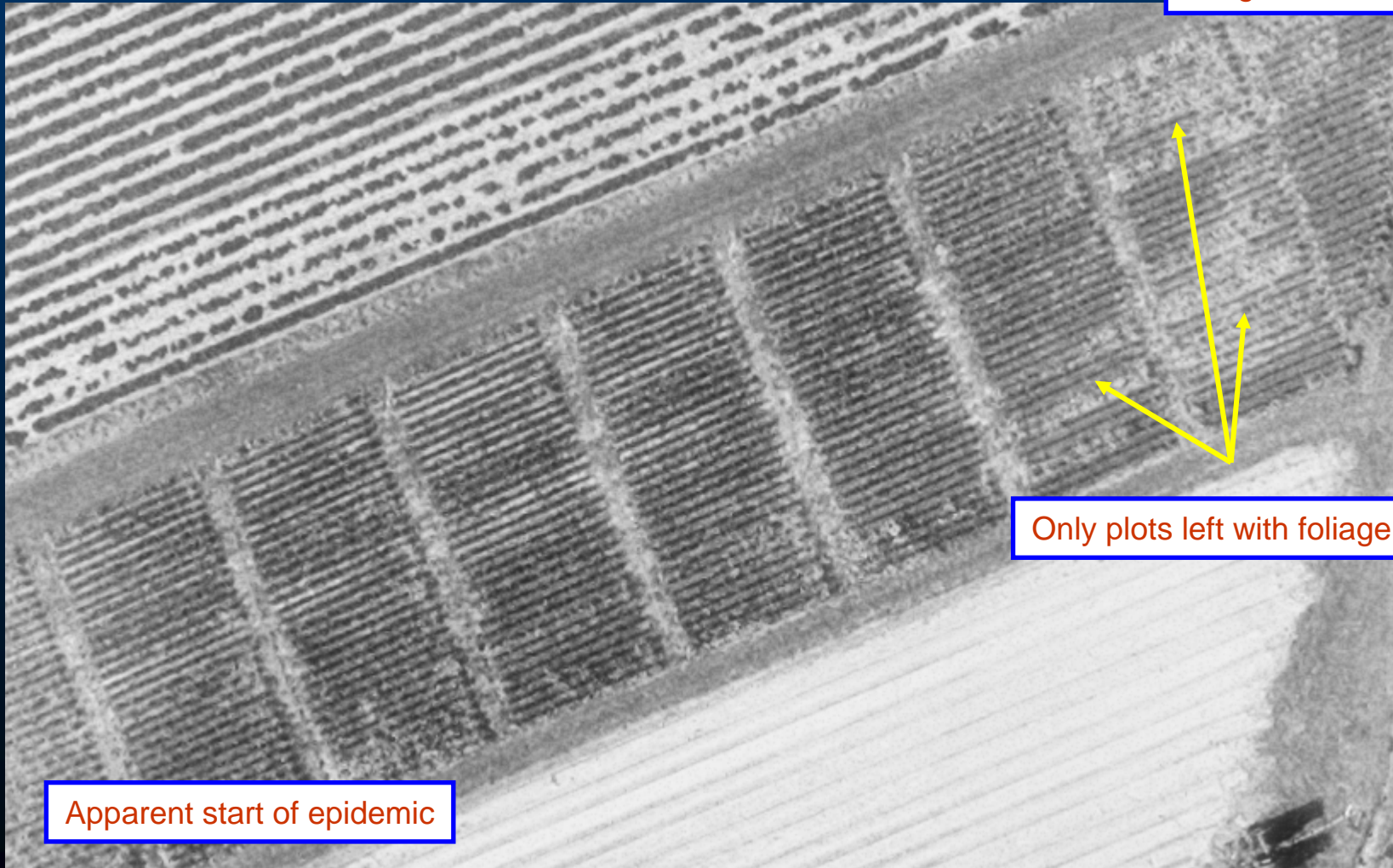
LANG FARM 2 - TIFTON



ATTAPULGUS

# Infrared- Lang Farm 1

Lang Farm 2 < 100 yards



Only plots left with foliage

Apparent start of epidemic

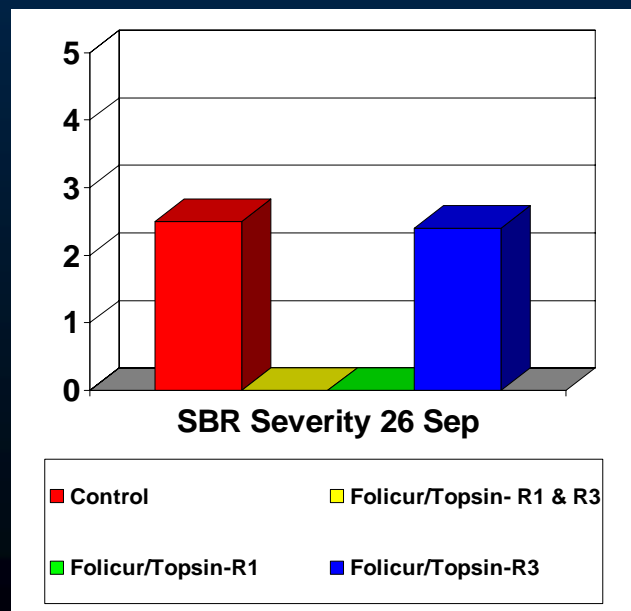
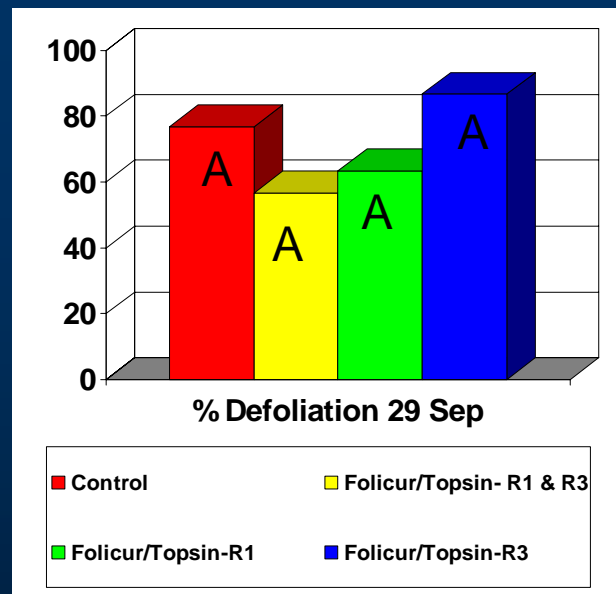
# All Treatments Were Not Equal....

## ATTAPULGUS



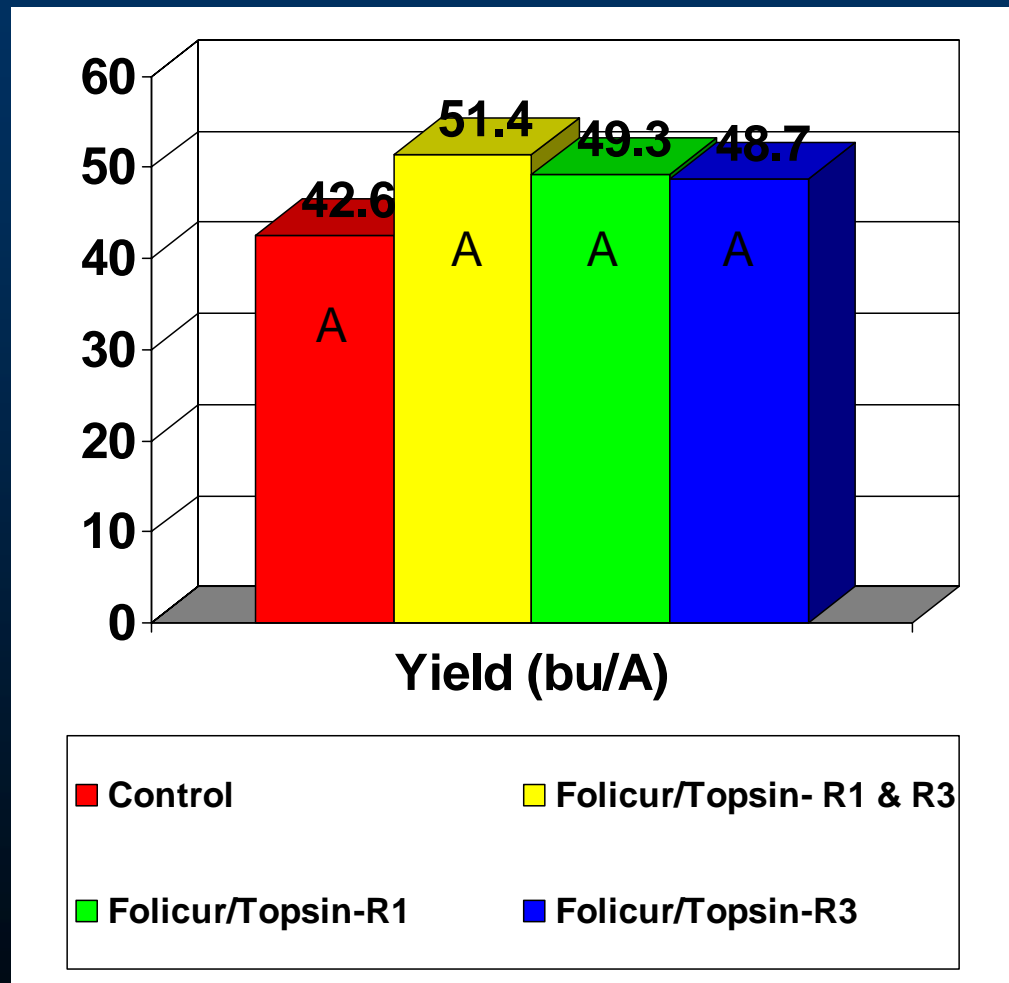
# Timing of Application: Lang Farm #1, Tifton

- 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)



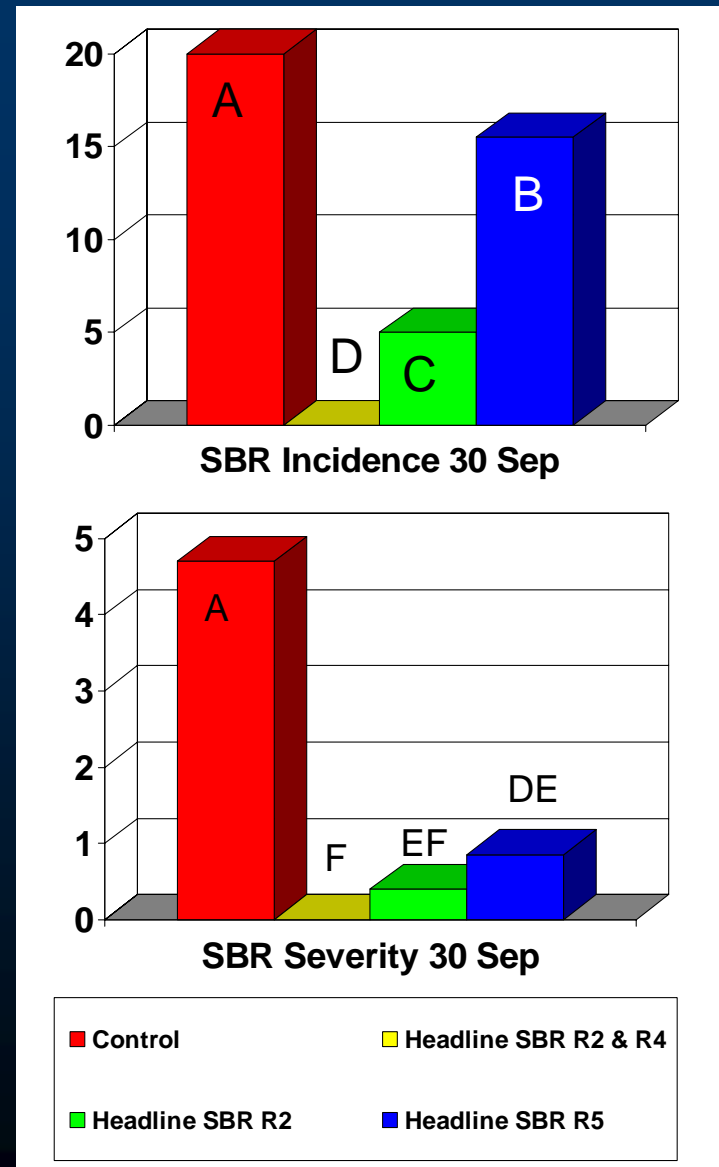
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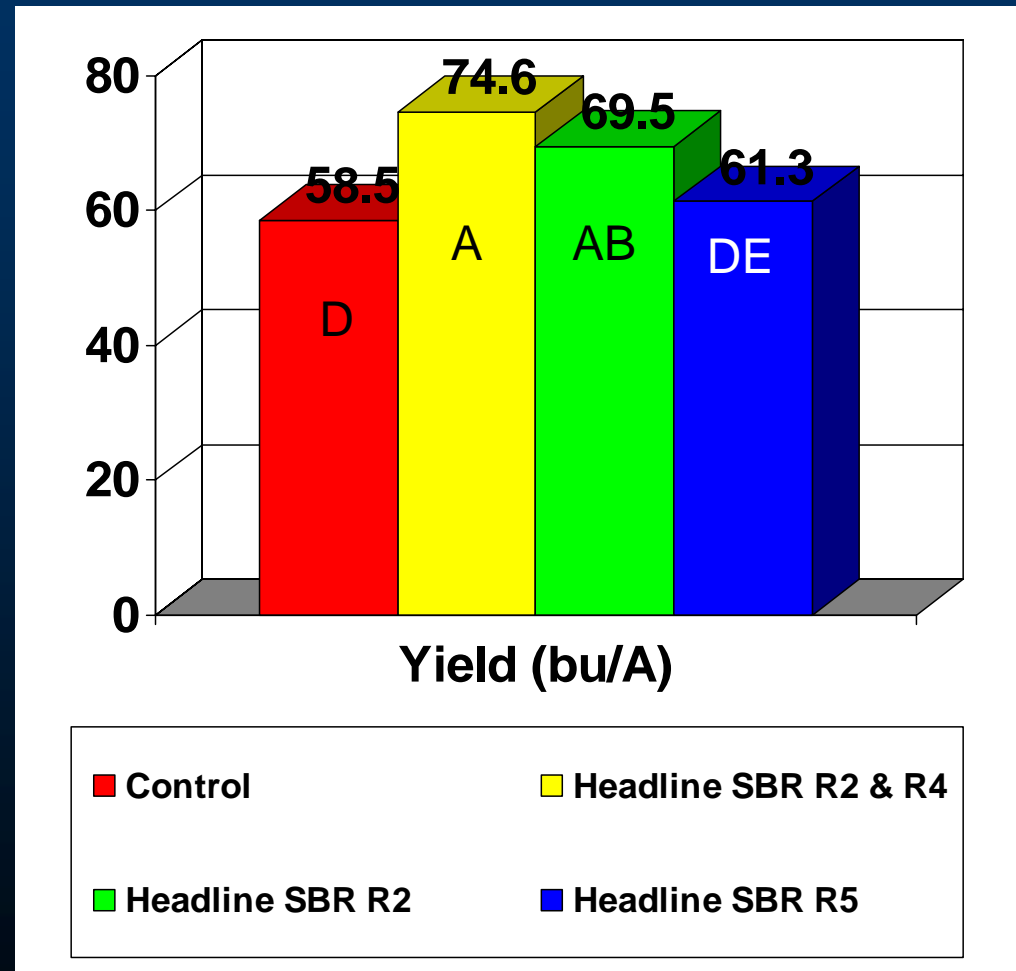
# Timing of Application: Appling County

- 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)



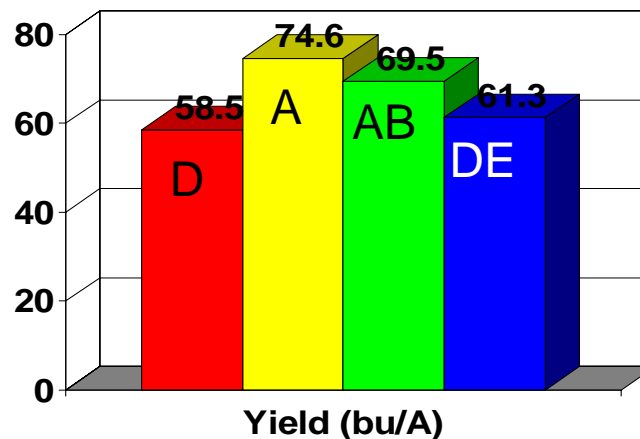
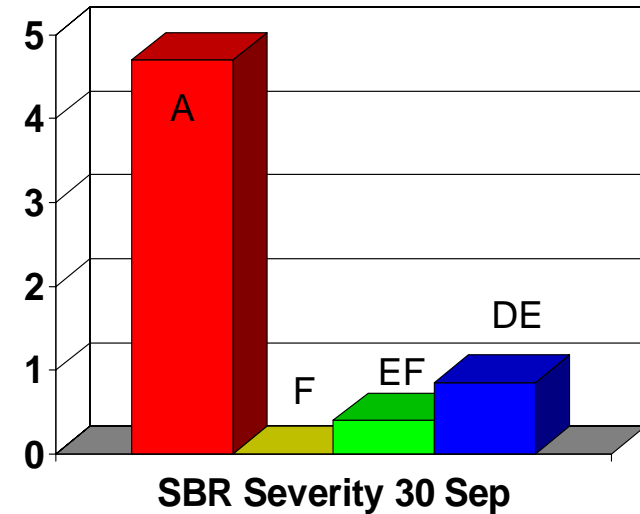
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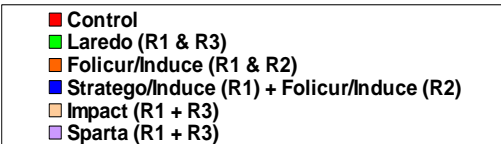
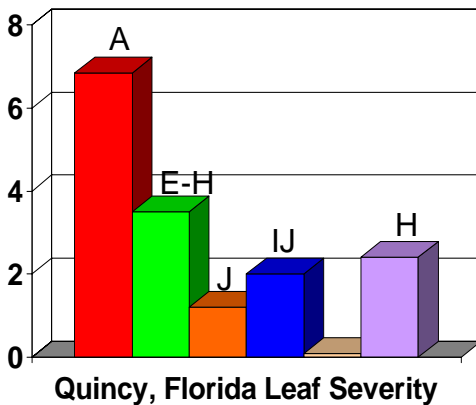
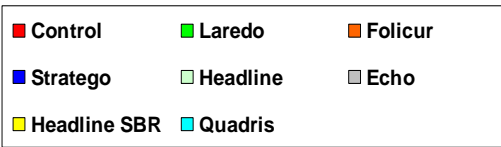
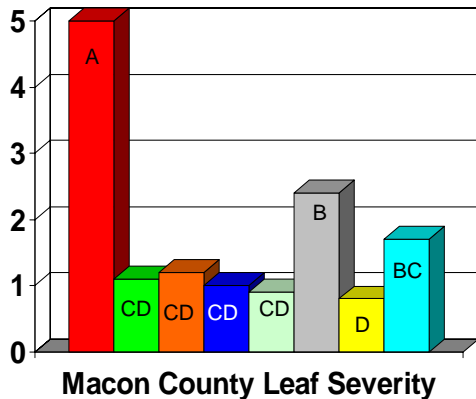


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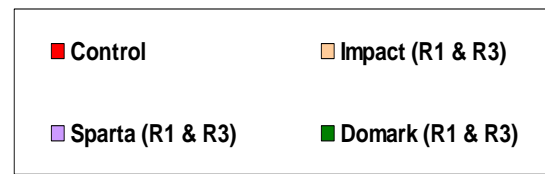
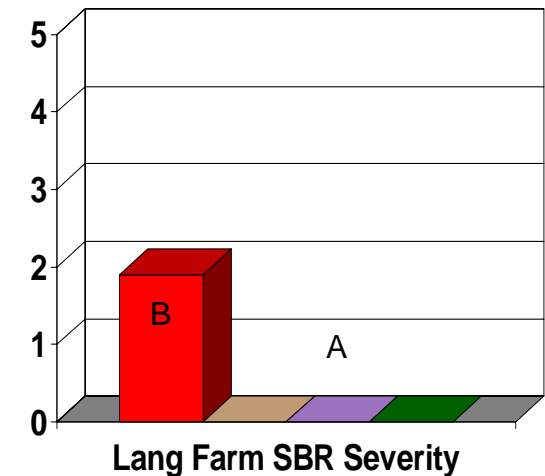
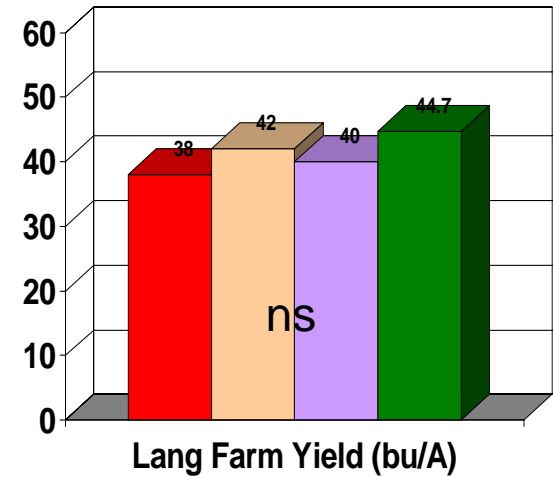
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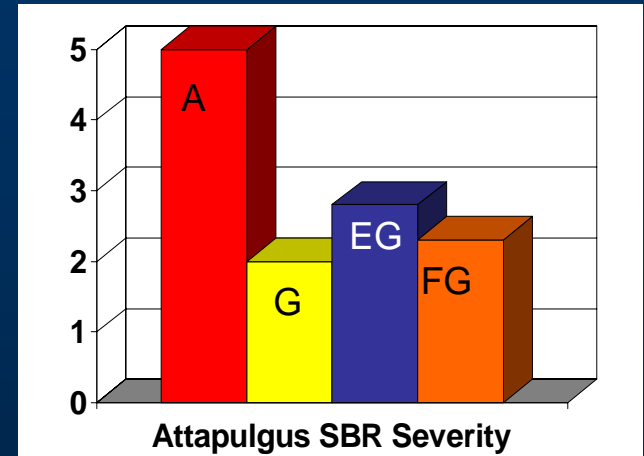
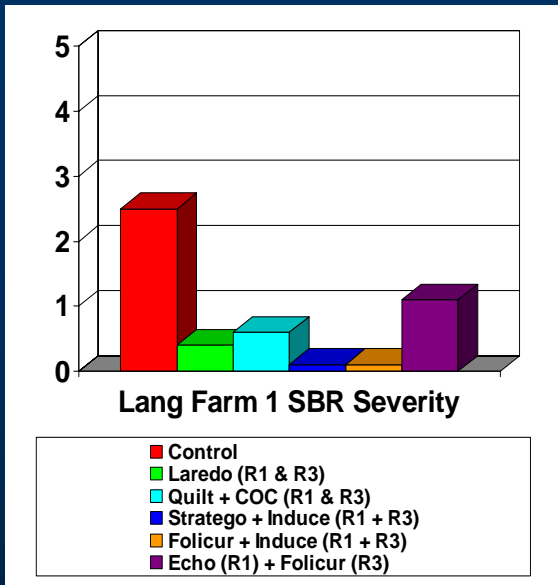
# Is there a "BEST" fungicide?



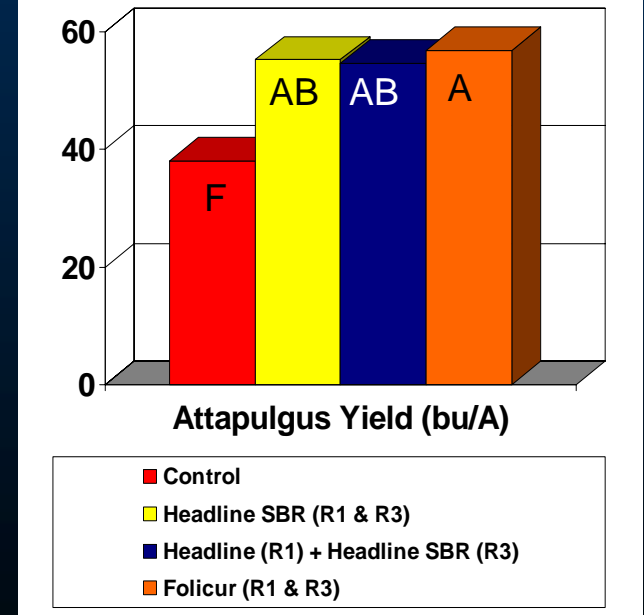
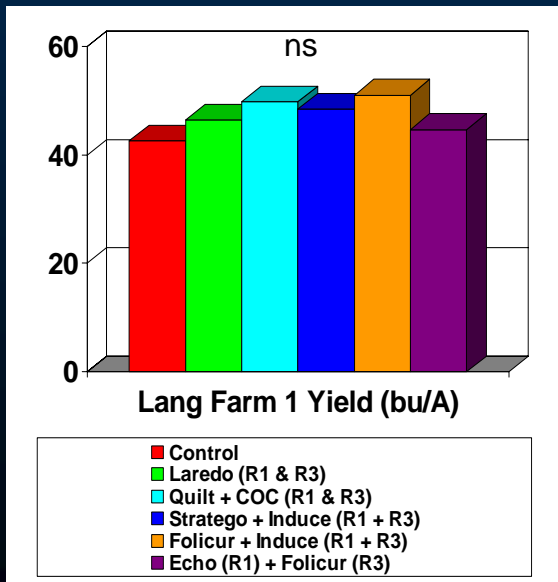
**Laredo:** 6-7 fl oz  
**Stratego:** 8-10 fl oz  
**Folicur:** 4 fl oz  
**Echo:** 24 fl oz  
**Headline SBR:** 7.8 fl oz  
**Headline:** 9.0 fl oz  
**Quadris:** 10.8  
**Sparta:** 4 fl oz  
**Impact:** 7 fl oz  
**Domark:** 4 fl oz



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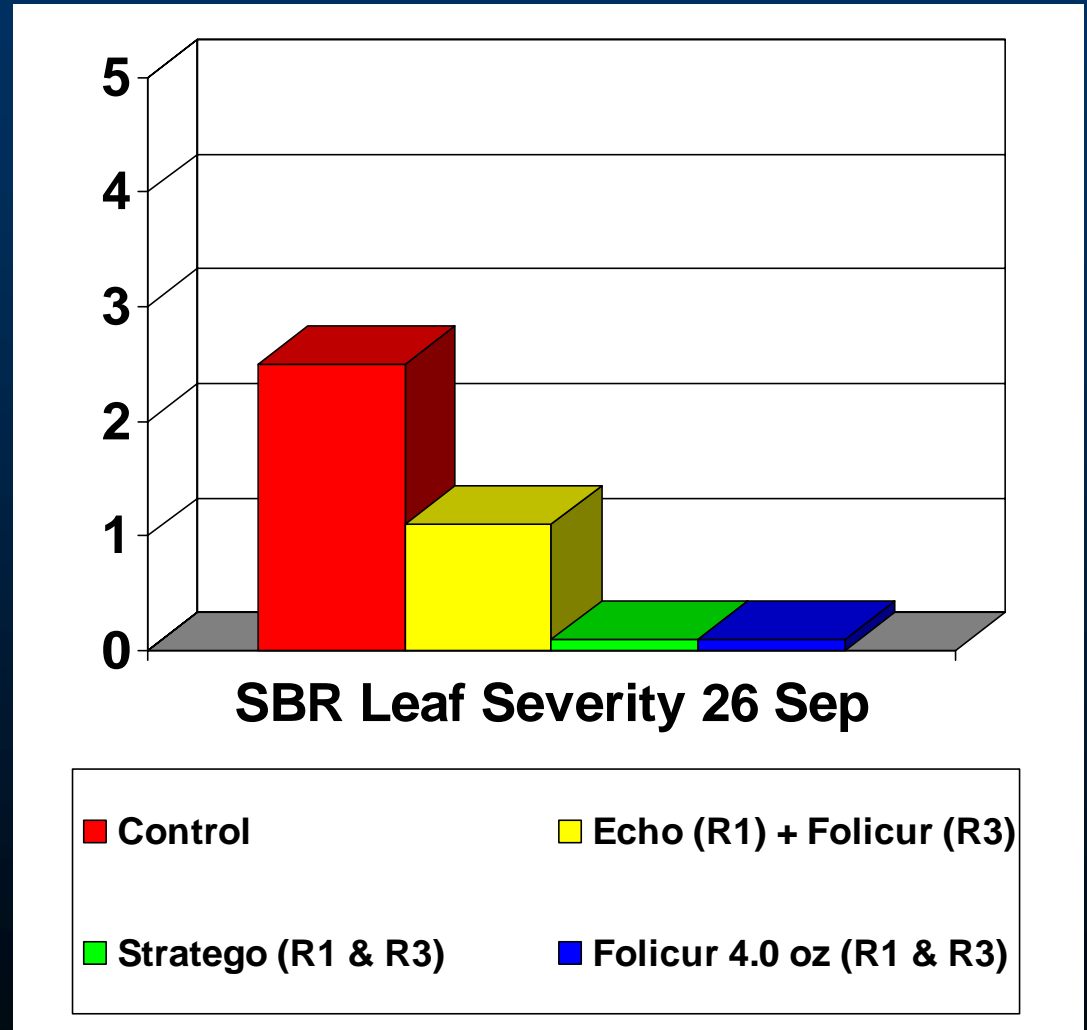


**Laredo:** 7 fl oz  
**Quilt:** 14 fl oz  
**Stratego:** 10 fl oz  
**Folicur:** 4 fl oz  
**Echo:** 24 fl oz  
**Headline SBR:** 7.8 fl oz  
**Headline:** 6.1 fl oz



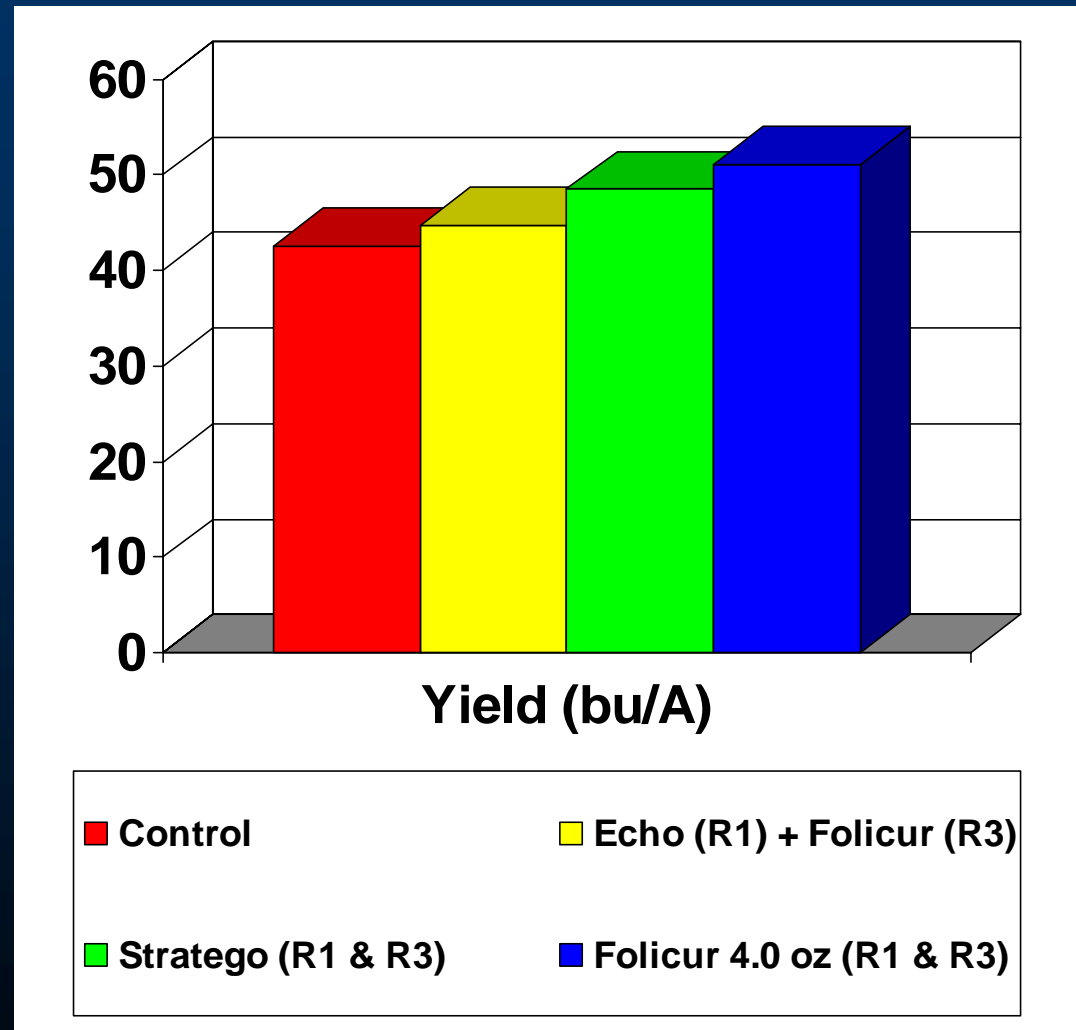
# Can We Use “Cheaper” Fungicides?

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- Echo (24 fl oz)
- Stratego (10 fl oz)
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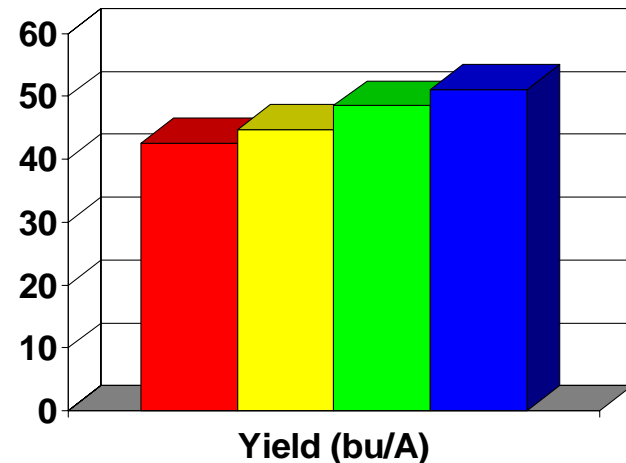
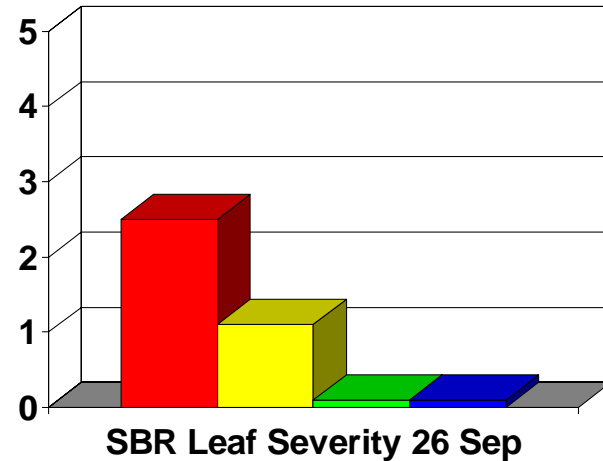
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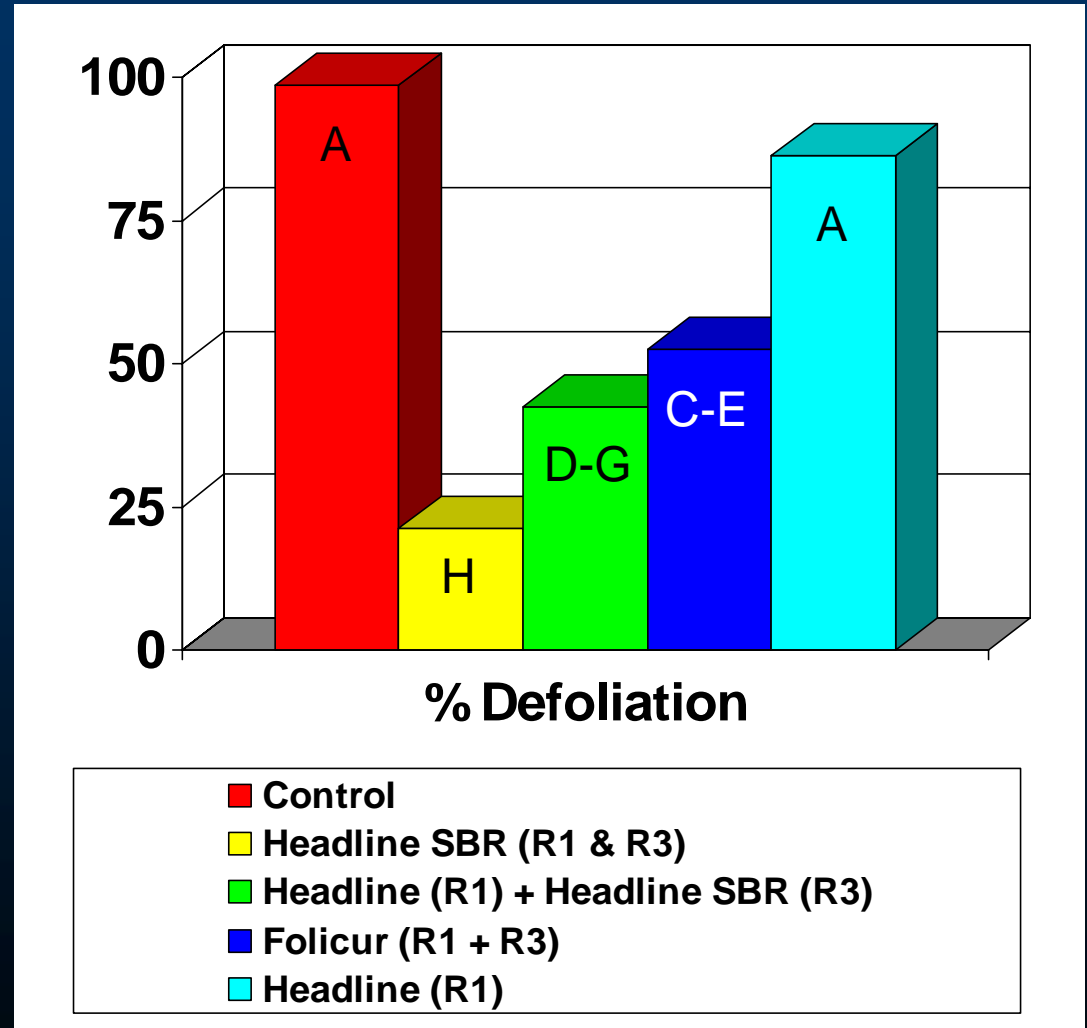
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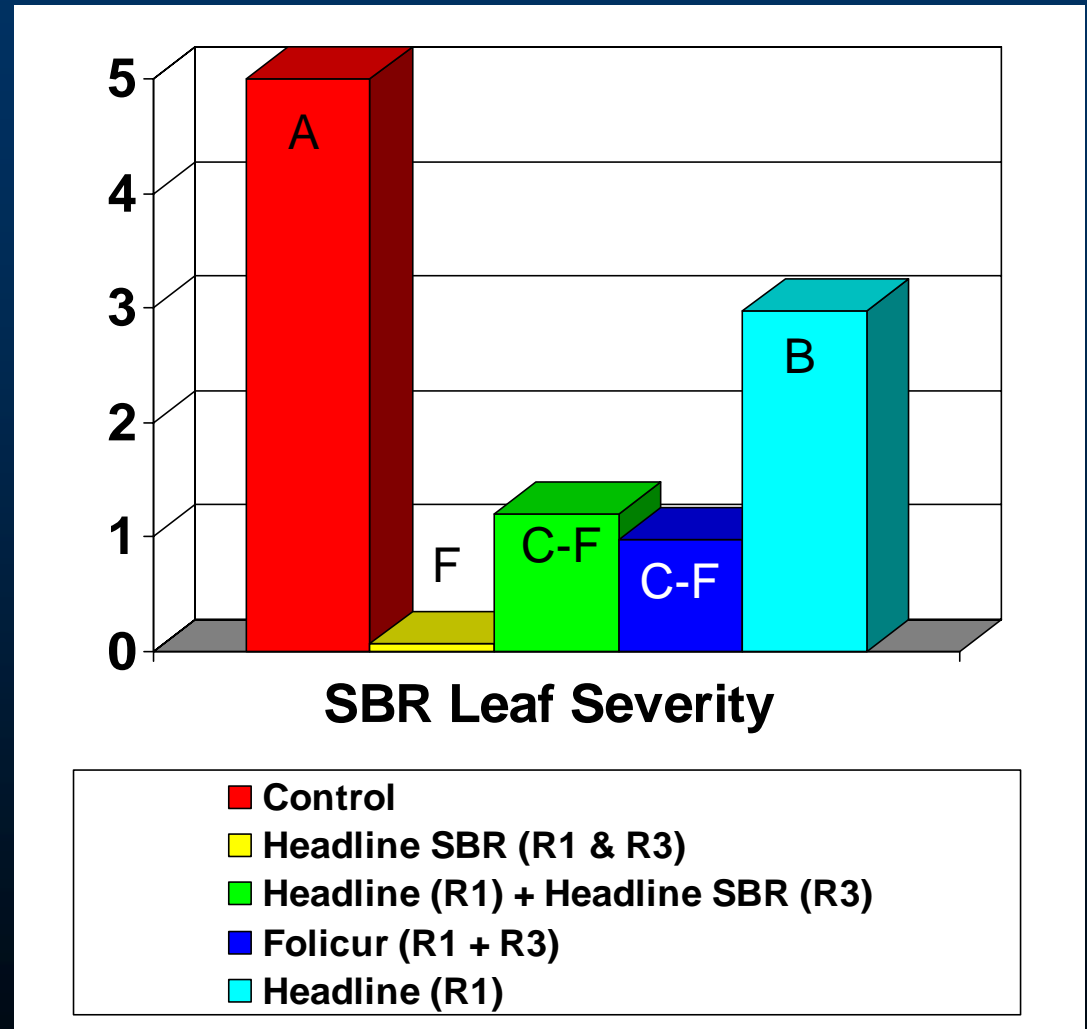
# Benefit to Mixing Triazoles with Strobilurins?

- Attapulgus
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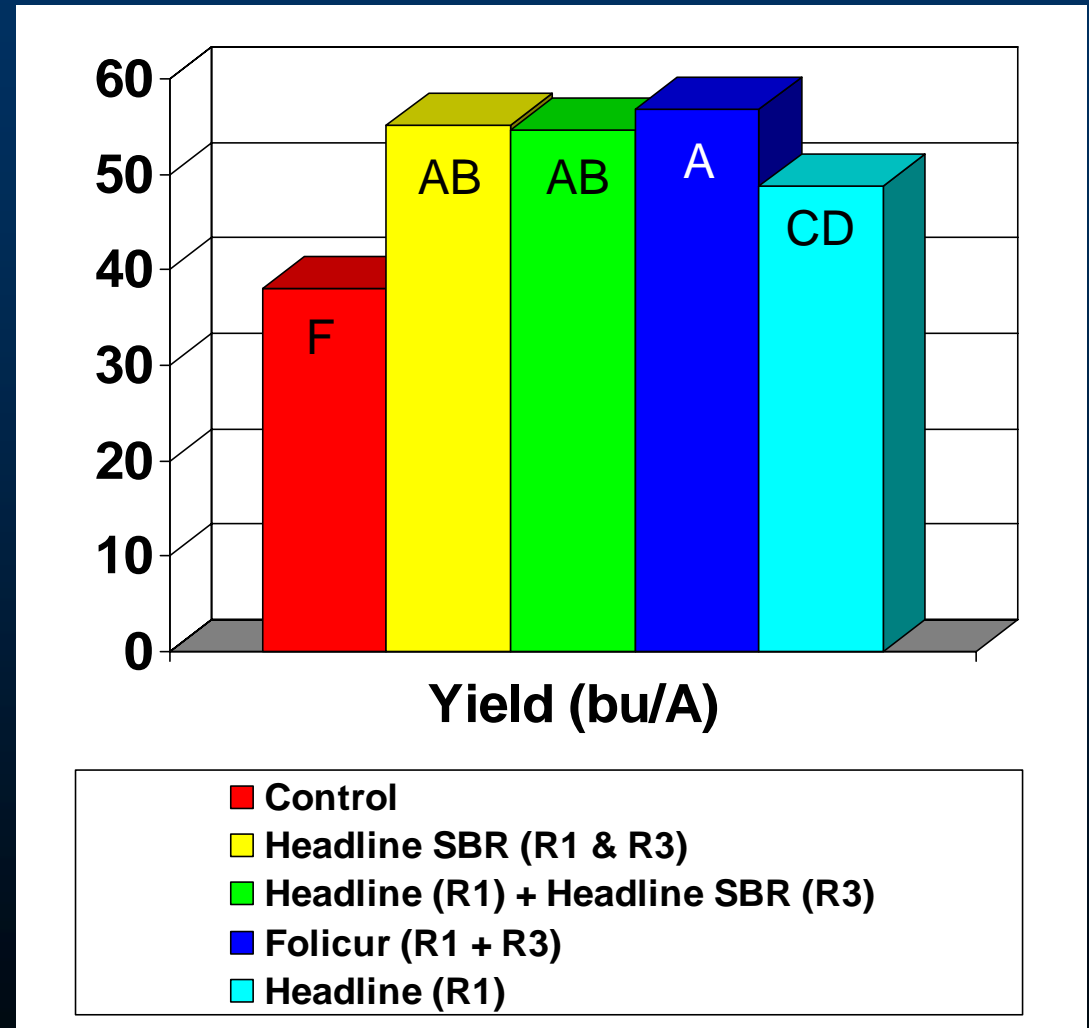
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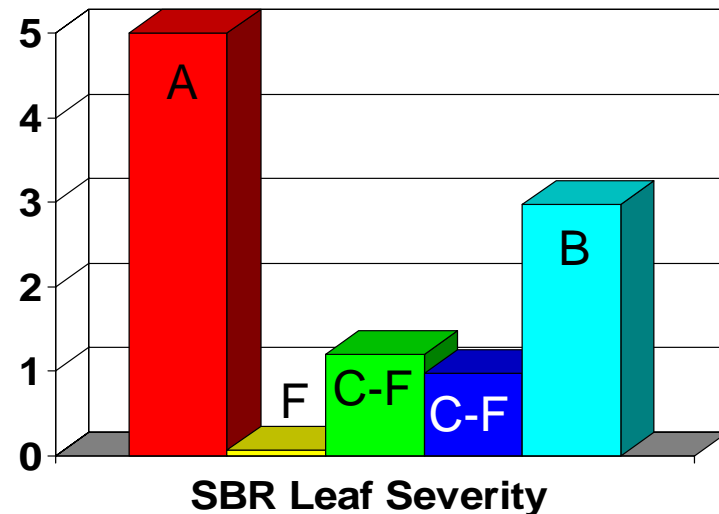
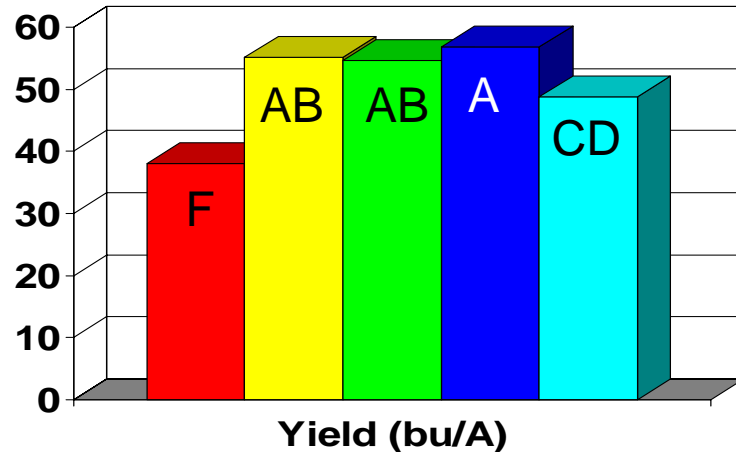
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- Control
- Headline SBR (R1 & R3)
- Headline (R1) + Headline SBR (R3)
- Folicur (R1 + R3)
- Headline (R1)

# 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.



Single Application of Folicur



Double Application of Headline

Harvest, Ponder Farm, Tifton  
20 October 2005

# 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?

Trial	Yield- Best Trt	Yield- Unsprayed
Attapulcus*	56.8 bu/A	38.0 bu/A
Lang Test 1	51.3 bu/A	42.6 bu/A
Lang Test 2	44.7 bu/A	39.6 bu/A
Appling County*	74.6 bu/A	58.5 bu/A
<b>Ponder Farm</b>	<b>29.7 bu/A</b>	<b>26.8 bu/A</b>

\*Statistically significant.

# Did it Pay to Spray Without Disease?

## Midville Soybean Fungicide Trial

Treatment	Yield
Unsprayed	49.2 bu/A
Folicur (3.16 fl oz)	53.1 bu/A
Headline SBR (7.8 fl oz)	46.0 bu/A

# 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 1<sup>st</sup> 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 Attapulcus Research Farm
  - **Growers** Mr. Billy Wayne Sellers and Mr. Glen Waller



Questions?

