

# Slowing the Spread of Glyphosate-Resistant Johnsongrass

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# Johnsongrass



# Johnsongrass

- Native to Mediterranean region
- Original introduction to U.S. not certain
  - Documented in South Carolina early 1800's
  - Named for a farmer from Alabama
- Believed to have been moved throughout southern U.S. during the Civil War
- Texas is 1<sup>st</sup> state to pass law banning johnsongrass planting in 1895
- U.S. government labeled it “worst weed of the South” in 1904

# Johnsongrass

- Seed
  - Moved by animals and equipment
  - Sowed by producers
- Rhizomes
  - Some suggest planted to reclaim “worn out” fields following Civil War
  - Moved by equipment



# Johnsongrass

- Prior to glyphosate-resistant crops, johnsongrass was considered to be an extremely troublesome weed, if not the most troublesome.
- After glyphosate-resistant crops?
  - “I don’t have a problem with johnsongrass anymore.”

# Johnsongrass Fights Back!

- Louisiana
  - Found in 2008 near Alexandria and Baton Rouge
  - Fusilade and Select resistance confirmed in 1990's in different population in NE Louisiana
  - Spreading slowing in Central Louisiana
- Arkansas
  - Found in 2008 near West Memphis
    - Also resistant to Fusilade, but not Select
  - Found in 2009 near Marion
  - Populations doesn't appear to be spreading
- Mississippi
  - Found in 2008 in Coahoma County
  - Slowing spreading

# What we're dealing with!



**How can we get out of this mess?**





# Fight it in all crops!

- Corn

- Don't use only glyphosate + atrazine!

PRE	POST (V3 or V4)	% Control
Corvus	Liberty	95
Corvus + atrazine	Liberty	97
	Capreno	98
	Liberty	85
	Capreno + atrazine	97
	Liberty + atrazine	92
	Resolve Q	80
	Steadfast Q	83

# CORN



Nontreated



Corvus fb Ignite



Corvus + Aatrex fb Ignite



# CORN



Nontreated



Capreno + Aatrex



Ignite + Aatrex



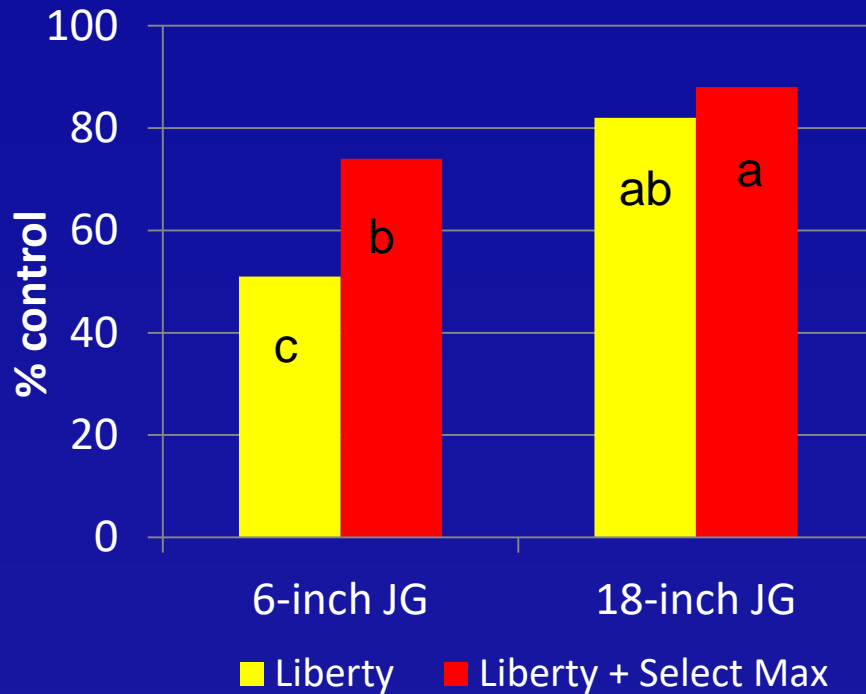
# Fight it in all crops!

- Cotton
  - CI funded research in Louisiana and Arkansas
  - Liberty +/- Select Max
    - Initial application timing
      - 6-inch johnsongrass
      - 18-inch johnsongrass
    - Sequential application timing
      - 6-inch regrowth
    - Treatments
      - Liberty @ 36 oz/A
      - Liberty @ 36 oz/A + Select Max @ 1 pt/A
      - Liberty fb Liberty @ 29 oz
      - Liberty + Select Max fb Liberty Select Max

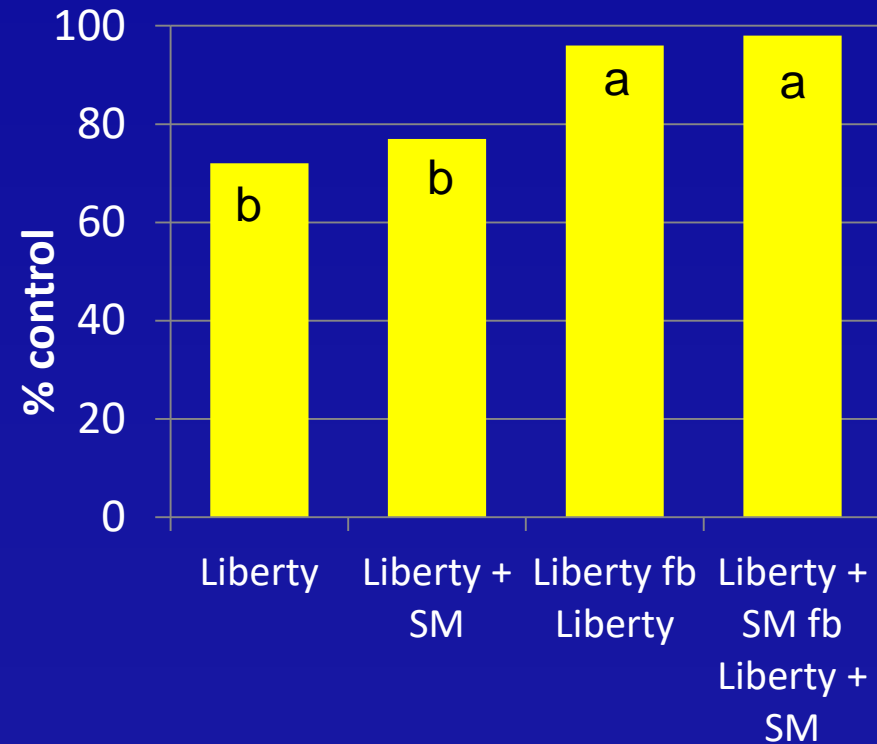
# Cotton

- Liberty +/- Select Max

Johnsongrass control at 6-inch regrowth application



Johnsongrass control 2-3 wk after normal layby timing



Nontreated



Liberty - 6"



Liberty + SM - 6"



Liberty - 6" fb Liberty



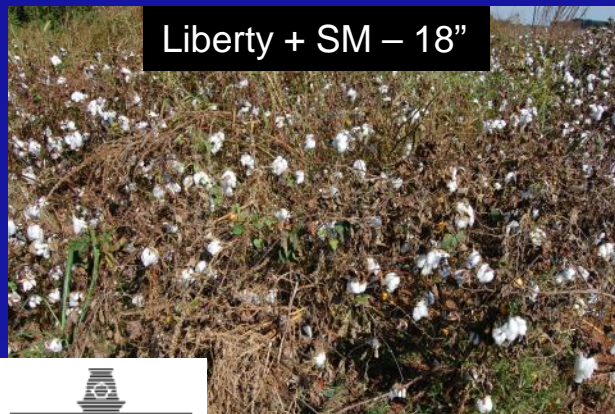
Liberty + SM - 6" fb Lib + SM



Liberty - 18"



Liberty + SM - 18"



Liberty - 18" fb Liberty



Liberty + SM - 18" fb Lib + SM



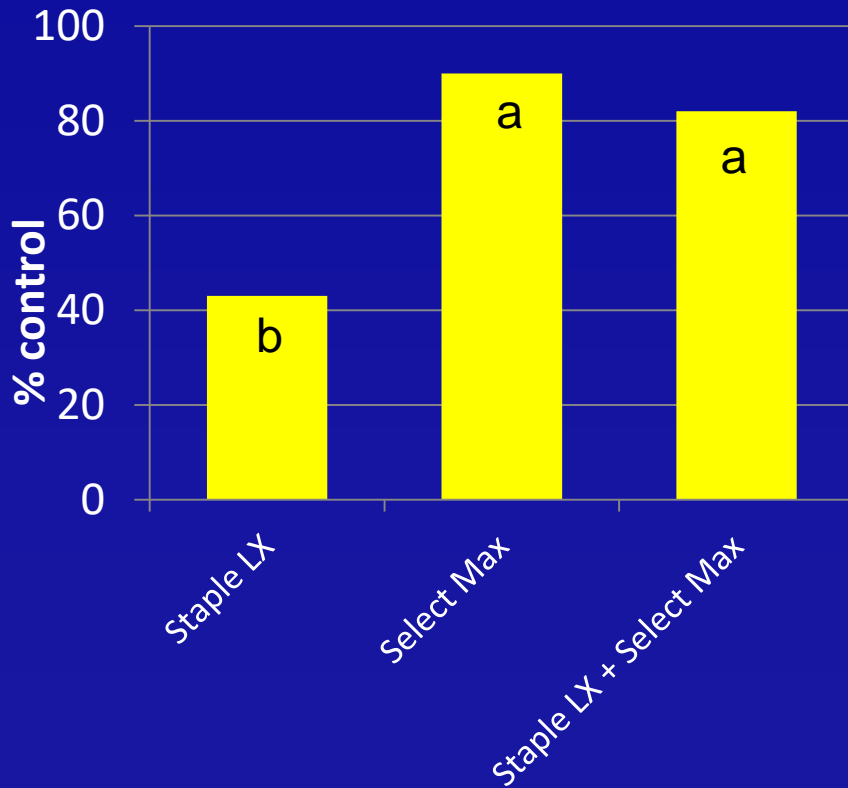
# Fight it in all crops!

- Cotton
  - CI funded research in Louisiana and Arkansas
  - Staple LX/Envoke/Select Max
  - Treatments
    - Initial application @ 6-inch johnsongrass
      - Staple LX @ 2.6 oz/A
      - Select Max @ 1 pt/A
      - Staple LX + Select Max
    - Sequential application @ 6-inch regrowth
      - Envoke @ 0.15 oz/A
      - Select Max
      - Envoke + Select Max

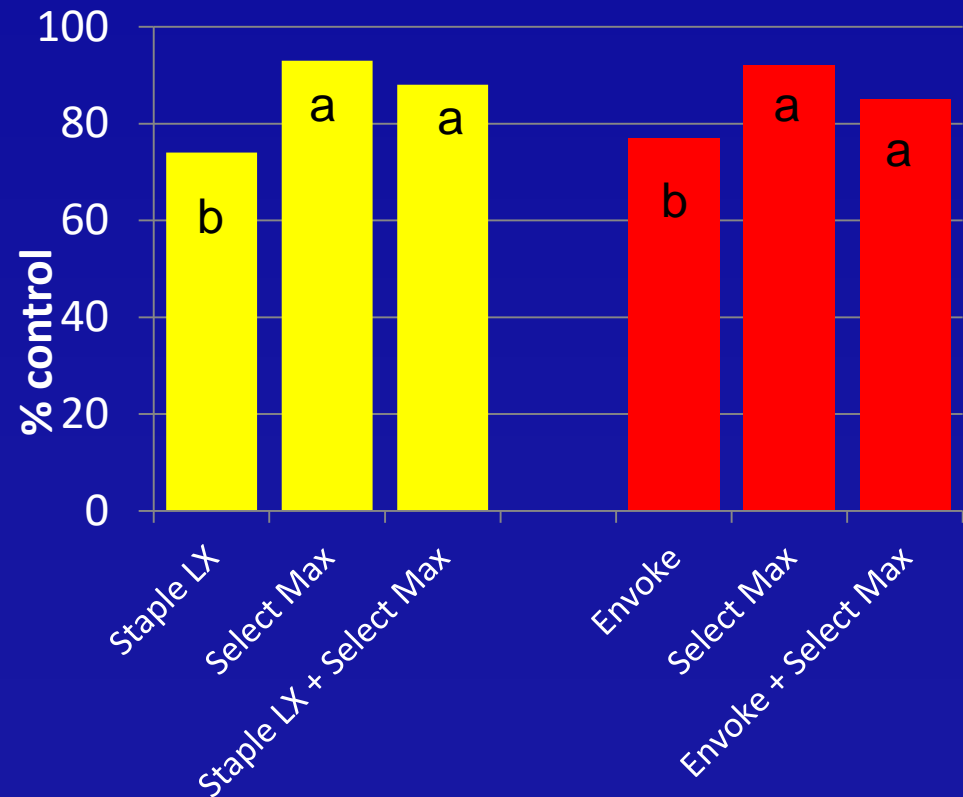
# Cotton

- Staple LX/Envoke/Select Max

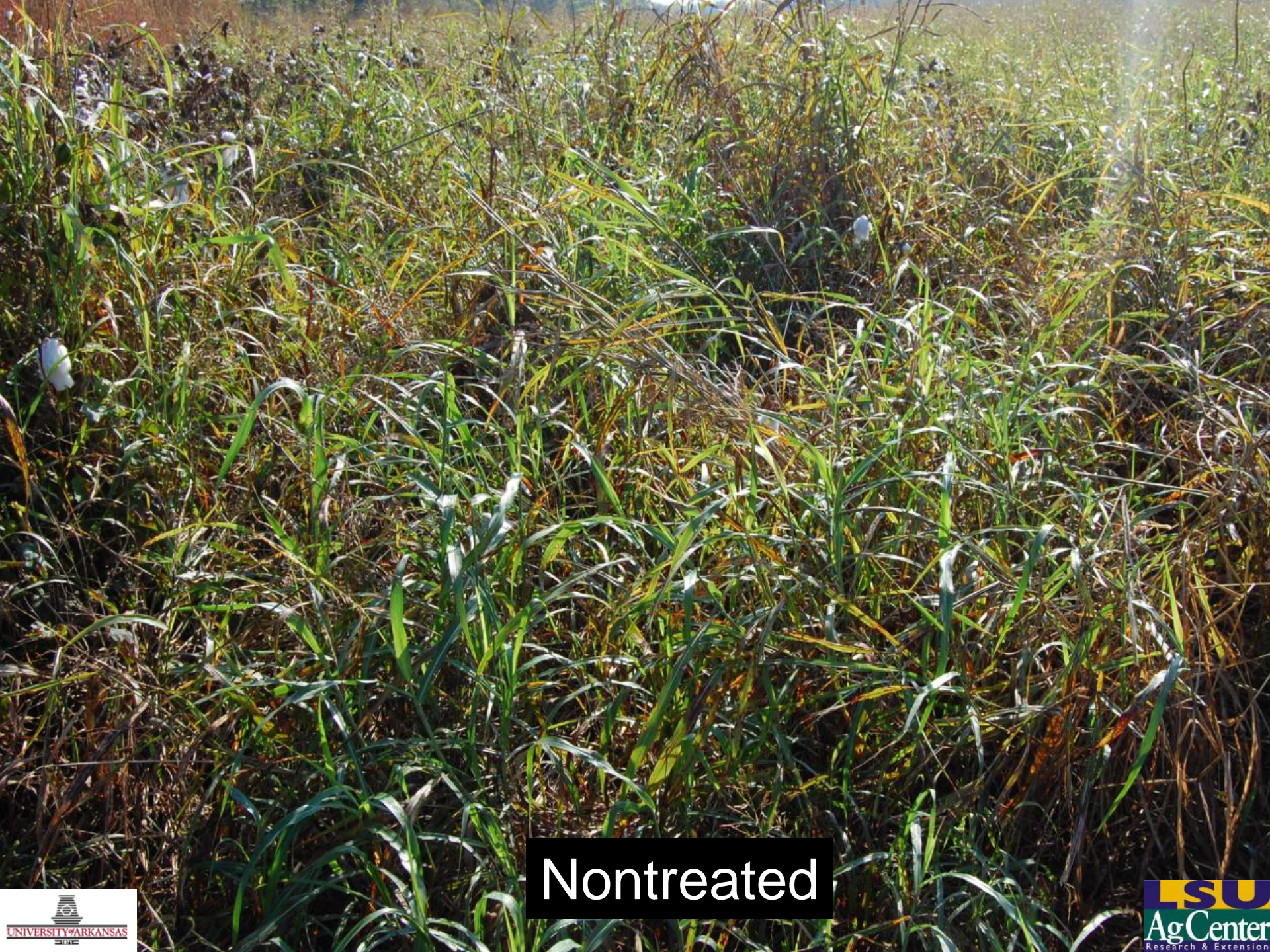
Johnsongrass control at 6-inch regrowth application



Johnsongrass control 28 days after 6-inch regrowth application







Nontreated

# Fight it in all crops!

- Soybean
  - Classic/Flexstar/Select Max
  - Herbicides
    - Classic @ 0.5 oz
    - Flexstar @ 1 pt/A
    - Select Max @ 1 pt/A
  - Application timings
    - V2
    - V5
    - V8

# GR johnsongrass control in soybean



Flexstar fb Classic fb Select Max

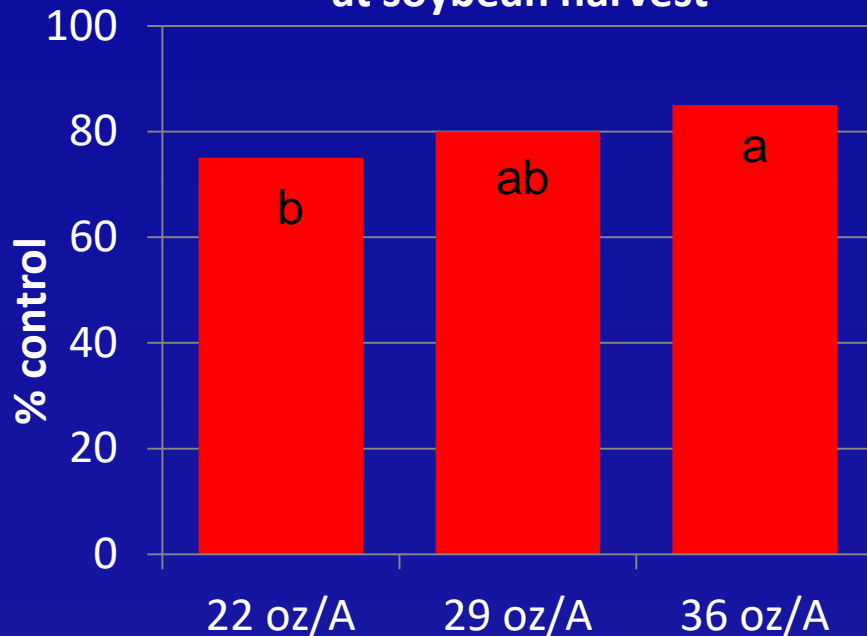
# Soybean

- Liberty rates and application timing in LL soybean
  - Liberty rates
    - 22, 29, and 36 oz/A
  - Sequential applications
    - 22 fb 22 or 29 oz/A
    - 29 fb 22 or 29 oz/A
    - 36 fb 22 or 29 oz/A
  - Application timings
    - 18-inch johnsongrass
    - 3 weeks after 1<sup>st</sup> application
    - 4 weeks after 1<sup>st</sup> application

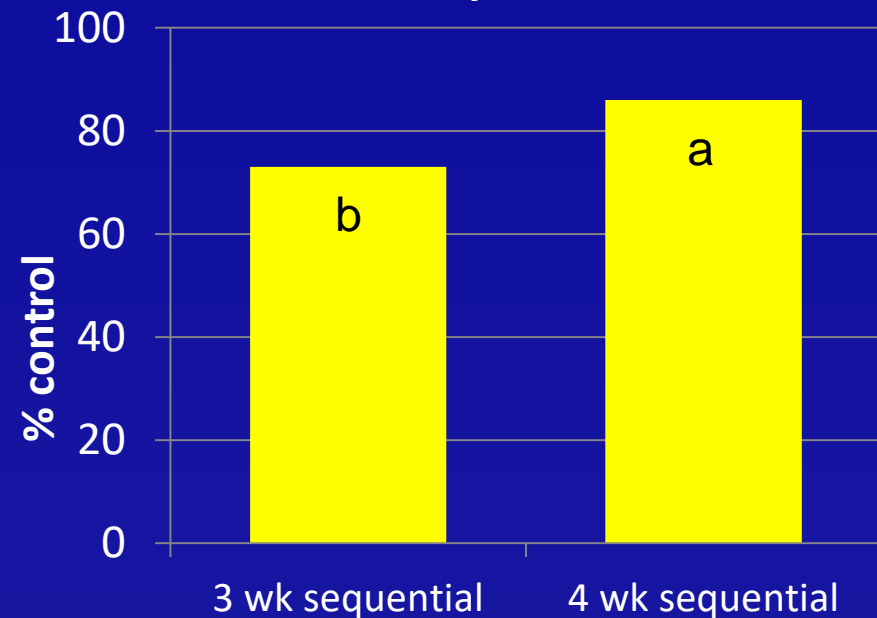
# Soybean

- Liberty rates and application timing in LL soybean

Effect of initial applic. rate on control at soybean harvest



Effect of sequential applic. timing on control at soybean harvest





3 weeks

4 weeks



# GR johnsongrass management

- Corn:
  - Products such as Capreno, Accent Q, Resolve Q
  - Plant a RR/LL hybrid.....don't apply OP insecticide.....utilize ALS herbicides tank-mixed with Liberty
- Cotton and Soybean
  - Graminicides
  - Glyphosate + graminicide
    - Utilized by Louisiana producers because of continued efficacy of glyphosate on numerous grass and broadleaf weeds
  - Liberty +/- graminicides
    - LL or GlyTol/LL cotton and LL soybean
  - **RELYING UPON GRAMINICIDES MAY LEAD TO RESISTANCE**
    - **HAS BEEN DOCUMENTED IN NUMEROUS STATES!**

# QUESTIONS?