

Slowing the Spread of Glyphosate-Resistant Johnsongrass

Daniel O. Stephenson, IV



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 1st 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!

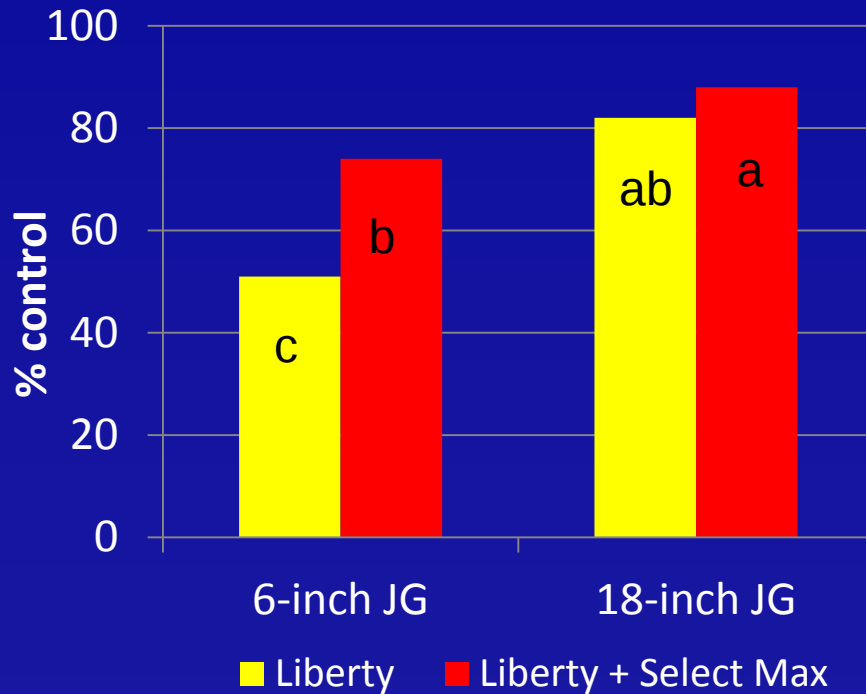
- Cotton
 - CI funded research in Louisiana and Arkansas
 - Liberty +/- Select Max
 - Initial application timing
 - 6-inch johnsongrass
 - 18-inch johnsongrass
 - Sequential application timing
 - 6-inch regrowth
 - Treatments
 - Liberty @ 36 oz/A
 - Liberty @ 36 oz/A + Select Max @ 1 pt/A
 - Liberty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



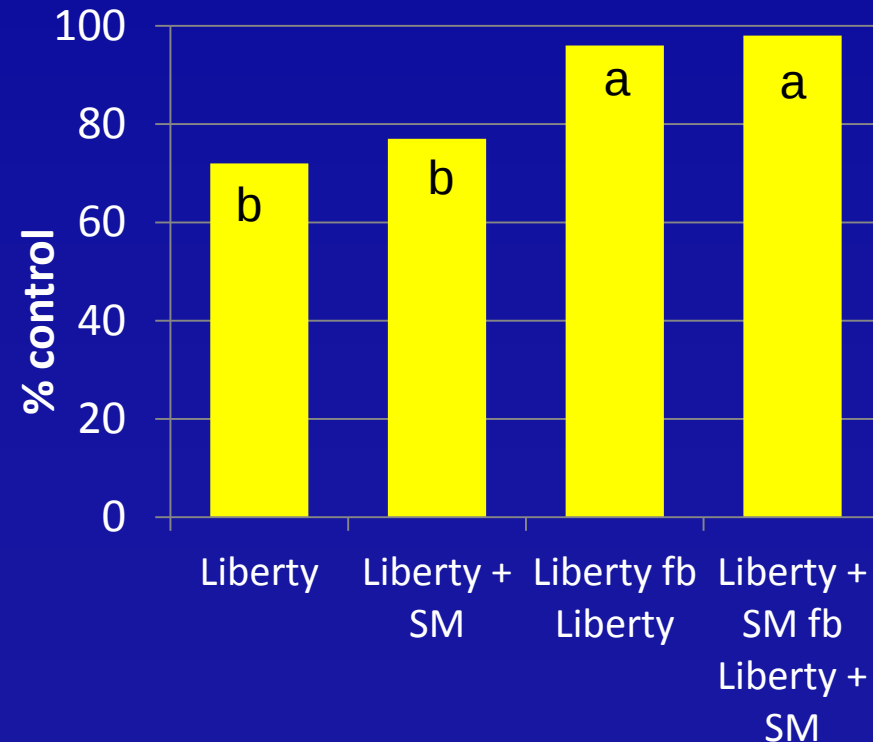
Cotton

- 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!

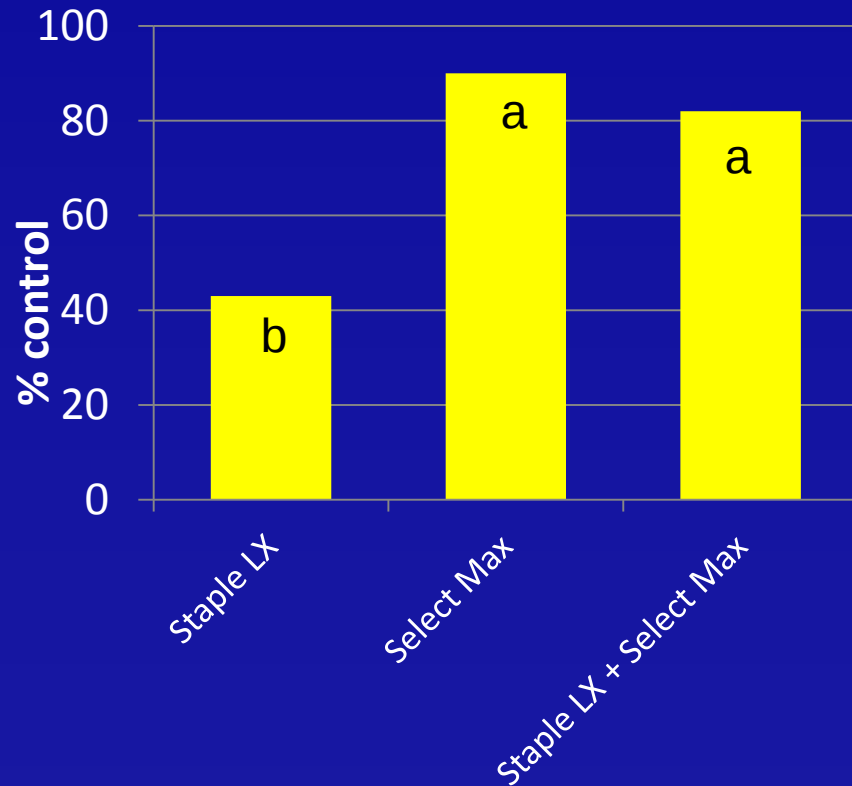
- Cotton
 - CI funded research in Louisiana and Arkansas
 - Staple LX/Envoke/Select Max
 - Treatments
 - Initial application @ 6-inch johnsongrass
 - Staple LX @ 2.6 oz/A
 - Select Max @ 1 pt/A
 - Staple LX + Select Max
 - Sequential application @ 6-inch regrowth
 - Envoke @ 0.15 oz/A
 - Select Max
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



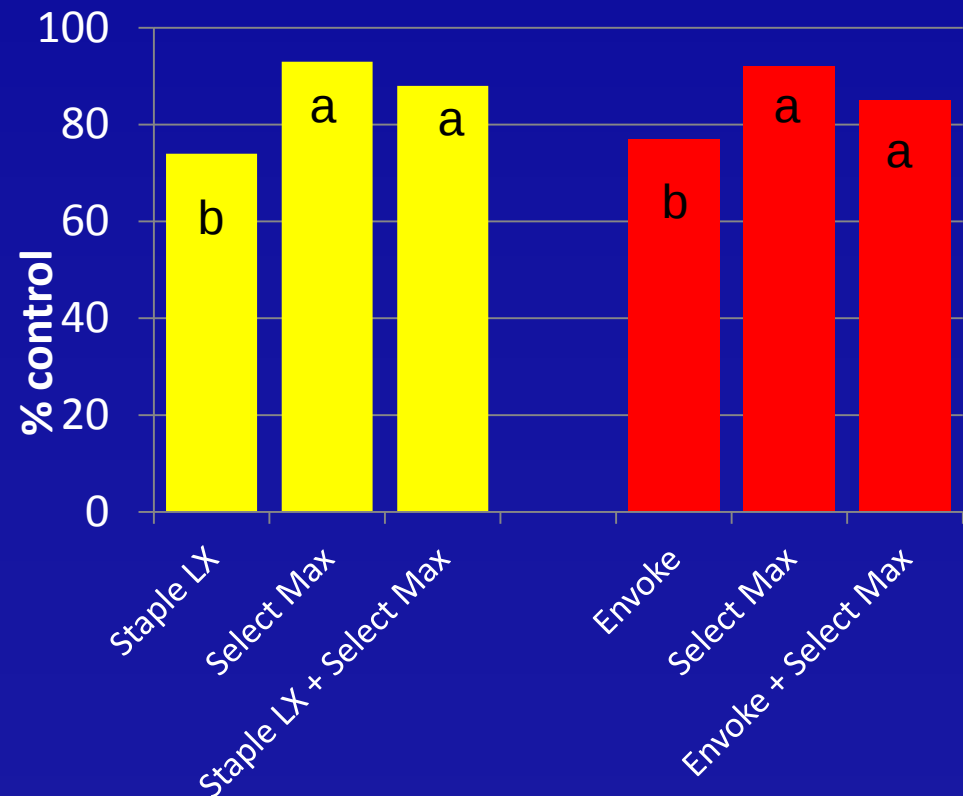
Cotton

- 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

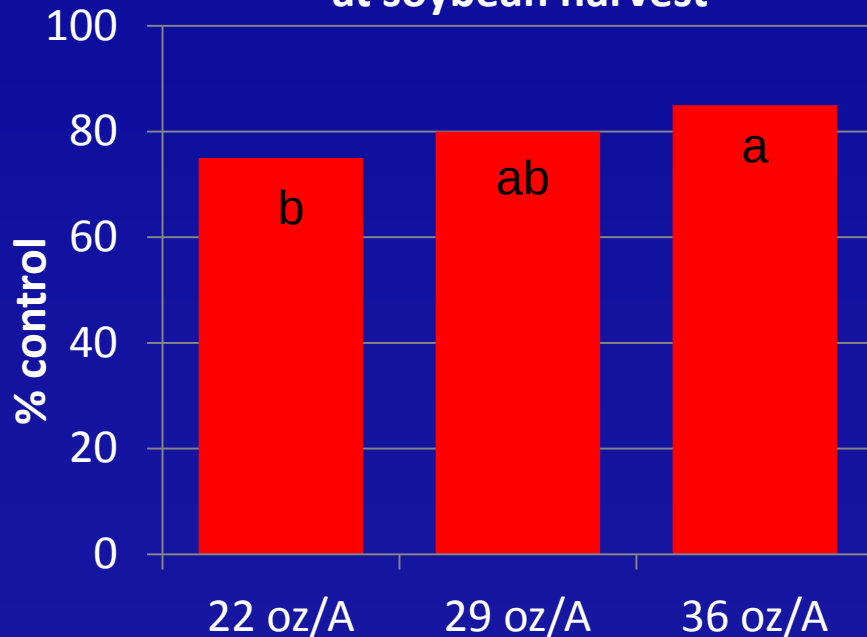
Soybean

- 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 1st application
 - 4 weeks after 1st application

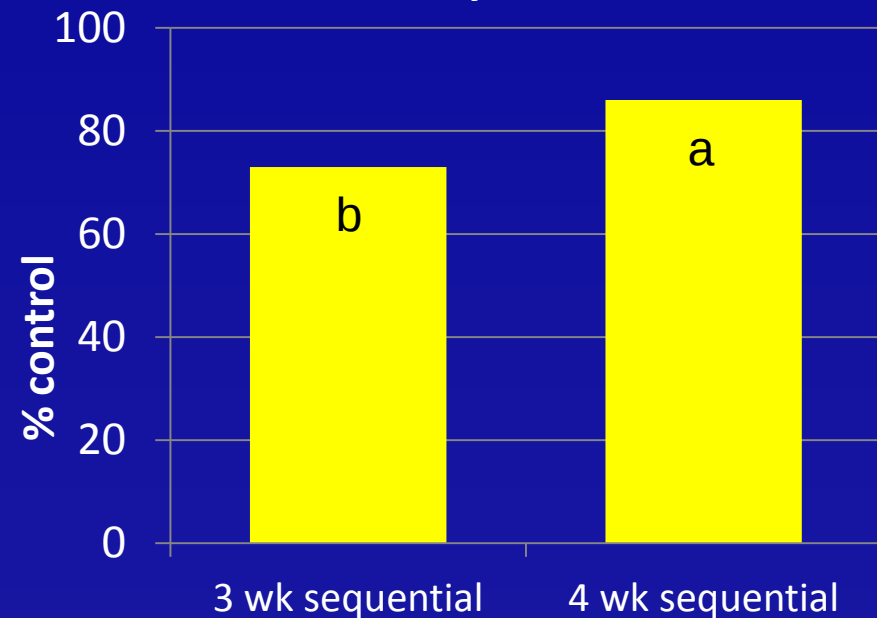
Soybean

- 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?