

New Technology in Grain Sorghum



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Grass control in milo?!

- Control of barnyardgrass, broadleaf signalgrass, browntop millet, and other annual grass species is tough



- Johnsongrass is a big problem too





Atrazine + S-metolachlor PRE fb
Atrazine + COC POST



ALS-tolerant grain sorghum



Inzen Grain Sorghum

- Non-GMO sorghum that is tolerant to nicosulfuron (Accent) developed through plant breeding
- How?
 - Shattercane resistant to ALS-inhibitors nicosulfuron and primisulfuron documented in Kansas in 1996 (Heap 2017)
 - Acetolactate synthase herbicide resistant sorghum (Tuinstra and Al-Khatib 2008)
 - Patent no. US 20080216187 A1
 - Kansas State University Research Foundation
 - ALS-inhibitor resistant shattercane crossed with susceptible grain sorghum to develop 34 sorghum germplasm lines (Tesso et al. 2011)
 - Dupont is commercializing this technology

Zest @ 0.67 oz/A + rimsulfuron + COC EPOST



Zest @ 0.67 oz/A + COC EPOST

13 days after treatment



24 days after treatment



Zest @ 0.67 oz/A + atrazine + COC EPOST

15 days after treatment



30 days after treatment



Broadleaf and Grassy Weed Mix

6 days after treatment



Cinch ATZ fb Zest @ 0.67 oz/A + atrazine + COC



Zest @ 0.67 oz/A + atrazine + COC



Broadleaf and Grassy Weed Mix

28 days after treatment



Cinch ATZ fb Zest @ 0.67 oz/A + atrazine + COC



Zest @ 0.67 oz/A + atrazine + COC



2016 Inzen Grain Sorghum Research

PRE	POST 1 – 3" weeds	POST 2 – 3" weeds	POST 3 – 3" weeds
Cinch ATZ @ 1 qt/A		Zest + atrazine + COC @ 0.67 oz/A + 1.25 pt + 1%	
Cinch @ 1 pt/A		Zest + atrazine + COC	
LeadOff + atrazine @ 1.5 oz + 1.25 pt/A		Zest + atrazine + COC	
	Zest + atrazine + COC		
	Cinch ATZ @ 1.6 qt/A + Zest + atrazine + COC		
	Zest + atrazine + COC		Zest + COC

- Planting date: 4/5/2016
- Emergence date: 4/12/2016
- PRE: 4/5/2016
- POST 1: 5/6/2016
- POST 2: 5/13/2016
- POST 3: 5/31/2016
- barnyardgrass
- Palmer amaranth
- morningglory
- hemp sesbania
- smellmelon



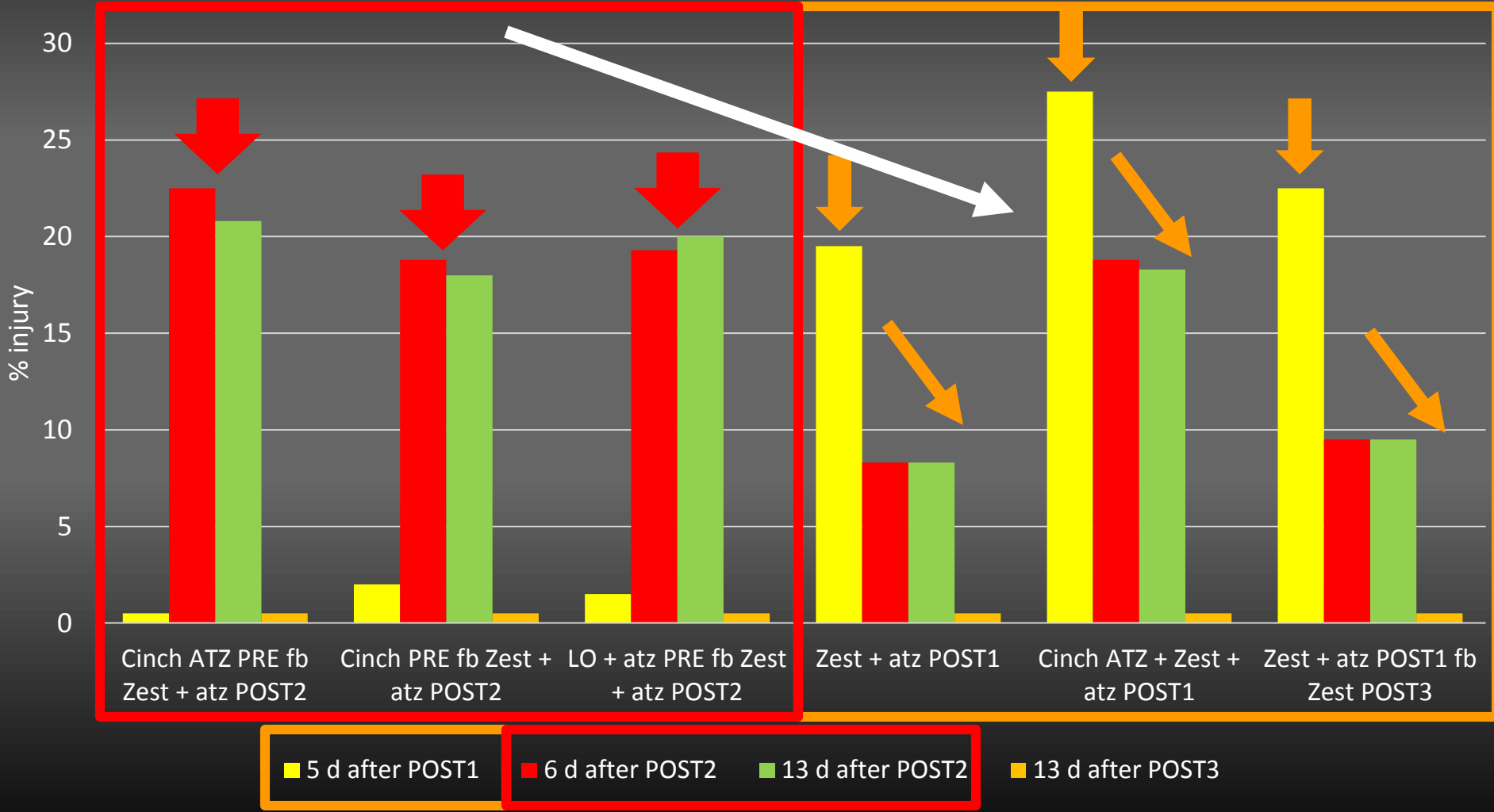
5 days after application
to 9-inch sorghum



6 days after application
to 13-inch sorghum

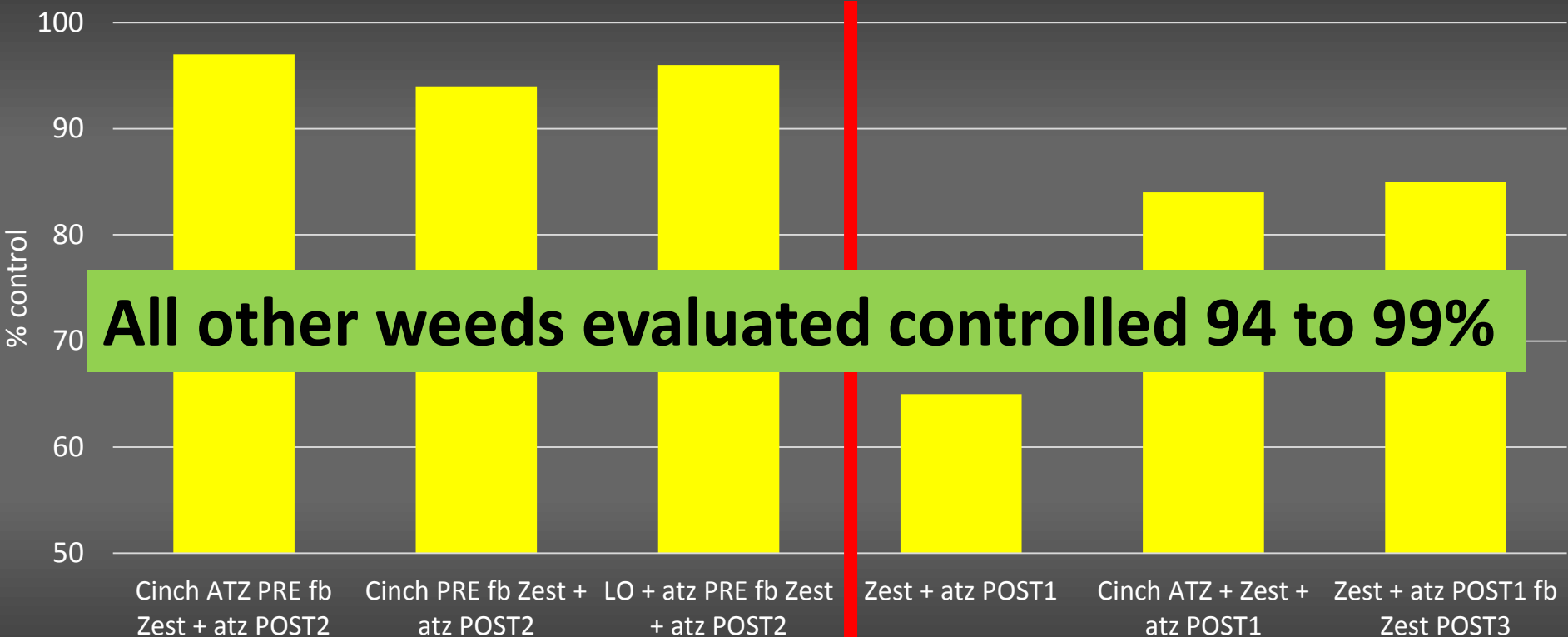
2016 Inzen Grain Sorghum Research

Grain sorghum injury



2016 Inzen Grain Sorghum Research

barnyardgrass control 62 days after emergence



All other weeds evaluated controlled 94 to 99%

- PRE 69 days
- POST1 38 days
- POST2 31 days
- POST3 13 days



LeadOff + atrazine PRE fb Zest + atrazine + COC POST2



Cinch ATZ PRE fb Zest + atrazine + COC POST2



Zest + atrazine + COC POST1 fb Zest + COC POST3

Positives and Negatives

- I grew grain sorghum in a johnsongrass pasture!
- Zest will injure Inzen sorghum
 - This should be expected since it is not a GMO
 - Injury subsides within 7 to 14 days
- Grain sorghum and johnsongrass are both *Sorghum* species
 - Sorghum is a diploid
 - Johnsongrass is a tetraploid
 - Pollen-mediated gene flow can result in ALS-tolerant johnsongrass
 - *Steve Harrison said that this cross is very possible and reason enough to not plant Inzen sorghum in the same field two years in a row!*
- We have no yield data
 - I had to destroy Inzen sorghum just before pollination
 - No Inzen sorghum has been entered into LSU AgCenter grain sorghum OVT

Conclusion

- Inzen grain sorghum can be a useful tool for Louisiana producers
- Zest herbicide provides very good grass control
- Atrazine, S-metolachlor/metolachlor are needed in program
- Glyphosate-resistant johnsongrass is already here
- Why risk ALS-resistant johnsongrass too
- Rotate Inzen sorghum with soybean or another crop where ALS-inhibiting herbicides are not used

Questions

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