

Resistant Weed Management in Mississippi

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Acknowledgment

- ADAMA USA
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- RiceTec
- Syngenta Crop Protection
- Valent USA Corporation



2024 Weed Control Issues

- Herbicide regulations (ESA, paraquat, dicamba)
- Italian ryegrass control
- “Non-traditional” weed species
- Johnsongrass control
- Residual herbicide injury from PRE and POST treatments
- Off-target movement, tank contamination, misapplication
- Furrow-irrigated rice management

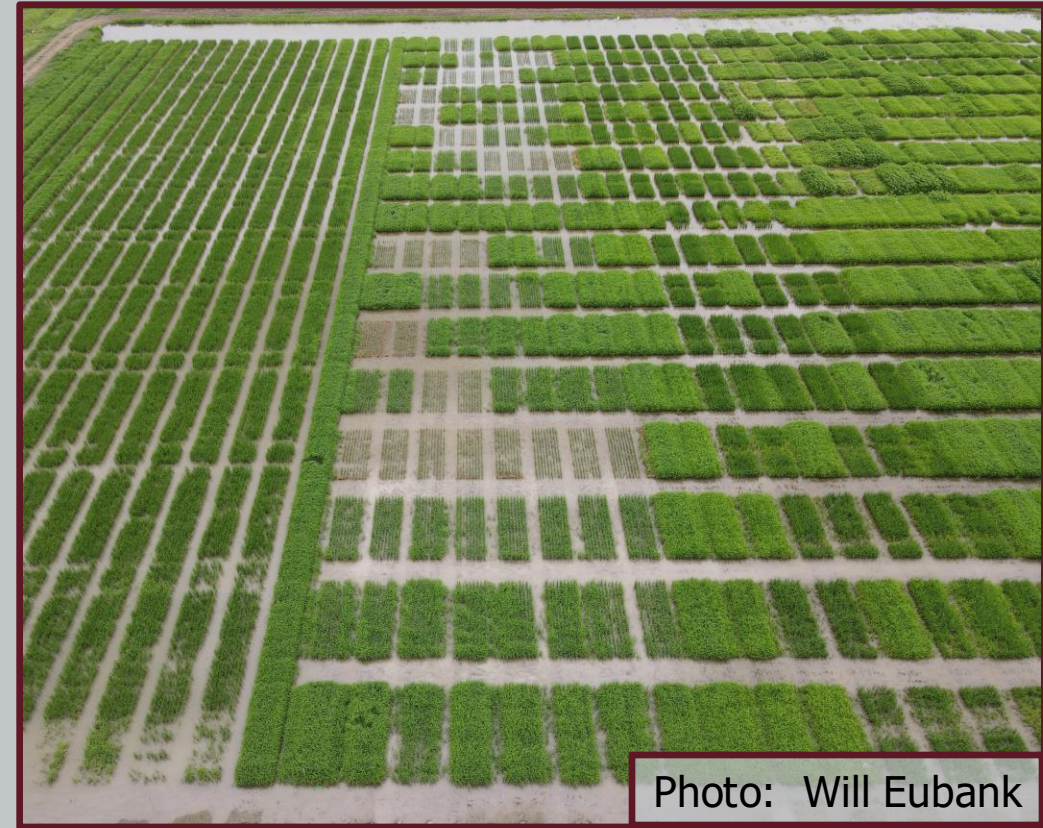


Photo: Will Eubank



Dicamba Labeling

- U.S. EPA classifies these label submissions for Xtendimax, Engenia, and Tavium as new products.
- The products must complete biological evaluation mandated by Endangered Species Act.
- The products must clear chemical specific spray drift analysis.
- U.S. EPA has 17 months to complete these steps.


HOME > CROPS > DICAMBA AVAILABILITY IN QUESTION AFTER COURT VACATES EPA REGISTRATIONS

Court Vacates Dicamba Registrations

Dicamba Availability in Question After Court Vacates EPA Registrations


2/7/2024 | 8:23 AM CST

By **Todd Neeley**, DTN Staff Reporter
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**



Court Rules Dicamba 'Was Unlawfully Approved' By EPA and Halts Use



PHOTO: LINDSEY HOUND

Young soybean plants

eral court in Arizona
registrations of three c
by the EPA for over
max, Engenia and Ta
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le registrations.
court for the Distric
leaves farmers with



Pre-dicamba Weed Management

Management Suggestions

- Check closely for efficacy following all herbicide applications.
- If Palmer amaranth control was problematic in Roundup Ready soybean in 2015, consider rotating to corn, grain sorghum, rice, or LibertyLink soybean.
- Manage weed soil seedbank – The problem **WILL** get worse.
- Use all possible tactics to combat Palmer amaranth – cover crops, variety selection, row spacing, planting date, hand-weeding, etc.



Diversified Weed Control

10 Steps to Reducing the Risk of Herbicide Resistance:

1. Start clean and stay clean
2. Begin scouting soon after planting
3. Apply the full (lethal) rate
4. Use multiple modes of action against the most troublesome or herbicide-resistant weeds
5. Emphasize cultural and mechanical management
6. Prevent weed seed production
7. Prevent field to field and within field movement of weed seed
8. Manage weed seed at harvest or post-harvest
9. Remove weeds that establish after harvest to prevent seedbank buildup
10. Diversified approach to weed management, with focus on the soil seedbank



Soybean Programs

Herbicide Programs for Managing Glyphosate/ALS-Resistant Palmer Amaranth in Mississippi Soybean

Soybean System	PPI	PRE	POST
Roundup ReadyFlex	Pendimethalin, trifluralin	Authority MTZ, Authority XL, Boundary, Canopy, Envide, Fierce, Sonic, Valor SX, Valor XLT, Zidua + Sharpen	Glyphosate + Cobra, Flexstar, Prefix, or Ultra Blazer; Glyphosate + Dual Magnum, Warrant, or Zidua; Flexstar GT
LibertyLink	Pendimethalin, trifluralin	Authority MTZ, Authority XL, Boundary, Canopy, Envide, Fierce, Prefix, Sonic, Valor SX, Valor XLT, Zidua + Sharpen	Liberty 280 + Dual Magnum, Warrant, or Zidua followed by Liberty 280
Conventional	Pendimethalin, trifluralin	Authority MTZ, Authority XL, Boundary, Canopy, Envide, Fierce, Sonic, Valor SX, Valor XLT, Zidua + Sharpen	Cobra, Flexstar, Prefix, Ultra Blazer

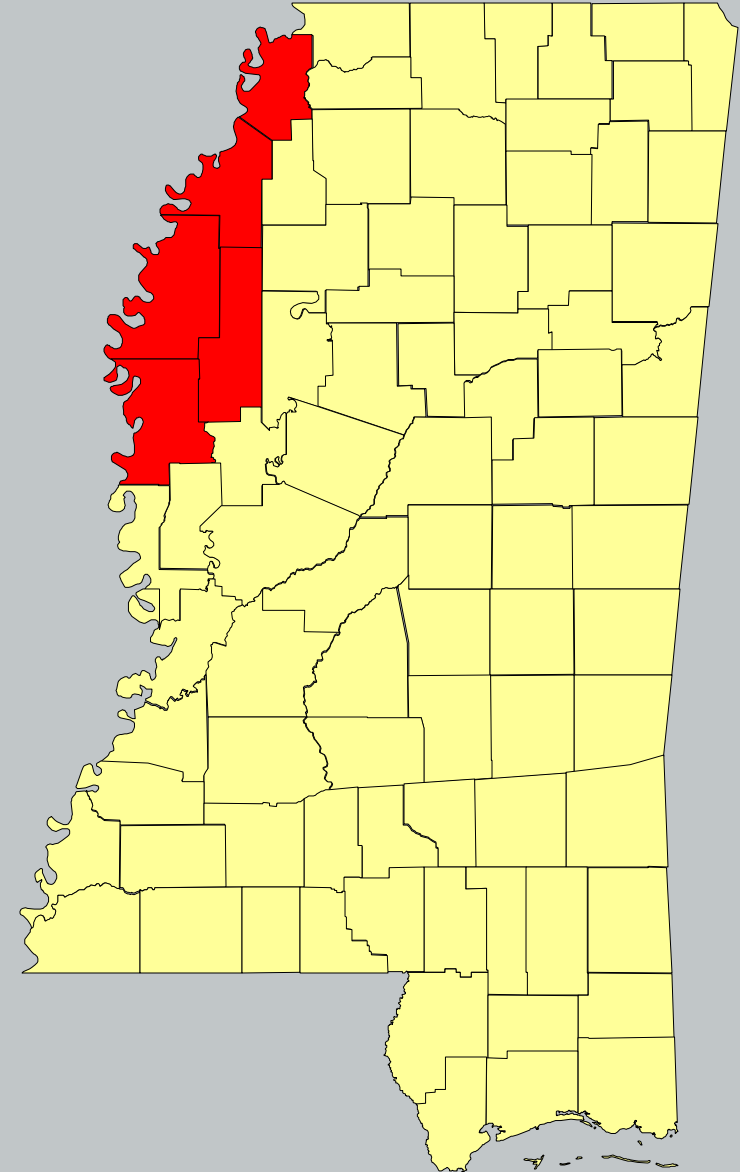
http://msucare.com/pubs/infosheets_research/i1352.pdf



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PPO-resistant Palmer Amaranth



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Fundamental Weed Science

- Application with correct rates.
- Application to small, actively growing weeds.
- Application in correct water volume.
- Application with moderate ground speed.
- Application during favorable weather to actively growing weeds.
- Application with nozzles appropriate for herbicide treatment.
- Application with nozzles 15 to 18 inches above target.



Initiated 2 WAP



Initiated 4 WAP



Sequential Residual Herbicides

- The easiest growth stage for Palmer amaranth control is before emergence.
- Overlay residual herbicides to stay ahead of the problem.

Cotoran – 1.5 PT/A



Nontreated

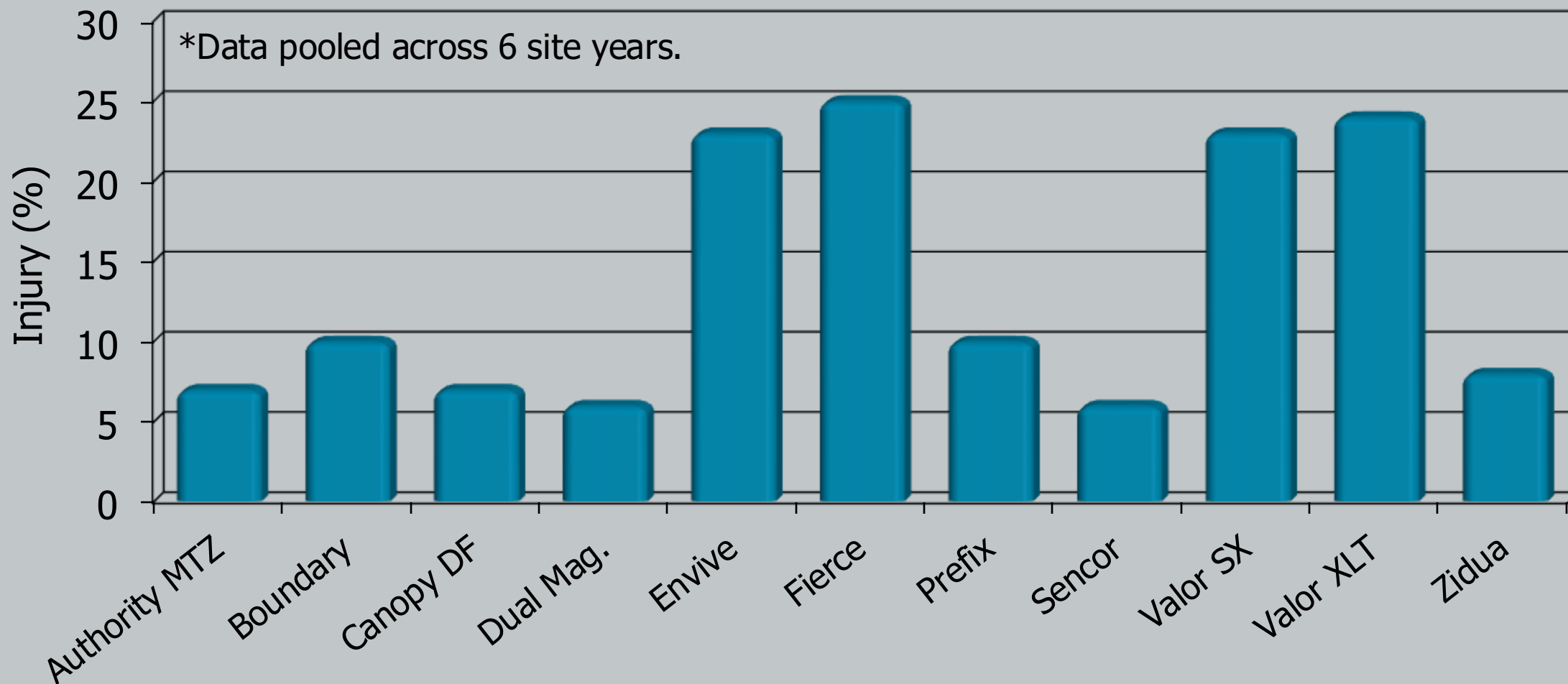


Reflex –1 PT/A fb Cotoran – 1.5 PT/A



PRE Herbicide Injury

Soybean injury 28 DAT with residual herbicides applied at soybean planting



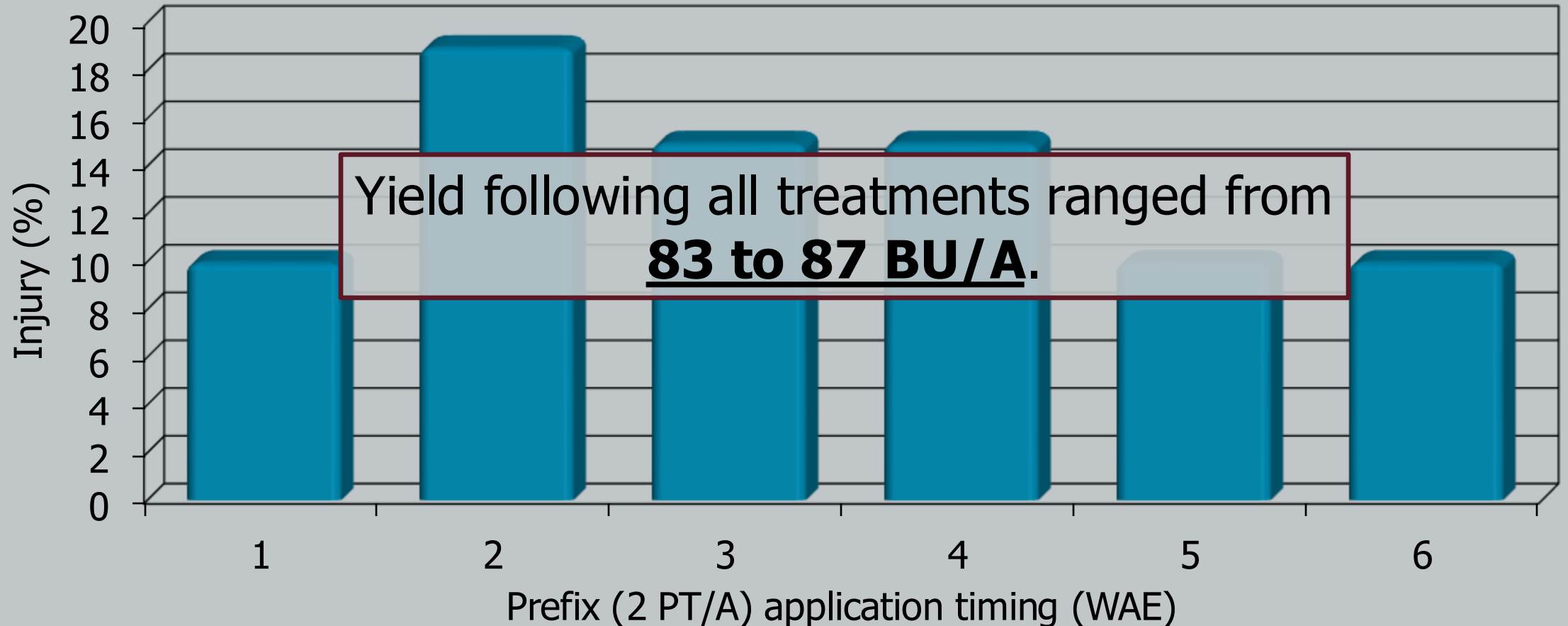
POST Herbicide Injury

- Early-season Cobra application resulted in temporary injury and stunting.
- However, yield was not affected under irrigated conditions.



POST Herbicide Injury

Soybean injury following Prefix (2 PT/A) at different application timings



POST Herbicide Injury



Nontreated



Prefix



Roundup + Prefix



Liberty 280 + Prefix

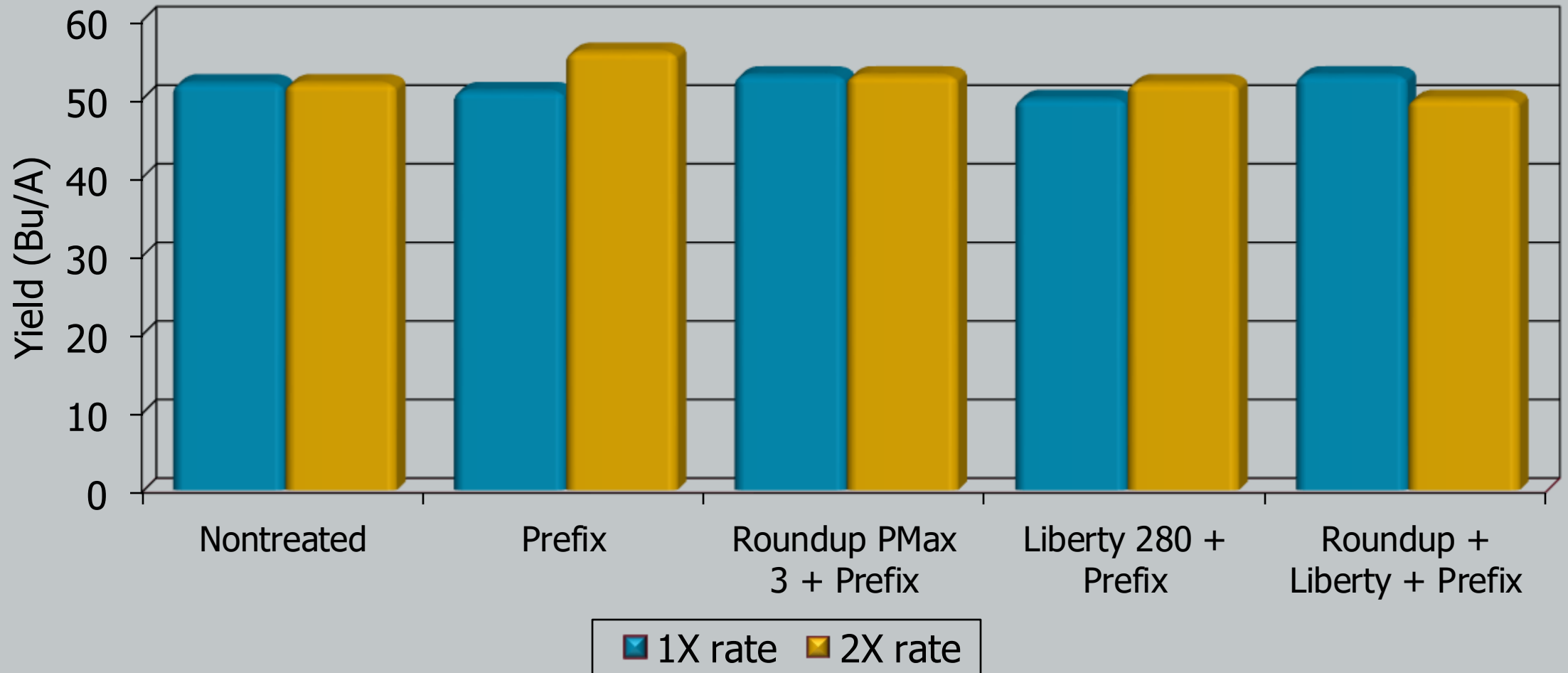


Roundup + Liberty + Prefix



POST Herbicide Injury

Soybean yield following non-selective POST herbicides mixed with Prefix



POST Herbicide Injury



Nontreated



Roundup + Liberty 280 + Dual Magnum



Roundup + Liberty + dimethoate

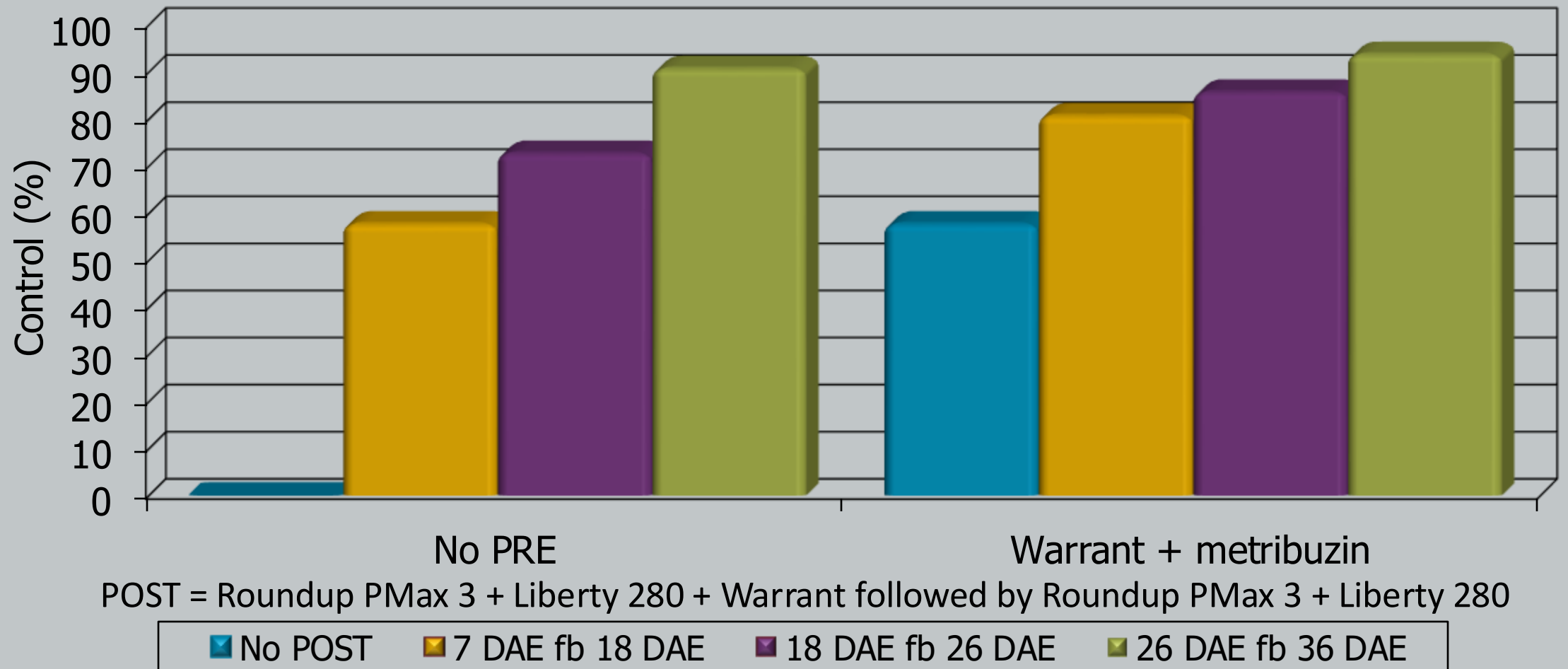


Roundup + Liberty + Dual + dimethoate



Liberty 280 Timing

Palmer amaranth control following final treatment in sequential soybean herbicide programs



Liberty 280 Timing

No POST treatment



Roundup + Liberty + Warrant at V2
fb Roundup + Liberty 10 d later



Roundup + Liberty + Warrant at V4
fb Roundup + Liberty 10 d later



No PRE treatment

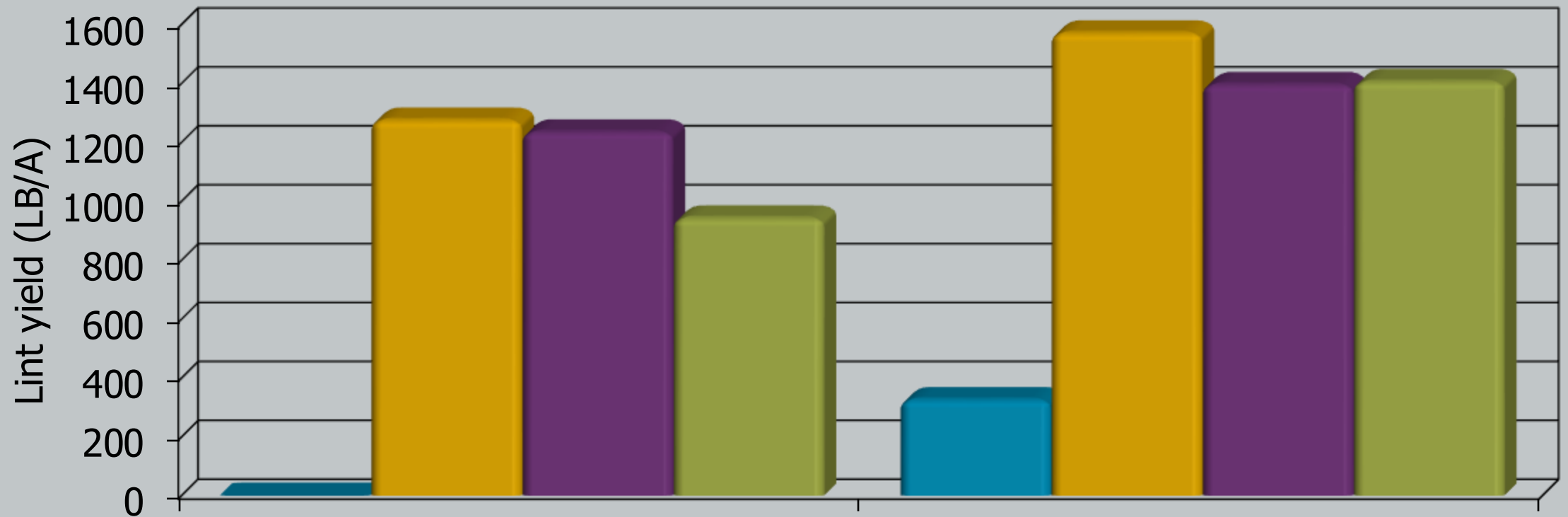


Warrant + metribuzin PRE



Liberty 280 Timing

Cotton yield following sequential herbicide programs



No PRE

Cotoran

POST = Roundup PMax 3 + Liberty 280 + Warrant followed by Roundup PMax 3 + Liberty 280

■ No POST

■ 12 DAE fb 25 DAE

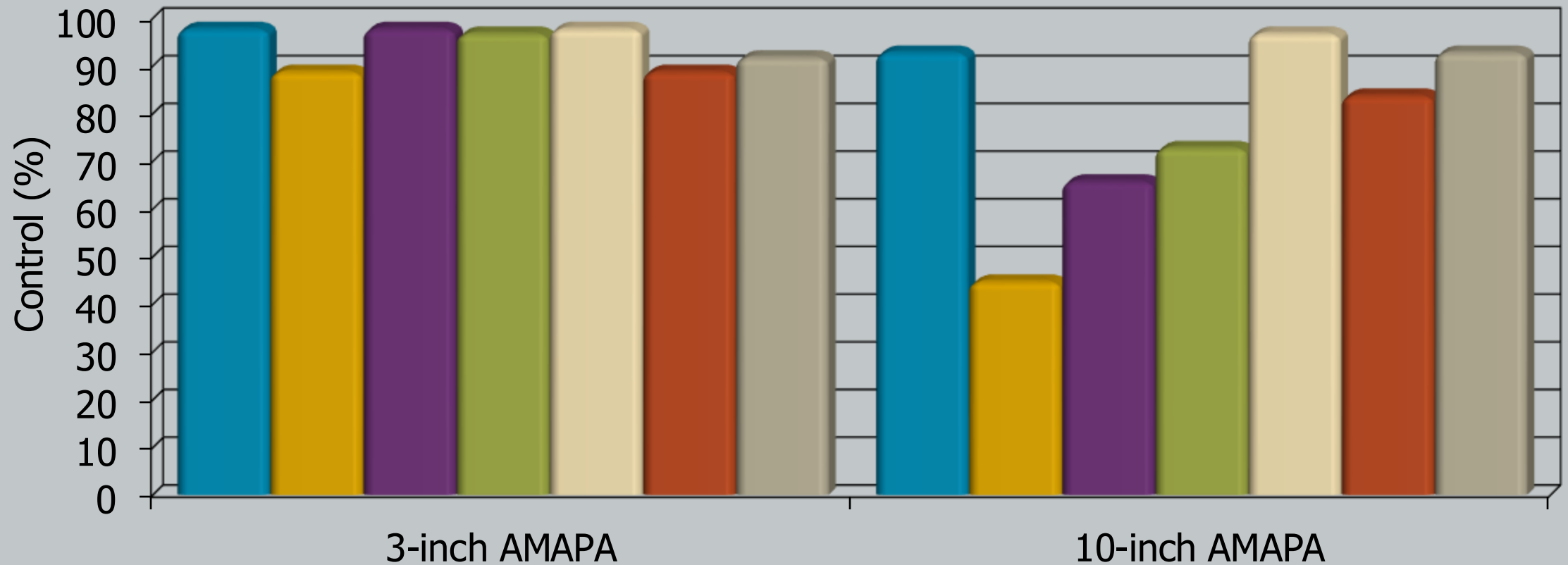
■ 25 DAE fb 35 DAE

■ 35 DAE fb 45 DAE



POST Control of Palmer Amaranth

Palmer amaranth control 14 days after application of different POST herbicide treatments



- Gramoxone + metribuzin
- Roundup + Reviton-1 oz
- Roundup + Reviton-2 oz
- Liberty 280
- Liberty 280 + Enlist One
- Enlist Duo
- Roundup + Engenia

E3 Herbicide Programs



Boundary



Boundary fb Liberty + Enlist One



Boundary fb Liberty + Enlist One + Dual
Magnum



Boundary fb Liberty Roundup + Enlist One
+ Dual Magnum



Management Suggestions

MANAGING WEEDS IN MISSISSIPPI COTTON WITHOUT DICAMBA

Jason Bond, Trent Irby, and Brian Peralisi



Reference to commercial products or trade names within information provided by the Mississippi State University Extension Service and the Mississippi Agricultural and Forestry Experiment Station does not constitute an endorsement by the MSU Extension Service and the Mississippi Agricultural and Forestry Experiment Station and does not imply discrimination against other similar products. See additional information on reverse side.

ENLIST

PREPLANT^{1,2}

Paraquat +
Flumioxazin, fomesafen, or trifluralin

PREEMERGENCE²

Paraquat +
Fluometuron, Prowl H2O, or (Brake + fluometuron)

POSTEMERGENCE³

(Enlist One + glufosinate⁵) or Enlist Duo
+
Group 15 herbicide⁴

POSTEMERGENCE AS NEEDED

(Enlist One + glufosinate⁵) or Enlist Duo

POST-DIRECTED⁴

Glufosinate⁵ + prometryn + MSMA

LAYBY⁷

(Glufosinate⁵ + MSMA)
+
Anthem Flex, diuron, Fierce, flumioxazin, Reflex, Prefix, or Zidua SC

ENLIST, GLYTOL + LIBERTYLINK, XTENDFLEX, or WIDESTRIKE

PREPLANT^{1,2}

Paraquat +
Flumioxazin, fomesafen, or trifluralin

PREEMERGENCE²

Paraquat +
Fluometuron, Prowl H2O, or (Brake + fluometuron)

POSTEMERGENCE³

Glufosinate⁵ or glyphosate
+
Group 15 herbicide⁴

POSTEMERGENCE AS NEEDED

Glufosinate⁵ or glyphosate

POST-DIRECTED⁴

Glufosinate⁵ or glyphosate
+
Prometryn + MSMA

LAYBY⁷

(Glufosinate⁵ + MSMA) or (glyphosate + MSMA)
+
Anthem Flex, diuron, Fierce, flumioxazin, Reflex, Prefix, or Zidua SC

MANAGING WEEDS IN MISSISSIPPI SOYBEAN WITHOUT DICAMBA

Jason Bond, Trent Irby, and Brian Peralisi



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CONVENTIONAL

PREPLANT^{1,2}

Paraquat +
Group 14 herbicide³ +
Group 15 herbicide⁴

PREEMERGENCE^{2,5}

Paraquat +
metribuzin +
Group 15 herbicide⁴

POSTEMERGENCE^{6,7}

Cobra, fomesafen, or
Ultra Blazer
+
Group 15 herbicide⁴

POSTEMERGENCE AS NEEDED^{7,8}

Cobra or Ultra Blazer

ENLIST

PREPLANT^{1,2}

Paraquat +
Group 14 herbicide³ +
Group 15 herbicide⁴

PREEMERGENCE^{2,5}

Paraquat +
metribuzin +
Group 15 herbicide⁴

POSTEMERGENCE^{6,7}

(Enlist One + glufosinate)
or Enlist Duo
+
Group 15 herbicide⁴

POSTEMERGENCE AS NEEDED^{7,8}

(Enlist One + glufosinate)
or Enlist Duo

ENLIST, LIBERTYLINK GT27, OR ROUNDUP READY 2 XTENDFLEX

PREPLANT^{1,2}

Paraquat +
Group 14 herbicide³ +
Group 15 herbicide⁴

PREEMERGENCE^{2,5}

Paraquat +
Metribuzin +
Group 15 herbicide⁴

POSTEMERGENCE^{6,7}

Glufosinate or glyphosate
+
Fomesafen +
Group 15 herbicide⁴

POSTEMERGENCE AS NEEDED^{7,8}

Glufosinate or glyphosate
+
Cobra or Ultra Blazer

ENLIST, LIBERTYLINK GT27, ROUNDUP READY 2, XTEND, OR XTENDFLEX

PREPLANT^{1,2}

Paraquat +
Group 14 herbicide³ +
Group 15 herbicide⁴

PREEMERGENCE^{2,5}

Paraquat +
Metribuzin +
Group 15 herbicide⁴

POSTEMERGENCE^{6,7}

Glyphosate +
Fomesafen
+
Group 15 herbicide⁴

POSTEMERGENCE AS NEEDED^{7,8}

Glyphosate
+
Cobra or Ultra Blazer



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