

Herbicide Resistance



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R & R are The Biggest Issues in Weed Control Today

- Regulation and Resistance
- Grass Weed Management
- Palmer amaranth
- Anything new???

Junglerice escaping Engenia + Roundup PM fb Engenia + Roundup PM





**Barnyardgrass Escaping
Roundup + Engenia
fb Roundup + Engenia**

21 DAA

Junglerice Escaping 32 ozs/A of Roundup PM and 12 ozs/A Clarity Burndown 2015





Barnyardgrass Awned

Junglerice Awnless

Junglerice Glyphosate Screen-Shelby County, TN



Roundup PM oz/A: 0

1

2

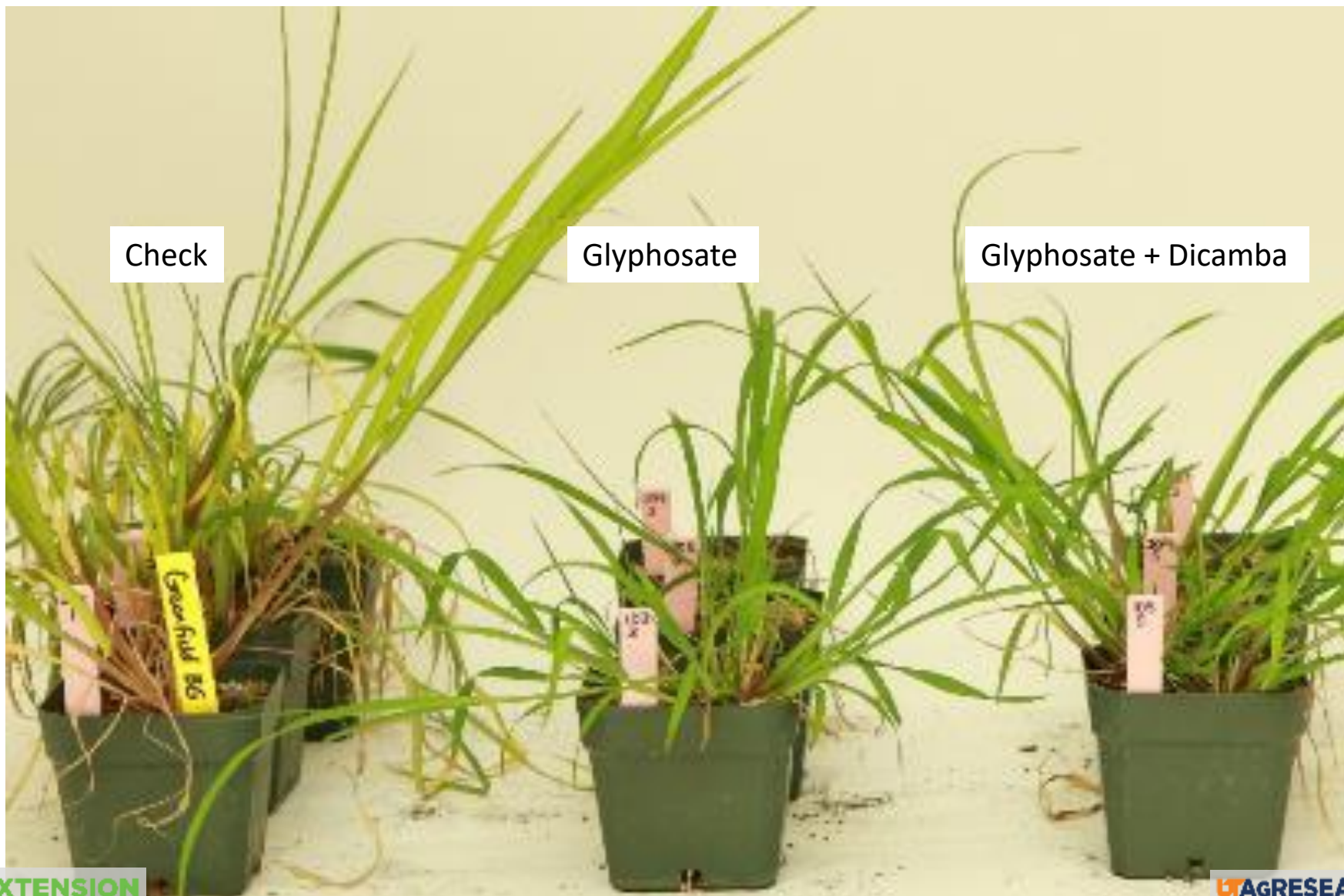
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22

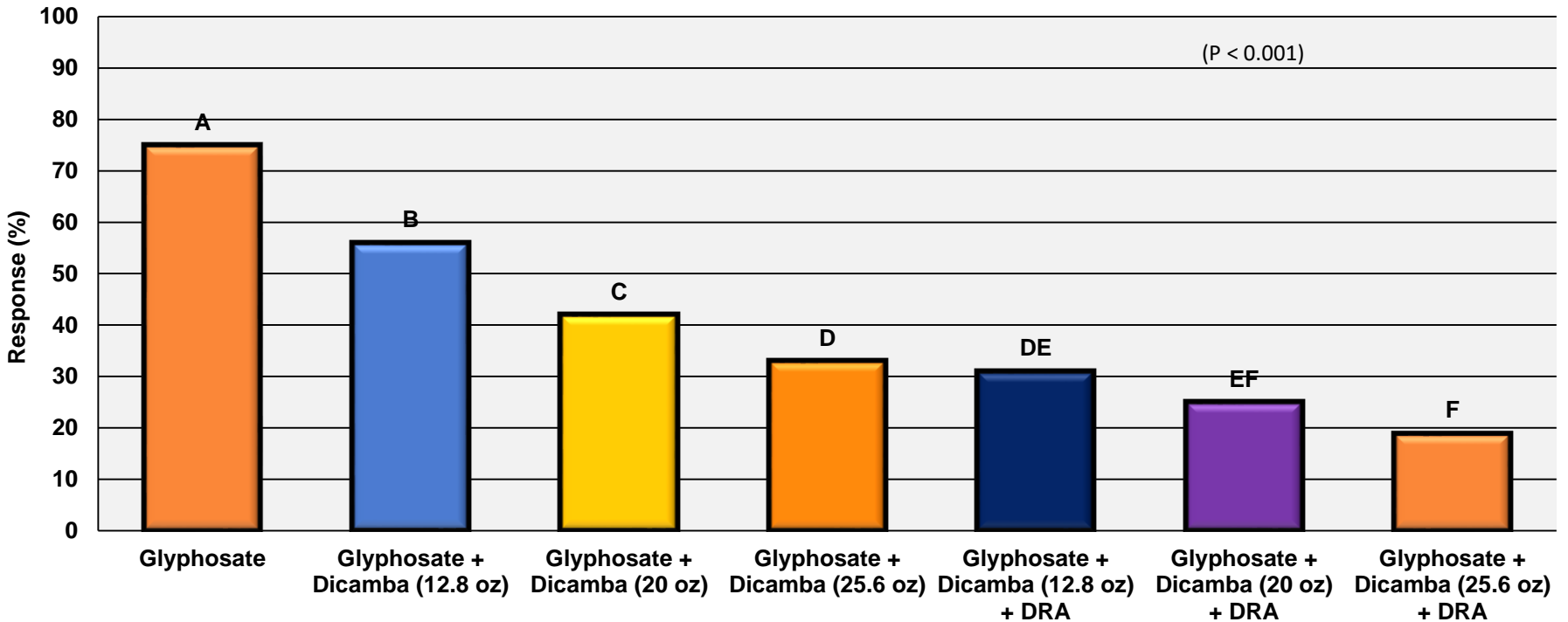
66

Roundup PM oz/A:

Dicamba Tankmix Causing Roundup Efficacy to Go From Bad to Worse



Response of Junglerice Screen to Increasing Dicamba Rates across 3 Locations



Barnyardgrass



Junglerice

Junglerice sometimes has a purple line or chevron



Barnyardgrass Flowers Later than Junglerice

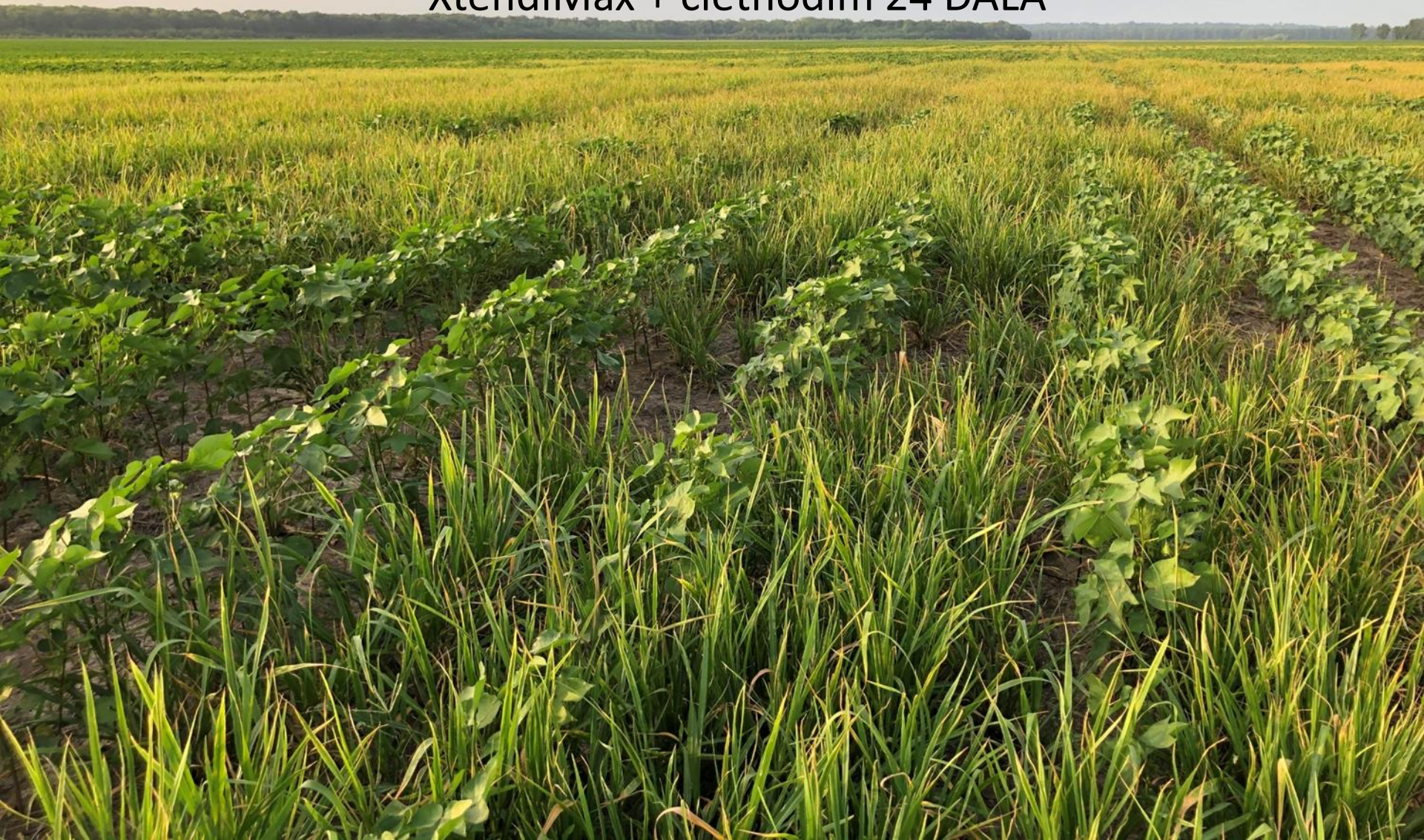
Roundup + Engenia fb Roundup + Engenia





**Goosegrass Escaping
Engenia +
Roundup PM f/b
Engenia + Roundup
PM +
Intensity**

Fall Panicum Escapes from Dicamba + Glyphosate early burndown
fb/Gramoxone applied at planting fb/
XtendiMax + glyphosate 23 DAP fb/
XtendiMax + clethodim 24 DALA



Glyphosate – Failure on ryegrass burndown 2014



2022

Ryegrass Escaping Dicamba + Glyphosate Burndown



Five Grass Species are Dialed in to our POST Weed Control Tactics

Ryegrass, Goosegrass, Junglerice, Fall Panicum, Johnsongrass

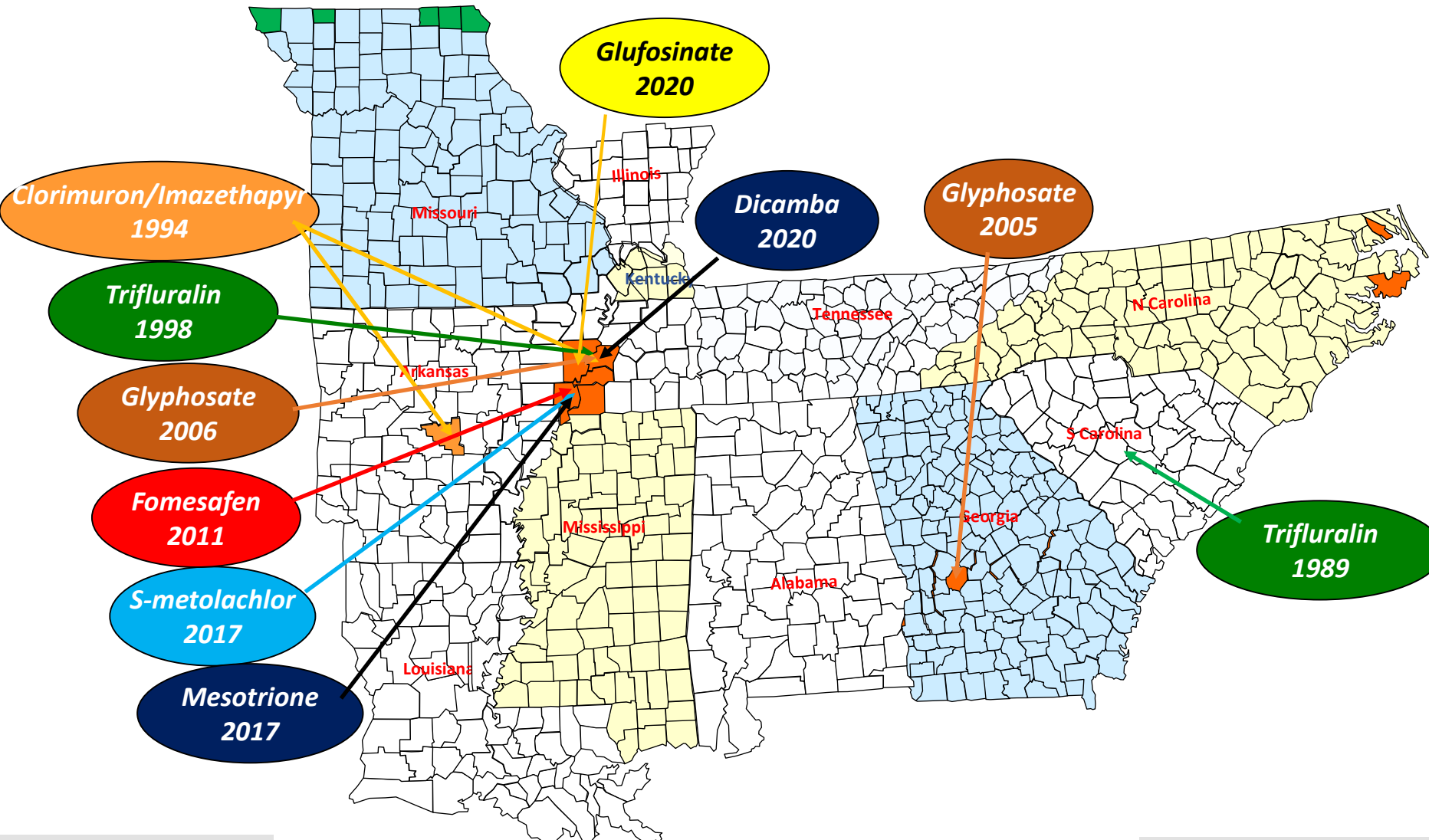
➤ Two Reasons:

- Evolution of glyphosate-resistance in 4 of 5 species**
- Dicamba tankmixes with glyphosate and clethodim is reducing control of those 5 grass species**

BMP for Grass

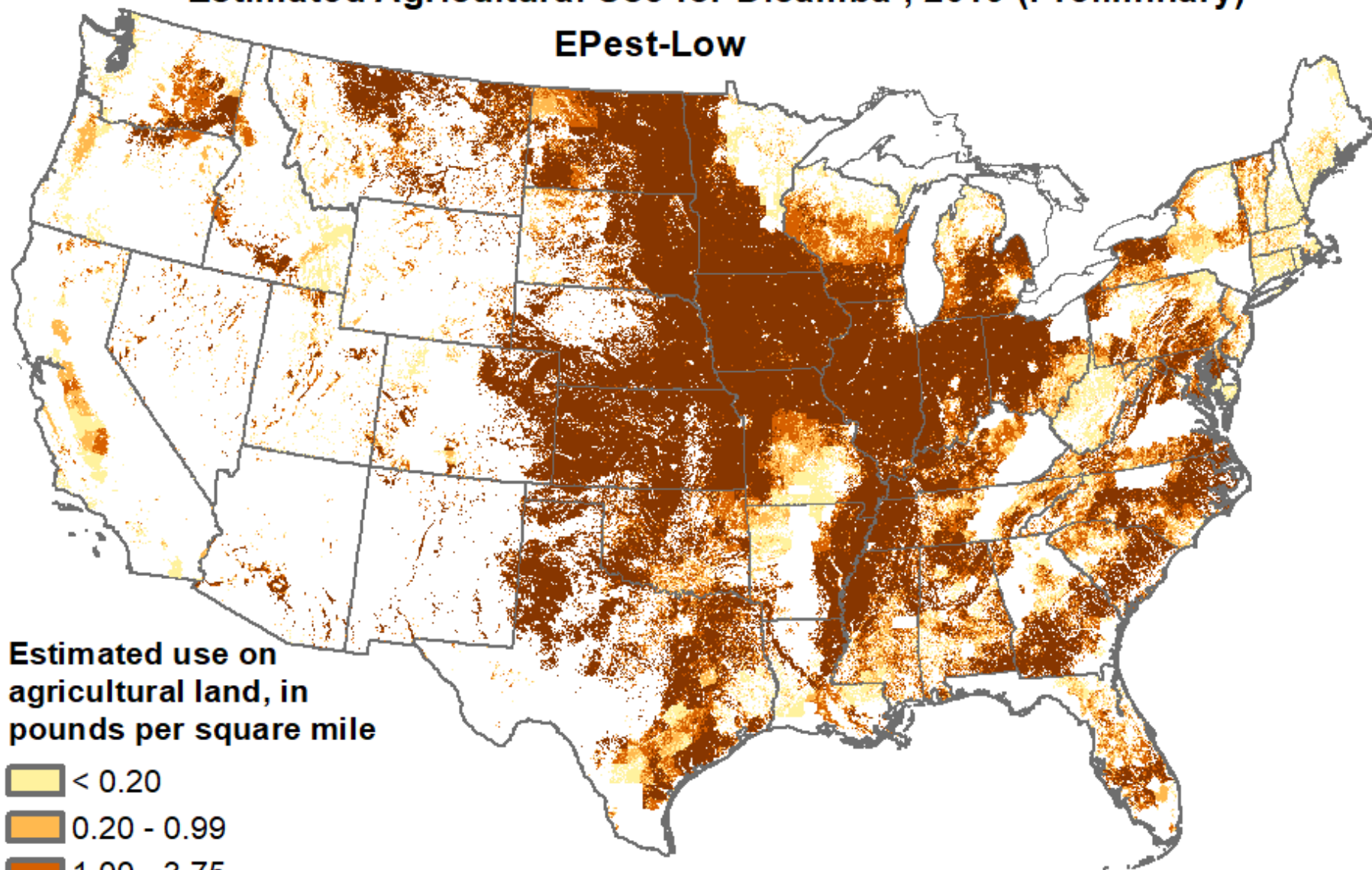
- **Try to keep grass from emerging!**
- **Cotton**
 - **Brake Pre Plant**
 - **Prowl Pre**
 - **Dual Magnum POST also an option**
 - **Warrant applied split 32 oz PRE/32 oz POST**
 - **Zidua applied via fertilizer V6**
- **Dicamba will reduce grass control of glyphosate and clethodim**

Palmer Amaranth First Documented Resistance



Estimated Agricultural Use for Dicamba , 2019 (Preliminary)

EPest-Low



Estimated use on agricultural land, in pounds per square mile

< 0.20

0.20 - 0.99

1.00 - 3.75

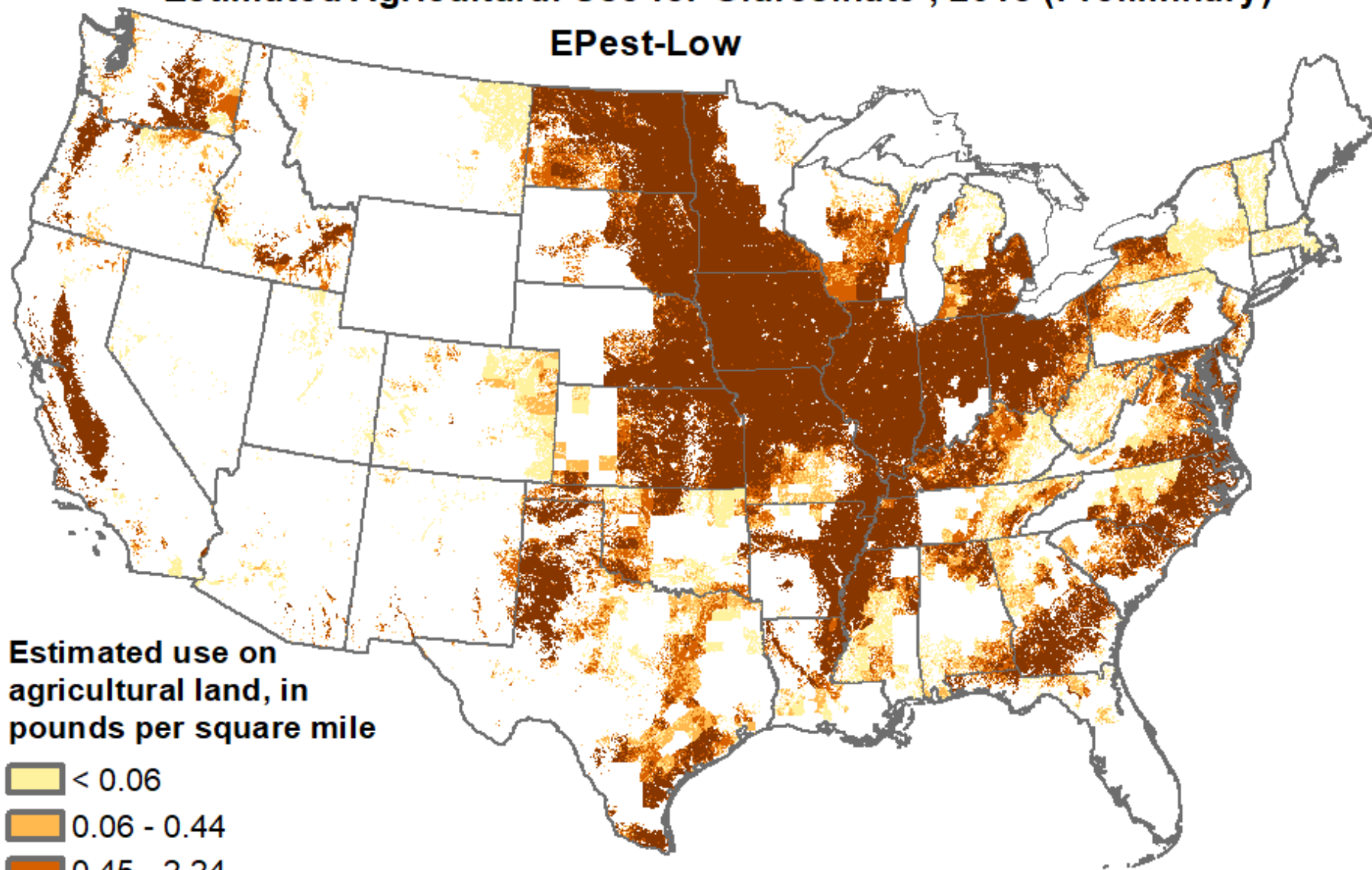
> 3.75

No estimated use


USGS 2019


Estimated Agricultural Use for Glufosinate , 2018 (Preliminary)


EPest-Low





Estimated use on agricultural land, in pounds per square mile

 < 0.06

 0.06 - 0.44

 0.45 - 2.24

 > 2.24

 No estimated use

USGS 2018

Flooding Along Rivers Helps Weed Genetics Become more Diverse



Engenia 12.8 ozs +
Roundup PM
32 ozs 12 DAA



Engenia 12.8 ozs +
Roundup PM
32 ozs 19 DAA



Engenia + Roundup + Outlook 1" Palmer f/b Engenia + Roundup



Engenia 12.8 ozs +
Roundup PM 32 ozs f/b
14 days later with
Engenia 12.8 ozs +
Roundup PM 32 ozs f/b
2 days later with
Liberty 32 oz



Engenia + Roundup + Outlook 1" Palmer f/b Liberty 7 DAYS
f/b Cultivation f/b Zidua applied via Fertilizer



Engenia 24 ozs + Roundup PM 32 ozs + Warrant 32 ozs f/b
Engenia 24 ozs + Roundup PM 32 ozs



If a few days
late will not
control
Palmer –
Regardless of
rates



Engenia 32 ozs + Roundup PM 32 ozs + Warrant 32 ozs f/b
Engenia 24 ozs + Roundup PM 32 ozs f/b
Engenia 24 ozs + Roundup PM 32 ozs



Engenia 12.8 ozs + Roundup PM 32 ozs + Outlook 12 ozs
f/b Engenia 12.8 ozs + Roundup PM 32 ozs



Engenia 20 ozs + Liberty 32 ozs + Outlook 12 ozs f/b
Engenia 20 ozs + Liberty 32 ozs



Zidua applied via fertilizer to cotton



Zidua Applied Via Fertilizer

- Used on about 25% of cotton acres in 2023
- Timing: 5 to 7 leaf current label
- Looking to move earlier to 2 to 7 leaf
- 250 lbs of fertilizer
- Zidua rate 3.2 ozs/A
- Needs very little water to get activated
 - ❖ A couple tenths

Herbicide Trait Platform

Crop	Trait	Resistance	Herbicides
Cotton	Axant	Dicamba Glufosinate Glyphosate HPPDs	XtendiMax Engenia Tavium Liberty (Alite 27 Armezon?)
Cotton	XtendFlex	Dicamba Glufosinate Glyphosate	XtendiMax Engenia Tavium Liberty
Cotton	Enlist	2,4-D Glufosinate Glyphosate	Enlist One Enlist Duo Liberty
Soybean	XtendFlex	Dicamba Glufosinate Glyphosate	XtendiMax Engenia Tavium Liberty
Soybean	Enlist	2,4-D Glufosinate Glyphosate	Enlist One Enlist Duo Liberty
Corn	Enlist	2,4-D Glufosinate Glyphosate Fops	Enlist One Enlist Duo Liberty Assure II Fusilade Glyphosate Glufosinate

Palmer Control with Liberty + Dicamba

Tankmix Broadcast



Split Boom



Laser Weeder



Take Home

- Dicamba will reduce grass control of glyphosate and clethodim
- BMP: for grass and Palmer control do not let them emerge
- Liberty is a must in both Xtend and Enlist cotton
 - Always tankmix Liberty with Enlist for best Palmer control
 - Apply Liberty ASAP after dicamba in Xtend cotton

Questions

