

# Cotton and Regulatory Update – 2024



- **Protecting the toolbox**
- **Regulatory update**
- **Weed control**



*Stanley Culpepper  
University of Georgia  
Tifton GA*

# Regulations and Resistance Pose A Great Threat



- Each product below faces significant challenges immediately.
- ~95% of all pesticides are threatened by the Endangered Species Act
- **Applicators must ensure every pesticide goes on target and stays there**

dicamba

diuron

Cotoran

atrazine

MSMA

Dacthal

glyphosate

Alite 27 - cotton

# The Endangered Species Act (ESA)

- ESA implemented in 1973
- Provides framework to conserve & protect endangered & threatened species & their habitats!

***Total of ~1800 species +  
900 critical habitats!!!***



Grey Wolf



Whorled Sunflower



Black-footed Ferret



Wood Bison



# ***What is EPA's Approach to Protect Species***



**EPA's Workplan to Protect Species  
EPA's Vulnerable Species Pilot Project  
EPA's Herbicide Strategy**



**If EPA's PROPOSED Vulnerable Species and/or Herbicide Strategy go into action as is.....we are done!!!**

- **Key Word: Proposed**
- **Ag must engage!!!!!!!!!!!!!!**

## **UGA Ext Comments - Herbicide Strategy**

- **28 GA county Ext offices letters**
- **16 farmers joined UGA Ext. letters**
- **31 GA farmer submitted letters in cooperation with UGA Ext. Agents**

# Dicamba – Tolerant Crops



- Labels vacated 2/6/24 due to registration procedure
- EPA allowed use of all stocks on 2/14/24, no production
- Stock inventory
  - Farmers can purchase stocks
  - Nationally, significant quantity
  - Locally, hearing very limited
- Behavior in 2024 will impact potential for these labels

**UPW**  
using pesticides wisely

**RESTRICTED USE PESTICIDE**  
To be used by certified applicators only; NOT to be used by uncertified persons working under the supervision of a certified applicator, except that uncertified persons may transport containers.

Dicamba Group 4 Herbicide

**XTENDIMAX**  
WITH VaporGrip<sup>®</sup>  
Technology

This labeling expires on 12/30/2025. DO NOT use or distribute this product after 12/30/2025.

**RESTRICTED USE PESTICIDE**  
To be used by certified applicators only; NOT to be used by uncertified persons working under the supervision of a certified applicator, except that uncertified persons may transport containers.  
This EPA registration expires 12/31/2025. DO NOT use or distribute this product after 12/31/2025.  
Tavium Plus VaporGrip Technology represents the specific use of this product and only in the following states, subject to certain restrictions or other conditions, and not, otherwise, anywhere. States where Tavium Plus VaporGrip Technology is registered for use include: Alabama, Arizona, California, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, and Wyoming. Use of this product is prohibited in Canada, Mexico, and all other countries. Use of this product is prohibited in the United States of America and its territories and possessions. Use of this product is prohibited in the United States of America and its territories and possessions.

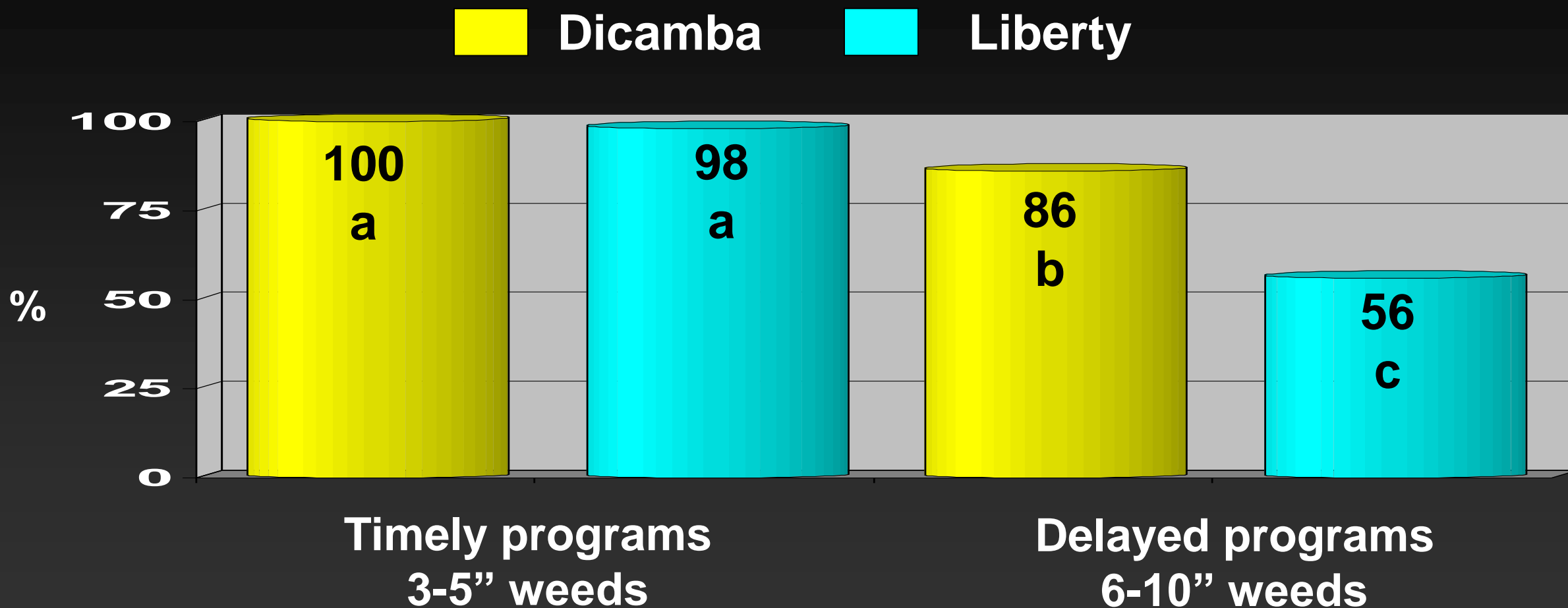
Dicamba Group 4 Herbicide  
**Tavium** Plus VaporGrip<sup>®</sup>  
Technology  
syngenta

**RESTRICTED USE PESTICIDE**  
To be used by certified applicators only; NOT to be used by uncertified persons working under the supervision of a certified applicator, except that uncertified persons may transport containers.  
This EPA registration expires 12/31/2025. DO NOT use or distribute this product after 12/31/2025.

BASF Dicamba Group 4 Herbicide

**Engenia**  
Herbicide

# Dicamba- vs. Liberty-based programs: Palmer amaranth control. TyTy, GA. 2022.



*Programs: sequential Xtendimax + glyphosate or Liberty + glyphosate applications 10 d apart fb glyphosate + diuron at layby 14 d later. Rates included XtendiMax 0.5 lb ai/A; glyphosate 1.13 lb ae/A, Liberty 0.53 lb ai/A. Timely program was initiated with 3-5 inch weed height; delayed programs 6-10 inch.*

# Dicamba- vs. Liberty-based programs: Palmer amaranth control. TyTy, GA. 2022.



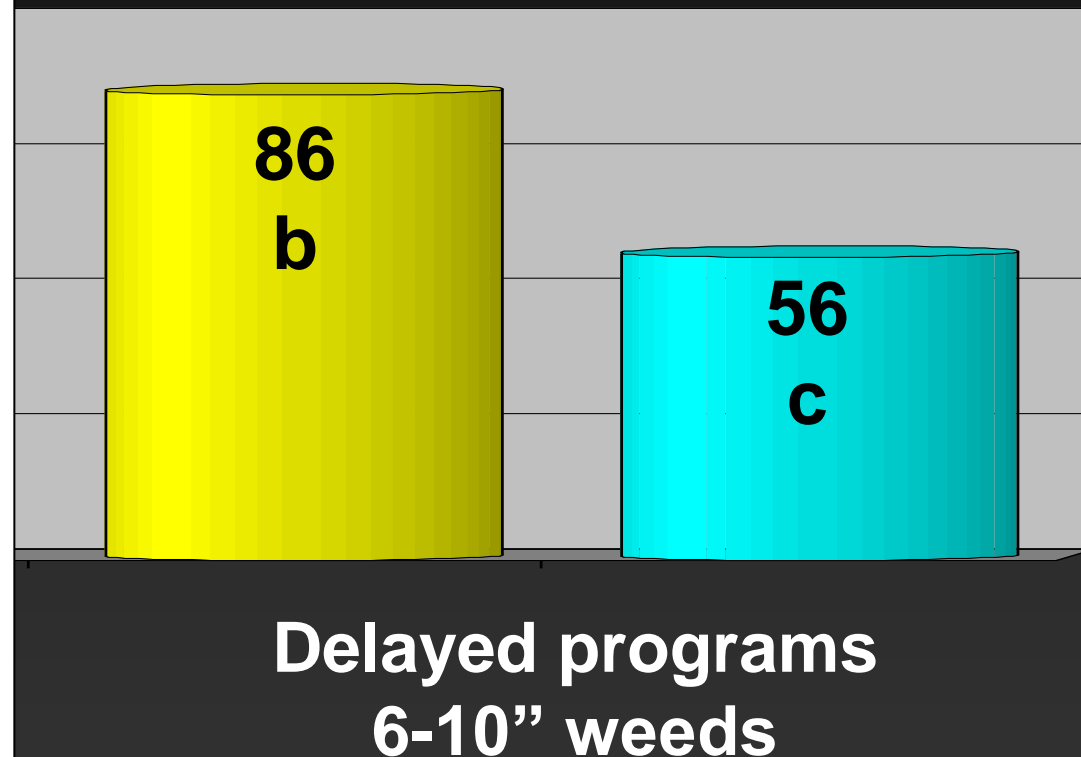
Dicamba



Liberty

## To Improve Liberty System

- More timely
- Stronger residual program
- Rate
- GPA
- Time of day
- Temperature / humidity



*Programs: sequential Xtendimax + glyphosate or Liberty + glyphosate applications 10 d apart fb glyphosate + diuron at layby 14 d later. Rates included XtendiMax 0.5 lb ai/A; glyphosate 1.13 lb ae/A, Liberty 0.53 lb ai/A. Timely program was initiated with 3-5 inch weed height; delayed programs 6-10 inch.*

# Diuron – Comments July 2022

**UGA Ext.:** 32 letters with 580 signatures, EPA tour

**Cotton Commission:** letter of support, EPA tour

**National Cotton Council:** letter of support, EPA tour

## What Happens Next In GENERAL?

- 6-8 mo after comments issue decision
- 2 months for industry review/fix labels
- EPA reviews corrections – several months
- Approve label ~ 1 year to adopt



# Alite 27 Systems Can Be Strong!

**What a rollercoaster.....**

- 1. For years, research at 3 oz/A per product with strong results!**
- 2. Because of regulatory concerns, 2023 research focused on 1.5 to 2 oz/A.**
- 3. At one point in 2023, likely would not get a registration at all.**
- 4. Late fall 2023, may have a chance to be back at 3 oz/A!**

**Alite +  
Reflex**

**Alite +  
Direx**



# **Alite 27 Systems Can Be Strong!**

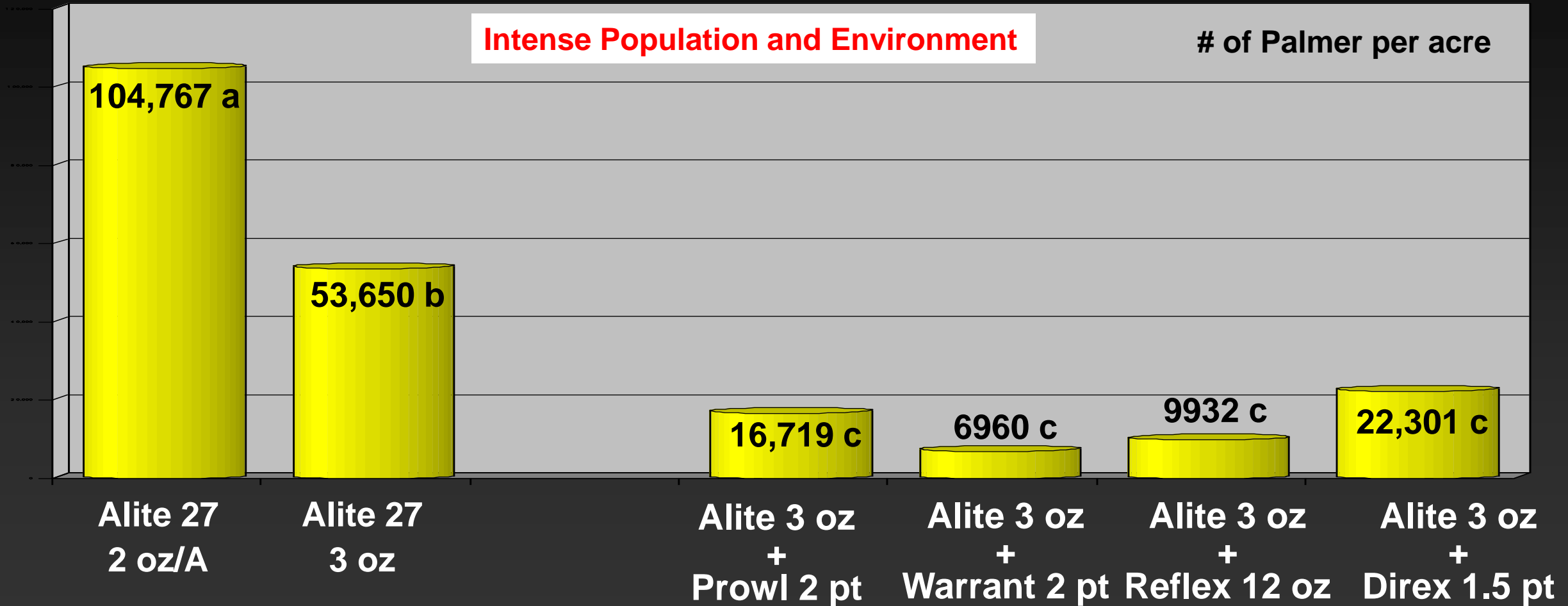
- 1. Must plant tolerant cultivar (Stoneville)**
- 2. Little to no crop response**
- 3. Residual at 2.5 to 3 oz/A is very good**
- 4. Tank-mix needed, very broad spectrum**



**Alite +  
Reflex**

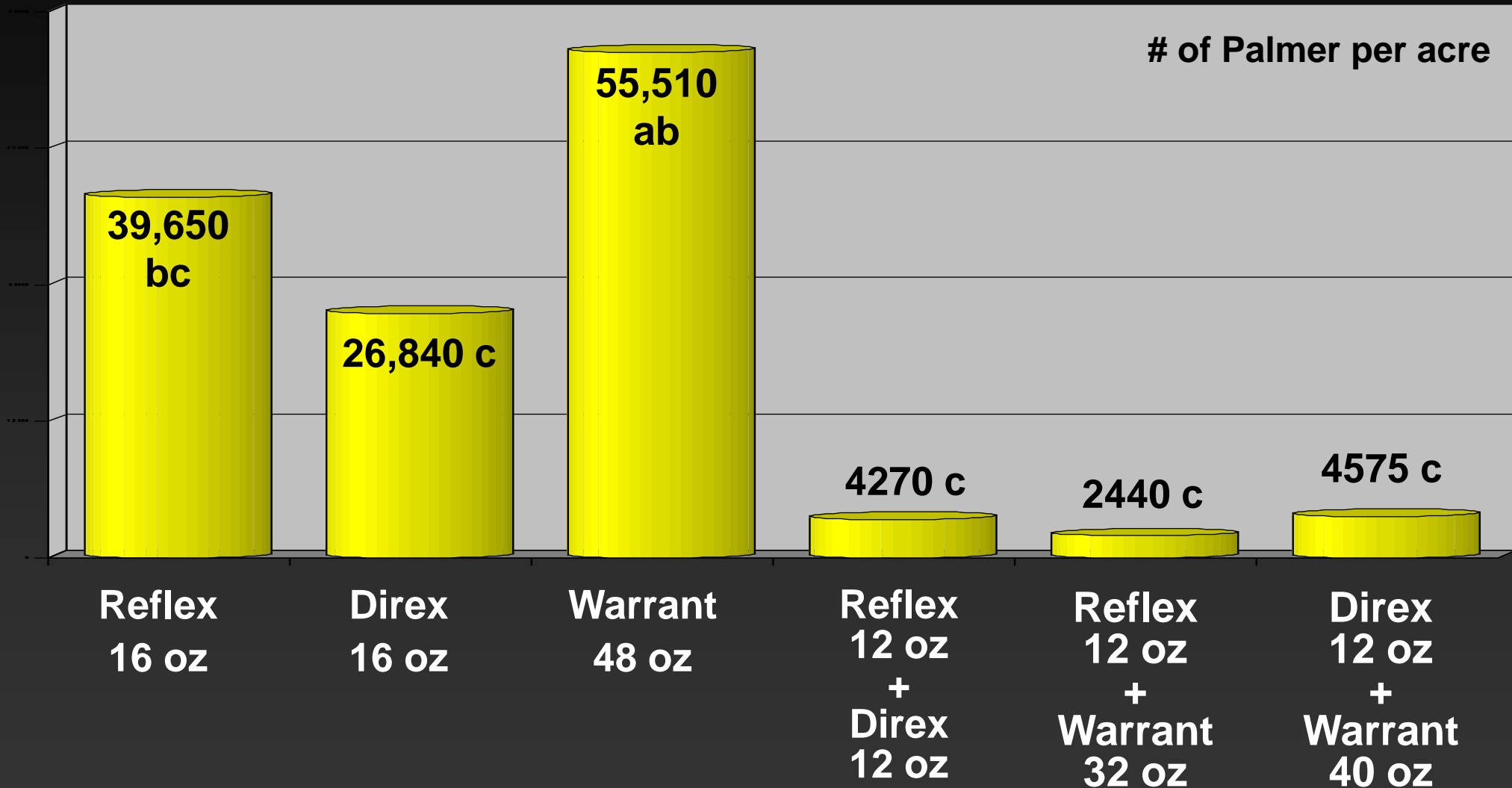
**Alite +  
Direx**

# Number of emerged Palmer amaranth/A at 29 d. Macon Co.



The non-treated control consisted of 293,263 per acre; Combined C18-22 and C5-21

# Number of emerged Palmer amaranth/A at 21 d.



The non-treated control consisted of 1,464,000 per acre; LSD 21 K;



**SePRO**  
Specimen Label

FLURIDONE GROUP 12 HERBICIDE

**Brake®**

Preemergence herbicide for use in cotton and peanut to control a range of annual grass and small seeded broadleaf weeds including pigweed.



**Level of PPO Resistance in GA Palmer\***

POST Herb	Level of Resistance
Reflex	= 227 to 350 X
Cobra	= 1244 to 1314 X
U. Blazer	= 296 to 316 X
BAS 850	= 9 to 10 X

PRE Herb	Level of Resistance
Reflex	= 3 X
Valor	= 31-34 X
Goal	= 2-6 X
BAS 850	= 7 X

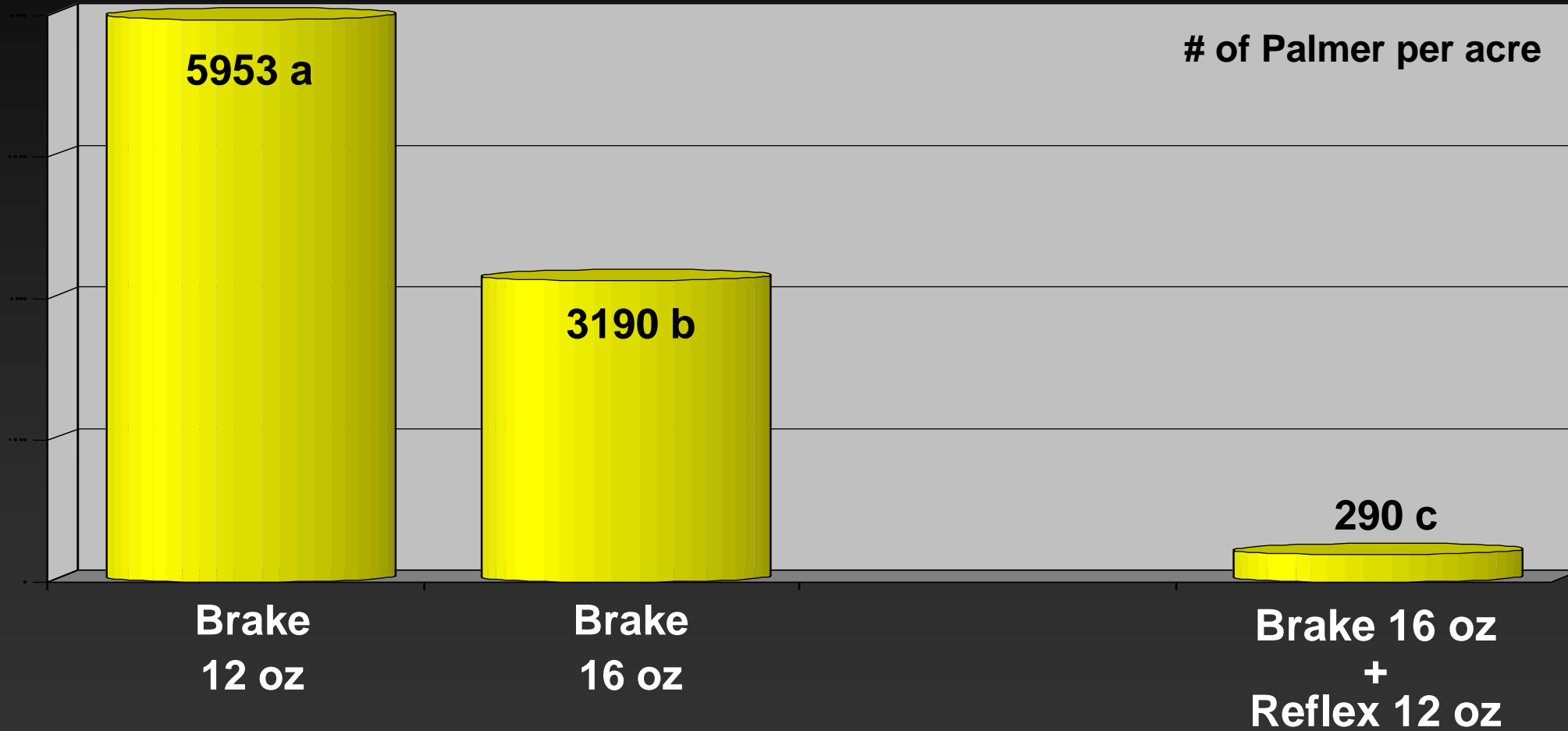
\*BAS 850 = Trifludimoxazin (Vulcarus)



**Brake + Diuron PRE  
RU + Dicamba POST 1  
Dual POST 1B  
RU + Dicamba POST 2  
Direx/MSMA/Staple Layby**



# Number of emerged Palmer amaranth/A at 21 d. Macon Co.



Mixtures  
with diuron  
or Warrant  
also very  
good

The non-treated control consisted of 81,000 per acre; C12-23

TRIFLOXYSULFURON-SODIUM GROUP 2 HERBICIDE



A selective herbicide for control of certain broadleaf, sedge, and grass weeds, in cotton, sugarcane, and transplanted tomato

Active ingredient:

Trifloxysulfuron-sodium\* 75.0%

Other Ingredients: 25.0%

Total: 100.0%

**Labeled  
overtop after  
5 leaf cotton.**

- **Injury and crop stunting between 15-30%; crop recovers in a few weeks.**
- **Mid-South scientists not concerned with aggressive cultivars we now grow.**
- **Very useful herbicide....growers will have to decide in regards to injury.**





# GAME CHANGER – Nutsedge, Spiderwort, Morningglory, Annual Grasses, and most other weeds!!



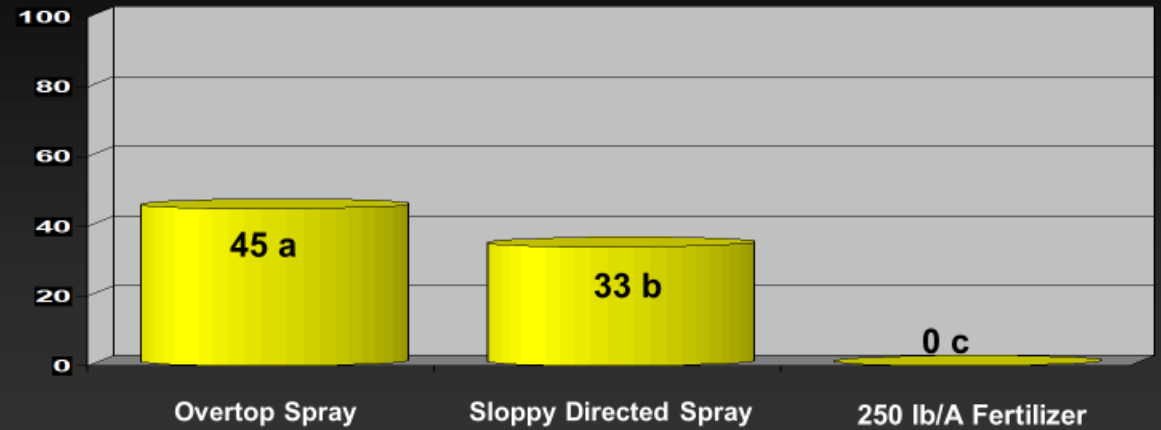
RU + Direx + Envoke  
Direx + MSMA + Envoke

# Zidua Applied on Fertilizer

➤ Applied with gandy

➤ 250 lbs/A

Percent Cotton (5 leaf) Injury from Zidua. Worth Co. 2023



- **Spray is best for weed control; fertilizer beneficial in a system**
- **Mid-south adoption in some areas!**
- **So far, no relevant injury with fertilizer applications!**



# Liberty Ultra

- Registration fall 2023??
  - Targeted launch 2024.
  - Full launch 2025.
- 
- Liberty Ultra 24 oz = Liberty at 32 oz.
  - Large number studies in 2023, everything looks good so far.



## News Release

### BASF Announces Liberty ULTRA Herbicide – Powered by Glu-L Technology

- Beginning in 2024, BASF will introduce Liberty ULTRA herbicide – powered by Glu-L Technology.
- Liberty ULTRA herbicide will give U.S. farmers a new post knockdown tool for broad spectrum weed control in glufosinate tolerant canola, corn, cotton, and soybean.
- Anticipated registration is late 2023 and will enable a targeted launch of Liberty ULTRA herbicide in 2024 and full launch in 2025.



# INTRODUCING ZALO™ HERBICIDE — DELIVERED BY PROLEASE™ TECHNOLOGY



Delivered By  
**ProLease™**  
Technology

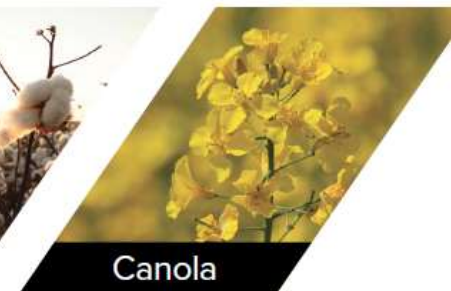
**POSTEMERGENCE CONTROL  
WITH MULTIPLE MODES OF  
ACTION FOR TRAIT-ENABLED  
CROPS IN A CROP-SAFE  
FORMULATION**



Soybean



Cotton



Canola

## ACTIVE INGREDIENTS

- Glufosinate
- Quizalofop

## POSTEMERGENCE TIMING



- Early-Post
- Mid-Post —  
*Without Cutoff Dates*



Expected FIFRA Section 3 Registration

**FALL 2023**

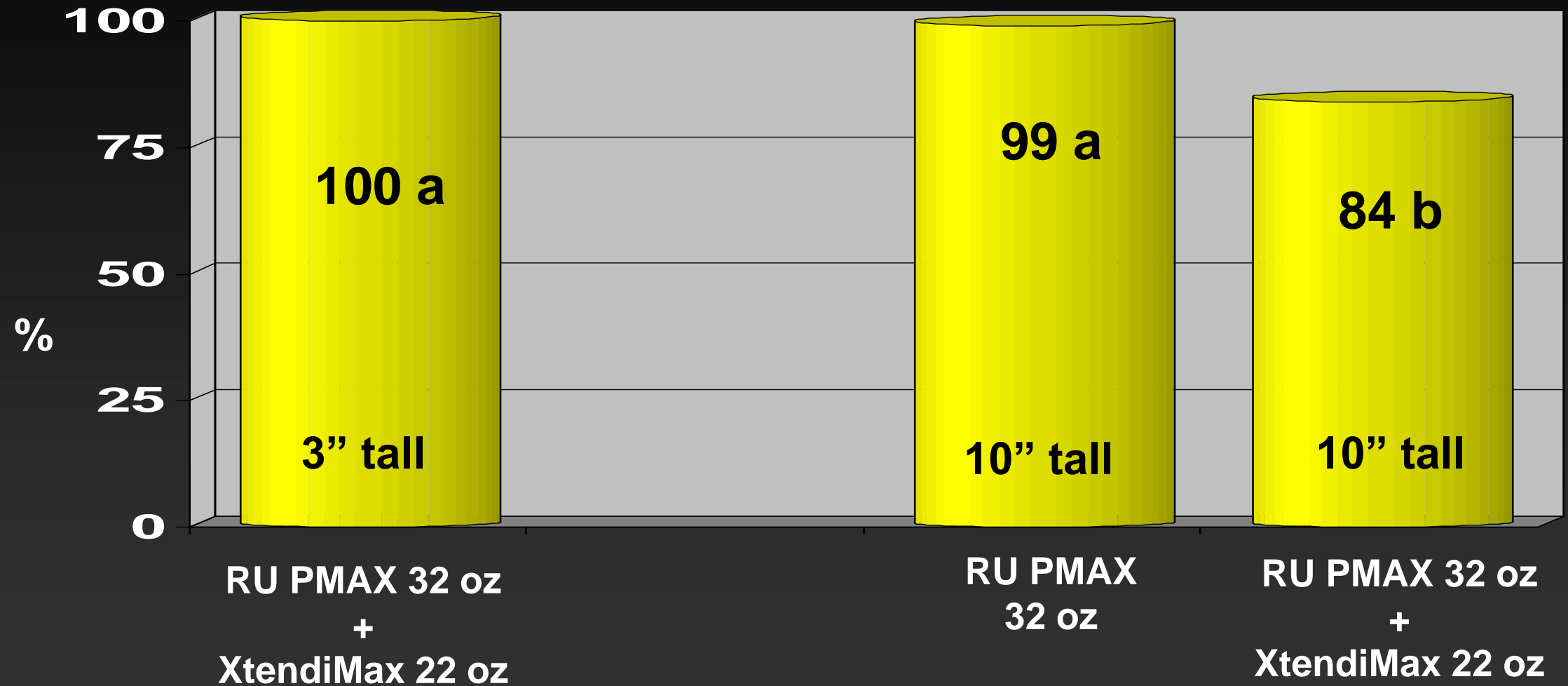
Formulation	Soluble liquid — 2.57 lb/gal 2.34 lb glufosinate 0.23 lb quizalofop
Use Rate	<b>Soybean/Cotton:</b> 32-43 fl oz/A; up to 72 fl oz/A per year  <b>Canola:</b> 22-29 fl oz/A; up to 72 fl oz/A per year
Restricted Entry Interval (REI)	12 hours ( <i>under EPA review</i> )
Rainfast	Rainfall or overhead irrigation within 4 hours after application may result in reduced weed control
Expected Pack Sizes	2x2.5 gallon jugs & 250 gallon totes



ZALO™ Herbicide has not yet received regulatory approval. EPA registration is pending.

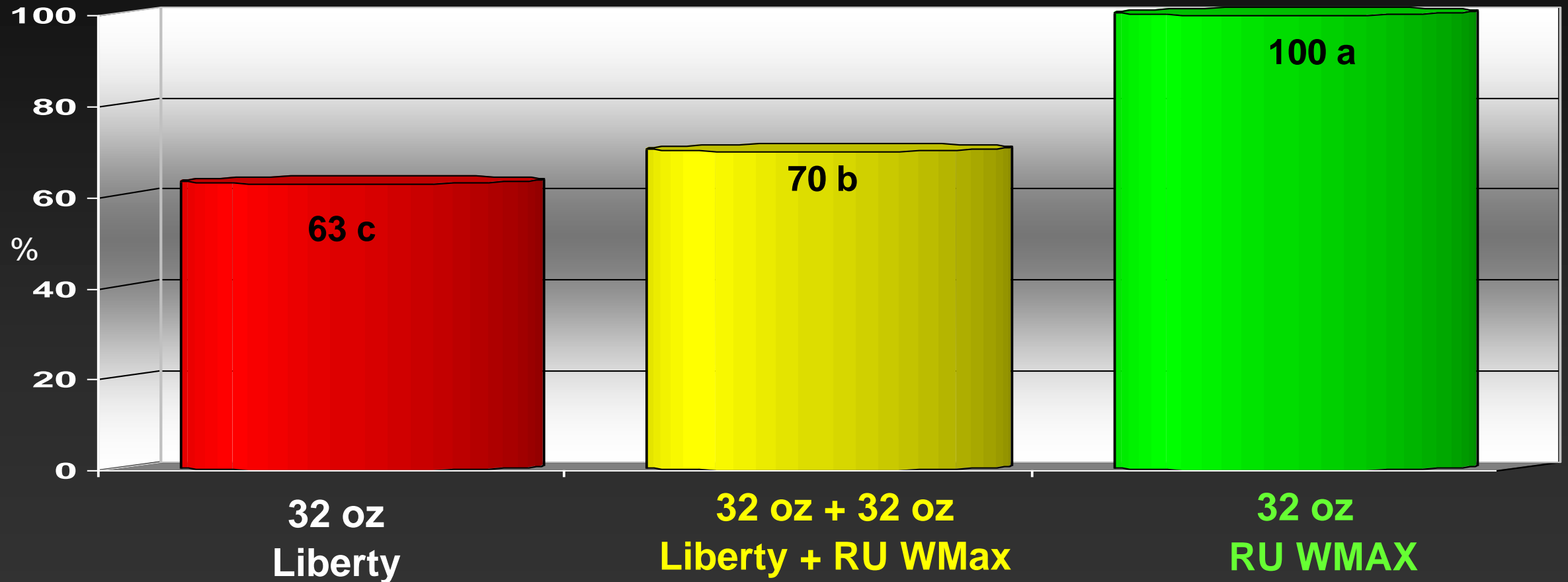
This product is not yet offered for sale. The information shown here is for informational purposes only. Always check with your state regulatory information for pesticide registration in each registration state.  
©2023 AMVAC Chemical Corporation. All rights reserved. AMVAC, the AMVAC logo, and ProLease are trademarks owned by AMVAC Chemical Corporation. 3800CP-2023-001

# Texas Millet Control by RU as Influenced by Dicamba



**Don't forget antagonism.....dicamba as well as Liberty with Roundup**

# Goosegrass control 15 days after a single application. Moultrie, GA.



# **Grass Complaints From Roundup + Dicamba/Liberty Continue**

---

- 1. START WITH THE CORRECT PRE!!!!**
- 2. No less than 30 oz/A PowerMax 3 or equivalent**
- 3. Most grasses 3" or less; goosegrass less than 1"**
- 4. Separate the dicamba and Roundup is a good choice**
- 5. Environmental conditions huge impact**
- 6. Sequential applications.....not so effective for goosegrass!!**





**Many are  
clearly over  
using dicamba**







**Its was 20 years ago, lets not do again!**



# Palmer Amaranth Plants During Early Season.



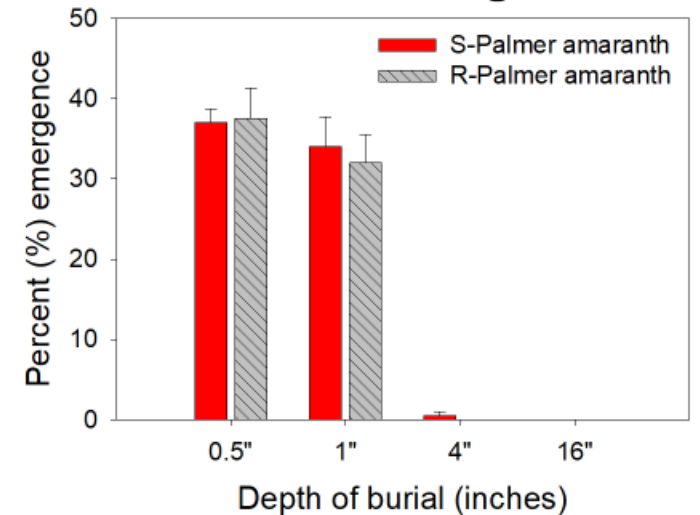
No Deep Tillage



Deep Turn

No Herbicides

Influence of burial depth on Palmer amaranth emergence



Keeley et al. (1987) reported 36-44% emergence at 0-1", 7% at 2", and 2% at 3".



# Cover Crop CAN Reduce Emergence of Many Weed Species



Rye

Winter Weeds



# Level of Biomass is Important – No Herbicides



7000 lb/A



3000 lb/A



2000 lb/A

dry weight



# Science, Cooperation, & Communication

**Farmers**



THE UNIVERSITY OF GEORGIA  
**COOPERATIVE  
EXTENSION**



PLANT  
INDUSTRY



**Industry  
Partners**



Cotton  
Incorporated