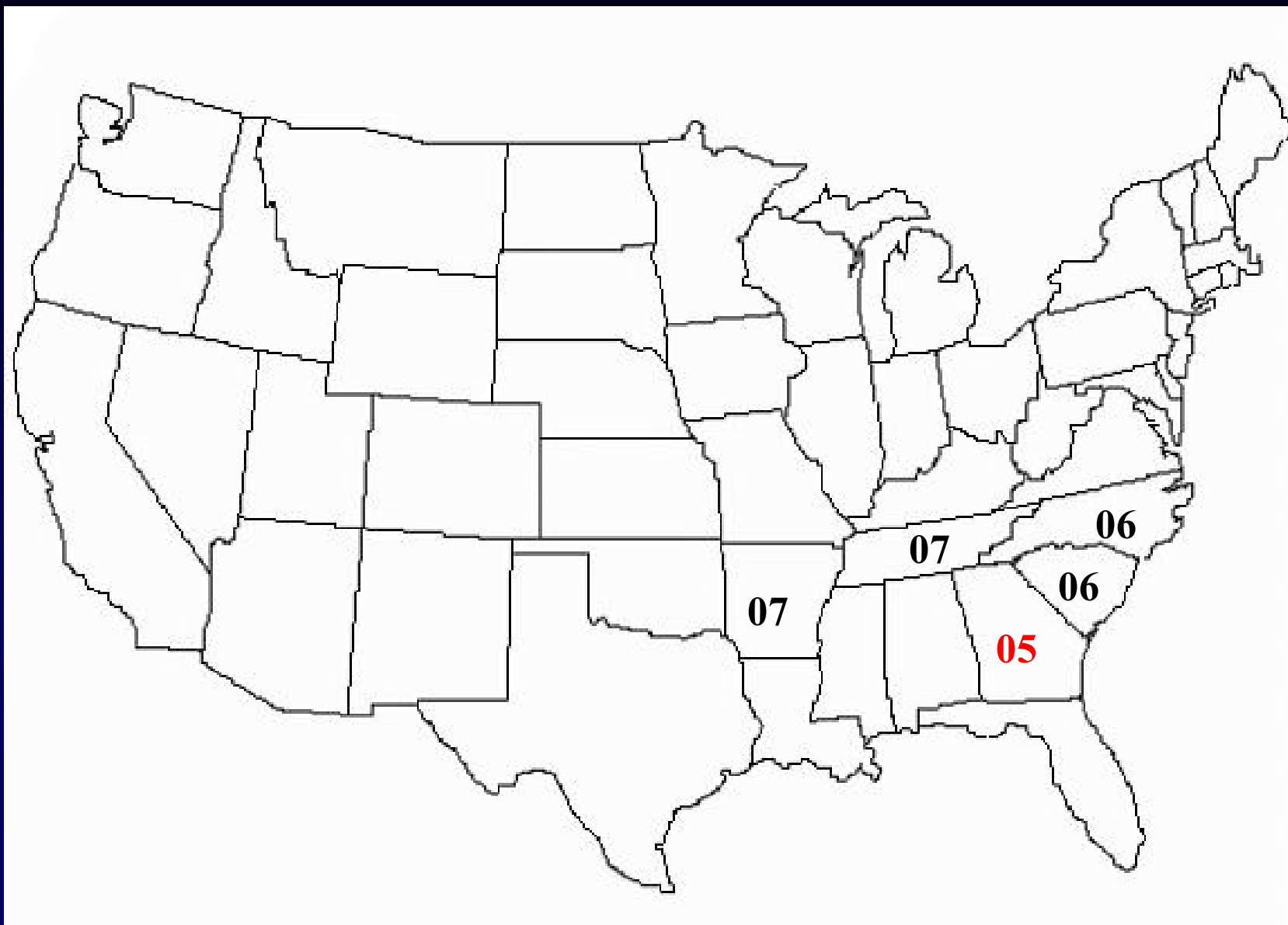


Glyphosate-Resistant Palmer amaranth response to weed management programs in Roundup Ready and Liberty Link cotton

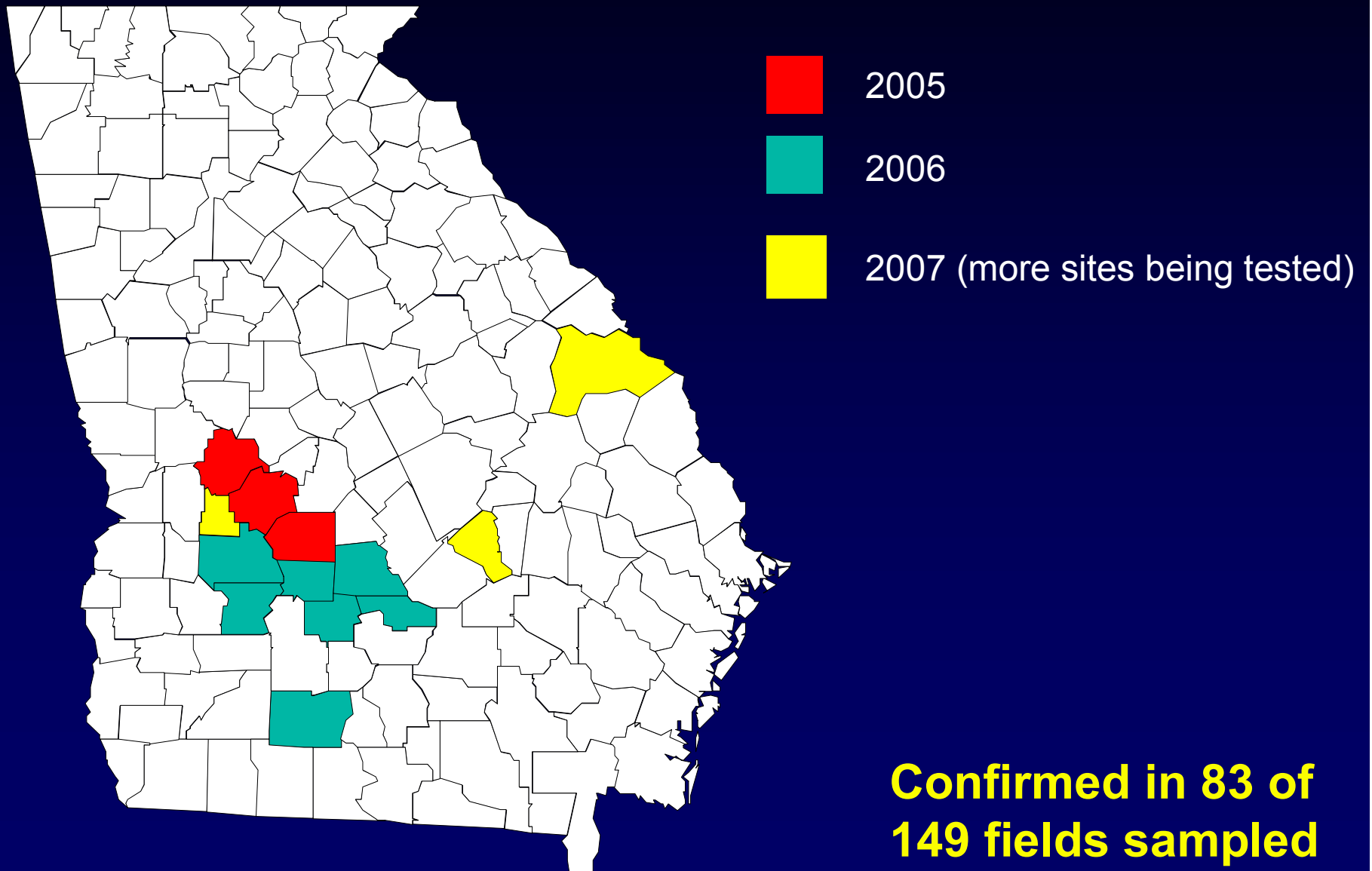


Culpepper, York, Kichler, MacRae

Glyphosate-resistant Palmer Amaranth Confirmed



Georgia counties sampled for glyphosate-resistant Palmer amaranth.





WeatherMax 88 oz at 1 inch
WeatherMax 88 oz at 4 inch
WeatherMax 88 oz at 12 inch

Objective

- Determine if Ignite-based programs were more effective than Roundup-based programs in managing glyphosate-resistant Palmer amaranth in DRYLAND cotton production

2007 Experiment Location: 2 Studies in Macon County



Greater than 98% of population is resistant



WeatherMax 66 oz/A



WeatherMax 264 oz/A

Palmer less than 2" when treated

Experiment 1: LL vs RR Systems

Plot size: 2 rows by 30 feet

Split Plot/Factorial Design

2 technologies

6 herbicide systems

2 tillage practices

RR Herbicide Systems*

DP 555 BRR

PRE

Prowl H₂O or Prowl H₂O + Reflex

POT 1

WMax

WMax + Dual Mag.

WMax + Staple

POT 2

WMax

WMax

WMax

*Direx + MSMA applied at layby for each herbicide program. Non-treated control included.

Prowl = 2 pt/A; Reflex = 1 pt/A; WMax = 22 oz/A; Dual Magnum = 1 pt/A; Staple LX = 1.7 fl oz/A

LL Herbicide Systems*

FM 1735 LLB2

PRE

Prowl H₂O or Prowl H₂O + Reflex

POT 1

Ignite

Ignite + Dual Mag.

Ignite + Staple

POT 2

Ignite

Ignite

Ignite

*Direx + MSMA applied at layby for each herbicide program. Non-treated control included.

Prowl = 2 pt/A; Reflex = 1 pt/A; Ignite = 23 oz/A; Dual Magnum = 1 pt/A; Staple LX = 1.7 fl oz/A



Cultivated 10 d after POT 1 and POT 2 Applications

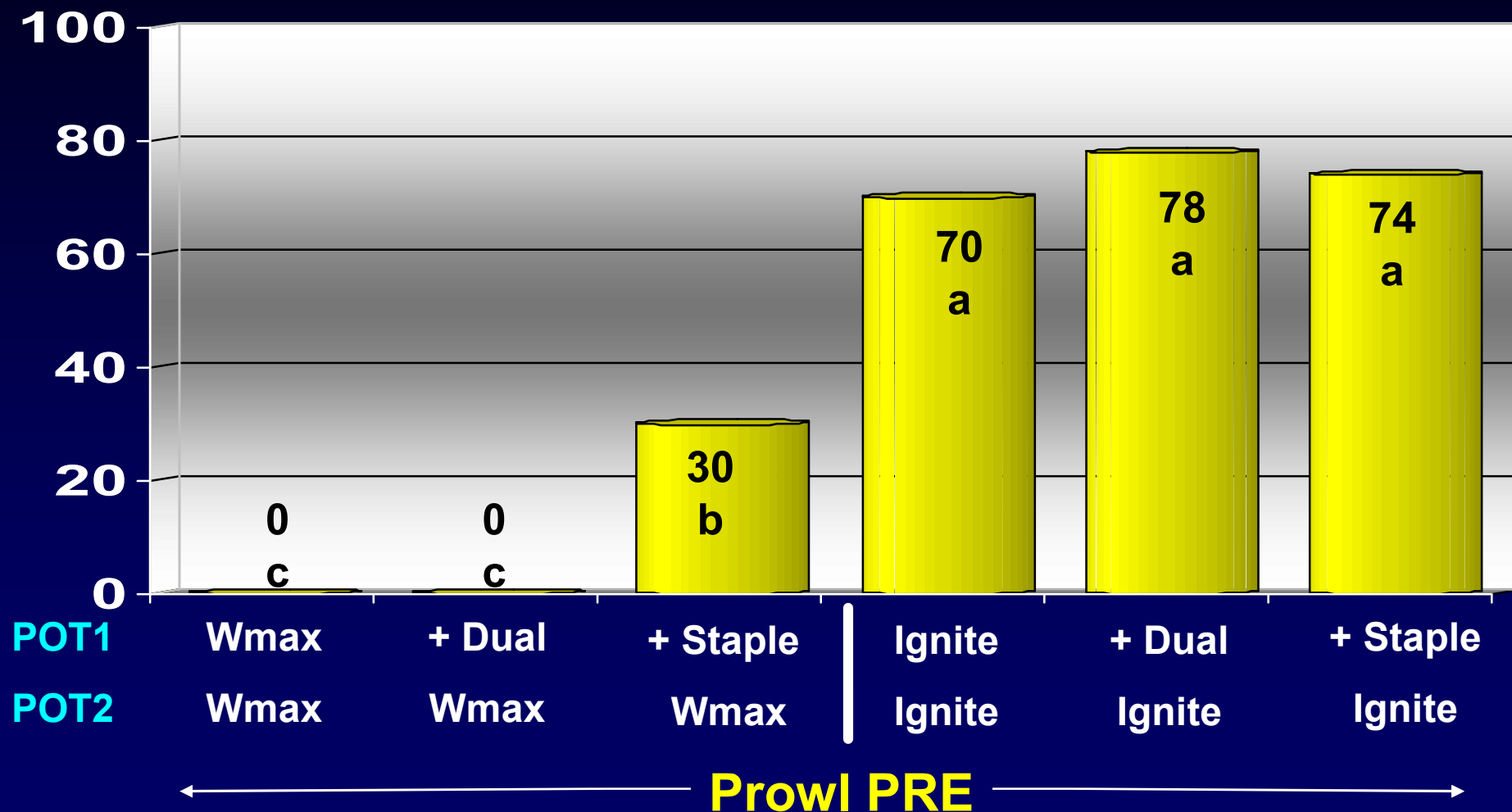
Weed and Cotton Size

PRE: no rain for 17 days

POST 1: 1 lf cotton,
2-4 inch Palmer
no rain for 21 d

POST 2: 6 lf cotton,
2 inch Palmer (new flush)

Percent glyphosate-resistant Palmer amaranth control at harvest. Macon Co., GA. 2007.*



Direx + MSMA directed over entire trial area.



**WeatherMax 22 oz +
Staple LX 2.5 oz/A + NIS
35 DAT, 2" when treated**



**WeatherMax 44 oz +
Staple LX 5.0 oz/A + NIS
35 DAT, 2" when treated**

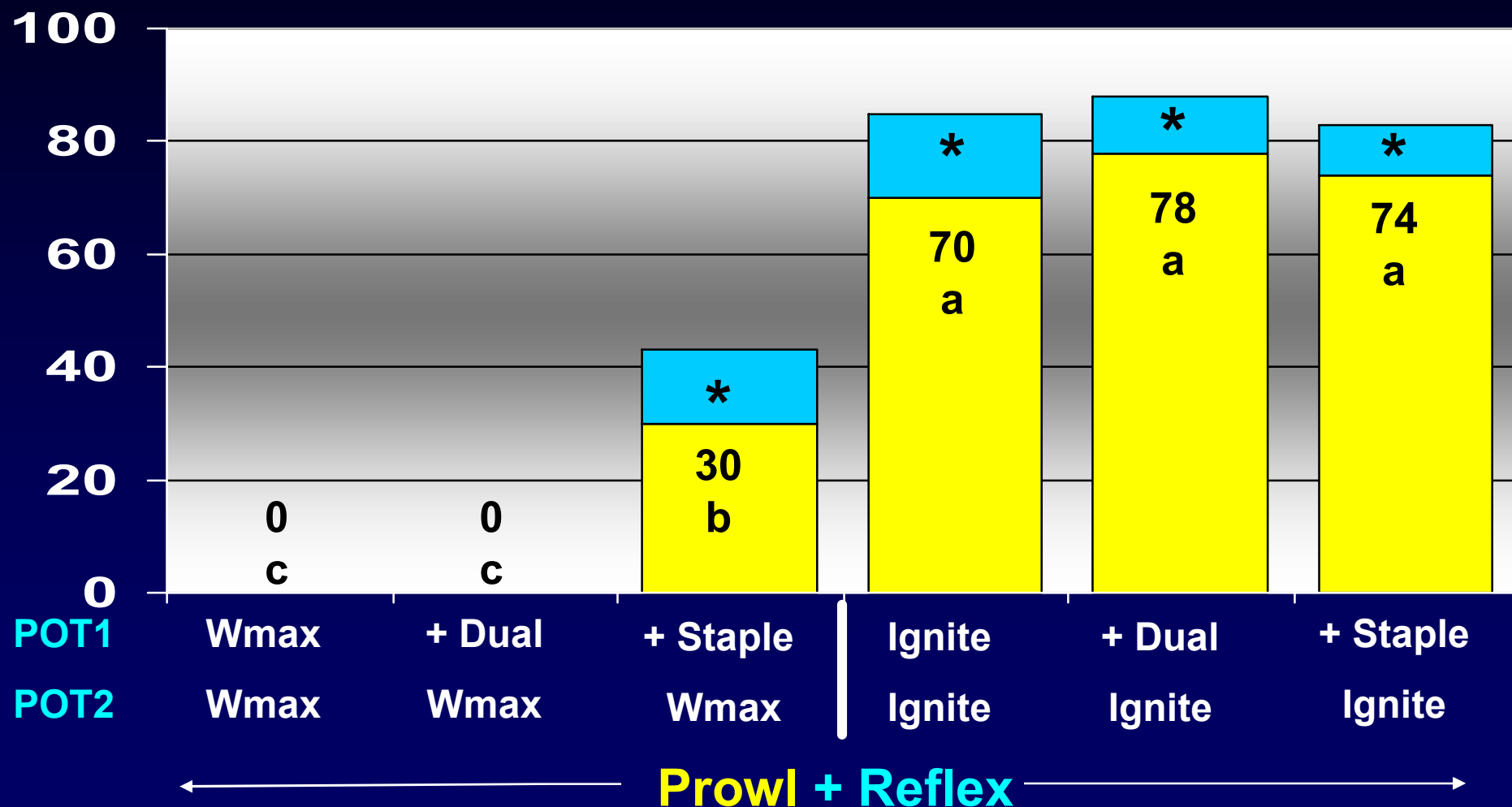
**WeatherMax 88 oz +
Staple LX 10.0 oz/A + NIS
35 DAT, 2" when treated**



**WeatherMax 176 oz +
Staple LX 15.0 oz/A + NIS**
35 DAT, 2" when treated

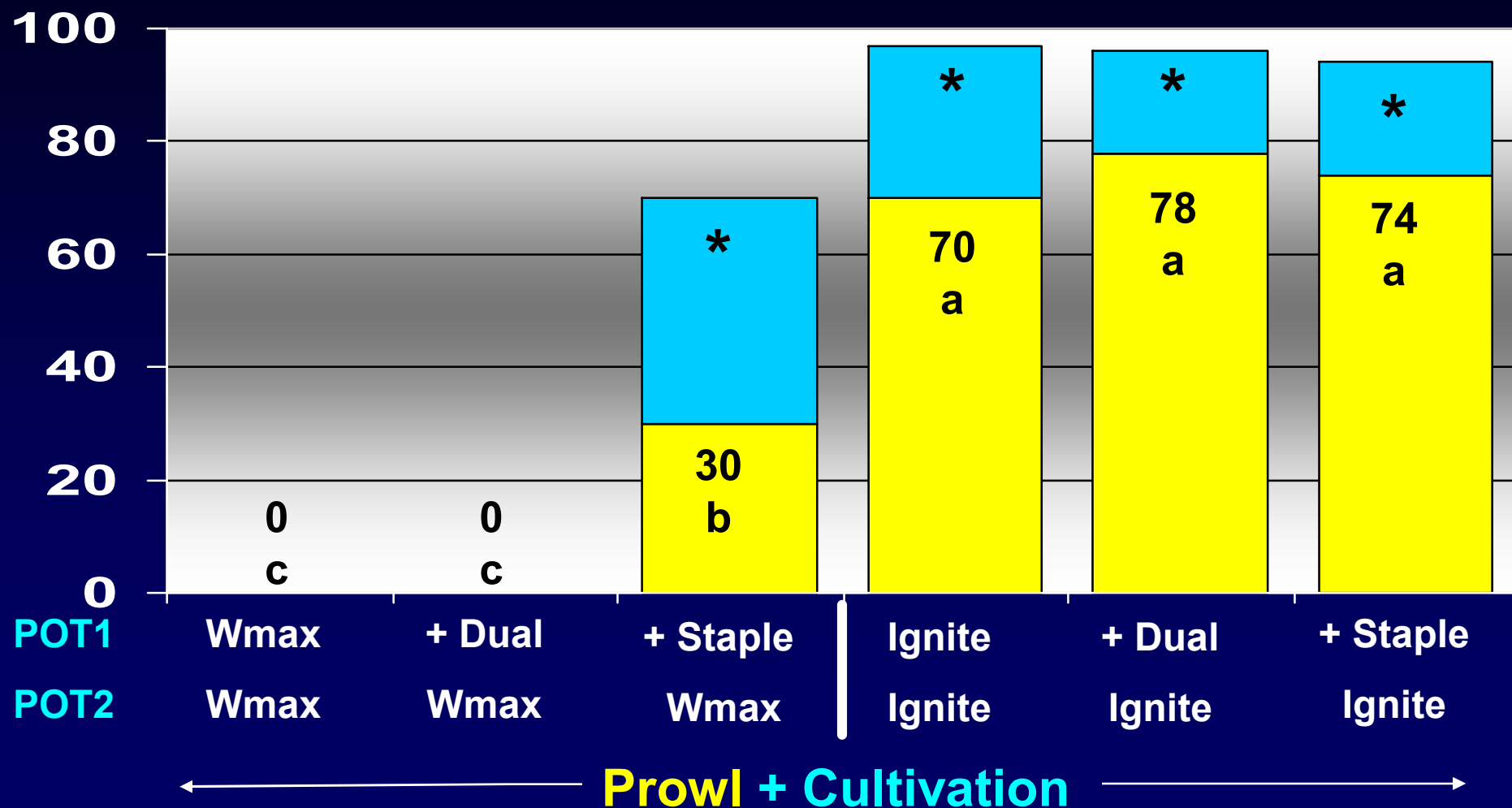


Percent glyphosate-resistant Palmer amaranth control at harvest. Macon Co., GA. 2007.*



Direx + MSMA directed over entire trial area. * denotes improved control by adding Reflex.

Percent glyphosate-resistant Palmer amaranth control at harvest. Macon Co., GA. 2007.*



Direx + MSMA directed over entire trial area. * denotes improved control by adding Reflex.

Prowl + Reflex PRE and Glyphosate POST.

Rainfall 17 d after PRE



No Cultivation



Cultivation

Prowl + Reflex PRE and Ignite POST.

Rainfall 17 d after PRE



No Cultivation



Cultivation

Prowl + Reflex PRE; WMax or Ignite + Staple POST 1;
WMAX or Ignite POST 2; Direx + MSMA Layby

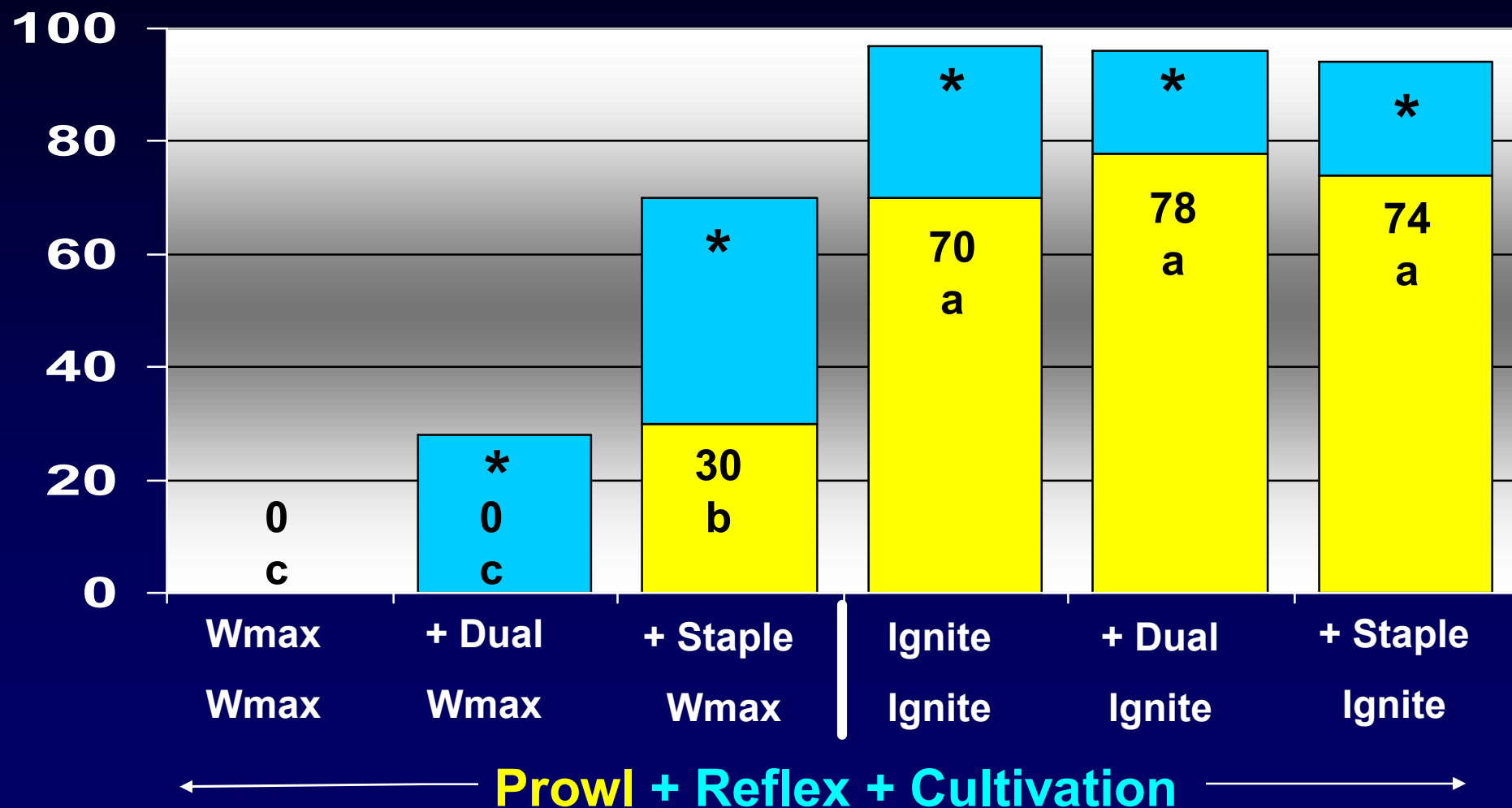


WMAX system



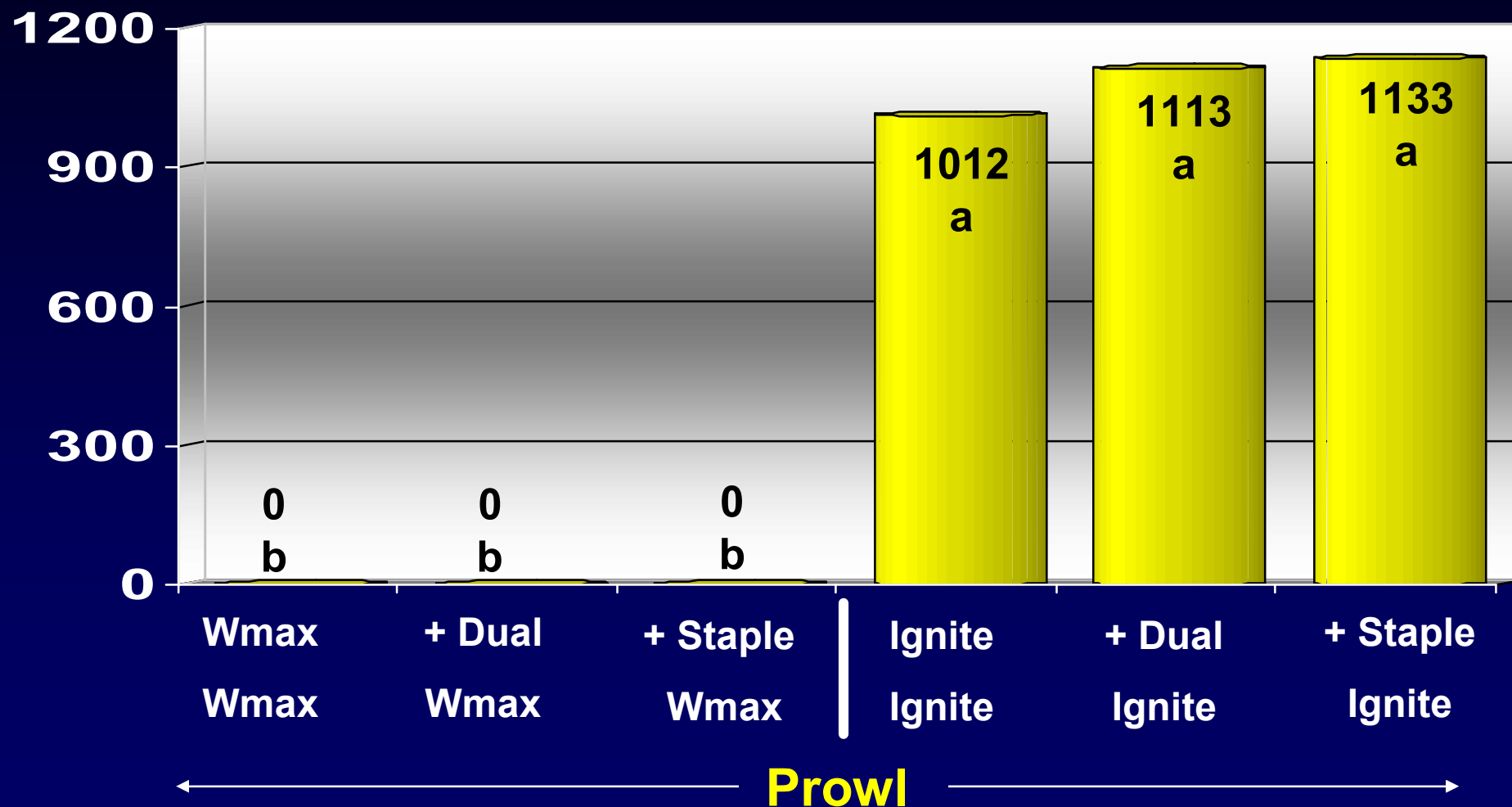
Ignite System

Percent glyphosate-resistant Palmer amaranth control at harvest. Macon Co., GA. 2007.*



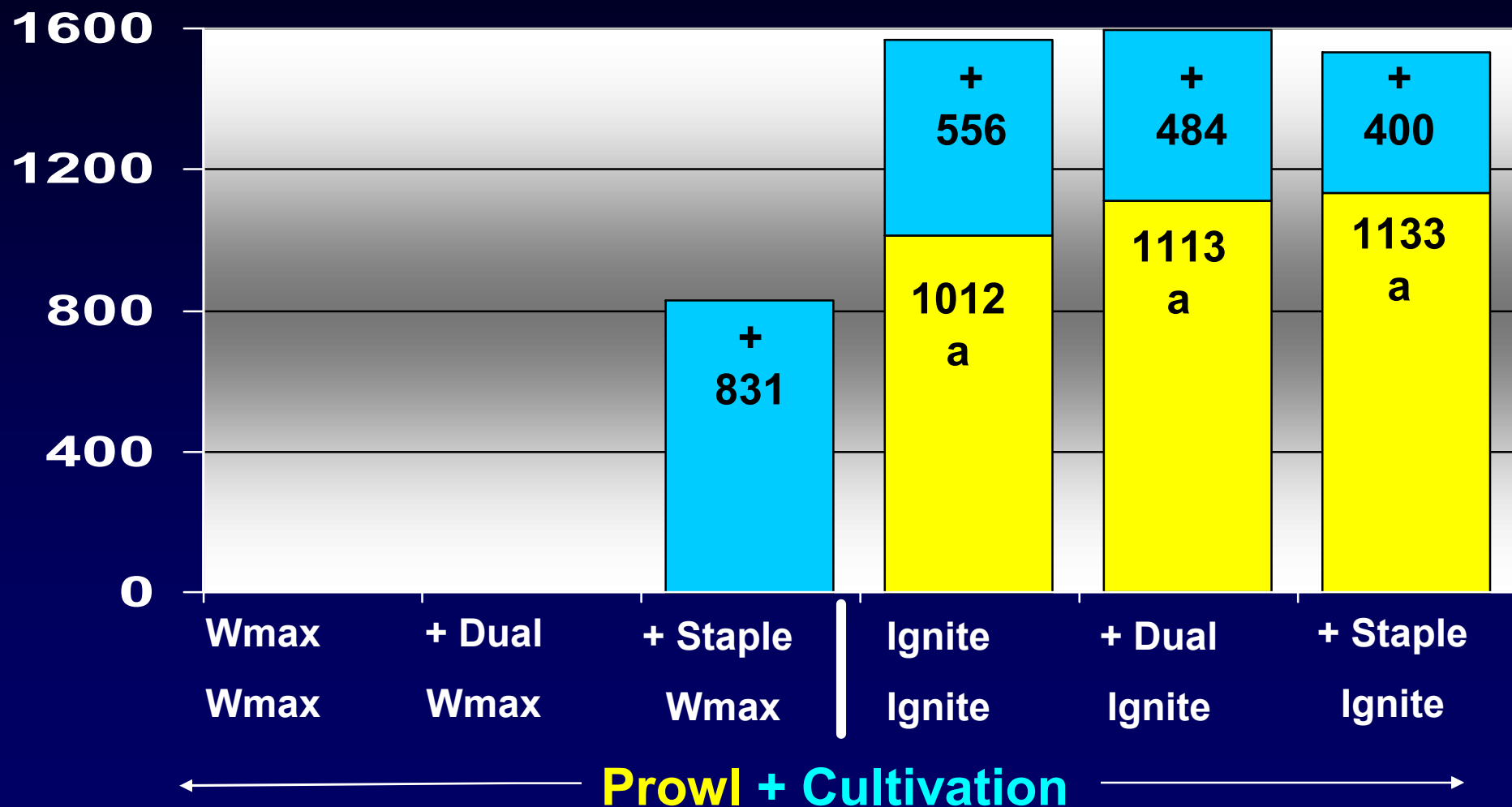
Direx + MSMA directed over entire trial area. * denotes improved control by adding Reflex.

Seed cotton yield in RR and LL weed management programs. Macon Co., GA. 2007.*



Direx + MSMA directed over entire trial area.

Seed cotton yield in RR and LL weed management programs. Macon Co., GA. 2007.*



Direx + MSMA directed over entire trial area. * denotes improved control by adding Reflex.

Exp 2: Evaluating large scale Ignite-based programs

Plot size: 12 rows by 1200 feet; 4 reps

Treatments

PRE	POT1	POT2
None	Ignite	Ignite
Reflex		
Direx + Reflex		

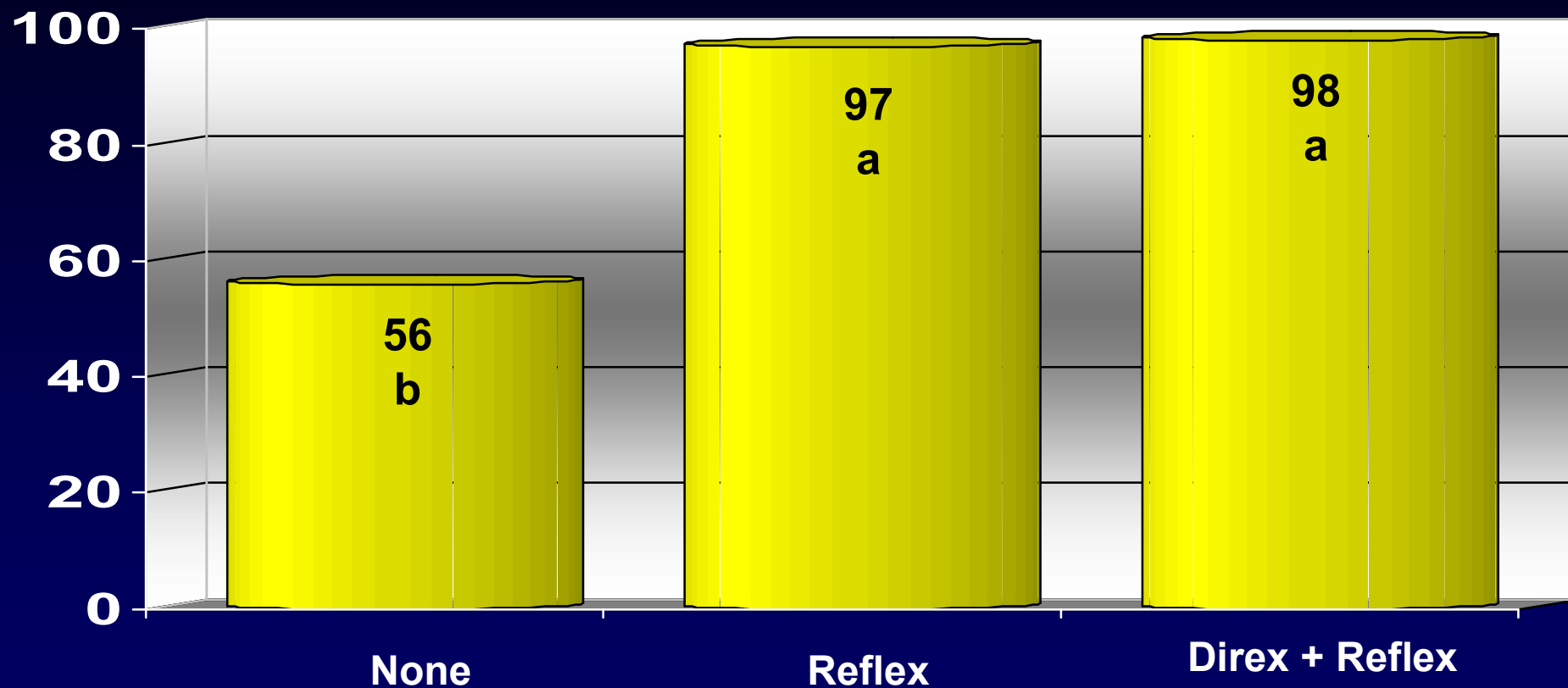
Layby Pro + MSMA directed over entire trial area.

Glyphosate-resistant Palmer Amaranth Infesting RR Cotton

2006 – Glyphosate based program in **dryland production**

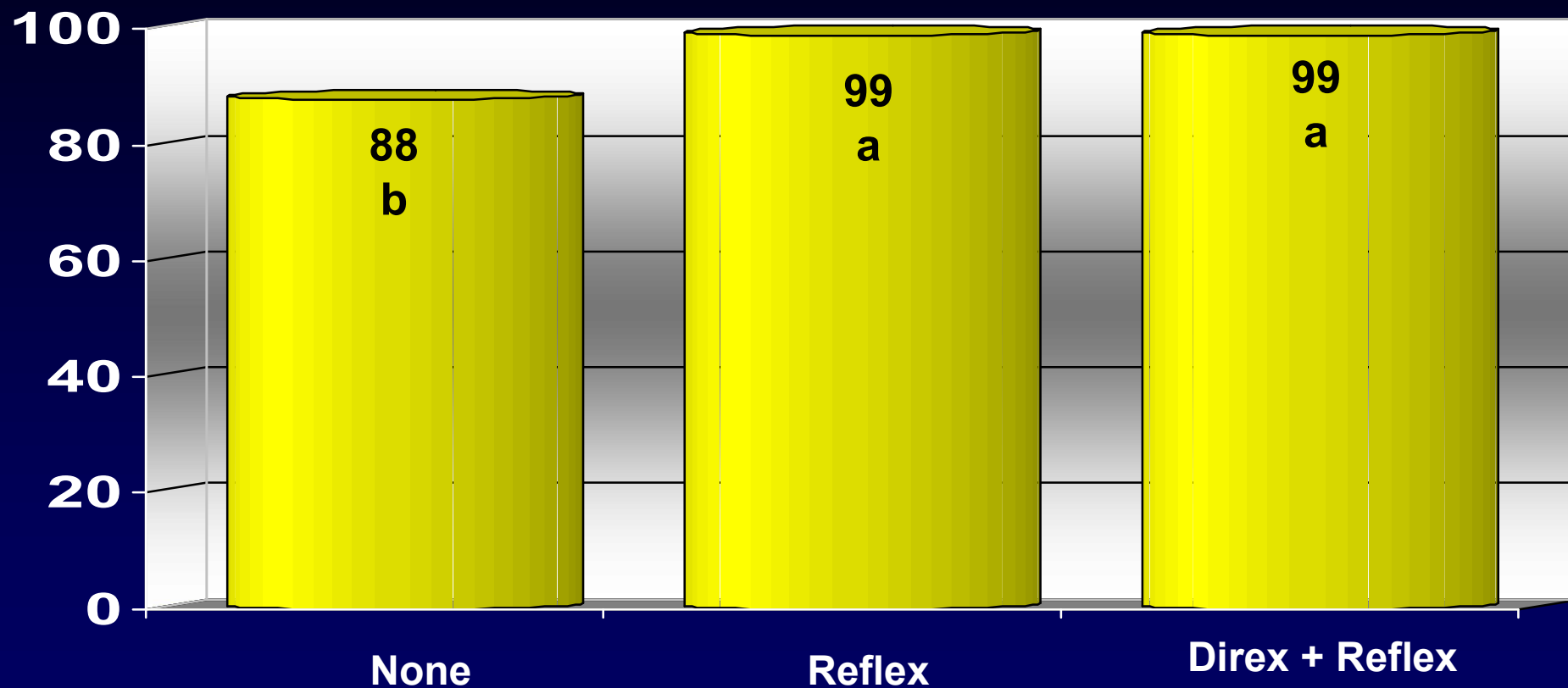


Percent glyphosate-resistant Palmer amaranth control at mid-season. Macon Co., GA. 2007.*



Ignite POT 1

Percent glyphosate-resistant Palmer amaranth control at mid-season. Macon Co., GA. 2007.*



Ignite POT 1 and POT 2
Layby Pro + MSMA directed

Glyphosate-resistant Palmer Amaranth

2007 – Ignite based program in **dryland production**



Non-treated

Direx + Reflex PRE

Ignite 2" POST 1

Ignite 2" POST 2

LaybyPro + MSMA layby

Conclusions

1. Morningglory controlled > 98% by all programs in both experiments.
2. Greater control of glyphosate-resistant Palmer amaranth was noted with Ignite-based programs.

Limitations to LL system adoption:

- **Cultivar Selection**
- **Spraying Palmer 2 inch or less**

Conclusions

3. Cultivation important for RR & LL programs.
4. LL programs with cultivation provided greatest control, and greatest yields.
5. DP 555 BR - tillage, new herbicide chemistry, or the ability to manage water
6. With 555 BR being removed from the market place after 2009....cotton tolerant to Ignite looks very promising!

A close-up photograph of a green, spiky plant with several bumblebees perched on its stems. The background is a blurred green field.

Comments?

**Efforts supported by GA Cotton
Commission, Cotton Incorporated,
Cotton Foundation, and Industry**