

Distribution and Management of Glyphosate- Resistant Italian Ryegrass

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Topics for Discussion

- Italian ryegrass background
 - Biology
 - Distribution of glyphosate-resistant (GR) populations
- Management programs
 - Emergence patterns
 - Residual herbicide timing
 - Spot treatments
 - POST herbicide timing
 - Spring salvage



Italian Ryegrass Biology

- **Environment**

- Fertile soils in areas with mild climates
- Low tolerance for harsh winter conditions

- **Emergence**

- Peaks in fall but emerges throughout winter months
- 6 to 10 d when day-time temperatures are 50 to 87 F

- **Growth**

- Rapid seedling growth continuing into winter and spring

- **Reproduction**

- Open pollination; propagates exclusively by seeds
- Seed dispersal in vicinity of parent

Italian Ryegrass Resistance

- First GR *Lolium* spp. – Rigid ryegrass; Australia, 1996
- First GR Italian ryegrass – Chile, 2001
- First GR Italian ryegrass in U.S. – Oregon, 2004
- First GR Italian ryegrass in crops – Mississippi, 2005
- GR Italian ryegrass documented in Arkansas (2008), North Carolina (2009), Louisiana (2010)
- Italian ryegrass with **multiple resistance** to glyphosate, ALS inhibitors, and ACCase inhibitors in 7 counties in the Mississippi Delta.

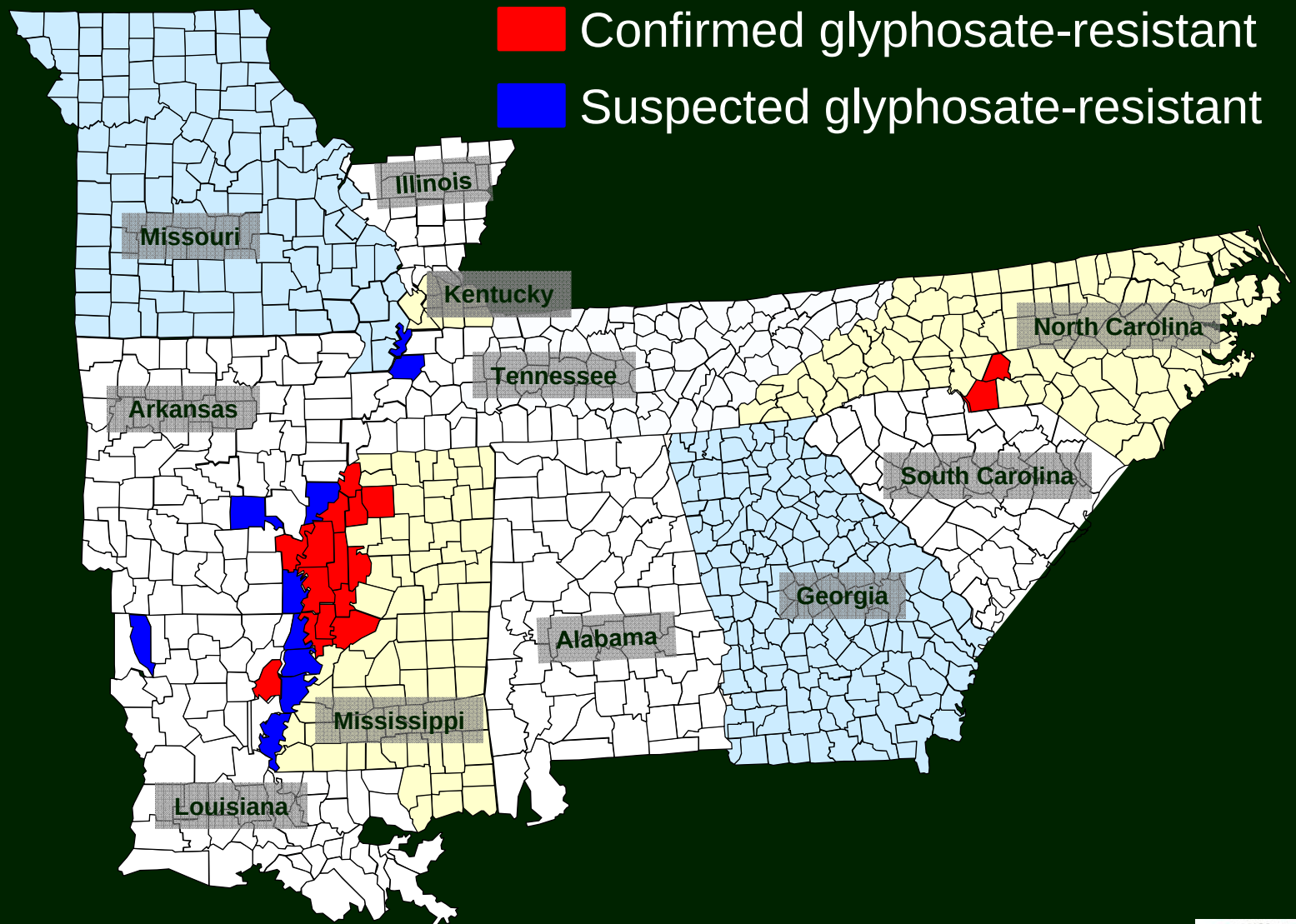
Source: www.weedscience.org



Resistance Comparison

- ***Lolium* spp. (ryegrass)**
 - 4 species; 10 herbicide MOA; 17 countries
 - Italian ryegrass – 4 herbicide MOA; 11 U.S. states
- ***Amaranthus* spp. (pigweeds)**
 - 7 species; 9 herbicide MOA; 16 countries
 - Palmer amaranth – 4 herbicide MOA; 13 U.S. states
- ***Echinochloa* spp. (barnyardgrass)**
 - 6 species; 11 herbicide MOA; 27 countries
 - Barnyardgrass – 5 herbicide MOA; 6 U.S. states

GR Italian Ryegrass



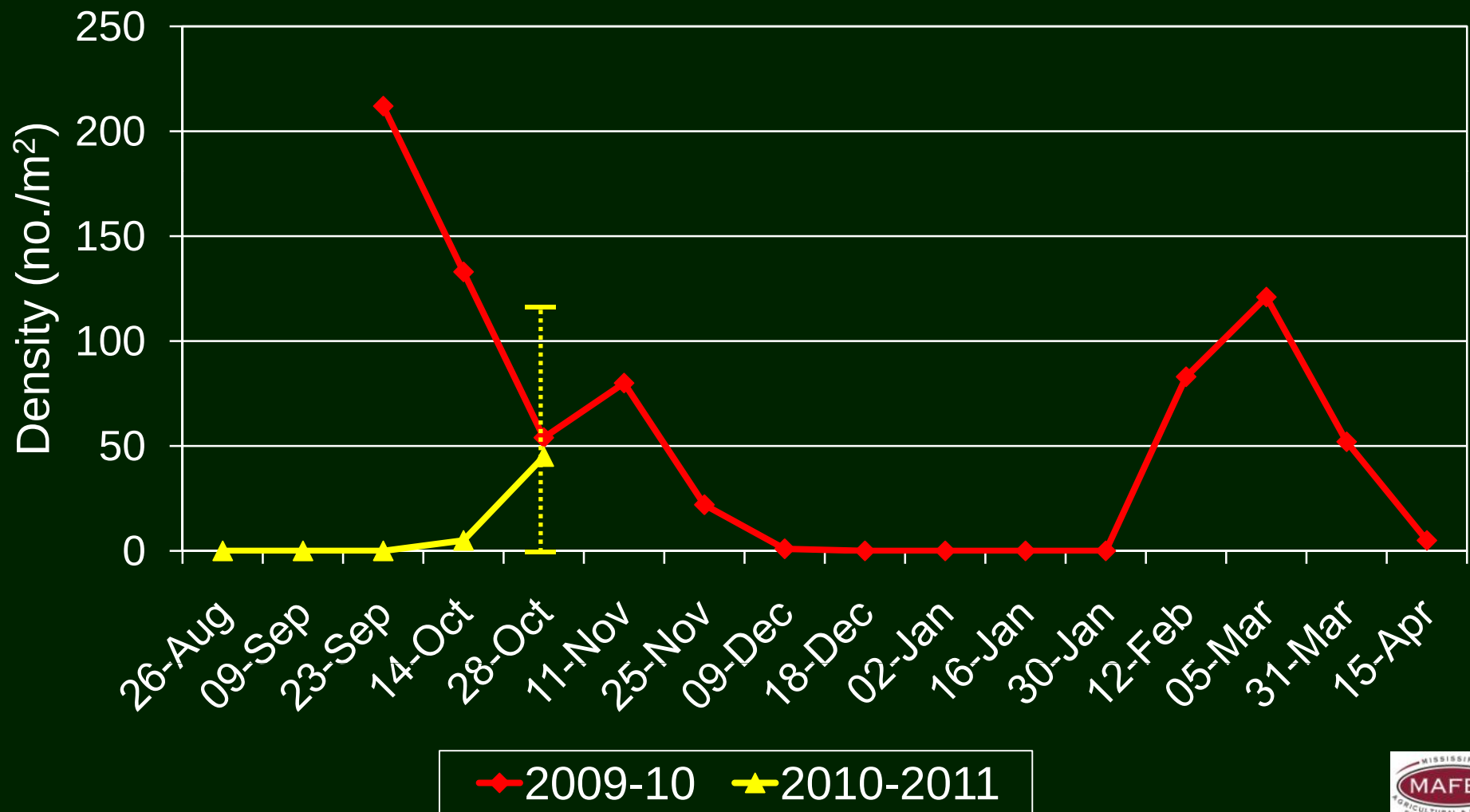


Management Programs



Emergence Patterns

GR Italian Ryegrass Emergence in Mississippi

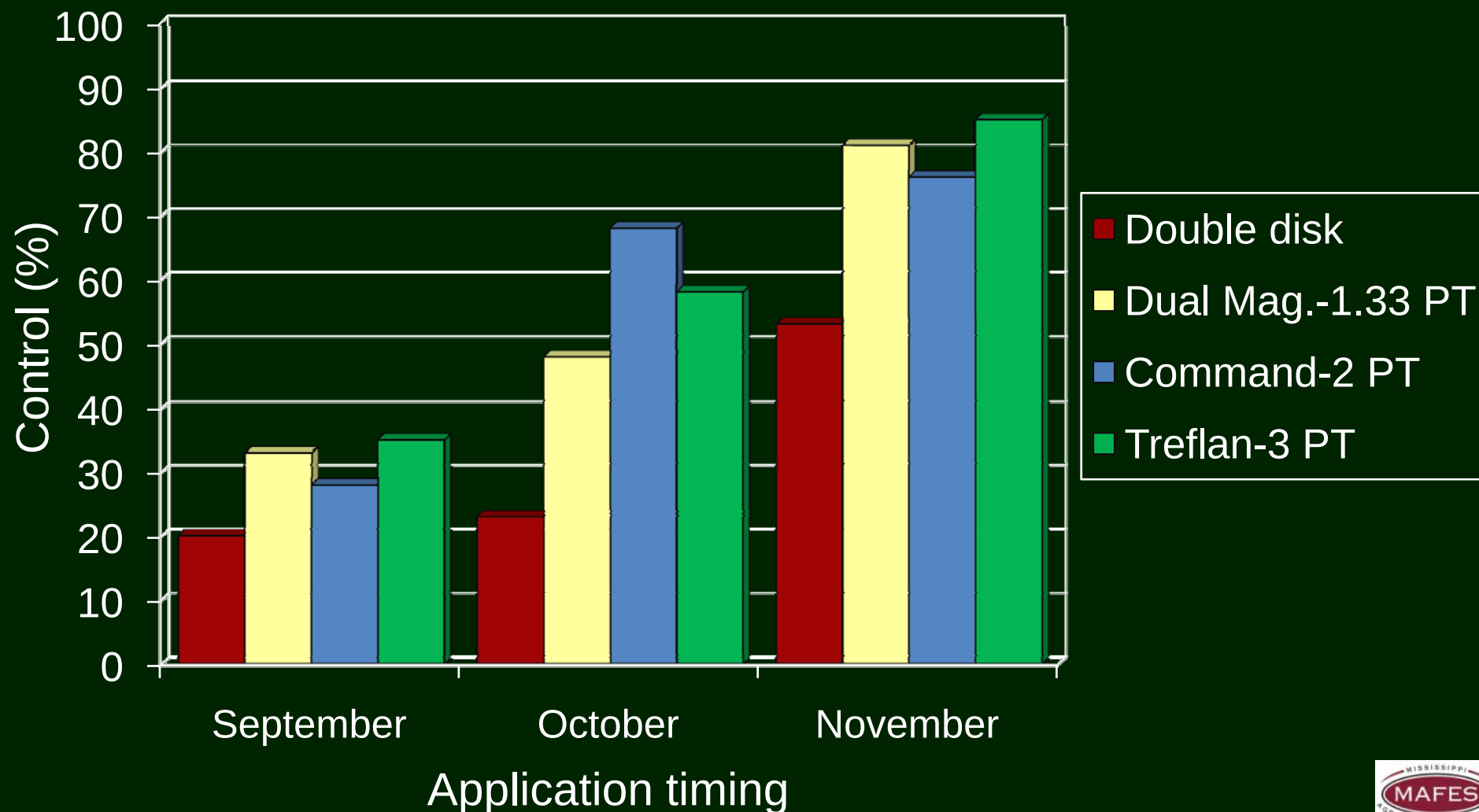


Management Programs

- Apply residual herbicide when weather permits from mid-October to mid-November.
- Control emerged GR Italian ryegrass in the fall with aggressive tillage or Gramoxone Inteon.
- Manage GR Italian ryegrass on ditch banks, turn roads, and field borders.
- Scout fields in early- to mid-January to make spring management decisions.
- Control **ALL** escapes prior to planting.

Residual Herbicide Timing

GR Italian Ryegrass Control on March 31, 2010



September



October



November



Dual Magnum at 1.33 PT/A



Treflan at 3 PT/A + double disk

Double disk; November



Treflan + double disk; Nov.



2 wk after double disk



2 wk after Treflan + double disk



POST Control + Residuals



Dual Magnum at 1.33 pt/A + Gramoxone Inteon at 3 pt/A

Manage Field Borders



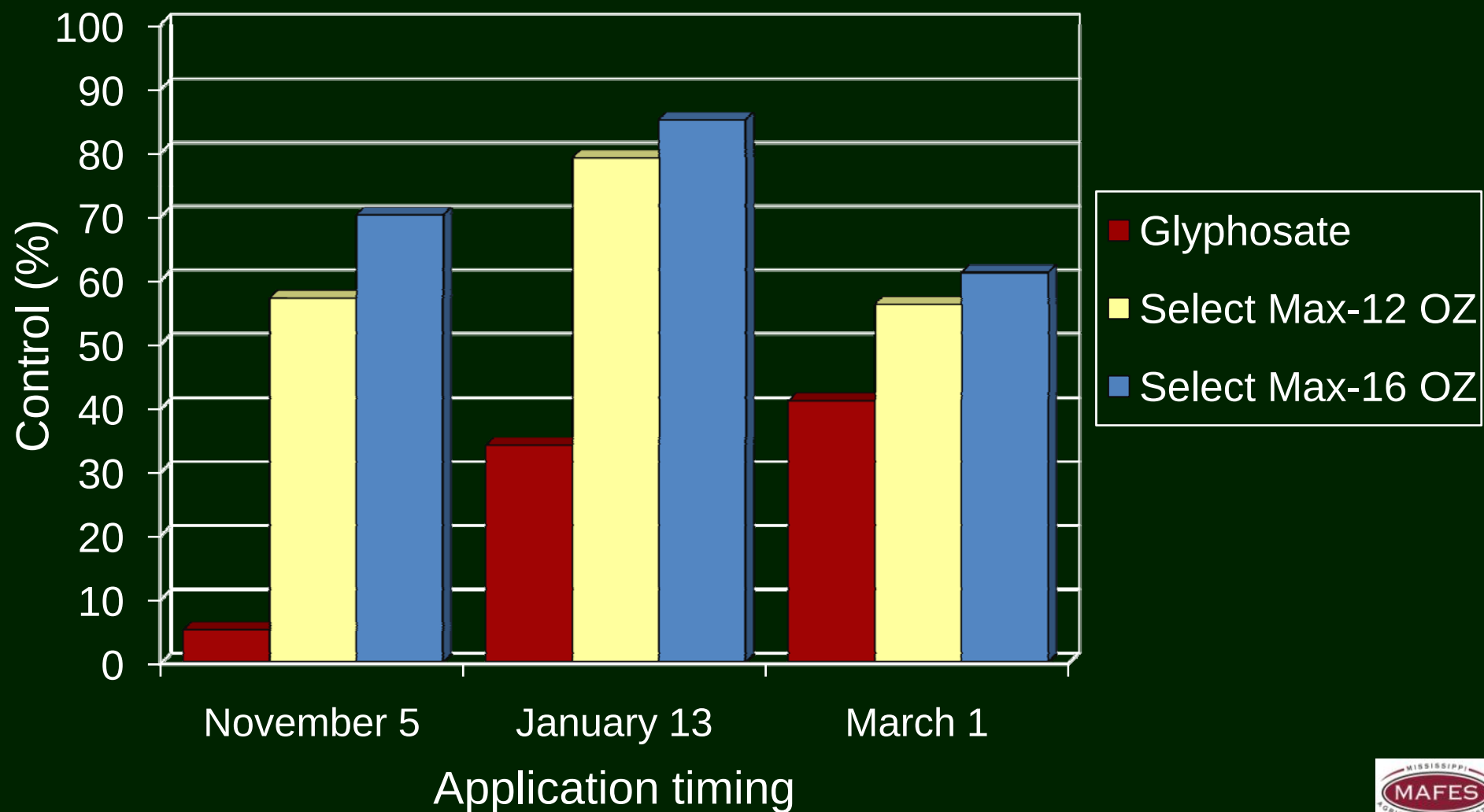
Select Max on turn roads in February

Dual Magnum around field border



POST Herbicide Timing

GR Italian Ryegrass Control on March 31, 2010



January 13 application



March 1 application



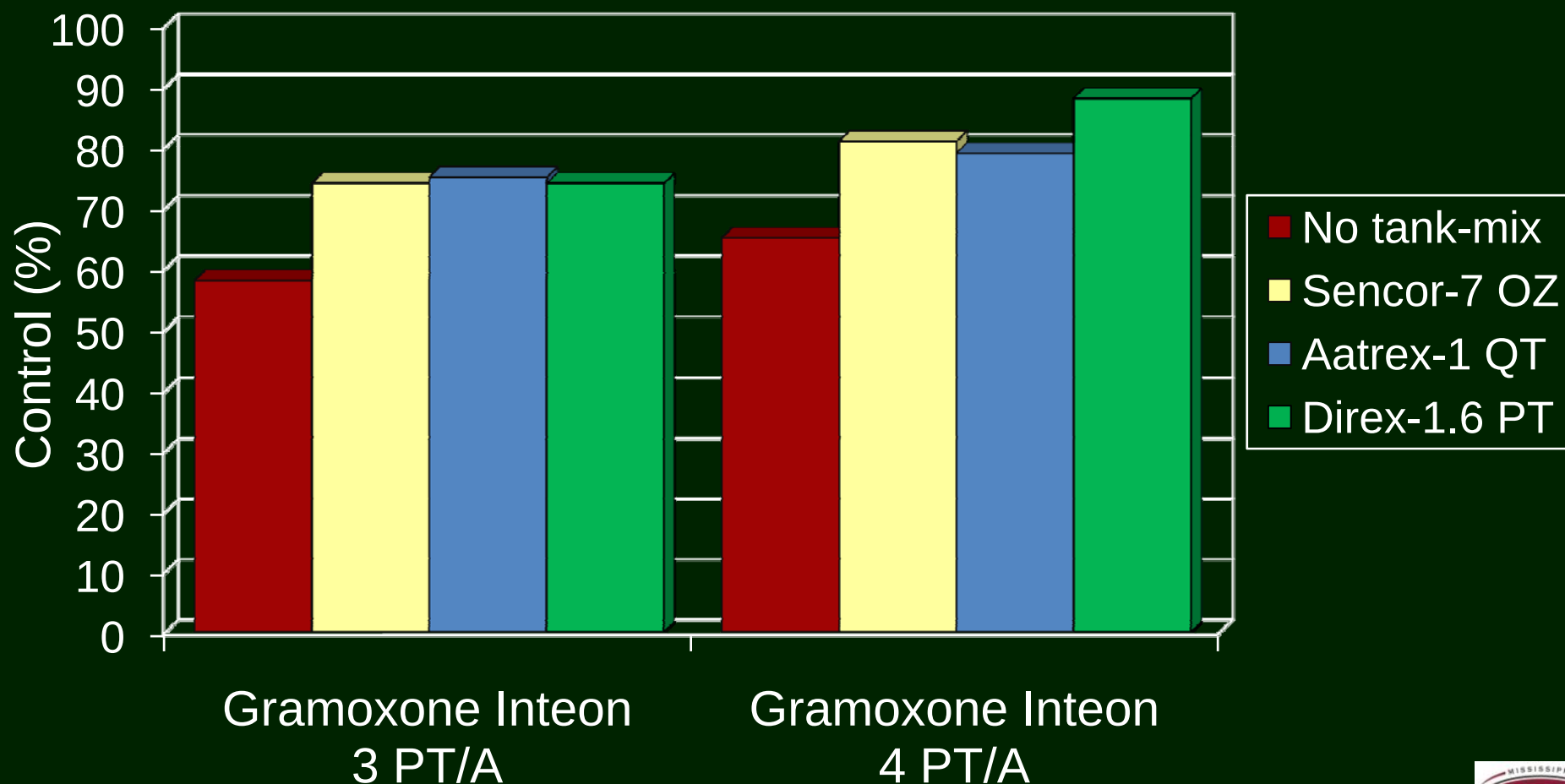
Roundup WeatherMax at 22 OZ/A



Select Max at 16 OZ/A

Spring Salvage Applications

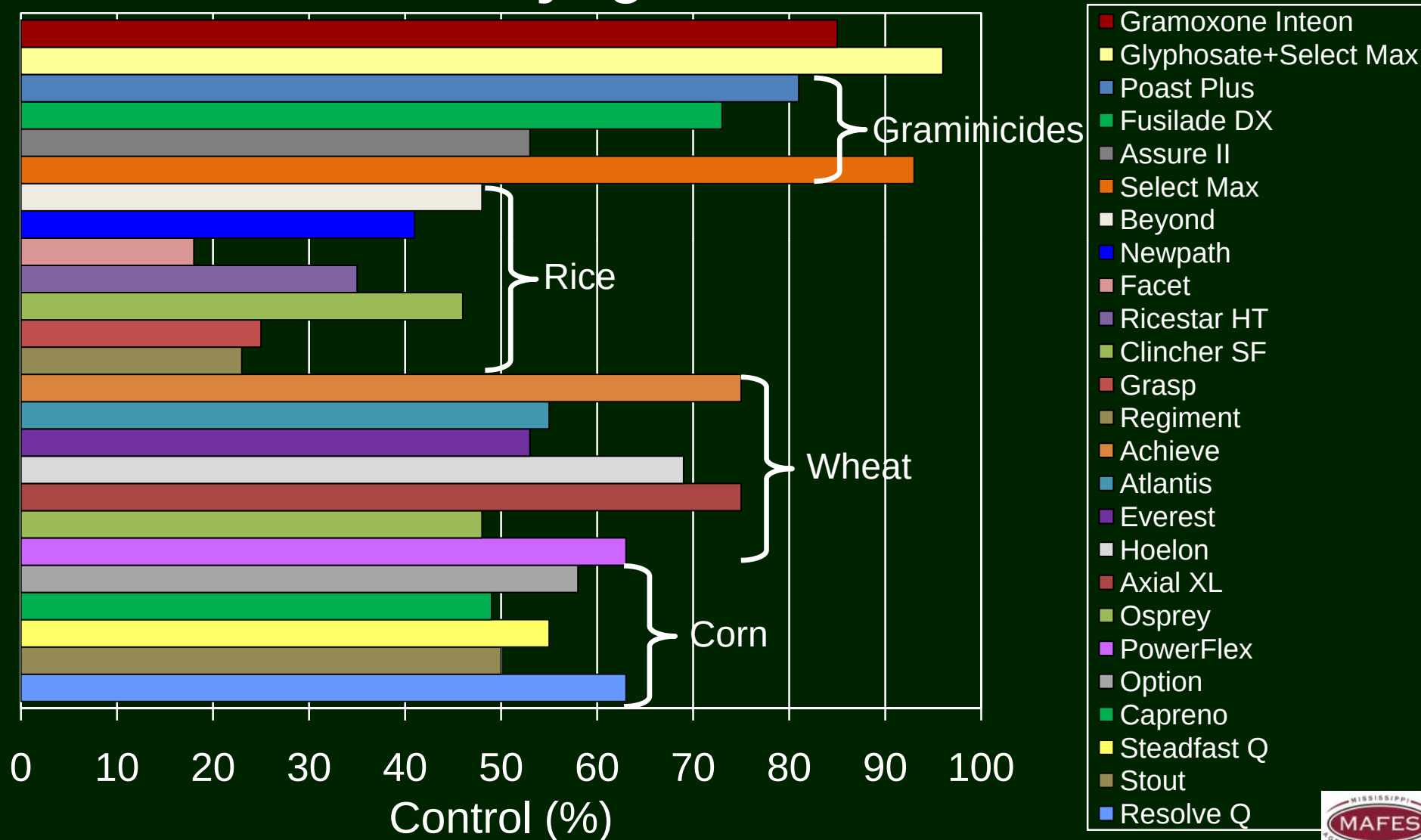
Gramoxone Inteon Tank-mixtures GR Italian Ryegrass Control 28 DAT





Alternative Herbicides

GR Italian Ryegrass Control 82 DAT



Summary

- Residual herbicide in mid-October to mid-November
 - Cotton/soybeans – Dual Magnum at 1.33 pt/A
Treflan at 3 pt/A + double disk
 - Corn – Dual Magnum at 1.33 pt/A
 - Rice – Command at 2 pt/A
- Scout – Do not let ryegrass get too big in spring.
- Complete control prior to planting.
 - Select Max at 12 to 16 oz/A in early spring
 - Gramoxone Inteon at 3 to 4 pt/A preplant
- Herbicide short list: <http://msucares.com/crops/weeds/>

Dates of Interest

November 17, 2010

Pigweed Symposium

East Arkansas Community College

Forrest City, AR

March 10, 2011

GR Italian Ryegrass Field Day

MSU Delta Research and Extension Center

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Questions?

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