Impact and Management of Glyphosate-Resistant Weeds in the Southern Region

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Glyphosate – Resistant Horseweed
Spread of GR Horseweed

2001 to 2002

2003 to 2004

2005 to 2006
GR Horseweed

- Tennessee
  - All cotton acres
    - West TN 3-4 years
  - 80% of the soybean acres
  - 1% of the corn acres (2005)
Typical horseweed burndown in 2003 and 2004
GR Horseweed Management

- Burndown
  - Glyphosate + Clarity has been the standard
  - Does not always fit a producers needs
    - Timing
    - Horseweed emergence after burndown
  - Other options are needed
Horseweed Control
March 30th Application

- Roundup WM 22 oz + Clarity 8 oz
- Ignite 32 oz + Clarity 8 oz
- Ignite 32 oz + Clarity 4 oz
- Ignite 32 oz + 2,4-D 32 oz
- Gramoxone Max 32 oz + Clarity 8 oz
- Roundup WM 22 oz
- Ignite 32 oz
- Gramoxone Max 32 oz

LSD = 13

% Control 40 DAT
Horseweed Control

April 14th Application

- Ignite 32 oz
- Ignite 32 oz + Caparol 32 oz
- Ignite 32 oz + Cotoran 32 oz
- Ignite 32 oz + Direx 16 oz
- Gramoxone Max 32 oz
- Gramoxone Max 32 oz + Caparol 32 oz
- Gramoxone Max 32 oz + Cotoran 32 oz
- Gramoxone Max 32 oz + Direx 16 oz

LSD = 13

% Control 40 DAT

0 20 40 60 80 100

LSD = 13
Gramoxone Max 32 oz + Caparol 32 oz
## Horseweed Burndown for Cotton

<table>
<thead>
<tr>
<th>March</th>
<th>April</th>
<th>May</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newly emerged to rosette</td>
<td>Gramoxone/Ignite + Caparol 32 oz or Cotoran 32 oz or Direx 16 oz</td>
<td>Bolting up to 6” horseweed (Mid-April to Cotton Emergence)</td>
</tr>
<tr>
<td>(March to mid-April)</td>
<td>21 DBP</td>
<td></td>
</tr>
<tr>
<td>Glyphosate/Gramoxone/Ignite + Clarity 8 ozs</td>
<td>21 DBP</td>
<td></td>
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</tbody>
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*Notes:*
- March to mid-April: Newly emerged to rosette
- Mid-April to Cotton Emergence: Bolting up to 6” horseweed
GR Horseweed Management

➤ Soil Residuals

▪ What they add:

✓ Tankmixed with Gramoxone or Ignite greatly increase burndown of GR horseweed

✓ Applied behind the planter provide good control until a hooded application
Soil Residual Herbicides for GR Horseweed
Soil Residual Herbicides for Cotton

- Large increase in use in 2005
- Caparol, Cotoran, Direx, Dual Magnum, Prowl and Valor
- Control of Resistant Horseweed
- Palmer Weed Control
GR Horseweed Impact

- Reduction in reduced-till acres
- Yield reduction
- Increase cost for producers
  - Cotton $15 to $25/Acre
  - Soybean $5 to $12/Acre
- Indirect cost
  - Increased crop injury
  - Increase in sprayer contamination
Palmer Amaranth Status in Tennessee
Palmer amaranth

- Field Work
- 4 Locations
- 1 Suspect Resistant and 1 Random
- Sprayed 11, 22, 44 and 88oz/A of Roundup WeatherMax
- Rated 21 DAA
Palmer Greenhouse Screen

- Rates were 6, 11, 22, 44 and 88 oz of RWM
- Better control than in the field
- Lauderdale County GR $^{50} 1.5x$
- Crockett County GR $^{50} 2x$
Experiment 1: Palmer 3 to 5 inches when treated. Dual Magnum applied over entire trial to eliminate continual emergence.

Georgia GR Palmer Amaranth

WeatherMax

| 33 oz |
| 66 oz |
| 132 oz |
| 198 oz |
| 264 oz |
Glyphosate-Resistant Palmer Amaranth (2005)

- **Georgia** – 3 plus counties ( >12x resistant)
- **North Carolina** 3 plus counties ( >?x resistant)
- **Tennessee** 2 counties (1.5 – 2x tolerant)
Questions