“A southeastern perspective on herbicide resistance”

National Alliance of Independent Crop Consultants
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Confirmed Number of Herbicide-Resistant Weed Species in the Cotton Belt

Source: International Survey of Herbicide Resistant Weeds (12/28/09)
Glyphosate-Resistant Weeds in NC
Glyphosate-resistant common ragweed

96 oz Weathermax  Untreated
Glyphosate-resistant ryegrass
Marestail

- Selection not just from growers using Roundup excessively,
  - DOT rights of way
  - Railroad beds

Select for resistance
Marestail:

- Primarily started with NO-TILL, TN 2000
- More Widespread by 2003
- Exploded in 2008, 2009
- Required changes in materials on pre’s and burndown programs.
Palmer amaranth seedbank – it is the key!

**YEAR 1:** 5 Palmer females escape

Produce 2,000,000 seeds in cotton (50% germ)

**YEAR 2:**

Weed program = 99.9% control

1,000 plants per acre left at harvest

400 female plants/A

160,000,000 seeds produced in cotton (50% germ)

**YEAR 3:**

Weed program 99.9% control

80,000 plants per acre left at harvest

32,000 female plants/A = $1.28 \times 10^{10}$ seed/A
Distribution of glyphosate-resistant Palmer amaranth, 2005.

17% of samples glyphosate-resistant

18% of samples ALS-resistant
Figure 1. Sample sites for the 2010 survey.

274 sites checked, Palmer amaranth present at 130.
Figure 2. Distribution of Palmer amaranth in 2010.
Palmer amaranth resistance in North Carolina

<table>
<thead>
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<th>2010</th>
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<td>Glyphosate only</td>
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In view of this intensive pressure, how have we managed?
Palmer amaranth resistance in North Carolina

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<tr>
<td>Fomesafen (Reflex, PPO)</td>
<td>0%</td>
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<td>Glufosinate (Liberty)</td>
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Recognition that pre’s won’t work if it does not rain.

There may be crop failure.
Controlling GR Palmer amaranth by Developing Integrated Programs
— Special Thanks To:

» Alan York
» Stanley Culpepper,
» Larry Steckel, and
» Consultant Friends