Glyphosate-Resistant Palmer Amaranth

A Threat to Cotton and Soybean Production

Robert Nichols
Cotton Incorporated
Common Pigweed Species
(Amaranthus spp.) in North America

- Palmer Amaranth
- Common Waterhemp
- Prostrate Pigweed
- Powell Amaranth
- Redroot Pigweed
Palmer Amaranth (Amaranthus palmeri)

A dioecious annual weed, growing 4-8 feet tall, producing up to 500,000 seed per year.
Changing Pest Status of Palmer Amaranth


- Results of a Cotton Incorporated supported study – 22 sites years done in the states of FL, GA, LA, MS, MO, NC, TN, TX

- Data for 15 most common weeds reported. No data published for Palmer amaranth
## Relative Growth of Pigweeds

<table>
<thead>
<tr>
<th>Plant Type</th>
<th>Weeks Growth</th>
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|                            | -----
| Palmer amaranth            | 4 | 10| 38 |
| Red Root Pigweed           | 3 | 7 | 24 |
| Common Waterhemp           | 2 | 4 | 16 |
| Smooth Pigweed             | 2 | 6 | 12 |
| Spiny Pigweed              | 1 | 6 | 10 |
| Tumble Pigweed             | 1 | 2 | 9 |

Percent of Glyphosate-Resistant Cotton Cultivars

USDA, AMS. 2006
Counties with Confirmed Populations of Glyphosate-Resistant Palmer Amaranth
2004
Counties with Confirmed Populations of Glyphosate-Resistant Palmer Amaranth
2005
Counties with Confirmed Populations of Glyphosate-Resistant Palmer Amaranth 2006
Counties with Confirmed Populations of Glyphosate-Resistant Palmer Amaranth

2007
Counties with Confirmed Populations of Glyphosate-Resistant Palmer Amaranth 2008
Glyphosate Resistant Palmer Amaranth

Economic Threat to Cotton
If ALS herbicides and glyphosate are compromised, and PPO herbicides are not an over-the-top option, there are no selective post emergence options for cotton.

Economic Threat to Soybeans
If ALS and glyphosate are compromised, then PPO herbicides are the only post emergence option.
Glyphosate Resistant Palmer Amaranth

- Threatens Conservation of Post Emergence Herbicides in U.S. Agriculture.
- If PPO herbicides are heavily used pre-emergence in cotton, and are the only post emergence option in soybean, what is their future?