Cumulative Summary of Weed Species Resistant to Herbicide Modes of Action

Years of Usage

Number of Resistant Species

- ACCase Inhibitors
- ALS Inhibitors
- Triazines
- Bipyridiliums
- Synthetic Auxins
- Glycines
Number of Glyphosate-Resistant Species

Count

Years

Numbers of Glyphosate Weed Species by Continent

North America – 9
South America – 6
Europe – 4
Africa – 3
Australia – 3
Asia – 1
Number of Glyphosate-Resistant Species by Plant Family

- Graminaceae – 9
- Compositae – 4
- Amaranthaceae – 2
- Plantaginaceae – 1
- Euphorbiaceae – 1
Glyphosate Resistant Weeds in U.S. Cotton

- Horseweed – 2000 (DE)
- Palmer amaranth – 2004 (GA)
- Giant Ragweed – 2005 (AR)
- Water Hemp – 2005 (MO)
- Ryegrass – 2005 (MS)
- Johnsongrass – 2007 (AR)
Counties Affected by Glyphosate-Resistant Palmer Amaranth – 2004
Counties Affected by Glyphosate-Resistant Palmer Amaranth – 2005
Counties Affected by Glyphosate-Resistant Palmer Amaranth – 2006
Counties Affected by Glyphosate-Resistant Palmer Amaranth – 2007
Counties Affected by Glyphosate-Resistant Palmer Amaranth – 2008
Distribution of Glyphosate Resistant Weeds in U.S. Cotton

Horseweed – Widespread, AR, TN, NC
Waterhemp – East TX
Palmer amaranth – Southeast & Mid-South
Ryegrass – Delta
Giant Ragweed – West TN
Johnsongrass – suspected in Delta
Economic Losses

First year is usually worst,
  if occurrence is not expected
Subsequent years, increased weed management costs
Can force change in cultural practices
Why Don’t We Practice Resistance Management?

• **The Usual Problem:**
  • Costs of Post-Resistance Management Remain Unknown, until Resistance Develops
  • Therefore, Additional Current Costs are Rejected, and the Risks of Unknown Future Costs are Accepted
• **The New Problem:**

• We Do Not Have the Next Mode of Action

• A New Mode of Action, if Discovered Today, Would Probably Not be Registered in the U.S. for 7-10 Years
Weed Resistance Management

• Guidelines to Scout for Resistant Weeds
• Principles of Resistance Management
• Herbicide Recommendations for Cotton, Soybean, and Corn