COTTON WEED CONTROL/WEED RESISTANCE

D. K. Miller

LSU AgCenter

Northeast Research Station

Fall Burndown Benefits/Drawbacks

- Prevent weed germination through winter (lower spring populations/smaller weeds)
- Avoid drift issues
- Remove hosts for insects/disease
- Resistance management
- Bare soil during winter
- May still have to apply spring burndown ($$$)

Fall Burndown

- Labeled: Prowl H_2O, Treflan, Goal, Canopy, Direx, Envoke and Valor (marestail) etc.
- Research: Reflex, Dual Magnum, Frontrow, Firstrate, Python, Grasp

Fall Burndown Results

- Preemergence control of henbit, chickweed, shepherd's purse, cutleaf evening primrose, and annual bluegrass has been good to excellent with most herbicides evaluated (85 to 100%)
- Postmergence control of winter weeds has been good when applied to very small weeds (addition of Gramoxone or glyphosate has improved control of larger weeds present at application or grass species)
- Treatments have held up until planting on some occasions (follow-up treatment ???) and have broken earlier on others (120 d)
- Populations and weed sizes are more manageable in spring following fall applications ($$$)


MAR 19 2007

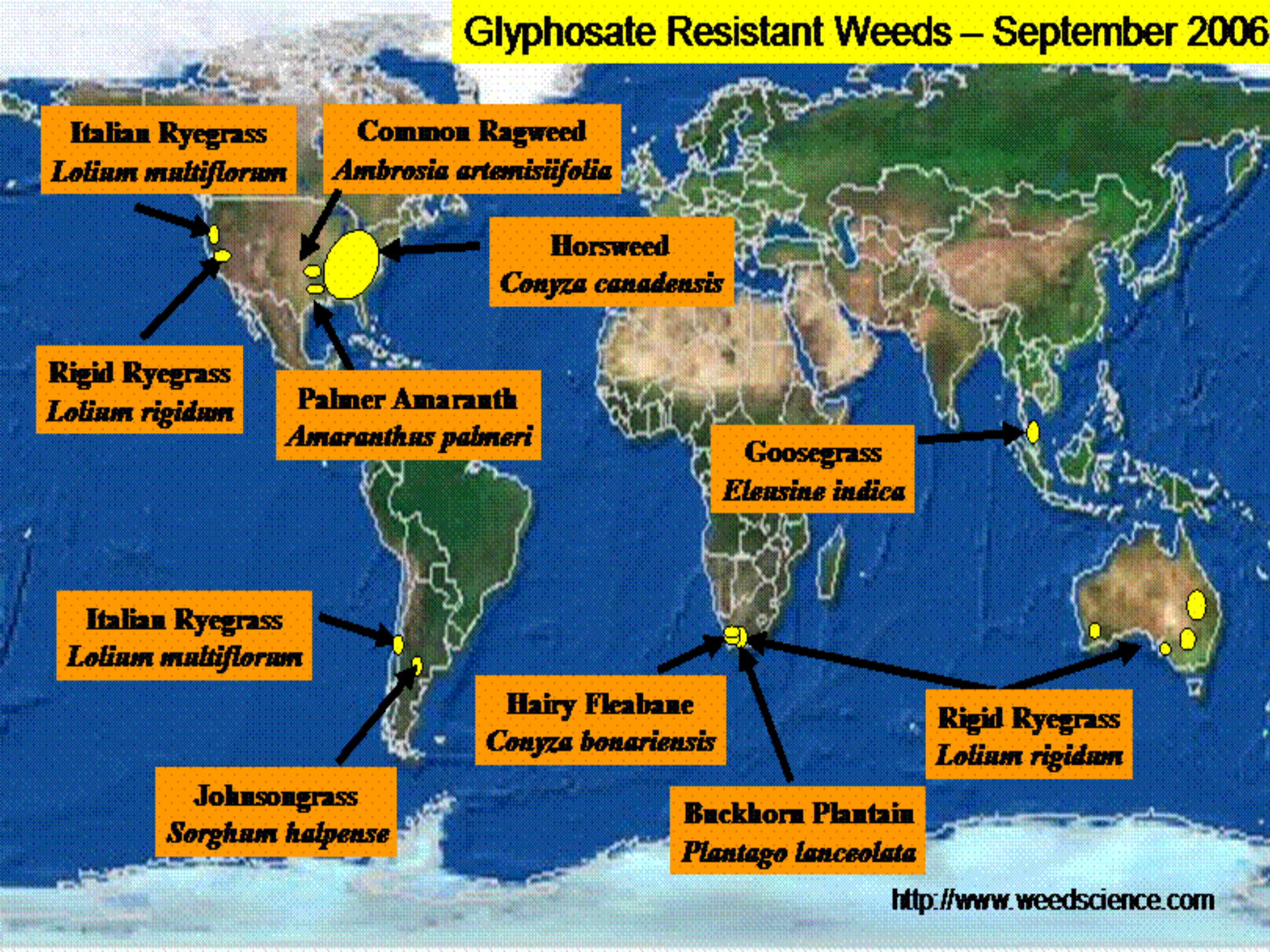

MAR 19 2007

Weed Resistance

- Caused vs. naturally occurring (selected)
- Exhibit broad genetic diversity
- Produce large amounts of seed
- Germinate over long periods of growing season
- Survive in poor growing conditions

Glyphosate Resistance

- Horseweed (marestail)
  - Delaware, North Carolina, Tennessee, Arkansas, Mississippi
- Rigid Ryegrass
  - Australia
- Common ragweed
  - Missouri, Arkansas
- Palmer amaranth
  - Georgia (Confirmed 2005), North Carolina, Tennessee (suspected 2005)


Glyphosate Resistant Weeds – September 2006
Italian Ryegrass
Lolium multiflorum
Common Ragweed
Ambrosia artemisiifolia
Horsweed
Conyza canadensis
Rigid Ryegrass
Lolium rigidum
Palmer Amaranth
Amaranthus palmeri
Goosegrass
Eleusine indica
Italian Ryegrass
Lolium multiflorum
Hairy Fleabane
Conyza bonariensis
Rigid Ryegrass
Lolium rigidum
Johnsongrass
Sorghum halpense
Buckhorn Plantain
Plantago lanceolata
http://www.weedscience.com

Weed Resistance

- Field of suspected glyphosate resistant marestail located in E. Carroll parish
- Seeds from suspected glyphosate resistant Palmer amaranth harvested in W. Carroll parish (Sandhill amaranth)
- Size issue: 1” or less good control with 1.0 lb ai/A; 2” or greater 2.0 lb ai/A needed for similar control levels

Weed Resistance

- Suspected pigweed in 07
- Initial 25 oz Touchdown application
- Follow-up 25, 33, 55, 77, and 88 oz Roundup Weathermax application
- Surviving plants collected and transplanted


JUL 3 2007

Weed Resistance

- Suspected weed identified as tall waterhemp
- Plants grown and seed collected
- One of only 10 dioecious *amaranthus* species worldwide

Resistance Prevention

- Scout field before and after the herbicide application
- Control weeds when small or before crop planting
- Use other herbicides with differing modes of action (LSU AgCenter pub. 2963) or Liberty Link cotton
- Use correct rates at the correct timing
- Control any escapes and prevent seed production
- Crop rotation (different MOA's, inherent competition of crop, alternate cultural practices)
- Clean equipment when moving between fields

RR Volunteer Soybean Research

- Density of 1 plant per row foot = 21-37% yield loss
- Density of 1 plant per 2 row feet = 11 to 19% yield loss
- Density of 1 plant per 5 row feet = 2 to 4% yield loss
- 1 wk interference = 7% yield loss
- 2 wk interference = 11% yield loss
- 4 wk interference = 18% yield loss

RR Volunteer Soybean Research

- Burndown best option if emerged
- Paraquat, Ignite
- Firstshot: “hotter” Harmony Extra (more Extra: tribenuron); more activity on volunteer RR beans; 14 d preplant to cotton)
- Staple LX and Envoke
- Directed materials

2007 NATIONAL CHAMPIONS

LSU TIGERS

LSUsports.net