

**Managing GR Ryegrass:**

Evolution of GR ryegrass is more recent in the Midsouth than some other species and less is known about the distribution and management of this particular biotype.

1. Postemergence herbicides applied to ryegrass with 1 to 3 tillers—
  - Select Max at 12 ounces per acre plus glyphosate.
  - Gramoxone Inteon at 3–4 pints per application. May require multiple applications.
  - Ignite at 29 ounces per acre. Cool growing conditions limit effectiveness of Ignite.
2. Residual herbicides applied in the fall before ryegrass germination. Where ryegrass has emerged, add Gramoxone Inteon at 2.5–3 pints per acre with residual herbicide (Note: If other weeds are emerged at the time of application, postemergence GR ryegrass control with Gramoxone Inteon may be compromised due to poor coverage).
  - Dual Magnum at 1.3–1.6 pints per acre, depending on soil texture.
  - Treflan at 2–3 pints per acre plus incorporation
  - Canopy EX or Canopy DF where soybean planting is assured the following spring.



**UNIVERSITY OF ARKANSAS**  
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## Glyphosate-Resistant Palmer Amaranth and Ryegrass Management

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Currently there are five weed species confirmed resistant to glyphosate in Arkansas and Mississippi. Of greatest concern are Palmer amaranth (pigweed) and ryegrass. The distribution of resistant biotypes of these species is spreading at an alarming rate in both states. University scientists and farmers are searching diligently for management solutions. This information sheet outlines the best information available at this time.

## If You Do Not Have Resistant Species

### *Practices That Promote Resistance:*

1. Overdependence on single herbicides.
2. Relying on a single mode of action year after year (see university weed control guides for herbicide modes of action).
3. Sequential applications of the same herbicides within a year.

### *General Resistance Management Strategies:*

1. Rotate crops.
2. Use tillage, cultivation, and other cultural practices in rotation when possible.
3. Rotate herbicides using different modes of action.
4. Use residual herbicides whenever possible.
5. Use tank mixtures at effective rates, with different modes of action.
6. Avoid using sequential applications of the same herbicide repeatedly.
7. Control weeds on fallow ground or set aside land to prevent spreading (pollen and seed from non-cropland readily move into cropland).

## If Resistant Weeds Are Already Present

### *Managing Glyphosate-Resistant (GR) Palmer Amaranth in Cotton:*

Start clean with a good burn-down program or tillage. It is imperative to prevent pigweeds from emerging in cotton as postemergence options in conventional and Roundup Ready cotton are not effective.

#### **Roundup Ready Cotton—**

1. Reflex (1 pint) 14–21 days preplant — This option provides good pigweed control and has a better chance of getting some rainfall for activation prior to weeds emerging. Do not disturb beds after application.
2. If Reflex is not an option or if beds must be disturbed prior to planting, Direx or Cotoran applied preemergence at planting is essential.
3. Apply Dual Magnum at 2- to 3-leaf cotton prior to pigweed germination.
4. Caparol or Direx plus MSMA or glyphosate as a postdirect application at 8-leaf cotton or earlier if pigweed germination occurs.
5. Layby with Valor + glyphosate or MSMA.
6. Remove any escapes with spot spray or mechanical means. A single pigweed plant can produce 250,000 seed. Removing escapes prior to seed production will be a major step toward reducing the amount of seed in the soil seed bank.

#### **Liberty Link Cotton—**

Liberty Link cotton technology offers some opportunities for postemergence control, but these are very time- and size-dependent and can fail if timing is not precise.

1. Start clean.
2. Reflex preplant or Cotoran or Direx applied preemergence.
3. Apply Ignite + Dual Magnum at 4-leaf cotton or when pigweed is less than 3 inches tall.
4. Ignite over-the-top if Dual Magnum breaks before layby.
5. Layby with Valor + MSMA

Rotation to corn or grain sorghum is also a viable option when herbicides other than glyphosate are utilized.

### *Managing GR Palmer Amaranth in Soybean:*

Start clean with tillage or a burn-down program. Although there are some postemergence options, these are very time- and size-dependent and can fail if timing is not precise.

#### **Roundup Ready Soybean—**

1. Valor, Prefix, or Authority MTZ as preemergence at planting.
2. Glyphosate as needed to control grass and other broadleaf weeds.
3. Use Flexstar or Ultra Blazer at a full rate early postemergence to 3-inch or less pigweeds (may be tank-mixed with glyphosate).

#### **Liberty Link Soybean—**

1. Valor, Prefix, or Authority MTZ as preemergence at planting.
2. Ignite + Dual Magnum over-the-top when pigweeds are less than 3 inches tall.
3. Ignite when pigweeds are less than 3 inches tall or prior to canopy closure.