

IMPACT OF GLYPHOSATE-RESISTANT WEEDS ON NO-TILL ROW CROP PRODUCTION: SITUATION IN SOUTHERN US ROW CROPS

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SUMMARY

Six weed species have now been identified as glyphosate-resistant (GR) in the southern United States. *Conyza canadensis* (horseweed) is one of the six which was first confirmed in 2001 in a southern state and now is the most prevalent GR weed ranging from state of North Carolina to Arkansas. Two of the six are Ambrosia species: *A. trifida* (giant ragweed) and *A. artimisiifolia* (Common ragweed). Of these two *A. trifida* has proven to be the biggest problem in cotton and soybean production in fields adjacent to the Mississippi River in Arkansas and Tennessee. The most recently found GR weed species are *Sorghum halapense* (Johnsongrass) and *Lolium multiflorum* (Italian ryegrass) which were confirmed in the southern U.S. states of Arkansas and Mississippi. The GR weed that is of most concern in the Southern U.S., due to its competitive nature, is *Amaranthus palmeri* (Palmer amaranth).

In 2005, *A. palmeri* was found in Macon County, Georgia and two counties in North Carolina. In 2006 GR *A. palmeri* was found in three counties in Tennessee and one in Arkansas. Fast forward 4 and 3 years later respectively and GR *A. palmeri* has been identified in over 120 counties in 8 southern US states. The rapid spread of GR *A. palmeri* across the southern U.S. seems to have happened in a number of ways. First, field observations would indicate that spring floods moved GR *A. palmeri* seeds. Second, some GR *A. palmeri* could be found in fields where gin trash had been spread. Third, some GR *A. palmeri* field infestations appeared from their placement to have been mechanically moved by field equipment from field to field. However, no discernable pattern could be seen with some GR *A. palmeri* infestations. The recent research reported from Georgia that showed the GR trait in *A. palmeri* can be moved by pollen may help explain the spread to many of these fields.

The effect of the first GR weed, horseweed, was to reduce no-till cotton production by roughly 40% in 2005 and 2006. With the wide spread adoption of dicamba in a burndown program for horseweed help bring no-till cotton production back up to pre GR horseweed levels. History appears to be repeating itself with the recent outbreak of GR Palmer amaranth. Many cotton and soybean growers have reported increase in tillage to help manage GR Palmer amaranth. Some research has been conducted looking at cover crops as a tool to manage GR Palmer amaranth. Early results are encouraging and could help bring back some conservation tillage acres in fields with GR Palmer amaranth.