

Control of Glyphosate-Resistant Palmer Amaranth in DHT Cotton, and Peanut Response to 2,4-D

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Glyphosate-resistant Palmer amaranth is changing cotton production in the southeastern United States. This weed was first confirmed in Macon county Georgia in 2004 (Culpepper et al., 2006). A single Palmer amaranth plant in 1 m of row can cause a 13% yield reduction. If that same 1 m of row is infested with 10 Palmer amaranth plants, yield can be reduced by 57% (Fast et al., 2009). DHT cotton is a new technology being developed by Dow AgroSciences that will allow POST broadcast application of 2,4-D and glufosinate for control of Palmer amaranth. In 2009-2010, trials were conducted to determine the efficacy of potential tank mixtures in non-crop plots. Glufosinate was applied at 0 and 0.47 kg ai/ha alone and tank mixed with 2,4-D at 0.56, 0.84, and 1.12 kg ai/ha, or with dicamba at 0.28, 0.56, and 1.12 kg ai/ha. Applications were made using standard agricultural materials and procedures. Results showed that tank mixtures of glufosinate with 2,4-D or dicamba controlled 89 to 97% of Palmer amaranth plants. Future research will apply the same procedures to plots that are planted with DHT cotton with yield results taken at the end of the season. The use of broadcast 2,4-D in fields near to peanuts is a cause of concern in peanut management. Peanuts are sensitive to 2,4-D and can be damaged by drift and volatilization. Since peanuts are often grown in close proximity to cotton, damage by 2,4-D is plausible. Currently, no literature is available that quantifies 2,4-D damage to overall peanut yield. We will apply several rates of 2,4-D directly to peanuts in order to develop a regression model that should be useful to growers in developing management strategies.

References

- Culpepper A.S., York A.C., Brown S.M., Hanna W.W., Davis J.W., Vencill W.K., Grey T.L., Webster T.M., Kichler J.M. (2006) Glyphosate-resistant Palmer amaranth (*Amaranthus palmeri*) confirmed in Georgia. *Weed Sci.* 54:620-626.
- Fast B.J., Willis J.B., Murray D.S., Murdock S.W., Farris R.L. (2009) Critical timing of Palmer Amaranth (*Amaranthus palmeri*) removal in second-generation glyphosate-resistant Cotton. *J. of Cotton Sci.* 13:32-36.