

**EFFICACY OF BRAKE APPLIED ALONE AND IN COMBINATION WITH OTHER RESIDUAL
HERBICIDES IN COTTON****M.C. Castner****J.K. Norsworthy****Z.D. Lancaster****J.T. Richburg****University of Arkansas****Fayetteville, AR****L.T. Barber****University of Arkansas - Extension****Lonoke, AR****Abstract**

With Midsouth growers continuing to face limited postemergence (POST) weed control options for Palmer amaranth (*Amaranthus palmeri*) in cotton production, growers are encouraged to reduce selection pressure of POST-applied herbicides by beginning weed-free through the use of preemergence (PRE) herbicides. Overlapping residual herbicides with POST applications have proven to be an effective approach in reducing the amount of weed escapes to be controlled by limited POST options. The addition of Brake (fluridone) as a PRE herbicide option in cotton has been shown to be an effective Palmer amaranth material, and when in combination with other PRE herbicides, could extend both the efficacy and longevity of Brake. To evaluate its efficacy on Palmer amaranth, a single-factor experiment was conducted near Marianna, Arkansas in 2018, with herbicide being the only factor. Brake was applied alone and in combination with several common residual cotton herbicides at their recommended rates and compared to a Cotoran plus Caparol standard. Palmer amaranth control was comparable from ratings taken at 21, 28, and 35 DAT for all treatments. Brake applied alone, and when applied as a mixture with Reflex provided greater efficacy (94%) than Brake applied with Cotoran (88%) or in comparison to the non-Brake-containing Cotoran plus Caparol standard (83%). Regression analysis using inverse predictions at a 0.95 confidence interval was used to fit a mechanistic growth curve to the control data at 21 DAT. The analysis showed all treatments containing Brake provided significantly longer residual control of Palmer amaranth than Cotoran plus Caparol. Treatments with Brake demonstrated 80% Palmer amaranth control from 50 to 65 days, which is an increase in comparison to treatments without Brake, with 80% control only remaining for 36 days.