## POTENTIAL FOR FLURIDONE CARRYOVER FROM COTTON TO MULTIPLE CROP SPECIES Z.T. Hill J.K. Norsworthy H.D. Bell B.W. Schrage C.J. Meyer M.T. Bararpour University of Arkansas Fayetteville, AR

## **Abstract**

Currently, the University of Arkansas recommends that cotton producers apply seven herbicide applications throughout the season; which consists of four to five preemergence herbicides tank-mixed with a number of postemergence herbicides. To ensure that we sustain the effectiveness of the currently recommended herbicides we must look at other options. Although it was never marketed for use in cotton, the herbicide fluridone is known to have a high tolerance in cotton, to provide a high level of extended control of redroot pigweed, and to be highly persistent in soils. Due to the specific tolerance of fluridone exhibited by cotton and the high persistence in soils, the risk of crop injury may be high for crops rotated with cotton treated with fluridone.

In 2012, a cotton research trial was initiated at research centers in Fayetteville, AR, Pine Tree, AR, Keiser, AR, and Rohwer, AR; consisting of two soil textures silt loam locations and two clay locations. This trial was setup as a randomized complete block design, with four replications. Herbicide treatments consisted of fluridone at 0.2, 0.4, 0.6, 0.8, and fluometuron at 1.0 lb ai/A applied preemergence. In 2013, grain sorghum, rice, wheat, corn, soybean, and sunflower cultivars were planted into the treated plots from 2012. Only the two silt loam locations Fayetteville, AR, and Pine Tree, AR, were analyzed in this experiment due to injury from fluridone being greater in silt loam soils than clay soils.

Wheat had the highest injury level from fluridone compared to other crops due to being planted closer to the application date with greater than 20% injury, while no more than 12% injury was observed in the five remaining crops at both silt loam locations. The observed injury quickly dissipated in all crops as the crops matured throughout the season. Crop yields in fluridone-treated plots were always comparable to fluometuron, except for wheat at Fayetteville and grain sorghum at Pine Tree. In conclusion, residual carryover can be observed from fluridone on crops that are typically in rotation with cotton the year after application, albeit the rates for which carryover were observed are four to six times the likely labeled rate.