## COMPARISON OF ACETOCHLOR, METOLACHLOR, AND PYROXASULFONE APPLIED POST TO

COTTON L. M. Collie T. L. Barber University of Arkansas Lonoke, AR R. C. Doherty J. R. Meier University of Arkansas Monticello, AR

## <u>Abstract</u>

Applications of pyroxasulfone, acetochlor, and metolachlor were evaluated to determine crop injury and residual weed control when tank mixed with glufosinate and applied post emergence to cotton. These applications were made in a Liberty Link system using Stoneville cultivar 4946 GLB2.

Palmer amaranth (*Amaranthis palmeri* L.), pitted morningglory (*Ipomoea lacunosa* L.), barnyardgrass (*Echinochloa crus-galli* L.), and broadleaf signalgrass (*Brachiaria platyphylla* Nash) were over seeded at planting to provide a consistent weed population. Also at planting, an application of fluometuron was applied at 1 lb ai/A across all treatments. Weed efficacy and cotton injury were noted at 7, 14, 21 and 28 days. Cotton yields were recorded at the end of the season. Residual herbicides; pyroxasulfone, acetochlor, and metolachlor were tank mixed with glufosinate at 0.5 lb ai/A and applied over-the-top at 1-2 leaf or 4-6 leaf growth stages. Each residual was observed at four different rates within the two growth stages. Pyroxasulfone was applied at rates of 0.053, 0.08, 0.106 and 0.213 lb ai/A. metolachlor was applied at rates of 0.475, 0.713, 0.95 and 1.9 lbs ai/A. Acetochlor was applied at rates of 0.56, 0.843, 1.13, and 2.25 lbs ai/A. All plots received a layby application at bloom to maintain weed control until harvest.

Crop injury was present with higher rates of all residual herbicides at both 1-2 leaf and 4-6 leaf applications. Metolachlor at 1.9 lb ai/A produced 25% damage at 14 days after the 1-2 leaf application, by 21 days there was no visual damage. There was 13% injury present with 1.9 lb ai/A metolachlor 7 days after the 4-6 leaf applications, but by 14 days the plants recovered and there was no visible injury present. The acetochlor tank mixtures provided 18% injury at 14 days after the 1-2 leaf application and 26% at 7 days after the 4-6 leaf application. Cotton recovered 21 days in either application. Pyroxasulfone produced significant damage at high rates at both 1-2 leaf and 4-6 leaf applications. At 14 days after the 4-6 leaf treatment there was still 44% damage, but only the highest rate of 0.213lb ai/A of pyroxasulfone produced significant damage at 21 days after application. Though significant injury was observed, there was no substantial yield reduction. Also, there were no notable differences in weed efficacy.