## THE ROLE OF TRADITIONAL SOIL RESIDUAL HERBICIDES IN TRANSGENIC COTTON PRODUCTION SYSTEMS F. E. Groves, J. W. Branson and K. L. Smith University of Arkansas, Southeast Branch Experiment Station Rohwer, AR

## Abstract

Transgenic cotton production makes up nearly 62% of Arkansas cotton production. Glyphosate tolerant and Bromoxynil tolerant are the two transgenic programs offering enhanced weed control options. Roundup and Buctril are good broad-spectrum herbicides, but they offer no soil residual activity.

In 1999 and 2000 seven studies were established to evaluate the role of traditional soil residual herbicides in Glyphosate and Bromoxynil tolerant cotton programs in Arkansas. Tests were conducted at Rohwer, AR on a Hebert Silt Loam soil. Plot sizes were 4 rows (38") by 35 feet in length. Tests were replicated four times using a complete randomized block design. Studies were furrow irrigated in 1999 and overhead sprinkler irrigated in 2000 as needed.

Two studies in 1999 and three studies in 2000 examined weed control provided by Roundup alone and with the use of a soil residual herbicide. In 1999 sequential applications of Roundup alone offered over 98% control of redroot pigweed (Amaranthus retroflexus [AMARE]). Soil residual herbicides were needed for improved control of pitted morningglory (Ipomoea lacunosa [IPOLA]). The control of prickly sida (Sida spinosa [SIDSP]), barnyardgrass (Echinochloa crus-galli [ECHCG]) and broadleaf signalgrass (Brachiaria platyphylla [BRAPP]) varied with the test. In the 2000 tests sequential applications of Roundup alone was equal or superior to soil residual herbicides with or without Roundup in 2 of 3 studies. Roundup alone achieved greater than 98% control of AMARE and greater than 90% control of IPOLA and SIDSP. Two additional studies examined Buctril alone and with the use of a soil residual herbicide in 2000. Soil residual herbicides improved AMARE and common purslane (Portulaca oleracea [POROL]), but did not improve IPOLA over Buctril alone in BXN cotton programs.