

**WEED CONTROL AND YIELD
PERFORMANCE OF TRANSGENIC COTTON IN
ULTRA NARROW ROWS**

**M. L. Mobley, N. R. Burgos and M. R. McClelland
University of Arkansas
Fayetteville, AR**

Abstract

The use of herbicide-resistant cotton and ultra narrow row spacing could potentially improve weed management and yield. Field studies were conducted to compare yield of transgenic cotton in conventional and ultra narrow rows and to determine whether a soil-applied herbicide is needed in transgenic cultivars. Studies were conducted at Fayetteville and Little Rock, AR in 1999.

The Little Rock study was a randomized complete block design with four replications using three glyphosate-tolerant cultivars, and the bromoxynil-tolerant cultivar BXN47. Narrow rows were spaced 7.5 inches and conventional rows 30 inches apart. Herbicide treatments consisted of total postemergence (POST) program of glyphosate and bromoxynil + pyrithiobac and each of the POST programs following a soil-applied treatment of, fluometuron + metolachlor preemergence.

In Fayetteville, the design was a split factorial with two varieties, (PM1220 and BXN47), two herbicide programs (total POST and soil-applied followed by POST) and two row spacings (7.5 and 40 inch). The herbicides used were the same as those at Little Rock.

Weed control ratings were taken before the first POST application and at 2, 4, and 6 to 8 wk after the last POST application. For conventional row spacing, bolls were hand-harvested from two rows per plot, 6.6 ft. long. An equivalent area was harvested for ultra narrow row plots. Data were subjected to ANOVA, and means were separated by LSD.

In Little Rock, Palmer amaranth (*Amaranthus palmeri*) and prickly sida (*Sida spinosa*) were controlled better in treatments containing a soil-applied herbicide for BXN47 early in the season. This remained true 80 DAP for Palmer amaranth. Early-season control of pitted morningglory (*Ipomoea lacunosa*) was better in treatments with a soil-applied herbicide in all cultivars. The glyphosate program for PM1220 controlled pitted morningglory (93%) and Palmer amaranth (97%) late in the season better than did the bromoxynil program for BXN47. In general, treatments with a soil-applied herbicide followed by a POST program had higher yields. Row spacing did not influence yield.

Throughout the season in Fayetteville, Palmer amaranth control was similar in all treatments (92 to 100%). Soil-applied herbicide improved the season-long control of pitted morningglory and prickly sida. All treatments had $\geq 95\%$ control for goosegrass the entire season. Plants in conventional row spacings had higher yields than those in ultra narrow rows. In general PM1220 produced higher yields than BXN47.