

**MANAGEMENT SYSTEMS FOR TRANSGENIC COTTON
IN ULTRA NARROW ROWS
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Abstract

Renewed interest of ultra narrow row production (UNR) methods for cotton (*Gossypium hirsutum* L.) by industry, researchers, and producers, suggests evaluation of several management components is needed in order to optimize them. Plant populations, varieties, and use of plant growth regulators are among those agronomic factors requiring further evaluation. Three field studies were conducted at the Delta Research and Extension Center in Stoneville, MS, in 1999 and 2000. In the first study, row spacings of 10-in., 15-in., and 40-in. rows and six varieties consisting of Fibermax 832, Stoneville ST 474, Stoneville BXN47, Suregrow 125BR, Paymaster 1220RR, and D&PL NuCotn35 were evaluated. A second study consisted of 10-in. and 15-in. row spacings and plant populations of 75 000 plants/A, 100 000 plants/A, 125 000 plants/A, and 150 000 plants/A. A third study evaluated 10-in., 15-in., and 30-in. row spacings and five Pix (mepiquat chloride) applications consisting of an untreated check, four applications at 4 oz/A, two applications at 8 oz/A, four applications at 8 oz/A, and four applications at 12 oz/A. Mepiquat chloride applications began at pinhead square and were applied every 7 to 10 days depending on growing conditions.

Variety x Row Spacing Study

Seed cotton yields were greater under UNR conditions than wide row spacing for both years. The average seed cotton yields across all varieties were 2356 and 1507 pounds per acre for 10-inch rows, 2380 and 1671 pounds per acre for 15-inch rows, and 1890 and 1334 pounds per acre for 40-inch rows, in 1999 and 2000 respectively. However, lint yields were significantly different for UNR and wide row conditions in 1999 only. This is attributed to the lower % lint expected from stripper harvesting versus spindle picking. Lint yields in 1999 were 800, 830, and 727 pounds per acre for 10, 15, and 40-inch rows, respectively. Stoneville BXN47 and Suregrow 125BR yielded near the top and most consistently over the two years.

Plant Population x Row Spacing Study

Seed cotton yields and lint yields were not different under different row spacings and plant populations in this study for both years. Gin turnout was lower in the 10-inch row spacing in 1999. Gin turnout was 33.3 and 34.5% for 10-in. and 15-in. rows, respectively. However, gin turnout was similar for all row spacings in 2000.

Mepiquat Chloride x Row Spacing Study

Lint yields were greater under UNR than wide row conditions in 2000 with results of 622, 676, and 529 pounds per acre for 10-in., 15-in., and 30-in. rows, respectively. In 1999, with fair growing conditions in the MS Delta, lint yields were greater with applications of Pix (mepiquat chloride). However, under adverse drought conditions in 2000, lint yields were similar across treatments.

These results show that UNR methods are comparable to wide row methods in lint yield. Furthermore, plant populations of 100 000 plants per acre on a 15-inch row spacing was sufficient to obtain top yields in these years. Under favorable growing conditions, two 8 oz/A applications of mepiquat chloride may be economical.