

**ROW SPACINGS AND PLANTING PATTERNS
FOR REDUCED TILLAGE COTTON SYSTEMS
IN THE MISSISSIPPI DELTA**

Michael A. Jones

**Mississippi Agricultural and Forestry Experiment
Station**

Delta Research and Extension Center

Mississippi State University

Stoneville, MS

Abstract

Considerable interest exists with regard to alternative tillage and planting systems for cotton production. Unfortunately for Mississippi Delta growers, most conservation tillage research has been conducted on highly erodible lands. The purpose of this research was to evaluate the effects of row spacings and planting patterns in reduced tillage systems. Specific objectives were to determine the feasibility of using reduced tillage systems for cotton production in the Mississippi Delta, to evaluate the effectiveness of various planting patterns (solid vs full, 2x1 skip) and row spacings (40-in. vs 30-in.) in reduced tillage systems, and to assess the effect of these various planting systems on cotton growth, maturity, and lint quantity/quality. Replicated field studies were initiated in 1996 at two locations in the Mississippi Delta to evaluate three tillage systems (conventional, stale-seedbed, and no-till) planted in four planting geometries (40-in rows planted solid, 40-in rows planted in a full, 2x1 skip-row pattern, 30-in rows planted solid, and 30-in rows planted in a full, 2x1 skip-row pattern). Plant dry matter determinations, white flower counts, stratified hand-harvests, and plant mapping were used to evaluate changes in growth and development as a result of these treatments. Plant stands were adequate for all treatments at both locations, and ranged between 8.3 and 13.3 plants m⁻² on a land-area basis. In general, plants grown in 30-in rows produced more early-season (before 78 DAP) total biomass and developed more total flowers, total bolls, and total lint yield on a land-area basis than plants grown in 40-in rows. Individual plant size was increased with the full, 2x1 skip-row planting pattern compared to solid-planted plants, but solid-planted plants produced more early-season biomass, total flowers, total bolls, and total lint yield on a land-area basis at both locations. Early-season growth and flowering of plants grown under the reduced tillage systems was slightly delayed at one location, but there were no significant differences in total boll numbers or total lint yield among the tillage systems at season's end. A significant row spacing x tillage system x planting pattern interaction was found with total lint yield at another location, with no-till plants responding more to the narrow, solid-planted pattern and stale-seedbed plants responding more to the wide, solid-planted pattern. Boll size and lint

quality were generally unaffected by tillage systems, but heavier bolls with increased lint quality were associated with 40-in rows and skip-row patterns.