

**YIELD AND FIBER PROPERTIES ASSOCIATED WITH NARROW-ROW AND TWIN-ROW
PLANTING****J. Clif Boykin****USDA/ARS Cotton Ginning Research Unit
Stoneville, MS****Krishna N. Reddy****USDA/ARS Crop Production Systems Research Unit
Stoneville, MS****Abstract**

Planting crops in alternate row patterns such as skip row, twin-row, or narrow-row, in comparison to conventional 40-inch single row pattern, has been shown to reduce seeding rates and costs, maximize utilization of space with increased plant root spacing, improve interception of light, improve canopy closure, and increase yields. The objective of this experiment was to compare yield and HVI fiber properties for cotton in narrow-row (15-in solid) and twin-row (paired 10-in on 40-in beds) at different plant populations to those in conventional 40-in rows at a standard plant population. The variety, DP164B2RF was planted in plots which were 13-ft wide by 80-ft long for non-irrigated and irrigated fields of Dundee silty clay loam and Dundee silt loam soils, respectively, near Stoneville, MS. The two experiments were conducted in 2006 and 2007 and included the same eleven treatments: 15-in solid rows with five target plant populations (30k, 40k, 50k, 60k, and 80k plants/ac); 10-in paired rows with five target populations (same as 15-in rows); and 40-in solid rows with a target population of 40k plants/ac in a randomized complete block design with four replications for each treatment. Yield and lint quality samples were hand-picked from 1-m of row from the two center rows at 3 locations (sub-samples) within each plot. The samples were ginned on a 10-saw Continental gin stand. The actual plant populations in the non-irrigated experiment were determined at harvest to range from 43k to 87k plants/ac in the 15-in rows, 40k to 88k plants/ac in the 10-in paired rows, and 51k plants/ac in the 40-in rows. Lint yields were 32% higher for 15-in rows at 43k plants/ac in comparison to the 40-in rows, but significant differences were not found for the 10-in paired rows. The actual plant populations in the irrigated experiment were determined at harvest to range from 38k to 89k plants/ac in the 15-in rows, 36k to 79k plants/ac in the 10-in paired rows, and 51k plants/ac in the 40-in rows. Lint yields were 32% higher for 15-in rows at 42k plants/ac in comparison to the 40-in rows, but significant differences were not found for the 10-in solid rows. Increased yields in the 15-in rows at lower plant populations were related to more open bolls harvested per plant in both the non-irrigated and irrigated experiment. No meaningful significant differences were found for HVI properties (length, micronaire, strength, uniformity, Rd, B, or Trash) in comparing treatments to 40-in rows for either the non-irrigated or irrigated experiments. In summary, significant increases in lint yield were found in 15-in solid rows with plant populations at or slightly below that of the 40-in rows. This increase in lint yield did not result in poorer fiber quality.