

EFFECT OF ROW CONFIGURATION AND SEEDING RATE ON COTTON YIELD AND FIBER QUALITY**Tom Barber****University of Arkansas Division of Agriculture****Little Rock, AR****Fred Bourland****University of Arkansas Division of Agriculture****Keiser, AR****D.O. Stephenson IV****LSU AgCenter****Alexandria, LA****Abstract**

Throughout history the majority of cotton produced in the Mississippi Delta has been managed on wide rows (30-40 inches). Recent improvements in technology of both planting and harvesting equipment has led to questions regarding optimum row configuration and respective seeding rates for optimum cotton yield and profitability in current management environments. The Arkansas Cotton Incorporated State Support Committee funded a three year project that was initiated in 2007 to evaluate the potential for improved yields and/or fiber quality and to monitor plant fruiting configuration under alternative row configurations and seeding rates. Studies were initiated on a clay loam at the Northeast Research and Extension Center at Keiser, AR and a silt loam at the Lon Mann Cotton Branch Research Station at Marianna, AR. The experimental design was a split-split-plot with row patterns as main plot factors and seeding rates as sub-plot factors. Row configurations evaluated included standard 38 in row spacing, twin-7.5in spacing and twin-15in spacing all of which were planted on standard 38in beds. Seeding rates evaluated were 35,000, 45,000, 55,000, 65,000 and 75,000 seeds per acre. Plots were four rows wide and 50 feet long with four replications. Significantly lower plant survival was observed at both locations. As seeding rate increased, survival decreased from 99% with 35,000 seeds per acre, to 71% with 75,000 seeds per acre. No significant differences were observed for cotton lint yield, fiber quality or lint percent at either location. Yield trends however did appear, especially on the clay loam soil at Keiser, where lint yield increased numerically as seeding rate increased and as spacing narrowed to twin-15in. There were significant differences in total bolls per plant, fruit position on the plant, and total boll retention of 1st and 2nd fruiting nodes. As anticipated, when seeding rate decreased, the total number of bolls per plant increased. The highest total boll number (15 per plant) was recorded with twin-7.5in row spacing at 35,000 seeds per acre, compared to 10 bolls per plant with 38in. row spacing same seeding rate. Similar results were reported when evaluating boll position as percentage of total yield and fruit retention. As seeding rates increased, retention and total yield percent decreased on first position and second position bolls. Initial conclusions indicate that twin rows can be as effective as 38in rows on silt loam soils and may actually perform better on heavier clay soils. This study will be repeated for one more season at both locations.