

IMPACTS OF WIDE ROW SPACINGS ON YIELD COMPONENTS OF COTTON**Caitlyn Lawton****John Snider****Phillip Roberts****Peng Chee****Camp Hand****University of Georgia****Tifton, GA****Abstract**

In the midsouthern cotton producing region of the United States, success stories of wide row cotton production have been widely publicized. With reducing seed cost being a main goal in this system, growers could potentially save on input costs. Further, recent observations in boll rot reduction as well as intra-crop moisture competition in the Midsouth has generated interest among Georgia growers. However, one step in determining the feasibility of this system is to determine the impact of wider rows on yield components in cotton. The objective of this study was to quantify the effect of row spacing on yield components in cotton. In 2021, an experiment was conducted in Tifton, GA where DP 1646 B2XF was planted in six replications of 36-inch, 48-inch, 60-inch, and 72-inch row spacings arranged in a RCBD. Cotton was grown throughout the season using extension recommendations for the region. Following defoliation, 2 meters were hand harvested from each plot and separated into various categories based on branch type. Yield distribution by row spacing was determined for each fruiting position. Gin turnout as well as seed index was determined following ginning. Fruit retention per plant was improved 8 to 9% in 60- and 72-inch row spacings. This resulted in a higher number of sympodial bolls per plant in wider row spacings as well, with more sympodial bolls noted in the 48-, 60-, and 72-inch row spacings. Interestingly, with the cotton plant's ability to compensate for empty space using vegetative growth, there were no significant differences in monopodial boll counts or yield per plant or acre among row spacing. Although there were differences in sympodial bolls per plant, it did not translate when calculating bolls per acre. Sympodial bolls per acre were reduced 21 to 32% in 60- and 72-inch row spacings compared to the standard 36-inch spacing utilized by Georgia growers. Similar trends were observed in total bolls per acre. These differences also translated into losses in lint yield, with 409 to 568 lbs acre⁻¹ sacrificed with 60- and 72-inch spacings compared to 36-inch rows. No differences were noted in fiber quality. This study demonstrates that although fruit retention was improved with wider rows, it did not translate to similar lint yields on a land acre basis. This study will be repeated in 2022 to confirm results, and future research will evaluate newer varieties in a wide row production system. However, based on these results, there isn't a fit for broad adoption of wide row production in Georgia.