

PLANT POPULATION STUDIES WITH DP 555 BG/RR

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The dominant variety in Georgia in 2004 was DP 555 BG/RR, a full season variety with vigorous vegetative growth and high yield potential. Dating back to the mid-1990s in anticipation of technology costs associated with transgenic varieties, UGA scientists have investigated the impact of reduced plant populations. One study documented excellent yield potential with populations as low as 2 seed/ft but also demonstrated the need for increased weed control inputs with low plant populations. Another experiment indicated little to no effect on fiber quality over a range of populations. These studies involved varieties such as NuCOTN 33B and DP 458 BR. The effects of reduced plant stands with DP 555 BG/RR have not been widely explored.

Field trials were initiated at two locations—the RDC Pivot in Tift County and the SunBelt Ag Expo near Moultrie—to provide yield comparisons of varying stands of DP 555 BG/RR. Experimental design was a randomized complete block with three replications. Plot size was 4 rows by 40 ft. The respective sites were planted April 28 and May 6, 2004, at an approximate rate of 3.5 seed/ft. Plots were hand thinned on May 13 and 14 to the indicated stands. The two sites were mechanically harvested on September 20 and October 1, 2004, respectively. Conversions of seed cotton to lint were based on an assumed gin turnout of 42 percent.

Table 1. Cotton lint yields* (lb/A) of DP 555 BG/RR as influenced by plant stand at two locations in 2004.			
Treatment	Stand, plants/ft	RDC Pivot lb/A	SunBelt Expo lb/A
1	3	1501	1151
2	2	1518	1146
3	1	1440	1105
LSD (0.10)		143	128
*Assumes 42 percent lint turnout			

In this simple study, there were no significant differences in lint yield due to plant stand. This supports the conclusion of many studies which indicate that comparable yields can be produced over a range of plant populations. Results with DP 555 BG/RR were not different than with previous varieties evaluated. A word of caution is warranted: reducing seeding rates to target a stand as low as 1 plant/ft is ill advised because of the risks of replanting, skips, weed control issues, etc.