

PHYSIOLOGICAL FACTORS AFFECTING PRODUCTIVITY IN DIVERSE COTTON GENOTYPES

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Abstract

Past efforts by cotton breeders via selection for increases in lint percent have consistently improved yield. Harvest index and total dry matter are both considered as primary yield determinants and are reported to contribute to genotypic variability in lint yield. Therefore, selecting for improvements in any one of these factors could result in increased lint yield. The goal of this study was to determine the relative contribution of these underlying factors to lint yield variations in various cotton genotypes. This study, conducted at two locations: Lang Farm, Tifton, GA and Iron Horse Farm, Athens, GA, University of Georgia, includes 10 diverse cotton genotypes arranged in a randomized complete block design with 8 replications and focuses on total dry matter production, harvest index, and yield components as contributors to yield. The findings of this study revealed that lint yield per plant and lint yield per hectare varied greatly among the cotton genotypes tested. The genotypes were also different in their efficiency of converting solar radiation into dry matter. The highest lint yielding genotypes acquired these yields by altering dry matter production and lint yield in different ways. At both locations, the lowest yielding genotype had the lowest harvest index but the highest plant dry matter values.