DRY MATTER DISTRIBUTION AND YIELD OF NORMAL- AND OKRA-LEAF COTTON GENOTYPES RELEASED BETWEEN 1975 AND 1997

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Abstract

The genetic advances in yield of normal-leaf cotton (*Gossypium hirsutum* L.) have been attributed to increases in harvest index, lint percentage, and photosynthesis. However, yield component data explaining yield differences among okra-leaf types is unavailable. The objectives of this study were to characterize the yield and yield components of selected normal- and okra-leaf types differing in yield.

Cotton was grown in the field on a Dundee silty clay loam near Stoneville, MS in 1997. Normal-leaf genotypes (in descending order of year of release) were Deltapine 32B (Bt), IF 1003 (FiberMax 989), Stoneville 474, MD51ne, Tamcot HQ95, and DES 24-8ne. Okra-leaf genotypes were IG 1010 (Bt), IF 1006 (FiberMax 832), MD51ne, Tamcot HQ95, Gumbo500, and DES24-8ne. Plots were 17 ft. long and five rows wide. The experiment was a RCBD with five replicates. At cutout and 40% open bolls, all of the aboveground dry matter of 39 in. of row was harvested from one bordered row. Leaf area index, leaf biomass, stalk biomass, fruit biomass (all per unit area), and harvest index were determined. Yield and its component were determined from the other bordered row.

Within each leaf type, yield varied significantly but was not significantly correlated with any measured variable. For normal-leaf yield, the highest positive correlations were with harvest index and lint percentage. For okra-leaf yield, the highest positive correlations were with harvest index and total aboveground biomass at cutout. From this one year study, it would be presumptuous to predict which yield components will explain future genetic yield advances in okra-leaf. However, given that the lint percentage and biomass at cutout of the okra-leaf types were relatively low (as were their correlations with yield), an increase in either of these two variables without compromising harvest index would seem to be the easiest avenue for a genetic advance in okra-leaf yield.

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