EVALUATION OF AN EXOTIC GERMPLASM POPULATION DERIVED FROM MULTIPLE CROSSES BETWEEN G. HIRSUTUM AND G. BARBADENSE

Linghe Zeng
William R. Meredith
USDA-ARS
Stoneville, MS

Abstract

Broadening genetic base is essential for genetic improvement of lint yield and fiber quality in upland cotton. An exotic germplasm population derived from multiple crosses between *Gossypium barbadense* L. and *G. hirsutum* was obtained from USDA-ARS at Las Cruces, NM. Two hundred germplasm lines and five cultivars were planted at two locations in 2006 and one location in 2007. Significant (P=0.001) genotypic variation for yield and fiber quality was identified. Bolls m^2, boll weight, and lint percent contributed 96% of variation to lint yield in stepwise analysis. Lint $seed^{-1}$ and seed weight contributed 99% of variation to lint percent. Lint yield was negatively associated with fiber quality. Lint $seed^{-1}$ was favorably correlated with lint percent, elongation, span lengths, and fineness. Based on stepwise analysis, 50% length, short fiber content, fineness, maturity ratio, and 2.5% length contributed to strength in decreasing order of significance. Short fiber content was negatively correlated with fineness (r=-0.41). These results indicate that this germplasm is a useful genetic resource for genetic improvement of lint yield and fiber quality and analysis of interrelationships between lint yield and fiber quality.