

**CHARACTERIZATION OF A POPULATION OF INTROGRESSED RECOMBINANT
INBRED LINES FOR AGRONOMIC AND FIBER QUALITY TRAITS**

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Abstract

The use of recombinant inbred lines (RIL) for the identification of quantitative trait loci and as mapping populations has become quite common in a number of crops. In 2001 and 2002, a population of 100 recombinant inbred lines ($F_{6,7}$) of cotton, derived from a cross of TM-1 with the *Gossypium barbadense* L. introgressed parent NM24016, was characterized and evaluated for agronomic and fiber quality traits at Maricopa, AZ and Las Cruces, NM. Tests were planted in randomized complete blocks, with four replicates at Maricopa, and three replicates at Las Cruces. The RIL population evidenced normal distributions for the traits boll size, lint percent, yield, fiber length and fiber strength. The population of RILs deviated from normality for the traits plant height and micronaire. Skewness or kurtosis occurred in RIL distributions for plant height and fiber length. RIL population means were observed to deviate from the midparent values for the traits boll size and micronaire – indicating non-additive gene action for these traits. A few transgressant recombinant lines occurred for high lint percent, yield, fiber strength, and fiber length. Larger numbers of transgressant lines occurred for lower lint percent, greater plant height, lower micronaire, and shorter fiber. Useful genetic variation for the mapping and improvement of cotton was evident in the RIL population.