

**ASSOCIATIONS OF FIBER QUALITY AND WITHIN
BOLL YIELD COMPONENTS IN NEAR LONG
STAPLE UPLAND COTTON**

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Abstract

Seven diverse genotypes of upland cotton were evaluated for within-boll yield components at College Station, TX during 1998 and 1999. These seven genotypes included two sister lines, TAM 94L-25 and TAM 94M-14, that exhibited fibers approximately 16 percent longer than those of the shortest genotype. These lines, along with three cultivars and two other experimentals, were planted in a RCB field design with four replications. Cultural practices were normal for the locale with furrow irrigation. The objective was to determine if selection for exceptionally long fibers affected within-boll yield components, especially the number of fibers per unit of seed surface area. Conclusions were: 1. The number of fibers per cm² of seed surface area of TAM 94L-25 and TAM 94M-14 were not different than Tamcot CAMD-E nor SureGrow 125, both commercial cultivars; 2. Acala Maxxa had fiber bundle strength and number of fibers per cm² of seed surface area exceeding that of all other genotypes, suggesting that these two traits can be increased simultaneously, at least up to the levels exhibited by Maxxa; 3. correlation analyses suggest, however, that increasing fiber quality and the most basic fiber yield component remains problematic; and 4. the association of AFIS data and within-boll yield components suggest that increasing the number of fibers per cm² of seed surface area will be associated with increased immature fibers and an increase in the number of fibers less than 12.5 mm.

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