

**EVALUATION OF SHAFTER COLLECTION COTTON  
(*GOSSYPIUM* SPP.) FOR AGRONOMIC AND FIBER TRAITS**  
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**Abstract**

Progress in developing new cotton varieties with improved agronomic, fiber, and pest resistance is dependent upon the discovery of new genetic variability and the incorporation of desirable variation into breeding programs. The US Cotton Germplasm collection is a logical starting point to initiate the search for desirable genes, and many recent additions to the collection, however, are uncharacterized for common germplasm descriptors.

Our objective was to evaluate a subset of this germplasm for their potential to contribute to future plant improvement efforts.

One hundred fifty four cotton germplasm lines from the former USDA cotton breeding program at Shafter, California were evaluated in the field (LSU AgCenter Northern Research Station, Saint Joseph, LA) in 2003 along with three modern commercial varieties (Delta and Pine Land Deltapearl, Fibermax 958, and PhytoGen 355). Due to limited seed availability single row plots, 6 m long were planted in a modified arrangement design at a rate of 9.8 plants m<sup>-1</sup>.

The following descriptors were considered: plant, leaf and calyx pubescence; flower maturity; leaf, pollen and petal color; petal spot; degree of glanding; presence of extra floral nectarines; bract shape; and high volume instrument (HVI) fiber properties: length, strength, micronaire uniformity, and elongation. A majority of the lines were similar to the commercial checks for all agronomic descriptors. This material as a whole, however, had superior fiber quality characteristics compared to the commercial checks and in with regards to USDA classing grades. Nearly two thirds of the Shafter Collection cotton would have been classified as long, 84 % as very strong, and half had average to fine micronaire. In summary, these recent additions to the US cotton germplasm collection present a valuable resource for improving cotton fiber quality.