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# A CENTURY OF COTTON CULTIVARS GROWN IN VARYING PLANT SPACINGS

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## Abstract

Nine current or obsolete cotton (*Gossypium hirsutum* L.) cultivars were evaluated during 2003 in four different plant populations to determine changes in lint yield, yield components, fiber properties, and morphological traits attributable to plant breeding during the 20th century. Each was adapted for production in College Station, TX at their respective dates of release. Plants were grown in single plant culture patterns of 10 x 10, 6.7 x 6.7, 3.3 x 3.3, and 1 x 3.3 feet in a split block of a randomized complete block with four replications. Plots were furrow irrigated, and yield determined by hand harvest. Five mature bolls were harvested from every plant in all spacings for determination of boll components. A grab sample from the hand-harvested seedcotton was analyzed from each plant for fiber properties determined by high-volume instrumentation. Morphological traits were determined by direct measurement of individual plants. Based on 2003 individual plant data, contrary to results reported in corn, cotton breeders have made genetic gain in single plant yield potential. Micronaire data suggests that from 1962 forward, cultivars were breed to mature at higher plant populations. No apparent effort has been made to maximize fiber length until the near past as evident in DP491 released in 2002. Fiber bundle strength has increased in U.S. cotton since 1970 with the advent of rotor spinning, but HVI bundle strength of Deltatype Webber released in 1922 was the same as Stoneville 506 released in 1982. In general, fiber property trends are unaffected by different plant spacing treatments.