SHORT-STAPLE BREEDING, GENETICS AND CYTOLOGY
Breeding for Resistance to Pink Bollworm

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The following pink bollworm (PBW) resistance characters are being combined in improved agronomic stocks: Smooth leaf, nectariless, Okra-leaf (or Super Okra-leaf), early maturity, antixenosis (non-preference for oviposition?) from the resistant stock AET-5, and antibiosis from the resistant Texas race stock T-39.

CADUCOUS BRACT HEXAPLOID COTTON

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Caducous bract cotton differs from normal commercial cultuvars because it has bracts which fall before the bolls open. It is economically important because all commercial cultivars have persistent bracts which do not defoliate like leaves, and adhere to the seed cotton. Because of the bracts' proximity to the open bolls, they are picked with the seed cotton. Upon ginning, they become hard-to-remove trash in the lint believed to be one of the causes of byssinosis or "Brown lung."

After developing hexaploid cotton with caducous bracts, our objectives were 1), to transfer the caducous bract trait from the hexaploid to tetraploid commercial cultivars, and 2), to try to develop a caducous bract hexaploid cotton with yield and fiber properties acceptable for commercial production.

Selection in the caducous bract hexaploid population started some six years ago, and much to our surprise we seem to be making good progress. Fertility and yield are improving with each selection cycle, and some highly productive plants with good fiber properties have been selected. No yield trials have been conducted to date.

Fiber qualities of the caducous bract hexaploid selections also seem to be improving with each selection cycle. When selection started in 1975, average fiber length was shorter than one inch. By 1979, the average reached one inch, and the average of the 1980 selections was over one inch. There seems to be enough variability left in the population that further advances in fiber length seem possible.

When selection for fiber strength, as measured by the Pressley Fiber Tester at one-eighth inch, was started in 1975, fiber strength averaged about 3.0 on the Pressley Index. After five years of selection, the average fiber strength of the caducous bract hexaploid selections is considerably stronger than most commercial cultivars. The reading for the Pressley Index is around 4.0. Some selections have fiber strength above 5.0. Variation in the population makes further gains possible.

Average fiber fineness, as measured in micronaire units, for the caducous bract hexaploid selections was less than 4.0 when selection was started in 1975. By 1980 most of the selections were in the range of 4.5 to 5.0. Enough variations exist in the population that further selection in either direction is still possible.