Ray Tyler - Duncan; Agent in Charge, J. Schickedanz

Variety	Percent turnout	Lint lbs/A
ST-256	35.6	796
1517	34.8	773
DPL-16	33.2	756
ST-213	32.8	748
ST-7A	31.8	748
DPL-66	29.1	463

Turnout percentages based on laboratory gin results.

CROP HISTORY: Previous Crop: Cotton. Planting Rate: 20 lb/A. No Herbicide: No Fertilizer. Irrigation: Irrigated five times. No Defoliation. Harvested: 11/15/75. Plot Size: Four-row plots, replicated four times, rows 1250 ft.

SHORT-STAPLE BREEDING, GENETICS, AND CYTOLOGY: GENETICS OF QUANTITATIVE CHARACTERS

F.D. Wilson and R.L. Wilson

In a test of parents and F_1 of two cultivars (Deltapine 16 and Stoneville 7A) and three day-neutral race stocks (T-55, T-206, T-703), four combinations showed favorable heterosis for boll size, and two showed favorable heterosis for fiber length. In a test of the same cultivars, and cultivar X nine photoperiodic race stock F_1 hybrids, certain combinations performed as well as, or better than, the cultivars in bolls/plant, boll size, lint percent, fiber length, T-1 strength, elongation, and Micronaire.

Texas 711, with long peduncles, differs from Stoneville 7A in two major gene pairs that act additively. Deltapine 16 apparently differs from Stoneville 7A in a recessive, epistatic modifier. Texas 40Y and Texas 203 apparently carry a partially dominant epistatic modifier.

Incidence of 4-bract flowers was significantly higher in Texas 703 than in Deltapine 16 or Stoneville 7A in the field; this character was not expressed in the greenhouse. The additive portion of the F_2 genetic variance was virtually 100%; narrow sense heritability was .62.