SYNTHETIC varieties offer an opportunity to utilize a degree of heterosis in cross-pollinated or often cross-pollinated crop plants. Synthetic varieties of corn superior in yield and other characters to open-pollinated ones have been produced (3, 4, 11). However, there is no appreciable production of corn synthetics presumably because double-cross hybrids are generally superior to synthetics, and first generation hybrid seed of corn can be produced with relative ease and economy. Synthetic varieties should offer greater commercial possibilities in a crop such as cotton in which volume production of first generation hybrid seed is impractical at present.

Investigations of heterosis in cotton have been concerned primarily with attaining maximum increases in yield and other characters at the first generation level. Significant increases at this level have been reported by several investigators (8, 9, 10, 13, 16). Loden and Richmond (10) in a comprehensive review stated that "evidences of significant increases in most plant characters and yield resulting from heterosis have been reported in interspecific, intervarietal and intravarietal crosses."

A review of the literature reveals that there have been few studies of synthetic varieties of cotton. In reality many of the widely grown commercial varieties of cotton are, in a narrow sense, synthetics. They represent blended mixtures...