

Table 4

Planting Pattern Study Using
G. anomalum (♀) X G. hirsutum, Var. Hopicala (♂)
 Marana, Arizona - 1971

Pattern (Rows)	lbs. seed/acre*
2 male X 2 female	814
2 male X 4 female	825
2 male X 6 female	970
2 male X 8 female	949
2 male X 12 female	810

*Based on 64% seed - 36% lint.

Disregarding the heterosis aspect, cotton hybrids warrant further investigation because of their potential in tailor-making a cotton for an area--such as disease resistance, insect resistance, earliness, height, etc., which can be engineered in the F₁ generation.

BREEDING COTTON ADAPTED FOR HIGH POPULATION PRODUCTION SYSTEM

H. Muramoto

The objective of the high population cotton culture is to cut production cost by shortening the growing season through various new concepts of maximum utilization of space and interception of sunlight. With this in mind, the selection for the ideal plant type has been pursued for several years.

The super okra leaf gene, which reduces the normal leaf shape to a long, narrow leaf, was selected as offering some promise to making plants more adaptable for narrow row, high population culture. In cotton fields with long, narrow unifoliate leaves, sunlight can penetrate the leaf canopy and reach the lower leaves of the cotton plants. This type of leaf also reduces boll rots by allowing better air movement. The super okra leaf gene has been successfully incorporated into all breeding populations of short staple Upland cotton as well as long staple pima cottons. There are in various stages of back-crossing with many in the far advanced stages of selections.

The experimental super okra leaf cotton adapted for a narrow row, high population cotton production system is being considered for possible release pending further demonstrations this year.

HEXAPLOID COTTON

H. Muramoto

Approximately two acres of hexaploid cotton plants were grown in 1971. The hexaploid population in the breeding program now includes germ plasm from the following: Acala 44-10-1, Hopicala, Super Okra, Del Cerro, F₄ materials

from (Pima x M-8 Super Okra) and G. barbadense. The diploid parent is G. sturtianum, a lintless wild species from Australia.

Selection in the hexaploid cotton population continued in 1971 with emphasis on fertility. Cytological studies of the original colchicine treated F₁ plants, the F₂, and F₃ generations by Fanuel DaSilva of Fortaleza, Brazil, have shown that chromosome pairing, as measured by the number of bivalents per cell, significantly increased from 35.80 per cell in the F₁, to 36.89 per cell in the F₂, to 37.95 per cell in the F₃. Perfect pairing is 39 bivalents per cell.

A sample of hexaploid cotton lint was sent to the USDA Cotton Spinning Laboratory at College Station, Texas for a Standard Spinning Test. Test on 22's and 36's were requested in 1971 as the highest count the Laboratory was able to spin last year with the hexaploid lint was 36's. Short length and other unknown fiber properties of the hexaploid cotton caused it to stick to the roll on card and thus required special attention to get enough card sliver for processing.

COTTON REPORT - GREENLEE

Ernest Foster, Agricultural Agent, 1971

The Greenlee County Agent distributed two tons of Arizona 6401 cotton seed to 27 growers in Greenlee County for trial and comparison with conventional varieties. Parcelled out by county agent on request basis pro rata allotments.

Generally, only 1517D is grown in Greenlee County, but this year (1971) some growers included some Stroman 254 and Deltapine 16 varieties for further comparison.

Results:

6401 received mixed blessings in this county. Some growers thought it was ideal for this area, while others felt that it lost them money. Most agreed, however, that it showed more seedling vigor than 1517 or other varieties on trial. It was more frost resistant during emergence, resulting in better stands, and the lint quality showed up as almost identical to 1517D.

On higher, well-drained, clay soils it produced a shorter, bushier plant. This was praised by some growers who have fields relatively free of rocks and debris and who like to run their pickers close to the ground. Others condemned this growth characteristic, stating that they would rather have taller, spindlier plants with bolls higher up on the stalk.

On heavier, river-bottom ground one could hardly observe any difference at maturity between 1517D and 6401. Practically no difference in yield or quality was obvious in these river-bottom fields.

Although the 6401 retained a darker, healthier green throughout the growing season, it became obvious that it was more susceptible to Verticillium wilt than 1517D along towards maturity. Speaking of maturity, the 6401 seemed to retard boll opening until it reached a certain stage and then bolls would suddenly open all over the plant. This was regarded as rather peculiar since