Variety-Strain Tests

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Some 25 strains and/or varieties were planted in small-plot, replicated yield tests at the Cotton Research Center, Phoenix, the Yuma Experiment Station and at the Marana Farm.

The yields from these tests are shown in the following table. The lint percent given is calculated from clean, hand-picked boll samples ginned on a small laboratory gin. These values are somewhat higher than those normally obtained under commercial harvesting and ginning. However, the relative comparisons should be valid even though the per acre yields are too high by the degree of difference in gin turnout.

At the Cotton Research Center, one row from each of three plots for a selected number of strains and varieties was harvested at two-week intervals starting on August 27. The percent of the crop harvested by date for these varieties is given in Table 2. Strain 7209-107 was the earliest, although its final yield was below that of the other two strains of 7209. All entries in the test showed a satisfactory degree of earliness, being 100% open by October 22.

VARIETY-STRAIN TESTS

1980

Cotton Res. Center	Lint/ Acre	lint %	Yuma	Lint/ Acre	lint %	Marana	Lint/ Acre	lint %
Deltapine 41	2087	39.3	McNair 220	2241	38.0	Deltap. 7124-293	1271	40.5
Deltapine 732	1952	35.9	Deltapine 70	2145	39.7	Q.S. 137	1238	36.8
Stoneville 473	1931	37.1	Deltapine 7120	2113	41.4	Deltapine 732	1218	36.9
Deltapine 7120	1923	38.6	Deltap. 7124-299	2107	39.1	Stoneville 473	1217	38.3
Deltapine 55	1898	38.0	Deltapine 55	2100	39.3	McNair 235	1214	37.9
Deltapine 70	1894	38.2	Stoneville 737	2090	38.5	Stoneville 1153	1192	36.5
7203-7	1880	40.6	McNair 235	2036	38.6	Stoneville 825	1189	37.8
7209-110	1872	40.2	7209-110	2030	40.8	7203-103	1188	39.7
Deltapine 61	1851	36.4	Stoneville 825	2013	38.2	7209-110	1188	41.9
7209-102	1837	40.9	7209-107	1993	39.7	7209-107	1186	40.4
7203-4	1802	37.5	Stoneville 213	1950	36.8	Deltapine 55	1186	39.5
Stoneville 506	1792	35.5	Deltapine 41	1934	42.3	Stoneville 506	1185	37.4
7203-104	1773	37.2	Deltapine 61	1921	38.8	Stoneville 737	1175	38.2
Deltap. 7124-293	1771	38.6	Stoneville 256	1901	37.7	Deltapine 41	1166	40.5
7203-103	1753	37.8	7203-104	1884	38.0	Stoneville 256	1150	37.5
Stoneville 256	1742	35.6	7203-103	1882	39.0	Coker 310	1119	37.9
Stoneville 1153	1710	34.2	Stoneville 1153	1859	35.2	7209-102	1087	43.2
Stoneville 213	1670	35.3	Stoneville 473	1850	38.7	McNair 220	1080	37.8
7209-107	1662	38.7	7203-7	1832	41.5	Stoneville 213	1078	37.6
Stoneville 737	1638	35.8	Deltapine 732	1810	37.5	7203-7	1077	42.2
Stoneville 825	1634	35.8	Q.S. 137	1790	36.6	Deltapine 70	1070	38.4
McNair 235	1613	36.9	7209-102	1770	41.9	7203-4	1029	39.9
Deltap. 7124-299	1568	36.5	Stoneville 506	1751	37.2	Delcot 311	1019	37.5
Q.S. 137	1556	34.9	Deltap. 7124-293	1744	39.3	7203-104	1006	38.7
Coker 315	1506	36.6	7203-4	1595	38.9	Coker 315	985	38.8
McNair 220	1484	36.8				Coker 3113	976	39.3
Coker 310	1472	35.1				Coker 3114	842	39.9
Delcot 311	1453	36.1				Deltapine 61	840	36.5
						Deltap. 7124-299	814	37.4
						Deltapine 7120	800	39.3
Ave.	1740			1934			1092	
C. V.	8.4%			11.8%			13.2%	
L.S.D. 05	168 lbs.		L.S.D. 05	321 lbs.		L.S.D. 05	202 lbs.	
01	221 lbs.		01	426 lbs.		01	268 lbs.	

COTTON RESEARCH CENTER

Percent of Crop Open by Date

Variety	8-27	9-11	9-24	10-8	10-22	Total Yield
7203-4	15.4	46.2	72.7	92.6	100	1802
7203-7	17.9	56.0	78.9	94.2	100	1880
7203-103	24.9	64.5	81.0	95.1	100	1753
7203-104	17.4	55.8	79.4	95.4	100	1773
7209-102	19.1	49.6	73.0	93.4	100	1837
7209-107	35.7	75.9	87.5	98.1	100	1662
7209-110	16.8	54.0	78.7	94.7	100	1872
Stoneville 825	18.2	60.0	77.6	93.5	100	1634
Stoneville 213	18.6	64.5	80.6	94.1	100	1670
Stoneville 506	22.8	62.6	81.4	94.2	100	1792
Deltapine 70	16.2	57.3	77.2	93.5	100	1894
Deltapine 61	12.9	46.5	67.9	90.6	100	1851
Deltapine 41	12.6	47.0	71.6	92.5	100	2087

Hybrid Cotton Research -- Arizona Update 1980

Warner D. Fisher and Lee S. Stith, Plant Breeders

Recognizing that fertility restoration has become the barrier for successful hybrid cotton seed production, research activities have largely been concentrated on improvement of quality of pollen, fertility restoration, and R-line combining ability. In the total program of the department, the following was studied:

1. 138 R-lines were studied for heat tolerance, pollen shed, and "cracked root". At the end of the season 61 lines were saved that were presumed to be free of "cracked root" and were test crossed for pollen restoration in 1981.

2. Backcrossing was continued to develop new A-lines and R-lines in a conventional gene transfer program.

3. A second phase of a recurrent program was continued that has as the ultimate goal a germ plasm combining restorer genes from G. hirsutum, aridium, harknessii, barbadense, and longicalyx.

4. Investigation into haploid restorer development was continued using hemigamy genetic stocks. The haploids are treated with colchcine to be doubled. The cytoplasm is G. harknessii; therefore, if the doubled haploid proves to be a restorer then it is in the homozygous state. From the 1979 program, 2 doubled haploids were achieved in 1980 and pollen produced for a test cross.