

The effect of any environment change on flower fertility is not immediate but 19 days subsequent to the treatment. Missing the July 9 irrigation in the I<sub>2</sub> treatment appears as a sharp drop in fertility percentages of both Deltapine 16 and 1517 V on July 28-31. Deltapine 16 essentially recovered by August 5-10 (19 days following a later July irrigation). The I<sub>2</sub> plots receiving the more frequent summer (late June and early July) irrigations grew excessively rank which was a primary reason for avoiding the July 9 irrigation, but these plots did yield more lint per acre.

#### REGIONAL VARIETY TESTS

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These tests are reported for three locations in 1975: Phoenix, Marana, Yuma and Safford. Deltapine 16, Coker 310, Paymaster 909, Acala 1517-70 were used as standard entries in variety tests across the cotton belt. The yields are shown in Table 4.

The spring temperatures were much lower than usual throughout the state and likewise the summer months were below average. The unusual weather conditions delayed blooming and harvest, and at the higher elevations favored those varieties best adapted to the cooler temperatures. At Safford, the Acala cottons led the yields. At Marana, there was sufficient verticillium wilt to favor those varieties with the most tolerance. Yuma was exceptional for yield.

The fiber and laboratory measurements for those varieties grown at the Cotton Research Center (Phoenix) are shown for comparative evaluation of fiber in Table 5.

Table 4. Yields - Lint per Acre. Regional Variety Tests - 1975.

Phoenix		Marana		Safford		Yuma	
Deltapine 703	1279	Deltapine 66	1021	1517-75	1074	Stoneville 256	2479
Stoneville 256	1203	Deltapine 16	1013	1517-70	1061	Deltapine 682	2349
Deltapine 682	1115	1517-75	1013	1517-V	1025	Stoneville 213	2343
Deltapine 707	1082	1517-V	969	Coker 310	976	6608	2343
Stoneville 213	1081	Deltapine 682	957	Stoneville 731N	966	Deltapine 707	2307
Deltapine 71	978	Deltapine 61	956	Stoneville 213	963	Deltapine 61	2292
Deltapine 16	931	Deltapine 707	945	Deltapine 16	938	Deltapine 703	2276
6608	901	1517-70	936	Stoneville 256	904	Deltapine 66	2250
1517-75	842	Deltapine 703	921	Deltapine 61	890	Deltapine 16	2237
Deltapine 66	822	Stoneville 213	914	AZ 64	872	Coker 310	2145
AZ 64	692	Stoneville 256	861	Deltapine 66	847	Coker 530	2131
Coker 310	678	Coker 530	801	Paymaster 909	828	AZ 64	2121
Coker 530	668	Coker 310	773			1517-75	1708
1517-70	652	Paymaster 909	772			1517-V	1675
1517-V	595	6608	687			1517-70	1590
Paymaster	527	AZ 64	622			Paymaster 909	1590
Average	878		885		945		2115
C.V.	13.6		10.9		9.1		8.0
L.S.D. (05) lbs.	246		232		232		579

Table 5. Fiber Properties and Laboratory Measurements, Regional Variety Test, Cotton Research Center, Phoenix - 1975.

Variety	Lint %	Seed Index	Fiber Length			Fiber Strength 1/8 Pressley	Mic
			2.5%	50%	U.I.		
Deltapine 16	36.2	11.6	1.16	.57	49	3.28	4.53
Deltapine 61	37.0	10.9	1.17	.59	51	3.30	4.65
Deltapine 66	37.3	9.7	1.12	.54	49	3.10	4.32
Deltapine 682	39.7	11.1	1.13	.55	48	3.07	4.18
Deltapine 703	40.2	9.5	1.11	.54	49	3.06	4.74
Deltapine 707	37.6	10.3	1.10	.53	48	3.17	4.51
Stoneville 213	36.3	11.3	1.12	.54	48	3.04	4.67
Stoneville 256	37.2	11.1	1.15	.56	49	2.91	4.80
Coker 530	36.9	11.9	1.18	.59	50	3.24	4.66
Coker 310	36.7	12.3	1.19	.59	49	3.26	4.33
1517-70	34.6	13.1	1.18	.59	50	3.77	4.28
1517-V	36.2	13.3	1.24	.66	53	3.89	4.14
1517-75	36.1	12.9	1.24	.65	53	3.92	4.09
AZ 64	37.6	12.0	1.15	.59	51	3.45	4.04
6608	37.4	12.6	1.15	.59	51	3.69	4.64
Paymaster 909	33.6	14.7	1.04	.54	52	3.09	4.86

#### HEXAPLOID COTTON

H. Muramoto

Hybridization and selection continued in the population of hexaploid cotton with emphasis on yield, fiber length, seed index, and boll size. With the release to the public of three non-commercial genetic breeding lines of hexaploid cotton by the Arizona Agricultural Experiment Station, small quantities of seed are available upon written request.

Samples of hexaploid cotton lint from the 1974 crop were sent to the USDA Cotton Spinning Laboratory at Knoxville, Tennessee for micro-spinning tests in 1975. The data show that the hexaploids lint as a group were short, with low reflectance, and B values that showed the yellowness to be similar to that of Pima cotton lint. Yarn tenacity of 22's yarn was about the same as that of the commercial up-land cottons. Spinning waste in the hexaploid cotton lint was excessive.

An interesting characteristic called "deciduous bracts" was isolated from a population of hexaploid cotton. In the "deciduous bracts" plants, the bracts fall before the boll opens. This characteristic offers some economic potential as a means of solving the Byssinosis problem. Byssinosis, an ailment to the lungs of cotton mill workers, is caused by the minute organic particles mixed in the lint and is believed to be of cotton bract origin.

#### GENETICS AND CYTOLOGY

J.E. Endrizzi and G. Ramsey

##### 1. Cytological tests of aneuploid types crossed with translocations for chromosome identification

Thirty-six different combinations were analyzed in 1975 for chromosome identification of selected aneuploids. The aneuploids consisted of three monosomes of the A genome, three telosomes and one isochromosome of the A genome, and five telosomes of the D genome. The results of the 36 combinations are given in Table 1. The negative (-) symbol in the table indicates that the chromosomes involved in the two types of structural changes are independent of each other and the positive (+) symbol indicates that monosome or telosome chromosome is one of the chromosomes in the translocation tester line.