

1975 was abnormal in many respects - cool at planting, relatively cool during the summer and late in maturing in the fall. The data suggests what can happen and can be of value in planning irrigation cut-off and defoliation dates. Various other varieties and a potential new Arizona release (6608) are presented in Table 2.

Table 2. Percent of Crop Harvested by Date and Variety, Cotton Research Center, 1975

Date	Delta- Pine 16	Delta- Pine 16	Stone- ville 213	Stone- ville 256	6608
September 1	5.3	2.6	4.1	7.4	5.0
September 15	12.1	5.8	13.3	13.2	9.1
October 1	29.1	17.0	25.1	28.4	19.0
October 15	53.9	40.0	47.7	49.9	37.9
November 1	85.0	74.2	81.0	84.3	73.5
November 15	98.6	94.5	92.3	95.2	90.6
December 1	100	100	100	100	100
Yield lbs. Lint/Acre	843	793	809	1095	970

STERILITY STUDIES

W.D. Fisher and Lee S. Stith

Sterility in cotton as occurs in the Arizona environment was reported in the Cotton Report 1974 in detail for 12 varieties of cotton at two-three day intervals during the month of July. Experiments in 1975 were designed to determine whether altering the irrigation schedule would change the microclimate sufficiently to change the percentage of sterile flowers. Two irrigation schedules were used:

I ₁	I ₂ *
April 24	April 24
May 29	May 29
June 25	June 10
July 9	June 25
July 24	July 3
	July 24

*Six irrigations but July 9 omitted

June temperatures completely nullified the effects of increased June irrigations on flower fertility but withholding an irrigation in July and a resultant moisture stress did affect fertility as shown in Table 3.

Table 3. Fertility Percentages by Dates. CRC - 1975

Variety and Irrigation Levels	7/28	7/30	7/31	8/1	8/4	8/5	Lint lbs./Acre
I ₁ Deltapine 16	96	99	99	100	100	100	711
I ₁ 1517 V	85	97	98	97	97	98	469
I ₂ Deltapine 16	81	80	91	92	95	93	798
I ₂ 1517 V	57	53	65	80	79	82	590

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 I₂ 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 I₂ 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