

FINAL IRRIGATION TEST NO. 2

Travis Jones - Harquahala Valley

Plot Number	No. of Irrig.	Date of Last Irrigation	Yield - lint#/acre			
			1st picking	2nd picking	GPU*	Total
Plot 1	11	Sept. 4	1437	Not Completed		-
Plot 2	10	Aug. 25	1347	Not Completed		-

Location: Harquahala Valley  
 Planting Date: April 23  
 Soil Type: Sandy loam  
 Planting Pattern: Variable row  
 Fertilizer: 200# NH<sub>3</sub> in water irrigating up 164 units  
 100# NH<sub>3</sub> injected prior to first water (May 15) 82 units  
 100# NH<sub>3</sub> injected June 20 82 units  
 Urea in water July-August 30 units  
 TOTAL N 358 units

Irrigation Pattern: Center row only of variable 32-48" rows  
 Harvest Dates: First - November 1  
 Second - (not picked to date)

\* Ground cotton

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PIMA COTTON IRRIGATION-SPACING-VARIETY TESTS

D. L. KITTOCK, Agronomist, USDA

Two Pima varieties of different adaptation, S-3 (high altitude) and S-4 (low altitude), were tested in irrigation tests at Tempe and Safford. Time of irrigation was determined by soil sampling at Tempe. Wet treatments were irrigated when approximately 50% of the moisture in the top three feet of soil was used. Medium was at 65% used and dry was at 80% used. Irrigation at Safford was on the human judgment basis.

Irrigation treatments were split in four plant population subplots at each location. Plant populations were planned as unthinned, and 6, 12, and 18-inch spacing. All picking was by machine.

Yield of S-3 at Tempe (Table 1) was 99% of the S-4 yield. In 1967 S-3 yielded 80% of S-4 and in 1966 it was 74%. This, of course, includes stress treatments, which favor S-3 as well as the more normal treatments. Lint yields were not significantly different for the different irrigation and variety treatments for first pick or total yield. Significant differences in lint yield occurred for the second pick, with S-3 producing more than S-4 and stress treatments producing more than normal treatments.

No differences in yield were found for the different plant populations for the first pick. (The four populations were combined in the second pick because of small sample size.) These results are contrary to what has previously been found. Previously, optimum average plant spacing has been found to be between three inches and nine inches. The high productivity of soil on the ASU farm plus the very favorable cotton year may be responsible for the different results in 1968.

Results at Safford (Table 2) were similar to results of previous years at Safford. Wet treatments gave highest yield, though differences were not significant. The unthinned cotton produced more than any of the thinned plots, though the planned six-inch spacing was only slightly lower in yield and the difference between six-inch spacing and unthinned was not significant.

Table 1

Pima Cotton Irrigation-Variety-Plant  
Population Test, ASU Farm, Tempe, 1968

Treatment		Special Treatments	Number Irrigations	Estimated inches of water used <sup>1</sup>	Lint yield in lb/A		
Irrig. level	Variety				1st pick 11-5-68	2nd pick <sup>3</sup> 12-3-68	Total
Wet	S-3		8	35	940 a <sup>2</sup>	201 c	1141 a
Wet	S-4		8	35	1084 a	125 d	1209 a
Wet	S-4	First irrig. 5-13	9	37	910 a	104 d	1014 a
Medium	S-3		7	28	858 a	240 bc	1098 a
Medium	S-4		7	28	949 a	135 d	1084 a
Medium	S-4	First irrig. 6-17	7	28	875 a	140 d	1015 a
Medium	S-4	First irrig. 6-26	6	24	778 a	261 ab	1039 a
Medium	S-3	First irrig. 6-26	6	24	866 a	285 a	1151 a
Dry	S-3		5	25	795 a	229 bc	1024 a
Dry	S-4		5	25	928 a	210 c	1138 a
<u>Varieties (means of comparable treatments)</u>							
S-3					865 a	239 a	1104 a
S-4					935 a	183 b	1118 a
Irrigation C. V.					39%	14%	16%
<u>Planned Spacing</u>							
Unthinned					897 a		
6"					892 a		
12"					920 a		
18"					885 a		
Test C. V.					12%		

<sup>1</sup> Estimated water used does not include a preplant irrigation of about 12 surface inches.

<sup>2</sup> Lint yields within a group of means are not significantly different at the .05 level if followed by the same letter.

<sup>3</sup> Subplots were combined in second pick because of small sample size.

Table 2

Lint Yield Per Acre in Pima Cotton Irrigation-Variety-Plant  
Population Test, Safford, 1968. (picked 11-25-68)

Irrigation Treatment	Est. Inches Water Used	No. Irrig.	Variety		2-Variety Mean
			S-3	S-4	
Wet	30"	5	631 a	579 a	605 a
Medium	25"	4	557 a	563 a	560 a
Dry	20"	3	584 a	555 a	570 a

Plant Spacing

<u>Planned</u>	<u>Actual</u>			
Unthinned	3"	658 ab	708 a	683 a
6"	7"	648 ab	644 ab	646 a
12"	12"	566 bc	502 cd	534 b
18"	16"	491 cd	408 d	449 c
Mean		591	566	

C.V. = 12%

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PIMA COTTON SKIP ROW TEST

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A skip row test using Pima S-3 and Pima S-4 was conducted at Marana in 1968. The skip row patterns are shown in Table 1. Lint yields are shown first on a cropped area basis (skips not counted in area) and then on total area basis. Yields are further divided into row pairs for the cropped area data. That is, in six cropped and two skipped, Rows 1 and 6 are outside rows, 2 and 5 are the next pair of rows toward the center, and Rows 3 and 4 are the center rows. Rows 3 and 4 are assumed to be the equivalent to no skip planting for this presentation.