

PIMA COTTON IRRIGATION - SPACING - VARIETY TESTS

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Irrigation - variety test, ASU farm, Tempe

Two varieties of Pima cotton, "Pima S-4", and the experimental line "P-21" were grown in five irrigation treatments. P-21 had low seedling vigor in this and the other tests where it was used. As a result, stands of it were thin and seedlings got off to a slow start. Irrigation treatments were wet (irrigate every seven days during mid-summer), medium (irrigate every 14 days), dry (irrigate every 21 days), medium with fifth irrigation skipped, and medium with sixth irrigation skipped.

Yield data for the test are given in Table 1. Highest yields were obtained from the wet irrigation treatment and lowest from the medium treatment. These results are not consistent with the six year average yield shown in Table 1. The wet irrigation treatment was lowest in lint yield one year and the medium irrigation treatment was lowest in two years. The three medium irrigation treatments had essentially the same yield for the last two years. Thus, skipping one irrigation during August, when on a 14-day irrigation schedule, did not cause a yield reduction. It should be pointed out that the soil profile was thoroughly wetted before the 28-day skip.

Pima S-4 produced more lint than the experimental strain P-21. The difference between strains seems to be due to thin stands of P-21.

Irrigation - variety test, Safford

This test was similar to the test at Tempe. It differed mainly by having only the three basic irrigation treatments and having an extra variety. This is the second year in a row that the wet irrigation treatment produced lower yields. In both years lint yields were low and there was a relatively early freeze. The six year average shows essentially no difference in lint yield between irrigation regimes. Pima S-4 produced more lint than Pima S-3. P-21 was intermediate, however, where there was a good stand P-21 was equal to Pima S-4 in lint yield. There were only slight differences in lint yield for Pima S-3 and Pima S-4 when averaged for six years.

Pima cotton skip-row test, Marana

Skip-row tests on Pima cotton have been conducted at Marana for the last four years. Considerable skip-row effect was obtained the first two years. In the last two years there was very little benefit from skip-row. Low lint yields and a relatively early freeze were characteristics of both of these years. Another factor that may have affected the skip-row effects the last two years was irrigation of the center furrow of two-row skips. This was not done the first two years. In each of the last two years there was a heavy load of green bolls on outside rows that did not mature.

Varieties performed about the same in the last two years with P-21 having the greatest lint yield, Pima S-4 intermediate, and Pima S-3 lowest in yield.

There was no difference between varieties in skip-row effect. In the first two years, Pima S-3 had more skip-row effect than Pima S-4.

Table 1.

Pima Cotton Irrigation-variety Test,
ASU Farm, Tempe, 1970

<u>Treatment Irrigation</u>	<u>No. of irrigations</u>	<u>Estimated in. water applied^{1/}</u>	<u>Lint yield lbs./A.</u>	<u>6-year mean</u>
Wet	9	41	720 a ^{2/}	781
Medium	6	32	652 b	719
Dry	3	19	683 ab	692
Medium, missed 5th	5	28	696 ab	
Medium, missed 6th	5	26	673 b	
<u>Varieties</u>				
S-4			713 a	
P-21			657 b	
Mean			685	
Test C. V.			9%	

^{1/} Estimated water use does not include a preplant irrigation of about 12 surface inches and about two inches of rain. May and June irrigations were excessive to get water across the field.

^{2/} Lint yields within a group of means are not significantly different at the 5% level if followed by the same letter.

Table 2.

Lint Yield Per Acre in Pima Cotton
Irrigation-Variety Test, Safford, 1971

<u>Irrigation Treatment</u>	<u>No. of irrigations</u>	<u>Estimated in. water applied^{1/}</u>	<u>Lint yield lbs./A.</u>	
			<u>1971</u>	<u>6-year mean</u>
Wet	9	36	337 b ^{2/}	532
Medium	6	24	402 a	535
Dry	5	20	366 ab	526
<u>Variety</u>				
S-3			346 b	523
S-4			398 a	541
P-21			361 ab	
C.V.			15%	
Mean			368	

1/ Estimated water use does not include a preplant irrigation nor about four inches of rainfall, but does include an irrigation given the day after planting.

2/ Lint yields within a group of means are not significantly different at the 5% level if followed by the same letter.

Table 3.

Yield of Pima Cotton Grown in Skip-Row
Patterns at Marana, Arizona 1971

Treatment			Lint yield on crop area basis				Lint yield on total-area basis		
Yield rows	Rows skipped	Row pair	Lbs./A	% of no-skip yield		4-year mean	Lbs./A	% of no skip	
			by rows	by field	1970		1970	4-year mean	
1	1		533 a ^{1/}	533 a	98	130	267 b	49	65
2	1		553 a	553 a	101	116	369 b	67	76
2	2		598 a	598 a	109	121	299 b	55	61
4	2	1,4	638 a	582 a	106	111	388 b	71	73
		2,3	526 a						
6	2	1,6	617 a	563 a	103	108	422 ab	77	81
		2,5	526 a						
(No skip yield)3,4			547 a	(547 a)			(547 a)		

Variety

S-3	530 a
S-4	570 a
P-21	602 a
Test mean	567
C.V.	17%

^{1/} Lint yields within a group of means are not significantly different at the 5% level if followed by the same letter.