PIMA AND UPLAND COTTON IRRIGATION TESTS

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Two identical tests were established in the same field. One followed two successive years of cotton and one followed sesbania plowed for green manure. The tests had Pima S-5 and DPL 16 cotton in each plot.

All tests were given a good preplant irrigation. All treatments were irrigated with 3.0 inches of water on April 24 and 5.5 inches of water on May 28. The wet treatment was irrigated again after 13 days and then every seven days until September 2. The medium treatment received the second irrigation 20 days after the first and then approximately every 14 days to September 2. The dry treatment was irrigated every 21 days with 27 days between first and second irrigations, and the final irrigation on September 2. The wet-medium treatment received the wet irrigation regime through July 16 and the medium regime thereafter. The medium-1 treatment was the same as medium except the last irrigation was not applied. The last irrigation for it was August 14. We tried to add enough water at each irrigation to refill the soil profile.

There did not appear to be any real differences among treatments in the test following cotton and the test following sesbania; therefore, data for the two tests were combined. Cotton following sesbania averaged 11% more seed cotton than cotton after cotton.

Pima cotton produced less in comparison to DPL 16 Upland cotton than in 1974 despite changing from Pima S-4 in 1974 to Pima S-5 in 1975. This could be expected as Pima cotton is more sensitive to adverse growing conditions than are the southeastern types of Upland cotton.

In 1974 the wet irrigation treatment gave top yield for both species of cotton. In 1975 medium irrigation treatment produced the highest yield for DPL 16 and the dry treatment had the highest yield for Pima S-5. Failure to give the last irrigation in medium-1 had a very drastic effect on seed cotton yield, particularly for Pima S-5. In view of the long warm fall in 1975, it might have been advantageous to give one more irrigation in mid-September.

Table 1. Seed Cotton Yield and Post-plant Water Application for Five Irrigation Treatments on Pima S-5 and DPL 16 Cotton at Phoenix, Arizona in 1975.

Irrigation treatment	No post-plant irrigations	Inches water applied post-plant	DPL 16		Pima S-5		Pima S-4 and S-5 yield as % of DPL 16	
			Lbs seed cotton/A	% of wet	Lbs seed cotton/A	% of wet	1974	1975
Wet	14	41	3,282 ab[1/]	100	1,845 f	100	72	56
Wet-medium	11	40	3,189 b	97	2,207 de	120	73	69
Medium	8	39	3,523 a	107	2,192 e	119	78	62
Medium-1	7	34	2,886 c	88	1,277 g	69	62	44
Dry	6	39	3,284 ab	100	2,302 d	125	70	70
Mean			3,233		1,965		71	61
C.V.					8%			

[1/]Mean seed cotton yields do not differ significantly at the 5% level if followed by the same letter.