

the location of the salts between the preirrigation and post-irrigation samples.

The TSS in the samples taken prior to the germination irrigation were not significantly different from one another regardless of "position" or depth. Significant differences were observed between the depths of soil samples in the post-irrigation samples. The highest concentration of salt accumulation being in the surface samples (approximately 5300 ppm), However, no significant difference occurred between the 1.5, 3.0, and 4.5 inch depths (average was approximately 1500 ppm). The lack of difference in the salt concentration between the "positions" of the soil samples was unexpected; one would expect the middle of the beds on normal row spacing, especially at the surface, to contain a higher concentration.

One explanation for the lack of difference in salt concentration at the surface is the movement of salts with the soil water through the capillaries in the soil. Evaporation of the water from the surface causes deposition of these salts at the surface.

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EFFECTS OF DATE AND METHOD OF PLANTING
ON YIELDS OF COTTON FROM TWO VARIETIES

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This was the third year of a study begun in 1965. Results from the first two years were reported under the above title in Cotton, University of Arizona, College of Agriculture Report, Series P-5, February 1967.

The objectives of these experiments were: (1) to determine the best time to plant cotton at Yuma and (2) to compare two conventional planting methods for establishing stands, especially in early March, when soil temperatures usually reach the minimum necessary for germination of cottonseed.

Procedure: Acala 4-42 (A4-42) and Deltapine Smooth Leaf (DpSL) were planted at approximately two-week intervals from early March to late April. The planting methods were: (1) in dry soil and irrigated up and (2) in moist soil "mulched." The experimental design was a split-split plot randomized block with 5 replications.

Results: In 1967, cotton yields at the Yuma Experiment Station were reduced by two inhibiting factors: (1) below-normal spring temperatures, which resulted in poor stands and stunted plants from early plantings, and (2) a build-up of pink bollworms to the extent that by mid-August most of the new bolls were infested. In spite of the ensuing insecticide program, very little late cotton developed. In this experiment, yields were approximately half of what they had been from corresponding planting dates in the previous two years.

With the low, marginal, spring temperatures, the method of planting proved to be important. As shown in Table 1, minimum temperatures at the seed line were generally lower under the "irrigated up" wet surface soil, even though the maximum temperatures were usually a little higher, than under the mulched soil.

This probably accounted, in large measure, for the slower and poorer seed germination with resulting poorer stands and lower yields for the "irrigated up" plantings (Table 2).

In spite of the cold spring weather, the early plantings - March 2 and 19 - were superior to the later plantings in final yield, since they were able to set more cotton before the pink bollworm build-up (Table 2).

Table 1. Effects of method and date of planting on soil temperatures at the seed line in March 1967 at Yuma, Arizona.

Method of Planting	Planting Date														
	March 2					March 19					March 31				
	3/6	3/7	3/8	3/9	3/10	3/20	3/21	3/22	3/23	3/24	4/1	4/2	4/3	4/4	4/5
	Minimum Temperature F°														
Mulch	45	46	49	51	52	55	55	56	58	59	52	53	54	57	52
Irrigated up	39	42	44	46	49	46	46	48	48	48	45	47	47	55	48
	Maximum Temperature F°														
Mulch	70	72	72	69	63	79	78	80	78	74	79	78	72	66	75
Irrigated	71	76	74	71	68	78	81	84	76	78	79	75	70	64	77

Table 2. Yields of seed cotton in pounds per acre from two planting methods and five planting dates.
Yuma, Arizona. 1967.

Method of Planting	Date of Planting										Average, Two Varieties
	Mar. 2		Mar. 19		Mar. 31		Apr. 14		Apr. 28		
	A4-42	DpSL	A4-42	DpSL	A4-42	DpSL	A4-42	DpSL	A4-42	DpSL	
Moist Soil (Mulched)	2759	3073	2685	3162	2498	2909	2304	2935	1755	2136	2622
	2916		2923		2703		2619		1945		
Dry Soil (Irrigated up)	2472	3043	2472	2509	2151	2431	1949	2427	1620	1886	2296
	2757		2490		2291		2188		1753		
Average	2616	3058	2579	2836	2325	2670	2127	2681	1688	2011	2459
	2837		2708		2498		2404		1850		