

II - LAND PREPARATION

Evaluation of Pre-Plant Tillage Systems in Cotton Production

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The objective of this experiment is to evaluate and compare the effects of pre-plant tillage systems on yields of short-staple cotton. Cost vs. yield for each of the several treatments will permit comparison, and evaluation of the gain, if any, from the higher cost systems.

The procedure in this experiment has been to obtain plots of land at the Cotton Research Center, Marana Farm, and Safford Farm for establishment of randomized block experiments with the several treatments. Cotton Research Center and Safford came out of alfalfa and Marana out of sorghum for the 1965 cotton crop. The plots are expected to be used cotton after cotton for five successive crop years.

The treatments, or tillage systems tested are:

- A & 1. "Conventional:" Chop stalks, disc, plow 12-14", disc 2x, float or drag, bed.
- 2. List only: Chop stalks, bed.
- 3. Chisel-list, chisels at 12-14": Chop stalks, bed.
- B & 4. Chisel-list, chisels at 16-19": Chop stalks, bed.
- C & 5. Chisel-list, chisels to depth limit of power unit, 20-28": Chop stalks, bed.

Available land limited the Cotton Research Center experiment to A, B, and C.

Results from the 1965 crop year show no significant difference due to treatment when analyzed statistically. However, the top numerical yield was found at each location in one of the chisel-bed treatments.

Costs per acre of these pre-plant systems have been developed as:

A & 1.	\$16.50
2.	6.50
3.	7.00
B & 4.	8.00
5.	9.00

Lint turnout data were not available at reporting time, so lint turnout was assumed to be 35% for all harvested cotton in the tabulation below. The plots at the Cotton Research Center and Marana were machine picked and those at Safford were hand picked. Lint yield per acre (35% of harvested seed-cotton) and pre-plant system cost in dollars per bale (500 lb.) of lint are tabulated below for the first year of tests at the three locations.

Treatment	Cotton Research Center		Safford		Marana	
	Delta Pine Smooth Leaf		Acala 1517-D		Delta Pine 5540	
	Lint Yield	Pre-Plant Machine Cost	Lint Yield	Pre-Plant Machine Cost	Lint Yield	Pre-Plant Machine Cost
	lb/acre	\$/bale	lb/acre	\$/bale	lb/acre	\$/bale
A & 1	1008	\$8.18	929	\$8.88	1118	\$7.38
2			1099	\$2.96	1141	\$2.85
3			1200	\$2.92	1168	\$3.00
B & 4	1059	\$3.78	1160	\$3.45	1187	\$3.37
C & 5	1080	\$4.17	1119	\$4.02	1174	\$3.83

Discussion

From the tabulated values of the results from the first year of tests, it is seen that the cost per bale of the conventional pre-plant system is more than two times the cost per bale of the simpler pre-plant systems. It is also noted that even though there were no significant differences in yield, the actual averages are higher for the simpler pre-plant systems.

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