

III - PLANTING

PLANTING -- Skip-Row Patterns

A Summary on Skip-Row Planted Cotton in Arizona

(R. E. Briggs & G. D. Massey)

Skip-row cotton has been grown in Arizona for a number of years. Several planting patterns have been used in the past by cotton farmers such as plant 4 rows skip 4 rows, or plant 4, skip 2. In more recent years the law regulating planting patterns has been changed so that plant 2 skip 2, plant 2 skip 1, or plant 1 skip 2 have also been permitted.

In order to ascertain which of these planting patterns would give the highest yields, when compared with solid planted cotton, an experiment was set up to study these various types of row plantings. The experiment was conducted at three locations, Yuma, Cotton Research Center and Marana, for three years (1962, 1963 and 1964). The cotton (variety Deltapine Smooth Leaf) was grown under the normal or average growing practices of each particular area. Plot size varied from 35 to 40 feet in length with 4 rows (40 inch/row) harvested per plot and the combinations replicated 6 times. The cotton was picked by hand twice at each location during the fall.

There are two ways of reporting the data from the experiments. They can be reported on an allotted acreage basis or on an actual physical acreage basis. Both are important because they help to demonstrate the way each affects yield, depending on the way yields per acre are reported.

The table shows the average of 3 years yield data from the Marana Experimental Farm as reported in pounds of lint cotton per acre and percentage of solid planted cotton. The percentage first pick yields varied only slightly with different planting patterns while total yields varied a great deal. On an allotted acreage basis the highest yield was obtained with the plant 1 skip 2 pattern with a yield of 6.6 bales reported or a 87% higher yield than the solid planted cotton checks. However, because only one-third of the land area was actually planted to cotton this planting pattern is probably unrealistic, because 2/3 of the land is unplanted thereby requiring 3 times as much land as solid planted cotton and also from the physical acreage standpoint, yield was only 2.2 bales or 62% of solid planted cotton.

The plant 2 skip 2 pattern gave the next highest yields on an allotted acreage basis and yielded 49% more than solid planted cotton. However, from the actual acreage basis, the plant 2 skip 1 comes the closest to giving yields of solid planted cotton.

The average of 3 years yield data from the Cotton Research Center, can next be seen in the table. The percentage first pick yields varied slightly with different planting patterns while total yields varied widely. Again on an allotted acreage basis the highest yield was obtained at the plant 1 skip 2 row pattern while the plant 2 skip 1 showed the next highest yield. This slightly higher yield at plant 2 skip 1 over plant 2 skip 2 is a reversal from the other two locations where the plant 2 skip 2 was second highest in yield on an allotted acre basis.

Skip-row Planted Cotton
3 Locations--Marana, Cotton Research Center, and Yuma
Average Yields for 3 Years ('62, '63, '64)

Location	YIELD OF LINT COTTON PER ACRE					
	Total Yield		Bales/Acre		% of Solid	
	Alotted	Actual	Alotted	Actual	Alotted	Actual
Acres	Acres	Acres	Acres	Acres	Acres	
			<u>Plant 1 skip 2</u>			
Marana	3181	1059	6.6	2.2	187	62
C.R.C.	2144	712	4.5	1.5	147	49
Yuma	2350	780	4.9	1.6	142	47
			<u>Plant 2 skip 1</u>			
Marana	2248	1496	4.7	3.1	132	88
C.R.C.	1833	1227	3.8	2.6	125	84
Yuma	1857	1236	3.9	2.6	112	75
			<u>Plant 2 skip 2</u>			
Marana	2519	1260	5.3	2.6	149	74
C.R.C.	1815	907	3.8	1.9	124	62
Yuma	2027	1014	4.2	2.1	122	61
			<u>Plant 4 skip 2</u>			
Marana	2128	1417	4.4	2.9	126	84
C.R.C.	1704	1136	3.6	2.4	117	78
Yuma	1871	1246	3.9	2.6	113	75
			<u>Plant 4 skip 4</u>			
Marana	2132	1066	4.5	2.2	126	63
C.R.C.	1637	819	3.4	1.7	112	56
Yuma	1912	956	4.0	2.0	115	58
			<u>Skip planted</u>			
Marana	1699	1699	3.5	3.5	100	100
C.R.C.	1461	1461	3.0	3.0	100	100
Yuma	1658	1658	3.5	3.5	100	100

The average of 3 years lint yields from the Yuma Experimental Farm is the final data reported in the table. In comparing first pick data for the 3 locations, Marana gave the highest first pick yields followed closely by Yuma while the C.R.C. first pick yields were approximately 20% lower. The highest allotted acreage yields (6.6 bales) were attained at Marana over the 3-year period and the C.R.C. recorded the lowest skip-row planted cotton yields.

The greatest increase over solid planted cotton (87%) was also attained at Marana on a location comparison. The C.R.C. responded slightly more favorably to

skip row cotton as compared to solid planted cotton than did Yuma. However, both of these environments were not as favorable for skip row planted cotton as Marana where yields of 40% or better over the other 2 locations were found with plant 1 skip 2.

From the practical standpoint if the farmer wants to plant skip-row cotton the plant 2 skip 2 will most likely give the highest yields on an allotted acreage basis while from an actual physical acre basis the plant 2 skip 1 pattern will probably give the highest yields (next to solid planted cotton).

These increased yields came about from the fact that the wider the space between rows the less competition for water, nutrients and light. It would seem from the data that the skip 2 (80" between rows) would give the least competition and therefore would exhibit highest yields--which was found to be true.

Skip Row Cotton Favors Acala Varieties

(G. E. Blackledge)

Acala varieties gave a higher percentage increase in yield over inside rows than Southern varieties. The two outside rows and the two inside rows were picked and weighed separately on three variety tests planted (plant 4- skip 1) skip row. This same procedure was followed in harvesting three tests in 1963.

The two years' results presented in the following table shows rather wide variations in yield increases from skip row plantings. Weed problems detract from skip row plantings. Rank growth generally gives an advantage to skip row plantings.

Average % Yield Increase Of Outside Rows Over Inside Rows

<u>1964</u>	<u>Field #1</u>	<u>Field #2</u>	<u>Field #3</u>	<u>Average</u>
Acala varieties	37.9%	21.3%	43.4%	34.2%
Southern varieties	26.9%	17.5%	37.4%	27.3%
<u>1963</u>				
Acala varieties	20.9%	38.7%	31.9%	30.5%
Southern varieties	7.8%	34.1%	22.7%	21.5%