

COTTON YIELDS

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Bolls Per Acre Determines Yield Per Acre; Thirty-Inch Spacing Gives Highest Total Yield; Six-Inch Spacing Produces Greatest Yield First Picking

IN SPACING TESTS conducted at the Salt River Valley Experiment farm near Mesa, Arizona, it has been found that 25 plants spaced 6, 18, and 30 inches apart in the row will produce the following number of flowers for each 30-day period.

TABLE I.—Number of Flowers Produced on 25 plants by 30-day Periods.

	6-18	7-18	8-18	9-16
6-inch spacing	000	206	400	25
18-inch spacing	000	219	856	558
30-inch spacing	000	345	1400	1079

It has also been shown that during these same periods Acala and Hartsville cotton will shed the following percent of their flowers.

TABLE II.

	July 31 to Later		Ave. for	
	July	Aug. 5	Period	Season
	Percent	Percent	Percent	Percent
Acala	64	64	66	65
Hartsville	52	64	67	62

Now with the number of flowers as shown in Table I and the percent of shedding for the season as shown in Table II the 25 plants will have the following numbers of bolls to mature.

TABLE III.

	7-18	8-18	9-16
6-inch spacing	74	120	9
18-inch spacing	77	300	196
30-inch spacing	121	490	378

Now, it is not so much the number of bolls per plant as it is the number of bolls per row or per acre that determines the final yield of lint per acre. Table IV shows the number of flowers per 62.5 feet of row. We have used 62.5 feet because that is the distance occupied by 25 plants spaced 30 inches apart. This distance will have 42 plants spaced 18 inches and 125 plants spaced 6 inches. This length of row will have the following flowers and the number of bolls to mature where there is a shed of 65 percent.

TABLE IV.

	No. of flowers	No. of bolls
6-inch spacing	3125	1029
18-inch spacing	2856	1000
30-inch spacing	2824	989

Since the flowers open at different periods in the summer another question which must be considered is the time from the fully opened flowers to mature bolls. Dividing the season approximately the same as we have it in Table I, it takes the following number of days for bolls to mature.

TABLE V.

	Season			
	July	Aug.	Sept.	Average
	Days	Days	Days	Days
Acala	50	60	69	59



Cotton Crop Spaced Twelve Inches

Hartsville	59	72	80	70	12-inch spacing	54	62	65
Pima	56	70	80	68	18-inch spacing	50	60	65
					30-inch spacing	46	56	55

It seems to be a law of nature that a certain amount of heat and sunshine is required to mature fruit. Table V shows that more time is required for flowers opening the last of August and in September to mature fruit than for those flowers opening in July and early August. This table indicates that a farmer in the vicinity of Tucson should endeavor to have his cotton crop set fruit as early in the summer as possible in order to avoid the cool nights or early frosts in the fall.

The farmer's chief interest is the final harvest with the different spacings under discussion.

TABLE VI.—Acre yields of cotton with different spacings, Salt River Valley Experiment Farm.

	Acala	Hartsville	Pima
6-inch spacing	732	637	549
12-inch spacing	722	610	522
18-inch spacing	718	657	529
30-inch spacing	744	665	550

Table VI shows that the yield for all three varieties was greatest with the 30-inch spacing. The 6-inch spacing was second in the case of Acala and Pima. Now we have stated before that it takes longer for the late flowers to mature and so it is of interest to know what percent of the above crop can be gathered at the first picking.

TABLE VII.—Percent of Crop gathered at first picking under different spacings, Salt River Valley Experiment Farm.

	Acala	Hartsville	Pima
	Percent	Percent	Percent
6-inch spacing	55	65	67

Table VII shows that the 6-inch spacing yields the larger percent of the total crop at the first picking with all three varieties. This indicates that a larger percent of the bolls set have matured and are out of the way of fall frosts.

As a usual thing, the price of cotton is higher early in the fall before the main crop is harvested. It is a common practice for many farmers to sell their cotton as ginned so it is of interest to know the amount of cotton that would be gathered at the first picking, as indicated from Tables VI and VII.

TABLE VIII.—The number of pounds of cotton gathered per acre at the first picking with different spacings—Salt River Valley Experiment Farm.

	Acala	Hartsville	Pima
	Pounds	Pounds	Pounds
6-inch spacing	402	414	367
12-inch spacing	390	378	339
18-inch spacing	359	394	343
30-inch spacing	342	372	302

Table VIII shows that the first picking from the 6-inch spacing yields the greatest number of pounds per acre; and in the case of Acala, which is the principal variety grown around Tucson, as the spacing increases the number of pounds of lint gathered at the first picking decreases, although the 30-inch spacing gave the highest total yield as shown in Table VI,