

Effects of Variation in Spacing on Sugar Beet Yields in California

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To determine the effects of variation in row spacings on yield of sugar beets while maintaining approximately the same population per acre, the following trials were run during the 1945 season at Woodland, Gilroy, and King City. Twenty-inch flat planting and 14-inch by 20-inch ridge planting were used as the checks in comparison with 30-inch and 40-inch ridge planting. Each treatment was replicated three times.

Spacing of beets down the row was very uniform, thinning having been done by hand with the aid of marked sticks so that the spacing would be as uniform as possible.

There were no visual differences in growth throughout the season. It was noted, however, that the furrows between the 30-inch and 40-inch plantings had more growth of water grass. This was probably due to less shading from the tops in the two treatments.

Treatment	Gross tons of sugar per acre	Tons of beets per acre	Percent of sucrose	No. of beets harvested p/unit acre	No. of beets per 100 feet of row
(Sacramento Valley)					
14-inch by 20-inch ridge	3.957	25.211	15.7	111	111
20-inch flat	3.807	25.722	15.0	108	108
30-inch ridge	3.585	23.515	15.2	95	127
40-inch ridge	3.066	21.105	14.5	90	180
F value*	10.757	10.210	4.102	25.305	
2 x Sat	0.346	1.842	0.674	5.532	
(Santa Clara Valley)					
16-inch by 20-inch ridge	4.250	25.353	17.5	104	104
40-inch ridge	3.574	20.788	17.2	93	180
F value**	25.367	19.328	0.932	14.877	
2 x Sat	0.120	2.300	0.082	8.000	
(Salinas Valley)					
14-inch by 20-inch ridge	5.588	34.108	16.4	93	93
40-inch ridge	5.056	30.530	16.6	85	170
F value***	3.443	10.114	0.062	7.957	
2 x Sat	0.810	2.520	1.698	7.644	

*F value of 4.70 required to give odds of 19:1 against deviations noted being due to chance.

**F value of 0.01 required to give odds of 19:1 against deviations noted being due to chance.

***F value of 10.13 required to give odds of 19:1 against deviations noted being due to chance.

†Two times the standard error of a difference. This value is generally accented as the minimum for the statistical significance.

Data were analyzed as a randomized complete block.

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