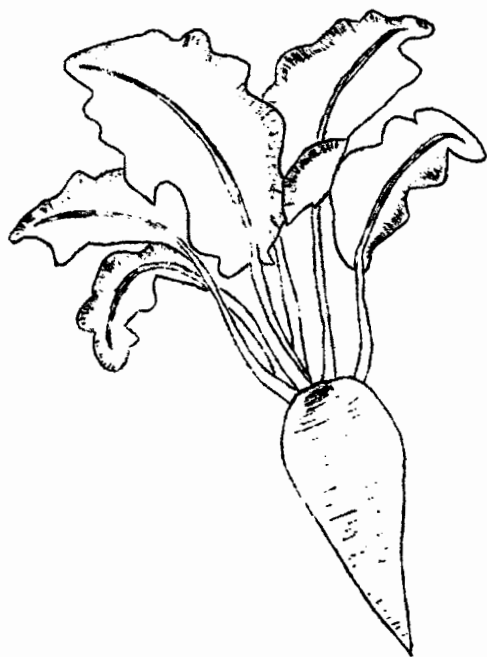


GROWING SUGAR BEETS



IN
TULARE
COUNTY

UNIVERSITY OF CALIFORNIA
FARM AND HOME ADVISORS OFFICE
TULARE COUNTY
POST OFFICE BUILDING, VISALIA

At the present time, sugar beets are an allotted crop. The 1957 acreage allotment for Tulare County is slightly over 2,200 acres.

The allotment is determined by the grower's previous acreage history of sugar beets or by obtaining a new grower's allotment from the Agricultural Stabilization and Conservation Office.

Sugar beets are handled as a contract crop. A prospective grower after obtaining an allotment should then consult a sugar company representative. In Tulare County American Crystal and Holly Sugar Companies have been contracting for sugar beet acreage.

Yields in the county vary considerably, but 20 tons per acre with a sugar content of 13 to 14 per cent seem to be about average. However, some growers obtain yields of 25 to 30 tons per acre or more.

Prepared by

Alan G. George
Farm Advisor

GROWING SUGAR BEETS IN TULARE COUNTY

Sugar beets are a deep extensively rooted crop often having a root which reaches 5 to 6 feet in a deep, well drained, soil. Beets require frequent cultivation and use fairly large amounts of water.

Deep heavy soils are well adapted to sugar beet production. Beets also are tolerant to soil conditions with a high salinity and have a fair tolerance to alkaline soils.

PLANTING

Sugar beets in this area are usually planted on 30 inch single row beds. Another common row spacing used widely throughout California are two rows on a 40 inch bed. Either planting arrangement is satisfactory and produces good yields. A good seedbed is firm, smooth, free of trash and contains adequate moisture for germination. With unfavorable moisture, beets can be planted and irrigated up to insure a stand.

Seed is supplied by the sugar company at a price usually specified in the contract. Treated seed is recommended for control of seedling diseases and wireworm attacks. Seed is usually planted at a rate of 4 to 6 pounds per acre, and should never be planted over two inches deep. Emergence of the beet seed generally averages about 35 percent of the seed planted.

THINNING

For mechanical thinning a full uniform stand is desirable. With a precision planter, 8 to 12 seeds per foot would give the best stand for mechanical thinning. Beets are generally thinned when they have 2 to 6 true leaves.

Spacing within the row can vary over a wide range without reducing sugar production per acre significantly. At least 100 to 150 beets per 100 feet of row should be left at thinning time. Tests have shown no difference in yield with single beets at spacings ranging from 4 inches to 12 inches or at 6 or 12 inches with 50 percent doubles.

Gaps larger than 12 inches should be avoided. It is always better to leave a few more than not enough sugar beets.

FERTILIZER

Crop rotation, fertilizer history, and soil type influence the amount of fertilizer applied. Most sugar beet fields will need nitrogen to produce maximum tonnage. Generally 80 to 160 pounds of actual nitrogen may be required. Early application of fertilizer is recommended to counteract any deficiency, and to stimulate growth early. The nitrogen supply should be regulated so as to be depleted 4 to 6 weeks prior to harvest to enable beets to store sugar.

CULTIVATION

Single row beds are usually used in Tulare

County for better mechanical weed control. Cultivation should be shallow to prevent root pruning and stirring weed seeds to the surface.

IRRIGATION

Sugar beets should not be allowed to wilt. When beet plants wilt, essential growth processes that increase weight and sugar content are greatly slowed down. On a hot day, however, temporary wilting may appear during high afternoon temperatures.

This wilting should be regarded as a danger sign and soil moisture should be carefully checked.

The number of irrigations will vary from field to field depending upon soil type, amount of water applied, amount of leaf growth, root distribution, and weather conditions.

The first irrigation should be early and heavy when winter rainfall is light. Soil should be wet to about 5 feet early in the season to build up a moisture reserve, and to develop a good root system. Delaying the first irrigation won't make beets grow a deep tap root in search of water, but only injures or kills feeder roots when moisture is not available.

Water should never stand around the beet crown as it causes a scalding and eventual rot.

Growers should apply sufficient water at each irrigation to replenish the moisture used from the lower soil areas in order to use the full

February, 1957

WHAT WILL IT COST TO GROW SUGAR BEETS IN TULARE COUNTY

Based on a yield of 20 tons per acre

Man labor @\$1.00; 30 H.P. wheel tractor @\$1.60; light tractor @\$1.25 per hr.

Alan G. George*

Burt Burlingame**

	Sample Costs		My Costs	
	Per acre	Per ton	Per acre	Per ton
PRE-HARVEST LABOR AND MATERIAL COST:				
Land preparation: man and 30 H.P. tractor - 3 hrs.		7.80		
Fertilize: pre-plant - $\frac{1}{2}$ hr. man and light tractor		1.13		
Fertilizer: pre-plant and crop - 160 lbs. N.		18.00		
Plant: 2 man and light tractor $\frac{1}{2}$ hr. + planter rent .30		1.93		
Seed: 5 lbs. @ 57¢		2.85		
Thin: contract		12.50		
Weeding: 2 - 3 times 12 man hrs. @\$1.00		12.00		
Irrigate: 8 times - 12 man hrs.		12.00		
Water: 3 acre ft. @\$3.50		10.50		
Cultivate 5 x and fertilize: 3 man & 2 $\frac{1}{2}$ lt. tractor hrs.		6.13		
Miscellaneous labor and material		6.00		
Total Pre-harvest Labor and Material		90.84	4.54	
HARVESTING COSTS:				
Mechanical harvesting: contract @\$1.35 per T.		27.00		
Hauling: (net cost @\$1.00 per ton)		20.00		
Total Harvesting Costs		47.00	2.35	
CASH OVERHEAD COSTS:				
General expense (5% of labor and material cost)		6.89		
County taxes		6.00		
Repairs (except tractors), insurance, etc.		4.00		
Total Cash Overhead Costs		16.89	.84	
TOTAL CASH, LABOR AND FIELD POWER COSTS		154.73	7.74	
DEPRECIATION COSTS:				
Irrigation facilities: (original cost \$140)		9.00		
Equipment, except tractor: (original cost \$15)		1.50		
Total Depreciation Cost		10.50	.53	
INTEREST ON INVESTMENT @ 5%:				
Irrigation facilities: on $\frac{1}{2}$ original cost \$70		3.50		
Equipment, except tractor: on $\frac{1}{2}$ original cost \$7.50		.38		
Land at \$500		25.00		
Total Interest on Investment		28.88	1.44	
TOTAL COST OF PRODUCTION		194.11	9.71	

* Farm Advisor

** Extension Specialist in Farm Management

The above table is provided as a work sheet so you can estimate your own probable cost of production.

Production costs will vary depending on water costs, weeds, size of operation and other factors.

Mechanical thinning and weeding will reduce these costs considerably.

depth of the beet root. A soil tube, auger or shovel are useful tools for checking depth of soil moisture.

The last irrigation is generally applied 2 to 3 weeks prior to harvest.

INSECTS AND DISEASES

Curly top is a virus disease transmitted by the beet leafhopper. The curly top problem has been reduced by the development of resistant varieties and control of the beet leafhopper by the State Department of Agriculture.

Damping-off may cause a poor seedling stand. Seed treatment, however, usually gives adequate protection.

Sugar beets are susceptible to both the root knot nematode and the sugar-beet nematode. Beets should not be planted on land known to contain either of these nematodes unless the field has been in some non-susceptible crop for 3 to 5 years or the soil is fumigated.

Cercospora leaf spot has shown up in some of the county sugar beet fields, but is usually not serious. High humidity and high temperature favor this disease which may ruin the foliage or cause gray dead spots on the leaves. Plant breeding seems to offer the best control against this fungus.

Insects have never created much of an economic problem for sugar beets in the county.

HARVEST

Most sugar beet growers in this county rent a beet digger from the sugar company with whom they contract, or contract with a custom operator unless they own their own digger.

VARIETIES

Most of our acreage has been planted in January and February for harvest from late July to early October using the variety U. S. 22. This variety may bolt quite easily when planted in the early winter.

Beets are now being planted from October to December for harvest from May to July using the variety U. S. 75. This variety is preferred for fall planting and has good bolting resistance and a high resistance to curly top. Fall planting is a new practice in the county and a variety with high bolting resistance through a cold winter may make it a desirable practice for early summer harvest. Seed supply of this variety is limited at this time.

PRICE RETURN

Growers of sugar beets are paid for their beets according to their net sugar content and the net selling price per 100 pounds of refined sugar realized by the sugar companies from August of the year in which the crop is harvested to July 31 of the following year.

In addition to payments from the sugar company the grower receives a benefit payment from the government as established under the Sugar Act for each hundredweight of commercially recoverable sugar.

Approximate price per ton ^{/1} received by farmers
in the South San Joaquin Valley 1948 - 1952.

Year	Approx. Net Selling Price	Percent Sugar in Beets						
		12	13	14	15	16	17	18
1948	6.50	9.26	10.07	10.89	11.71	12.54	13.37	14.21
1949	6.54	9.31	10.13	10.95	11.78	12.62	13.45	14.29
1950	6.86	9.83	10.69	11.55	12.42	13.30	14.17	15.06
1951	7.14	10.27	11.17	12.07	12.98	13.89	14.80	15.73
1952	7.50	10.82	11.76	12.70	13.65	14.61	15.58	16.55

^{/1} Includes government sugar act payment

Other publications on Sugar Beets available at the Farm Advisors Office are:

Virus Diseases of Sugar Beets in California

Seedbed Preparation and Cultivation for Sugar Beets

Economic Factors Affecting the Sugar Beet Industry

More Profit From Sugar Beets

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