

SUGAR BEETS

COSTS & GENERAL HINTS ON PRODUCTION



University of California
Farm and home Advisor's Office
P. O. Box 2509
2610 'M' Street
Bakersfield, California-93303

COST & GENERAL HINTS ON SUGAR BEET PRODUCTION
IN
KERN COUNTY

David R. Woodruff, Farm Advisor

STAND ESTABLISHMENT:

Soils that are adapted to cotton, alfalfa and other deep-rooted crops are suitable for sugar beets. The roots of sugar beets will penetrate five to six feet into the soil; therefore, a deep, well-drained soil is preferred. Sugar beets have a high degree of tolerance to saline soil conditions, however, germination is reduced substantially in moderate (5-6 millimhos) saline conditions.

The seedbed should be firm and free of weeds. Sugar beets in Kern County are usually planted on 30-inch single row beds; however, some plantings are on 40-inch double row beds.

Best planting dates are late December and early January. Extended periods of excessive frost at germination and emergence time may seriously affect stands. However, March and later planted beets run a high risk of being hurt by curly top virus.

Seed is supplied by the sugar companies at a price specified in the contract. Seeds should not be placed closer than two inches and under good environmental conditions may be placed as wide as six inches. Depth should be 3/4 inch to 1 inch.

Beets generally are thinned when they have from 2 to 6 true leaves. Spacing of the beets

should be in the range of 100 to 200 beets per 100 feet of row. This means a spacing of 12 to 6 inches between plants in the row.

WEED CONTROL:

Field selection is an important factor in getting satisfactory weed control and also knowing what weeds are present in the field and to what extent they are present. There are many effective herbicides available but knowledge of the weed species present and the weeds controlled by the herbicide is a must for satisfactory weed control. Consult the latest weed control guidelines published by the University of California for current herbicides recommended for use on sugar beets.

FERTILIZATION:

Nitrogen is an important factor affecting the yield and sugar content of sugar beets. A lack of nitrogen may result in reduced yields but an excess reduces sugar content.

The crop history of a field may influence the amount of fertilizer needed. In general, 80 to 120 pounds of actual nitrogen should be applied.

Research work in Kern County has shown that beets high in nitrogen at harvest results in lowered sugar content. This work also has shown that sugar percentage does not increase when plants are low in nitrogen longer than three weeks prior to harvest; consequently, growers should apply enough nitrogen to insure good yields and maximum sugar percentage.

If soil samples show a phosphorus level of less than 10 ppm (Bicarbonate method) phosphorus, a response would be expected with the addition of

SAMPLE COSTS TO PRODUCE SUGAR BEETS IN KERN COUNTY - 1976

Production data: Yield 25 tons. Labor @ \$3.90 and \$4.30 per hour for field labor and equipment operators, includes Social Security, compensation insurance and fringe benefits. Eighty h.p. crawler tractor, fuel and repairs \$7.05, 80 h.p. wheel tractor \$3.60

David R. Woodruff, Farm Advisor

Operation	Hours Per Acre	Cost Per Acre			Total
		Labor	Fuel and repairs	Materials Kind and Quantity Cost	
<u>Cultural Costs</u>					
Land preparation	2.3	\$ 9.90	\$16.20		\$ 26.10
List and fumigate	.5	2.15	3.50	Fumigant 12 gals. @ 3.00/gal. \$ 36.00	41.65
Plant and fertilize, 2 men	.6	4.90	2.15	Seed 2 Lbs. 4.00	
				Fertilizer 100# P ₂ O ₅ , 100# N (@ .25) 50.00	61.05
Thin				29.00	29.00
Weed management	1.0	4.30	5.55	Herbicides 21.85	31.70
Irrigate 8 times	10.	39.00	5.75	3.5 ac. ft. @ \$18.00 63.00	107.75
Cultivate 2 times	1.	4.30	3.60		7.90
Total Cultural Costs		\$64.55	\$36.75	\$203.85	\$305.15
<u>Harvest Costs</u>					
Dig				25 tons @ \$1.50	\$ 37.50
Haul				25 tons @ \$1.75	43.75
Total Harvest Costs					\$ 81.25
<u>Cash Overhead Costs</u>					
Miscellaneous, office, car, etc.				6% of cultural and harvest costs	\$ 23.20
Management and supervision				5% of cultural and harvest costs	19.30
Taxes - personal property					5.00
Rent - 12 months basis				20% of 25 tons at \$25.00	125.00
Total Cash Overhead Costs					\$172.50
Total Cash Costs					\$558.90
<u>Investment</u>					
Equipment		Per Acre \$250.00		Annual Depreciation \$25.00	Interest 9% \$11.25
Total Investment Cost					\$ 36.25
TOTAL COST PER ACRE					\$595.15
COST PER TON @ 25 TON YIELD					\$ 23.80

The costs of production in any agricultural enterprise will vary considerably from ranch to ranch. The input and cost data in this booklet are sample costs. They are intended to be used only as educational guides in assisting you to appraise and plan your own crop and livestock program.

ABOUT THESE COST DATA -----

These cost data do not represent industry averages.

phosphorus. If soils are deficient in phosphorus then 30 to 50 pounds of actual phosphorus should be applied.

IRRIGATION:

Sugar beets will use from three to three and one-half acre-feet of water. The number of irrigations will vary from field to field depending on soil type. Fine textured soils hold more available moisture for the plants than do coarse textured soils. Therefore, fine textured types of soils may require less numbers of irrigations but will need more water each irrigation than do the sandier soils. Sugar beets should not be allowed to suffer for lack of available moisture. When plants wilt, yield and sugar content may be reduced.

SUGAR PERCENTAGE AND YIELD:

The average sugar percentage of Kern County beets is approximately 14%. The average annual yield for the last five years has ranged between 21.9 tons in 1971 to 28.0 tons in 1975.

DISEASES:

Young sugar beet seedlings are very susceptible to certain fungi organisms that live in the soil. These fungi are responsible for such seedling diseases as damping-off and seed rot.

Curly top virus disease is transmitted by the beet leaf hopper. Varieties in use in the San Joaquin Valley have a high tolerance to curly top. Early planting is an additional protection since the older the plant, the more tolerant it is.

Aphid borne viruses - Beet yellows, western beet yellows and beet mosaic are viruses transmitted by the green peach aphid, Myzus persicae. Of

the three viruses, beet yellows is the most severe. Epidemics of beet yellows are almost always associated with their transferral from old beet crops or "ground keepers" to new plantings. To break this beet to beet cycle, growers have established a beet free period which lessened the importance of this virus in Kern County.

Early infection of the sugar beet plants results in a greater loss than when infection occurs in the latter portion of the growing season. This is true with all three viruses.

PESTS:

Root knot nematode is a serious pest to sugar beets. Soil fumigation offers good protection.

Insects, other than the green peach aphid, are not too great an economic problem in sugar beets.

Mites occasionally may need to be treated.

HARVEST:

Most sugar beets are harvested by contract with custom operators who furnish their own equipment.

- - - *ACKNOWLEDGMENT* - - -

The author wishes to express his thanks to F. J. Hills, Cooperative Extension, University of California, Davis, for his aid in making the information contained herein as accurate as possible.

Revised October 1976

The University of California's Agricultural Extension Programs are available to all, without regard to race, color, or national origin.

Co-operative Extension work in Agriculture and Home Economics, Division of Agricultural Sciences, University of California, and United States Department of Agriculture co-operating. Distributed in furtherance of the Acts of Congress of May 8, and June 30, 1914. George B. Alcorn, Director, California Agricultural Extension Service.

AGRICULTURAL EXTENSION SERVICE

U. S. DEPARTMENT OF AGRICULTURE

UNIVERSITY OF CALIFORNIA

BERKELEY, CALIFORNIA 94720

OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE \$300

Return Postage Guaranteed (15)

UC Cooperative Extension

POSTAGE AND FEES PAID

U. S. DEPARTMENT OF AGRICULTURE

AGR 101

THIRD CLASS

