

SUGAR BEETS

Yields

Since 1978, the average yield of sugar beets for Ventura County has been over 25 tons per acre.

Yields of 30, 35 & 40 tons per acre are used in this sample to demonstrate the effect of yield on cost per ton.

Varieties and Seed

Decisions regarding varieties and seed are made by the sugar company. Breeding programs of the United States Department of Agriculture and sugar companies assure a steady improvement in varieties and seed types.

Soil and Climate

All of the level irrigated land in Ventura County and the climate that goes with it is suitable for sugar beet production. The acreage of sugar beets has been limited by the demand for land by more intensive and high income crops. This crop may not always justify the land rent shown in this sample cost.

When to Plant and Harvest

Most sugar beet fields are planted between December 1 and March 1. Harvesting usually begins around the middle of August and continues throughout September. Because the date of harvesting of a sugar beet crop is not critical, it is not necessary to schedule plantings, but harvesting is scheduled so as to meet the steady demand for sugar beets by the sugar factory and to fit the capacity of the local sugar beet dump where beets are freed of some dirt and trash and loaded on railroad cars.

Planting, Cultivation, and Weed Control

All sugar beets here are planted two rows to a standard vegetable bed (40-inch centers). There is an increasing acreage planted by precision planting in which single seeds are dropped about 2 to 2.5 inches apart. These fields may be mechanically thinned or hand thinned with long-handled hoes. Because of the ability of sugar beets to adapt themselves to a wide range of spacing, production is satisfactory whether single beet plants are spaced at 6 inches or 16 inches and a few doubles can be tolerated in what might be called a satisfactory stand. When conditions for emergence are good, and when seed of a high germination percentage can be used, planting to stand by dropping a seed every 4.5 to 5 inches is successful. A local trial and numerous trials elsewhere show that the highest yields can be expected from spacings of 6 to 12 inches. Yield reductions attributable to deviations from this spacing are about the same for 4-inch spacings and 18-inch spacings.

Selective herbicides available and recommended today appreciably reduce the cost of weed control but they leave some weeds to be taken out by cultivation and hoeing. Most weed control chemicals have been applied preemergence with incorporation. Recent observations have found post-emergence application of one or more herbicides effective. However, results depend on very careful application and timing.

Fertilizing

In most fields it is a good practice to apply 125 pounds of nitrogen per acre before planting or at planting time. This may or may not be sufficient for the whole season. Plant tissue analysis can be used to a good advantage in determining whether additional nitrogen is needed. Mid-season application of nitrogen is critical because if the sugar beet plants do not exhaust the nitrogen supply before harvest, the sugar percentage tends to be low and nitrate nitrogen in beets interferes with processing. If mid-season nitrogen is needed, apply 80 pounds of nitrogen per acre just before an irrigation. Sampling for tissue analysis and fertilizing needs to be correlated with time of irrigation.

Irrigation

Sugar beets have deep, vigorous root systems and when their leaves are fully developed, they utilize large quantities of water. Because sugar beets are planted during the rainy season it may not be necessary to start irrigating them until April or May. Irrigation should be timed so as to keep the crop growing vigorously until shortly before harvest. Intervals between irrigations may range from two to four weeks. Little or no harm is done allowing the drier portions of a field to show some wilting, but wilting should be taken as a signal to irrigate. Because by the time sugar beets show symptoms of drought, they have probably extracted water from the soil to a depth of 4 feet or more, it is important to allow water to remain in the furrows long enough to replace moisture to a depth of 3 or 4 feet.

Pests and Diseases

It is advisable to treat most sugar beet fields for root-knot nematode before planting. Crop rotation of four years or more between sugar beet crops will usually keep sugar beet nematodes under control; but if cabbage or any other cole crop is planted in this interval, the loss from sugar beet nematodes can be serious.

Occasionally, it is advisable to treat sugar beets for cutworms and other insect pests.

Powdery mildew has recently become a sugar beet disease that needs to be controlled. After the leaf area is well developed, fields should be examined weekly and a fungicide applied by spraying or dusting as soon as the disease is found in a few spots. To be effective, fungicide treatments must keep the new foliage almost free of the disease. Several applications may be needed.

University of California recommendations for pest and disease control are available at the farm advisors office.

* * * * *

CASH FLOW - INCLUDING LAND RENT AND SUPERVISION

Jan. Feb. Mar. Apr. May June July Aug.

Start

\$985

Grow

\$340

Harvest

\$170

Yield: 35, 30, & 40 T/A

SUGAR BEETS

Land Use: 8 Months

Plant: November through March

Harvest: August through October

Labor Per Acre

	Tractor	Hrs.	Cost	Tractor & Machinery	Contract & Materials	Total Per A.
CULTURAL CASH COSTS						
Establish Stand		8.77	\$ 68.34	\$62.89	\$ 31.41	\$162.64
Soil Fumigation				Contract, Fumigant and Application 140.00		140.00
Preplant Fertilizer				100 lb. N @ \$.41 lb.	41.00	41.00
Sideress Fertilizer (Early)				80 lb. N @ \$.41 lb.	32.80	32.80
Seed				8 lb. Coated	12.40	12.40
Chemical Weed Control				Contract	53.00	53.00
Cultivate 3 x	65 HP	.78	6.60	7.29		13.89
Hoe 1 x		10.00	70.10			70.10
Disease Control 2 x				Contract	36.00	36.00
Irrigate 4 x		8.00	59.76	1.06 2 A-Ft @ \$35	70.00	131.72
Disc & Roll Refuse 2 x	160 HP	.38	3.24	8.64		11.88
Total Cultural Cash Costs		27.93	\$208.04	\$80.78	\$416.61	\$705.43

CASH OVERHEAD

Land Rent			\$56.25 per acre-month x 8 months		\$ 450.00
Taxes on Machinery	@		.31 per acre-month x 8 months		2.48
Supervision	@		10.45 per acre-month x 8 months		83.60
General Expense	@		4% of Cultural Cash Costs		28.22
Interest on Operating Capital	@		1.04% per acre-month		83.14
Total Cash Overhead					\$ 647.44
Total Cash Costs Except Harvesting					\$1,352.87

HARVESTING CASH COSTS

Dig and Load	Contract		35 T/A @ \$2.20		\$77.00
Haul	Contract		35 T/A @ \$1.65 + (\$.07/TM-\$0.055/TM)		61.95
Total Harvesting Cash Costs			35 T/A @ \$3.83		\$138.95
Total Cultural, Overhead, Harvesting Cash Costs					\$1,491.82

INVESTMENT OVERHEAD

Depreciation:	Tractor & Machinery	\$36.70	Transportation & Shop	\$12.48	\$49.18
Interest:	Tractor & Machinery	23.66	Transportation & Shop	5.12	28.78
Total Investment Overhead					\$77.96
Total Cost Per Acre	@ 35 T/A				\$1,569.78
Total Cost Per Acre	@ 30 T/A				\$1,541.99
Total Cost Per Acre	@ 40 T/A				\$1,597.47

Total Cost Per Ton @ 35 T/A \$44.85
 Total Cost Per Ton @ 30 T/A \$51.40
 Total Cost Per Ton @ 40 T/A \$39.94

Acres, Yields, and Prices as Reported by
 Venture County Agricultural Commissioner

	Year	Acres	T/A	\$/Ton	\$/A
Farmers pay truckers \$1.65/ton-mile + \$.07 per ton-mile. The sugar company allowed farmers \$.055 per ton-mile in 1983.	1976	935	30.59	19.45	595
	1977	441	35.48	21.83	775
	1978	157	28.46	23.54	670
	1979	101	15.59	29.97	465
	1980	335	24.16	51.00	1233
	1981	905	29.83	31.00	925
	1982	224	28.75	31.22	897
	1983	242	36.55	29.87	942
	1984	293	20.10	33.44	672

LAND PREPARATION AND STAND ESTABLISHMENT

Sugar beets, broccoli, cabbage, cauliflower, cucumbers, head lettuce, and spinach all require approximately the same field operations for seedbed preparation, planting, pre-plant fertilizing, the first side-dressing, the first two cultivations, irrigation for germination, and the first irrigation after thinning. Costs of these operations are itemized below and entered in the cost of each crop as "land preparation and stand establishment". Costs of fertilizer, seed, herbicides, and thinning are

omitted here because they vary according to crop.

It is common practice to have furrowing and application of pre-plant fertilizer in the bed done by contract. This eliminates the need for fertilizing equipment on the sled used for bed shaping and planting.

Minor deviations from these procedures will not appreciably affect total cost.

CULTURAL CASH COSTS	Labor		Machinery* Cash Cost	Contract & Materials	Total Per Acre	
	Tractor	Hours Cost				
Subsoil 1 x	160	.32	\$2.73	\$6.48	\$	\$9.21
Plow 1 x	160	.32	2.73	6.88		9.61
Disc & Roll 2 x	160	.38	3.24	8.64		11.88
Land Plane 2 x	160	.36	3.06	7.50		10.56
Field Cultivator 2 x	160	.22	1.88	3.98		5.86
Furrow & Fertilize		Contract	(See each crop for fertilizer)	11.00		11.00
Shape Beds & Plant	65	.39	3.22	6.55 (See ea. crop for seed)		9.77
Irrigate for Germ.2x (Sprinkler)	4.00	29.88	15.00	1/3 A-Ft water	11.66	56.54
Cultivate, 4 beds 2 x	65	.52	4.44	4.86		9.30
Side-dress, 4 beds 1 x	65	.26	2.22	2.51 (See ea. crop for Fert.)		4.73
Irrigate 1 x (after thinning)	2.00	14.94	.49	1/4 A/Ft water	8.75	24.18
Total Cultural Cash Costs		8.77	\$68.34	\$62.89	\$31.41	\$162.64

Investment overhead for land preparation - Depreciation: \$25.99

Interest: \$16.72

* Includes Tractor

