

CANNERY TOMATOES

Yields

Most machine-harvested cannery tomato fields yield between 20 and 30 tons per acre. Yields of 25, 20, and 30 tons per acre are used in this sample.

Varieties and Seed

UC 134 and UC 82 are *Alternaria* stem canker resistant varieties that have been found satisfactory for cannery tomato production in Ventura County. Several other *Alternaria* stem canker resistant varieties are worthy of trial. If cannery tomato varieties without resistance to *Alternaria* stem canker must be grown, it is advisable to plant them early in the season, so as to escape early rains in the fall.

Soils and Climate

Except for the extreme coastal exposure, soils and climate of the level land throughout Ventura County are suitable for cannery tomato production. A low risk of rain in September and October is a substantial advantage of Ventura County over many other tomato-growing areas in the state and the world.

When to Plant and Harvest

Planting must be carefully scheduled to assure about the same acreage ready for harvest each week throughout the harvest season. Early plantings may not emerge for more than 20 days and late plantings may emerge in less than a week. For this reason it is suggested that each planting be made at a time when the first true-leaf is about 0.5 inches long in the seedlings of the previous planting. More detailed suggestions are found in "Mechanized Growing and Harvesting of Processing Tomatoes", a University of California publication available from farm advisors.

Although the optimum time for harvesting may be when 80 percent of the fruit is ripe, it is advisable to start harvesting as soon as the amount of ripe fruit exceeds 65 percent. At this time, fruit is ripening rapidly and it is only a few days after a field is 65 percent ripe until it is over 75 percent ripe. Because of their improved vine storage some of the newer varieties can be left until a higher percentage is ripe.

The time from emergence to harvest is approximately 130 days.

Planting, Cultivating, and Weed Control

Single rows spaced 4.5 to 5 feet apart are generally used here. The usual planting rate is from .5 to .75 pounds of seed per acre. This is equivalent to 12 to 20 seeds per foot of single row and plantings of this kind are followed by hand thinning to 9 to 12 inches between plants. Thinning can be eliminated by using precision planters to drop about five seeds every 9 to 12 inches. Where this hill or clump planting is used it is important that the seed for each clump be confined to an inch or two of row space; otherwise, the clump effect which caused each clump to act as a single plant is lost.

Selective herbicides incorporated in the seedbed immediately ahead of planting have been used to good advantage. However, the treatments most effective on the weeds may not be perfectly safe under all conditions. Wherever herbicides are used it is important to leave a few small untreated areas in the field to observe for both weed control and effect of the herbicide on stand and growth of the crop.

Each cultivation must be done with a high regard for the condition of the bed surface at harvest time. A tomato harvester works best when beds have a smooth, flat surface.

Fertilizing

Although tomatoes will not respond to phosphorous in all fields or all parts of some fields, it is advisable to apply some phosphorous under the seed at planting time. A combination of 8 to 10 pounds of nitrogen per acre and 10 to 20 pounds of phosphorous per acre placed under the seed or not more than 1 inch to the side of the seed and 1 or 2 inches below the seed will help to get all plants off to a good start. On some soil it is advisable to limit nitrogen applied after planting to less than 80 pounds, and this should be applied not later than thinning time. This restriction on nitrogen application and timing is to allow plants to become deficient in nitrogen before harvest time. If this deficiency does not occur, plants tend to continue setting fruit that has no chance of ripening in time for harvest.

Irrigation

At planting time the soil moisture should be at field capacity throughout the root zone; then in the milder sections of the county two irrigations may be adequate. The first may be before plants are 6" tall. The final irrigation should be early enough so soil moisture will be nearly exhausted at harvest time.

Ethephon

Ethephon applied according to the manufacturer's directions will hasten the ripening of tomatoes so that harvesting can be done approximately a week earlier than normal. By harvesting earlier than normal, less of the early fruit is lost by spoilage. For the cost sheet it is assumed that half the fields will be treated with ethephon.

It is important to hand harvest a few representative plants or clumps to determine percent of fruit pink and ripe (include breakers). Best results are expected when about 10 percent of the fruit is pink or ripe. After 20 to 30 percent of the fruit is pink or ripe spraying with ethephon may not have much effect on time of harvest.

In the mild coastal climate of Ventura County it may be more than 2 weeks after spraying before fruit is ready for harvest.

Pest and Disease Control

Tomato fruit worms and russet mites are the principal insect pests. They are controlled by one or more treatments, based on careful field observations, to assure treatment before damage is excessive and to avoid unnecessary treatments. Unless there is good reason to believe that root knot nematode will not be a problem, soil fumigation for root knot nematode should precede planting.

CANNERY TOMATOES

Yield: 25, 20, and 30 Tons/A

Land Use: 6 months

Plant: March, April, and May

Harvest: August and September

Labor Per Acre

	Tractor	Hrs	Cost	Tractor & Machinery	Contract & Materials	Total Per A.
CULTURAL CASH COSTS						
Subsoil 1/2x	160 HP	.16	\$ 1.36	\$3.24		\$ 4.60
Plow	160 HP	.32	2.73	6.88		9.61
Disc & Roll 2x	160 HP	.38	3.24	8.64		11.88
Landplane 2x	160 HP	.36	3.06	7.50		10.56
Furrow for pre-irrig.	65 HP	.26	2.22	2.43		4.65
Pre-irrigate		2.00	14.94	.49	1/3 A-Ft @ \$35	\$11.67 27.10
Drag Harrow 2x	160 HP	.26	2.22	4.70		6.92
Field Cultivator 2x	160 HP	.22	1.88	3.98		5.86
Fumigate					Contract 140.00	140.00
Drag Harrow 2x	160 HP	.26	2.22	4.70		6.92
Weed Control					Contract 70.00	70.00
Plant & Fertilize	65 HP	.34	2.90	4.96	300 lb/A 16-20 1/2 lb seed @ \$30	43.50 66.36
Irrigate 3x		6.00	44.82	1.47	1 A-Ft @ \$35	35.00 81.29
Fertilize 1x	65 HP	.25	2.22	2.37	50 lb N @ \$.41	24.60 29.19
Cultivate 4x	65 HP	.92	7.84	7.68		15.52
Hoe		8.00	56.08			56.08
Pest Control, Insecticides & Fungicides					Contract 175.00	175.00
Chelphon Growth Regul 1/2x					Contract 45.00	45.00
Disc & Roll Refuse	160 HP 2x	.38	3.24	8.64		11.88
Total Cultural Cash Costs		20.11	\$150.97	\$67.68		\$559.77 \$778.42
CASH OVERHEAD						
Land Rent			@ \$56.25 per acre-month x 6 months			\$337.50
Taxes on Machinery			@ .31 per acre-month x 6 months			1.86
Supervision			@ 10.45 per acre-month x 6 months			62.70
General Expense			@ 4% of Cash Cultural Costs			21.14
Interest on Operating Capital			@ 1.04 % per acre-month			65.00
Total Cash Overhead						\$498.20
Total Cash Costs Except Harvesting						\$1,276.62
HARVESTING CASH COSTS						
Prepare for harvesting			\$ 3.75/A			\$ 3.75
Harvest and load			\$20.00/Ton x 25 Tons	Contract		500.00
Inspection fee			\$.20/Ton x 25 Tons			5.00
Total Harvesting Cash Costs					\$20.33/Ton	\$508.75
Total Cultural, Overhead, and Harvesting Cash Costs						\$1,785.37
INVESTMENT OVERHEAD						
Depreciation: Tractor & Machinery			\$26.05	Transportation & Shop \$9.36		\$35.41
Interest: Tractor & Machinery			\$7.83	Transportation & Shop \$3.84		21.67
Total Investment Overhead						\$57.08
Total Cost Per Acre			@ 25 Tons/A			\$1,842.45
Total Cost Per Acre			@ 20 Tons/A			\$1,740.80
Total Cost Per Acre			@ 30 Tons/A			\$1,944.10
Total Cost Per Ton			@ 25 Tons/A	\$73.70		
Total Cost Per Ton			@ 20 Tons/A	\$87.04		
Total Cost Per Ton			@ 30 Tons/A	\$64.80		

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	Tractor	Labor		Machinery*	Contract & Materials	Total Per Acre
		Hours	Cost	Cash 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 .

