

POLE TOMATOES

Yields

Most pole tomatoes are picked pink, culled, and graded for size and color in a packing shed and packed in flats holding about 20 pounds. Yields range from less than 2,000 to over 3,000 flats (20 pounds) per acre. Yields of 2,000, 1,500, and 2,500 boxes per acre are used in this sample.

Varieties and Seed

VF7718 which has become the standard variety for pole tomato production in Ventura County because of its resistance to Alternaria stem canker. The older varieties, such as Earlypak 707 and VF6343 are no longer recommended because they are not resistant to Alternaria stem canker and losses from infection of fruit may become very serious.

VF7718 has an excellent size and type of vine for pole culture and fruit size is maintained late in the season. However, this variety is often criticized for producing fruit that is considered too flat and too rough.

Each year new varieties with resistance to Alternaria stem canker, Fusarium wilt, and Verticillium wilt are examined carefully for fruit quality, freedom from defects such as blossom end rot, graywall, and cracked fruit, and having a plant suitable for pole culture. Some of these new varieties also have resistance to tobacco mosaic virus and nematodes. A report on variety trials is published in December.

Soil and Climate

Most of the irrigated land in Ventura County is suitable for pole tomatoes. There are a few fields that should be avoided because of inadequate drainage.

When to Plant and Harvest

Attempts to have pole tomatoes ready for harvesting before July 15 are not usually successful. The earliest plantings are made in March for harvesting in August and September. Planting of most of the pole tomato acreage here is delayed until around June 1 so that the picking is from late September until around December 1. This is to take advantage of the climate which in most years is suitable for harvesting tomatoes throughout October and November when prices are usually higher than in September. Full production cannot be expected from planting made later than June 15. Rain and cool weather which usually come together may terminate the pole tomato season before December 1.

Planting, Cultivation, and Weed Control

Most pole tomatoes here are direct seeded in rows 5 to 6 feet apart and thinned to 14 to 18 inches. A local trial in 1968 showed that a 14-inch spacing produced the greatest yield and that wider spacings produced larger fruit. Transplanting is not recommended because of repeated experiences of losses from tomato mosaic and other diseases in transplanted pole tomatoes.

With good cultural practices not much is gained by chemical weed control in pole tomatoes.

Seed may be planted in moist soil from which it will emerge without irrigation or it may be planted in dry soil and irrigated up with furrow or sprinkler irrigation.

Almost all pole tomatoes are planted on flat ground. Cultivating to control weeds should be no deeper than necessary and the field should be free of weeds before staking. One or two irrigation furrows in each row space are made just before irrigating which may not be necessary until near the beginning of harvest. For cultivation and furrowing after staking, a small narrow tractor is needed.

Fertilizing

Land that has been intensively farmed with vegetable crops will usually supply all the phosphorous and potassium needed for a tomato crop. Nitrogen fertilization may not be necessary until 2 or 3 weeks before the first pick. Then one or two applications of 100 pounds per acre of nitrogen may be required for a maximum yield. Decisions regarding when to apply nitrogen fertilizer may be aided by plant tissue analysis. Pole tomato plants allowed to become deficient in nitrogen to the extent that they lose their dark green color and form small leaves cannot be expected to recover and produce a full crop.

Irrigation

Tomatoes have deep vigorous root systems, so the first irrigation may not be necessary until the plants are well developed. However, for some varieties and in some soil, it may be advantageous to irrigate when the plants are about ten inches tall to assure vigorous early growth and tall plants. It is a good practice to irrigate pole tomatoes thoroughly about ten days before the first pick so that several picks can be made before another irrigation is necessary. In heavy soil there may be some advantage to irrigating alternate row spaces to avoid excessive soil moisture. When there is much of a slope to the land, two small furrows in each row space are more effective than a single furrow. Where land is not properly leveled for uniform furrow irrigation, drip irrigation may be advantageous.

Pest and Disease Control

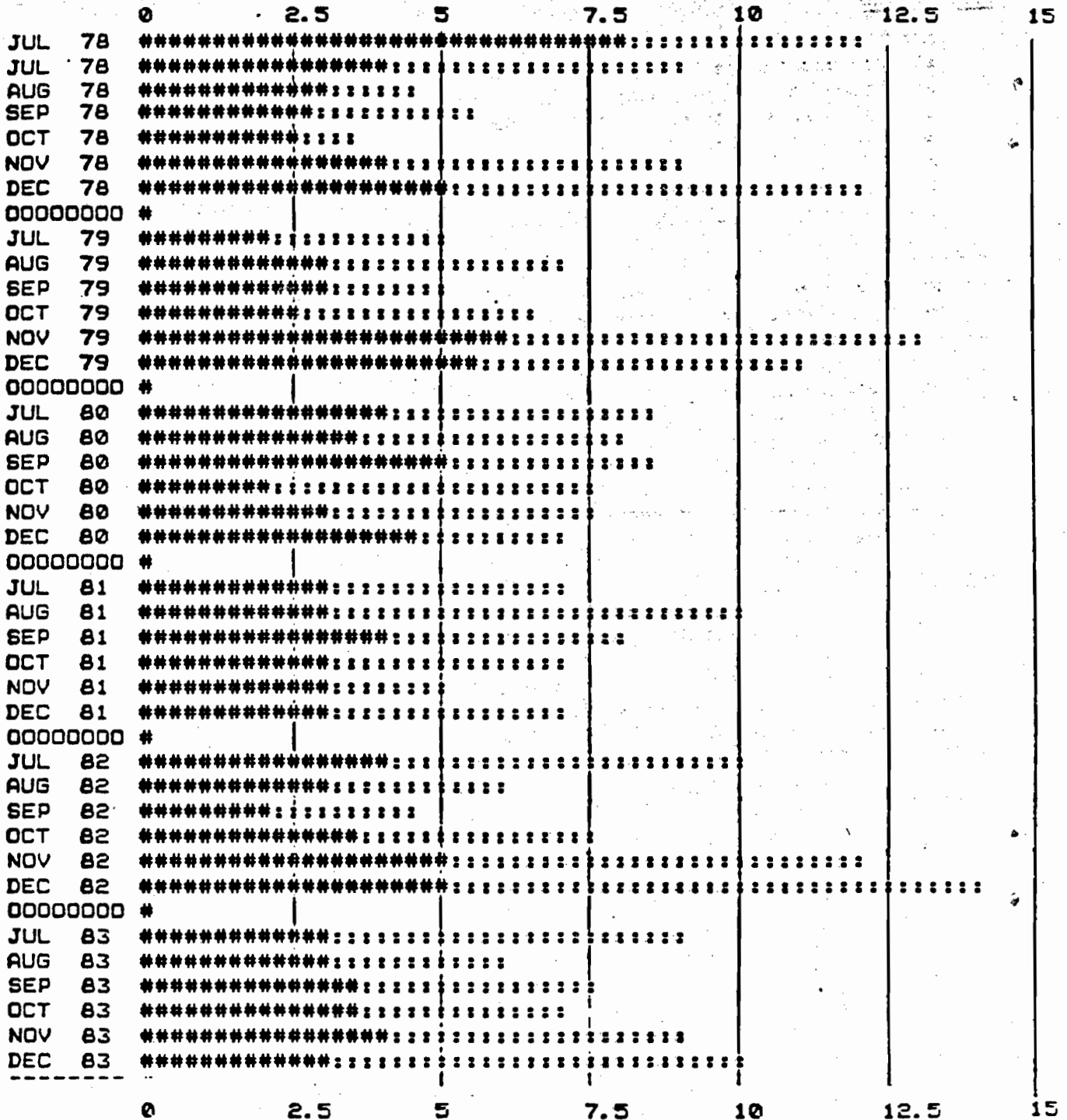
Nematodes, tomato fruit worms, leaf miners, and russet mites are the principle pests. Most fields here should be treated for control of root-knot nematodes before planting pole tomatoes. Treating for control of fruit worms should start before about one percent of the fruit is found to be damaged by worms. Russet mites are usually controlled by including a miticide with the worm control treatments. Since the establishment of the chysanthemum leaf miner during the past two years, it has become more important to consider integrated pest management in pole tomatoes. Insecticides used for control of other pests may aggravate the leaf miner problems. It has been difficult to find pesticides effective on leaf miners and suitable for pole tomatoes. Leaf miners have been successful in developing resistance to insecticides. It is advisable to take advantage of the population monitoring procedures that have been developed recently.

Attempts to control Verticillium and Fusarium wilts in tomatoes here by soil fumigation have been unsuccessful. The recommended variety and varieties recommended for testing have resistance to these diseases. The recommended variety and varieties recommended for testing are also resistant to Alternaria stem canker.

In the past 5 years late blight has caused some losses in pole tomatoes; so it is highly advisable to inspect all pole tomatoe fields at least weekly after the first of September. When the Phytophthora fungus causing the disease is present and climatic conditions are favorable for it. Control requires thorough spraying with an effective fungicide at weekly intervals.

LOW AND HIGH THURSDAY LOS ANGELES WHOLESALE MARKET PRICES
 FOR POLE TOMATOES IN DOLLARS PER
 20 POUND FLAT OF 2 LAYERS 4X5 & 5X6 IN 1980 THRU 1983

DOLLARS PER 20 POUND FLAT OF 2 LAYERS 4X5 & 5X6 * AND : = .25



POLE TOMATOES

Yield: 2,000, 1,500, and 2,500 Boxes

Land Use: 7 months

Plant: May and June

Harvest: Sept. 15 to Dec. 1

Labor Per Acre

	Tractor	Hrs.	Cost	Tractor & Machinery	Contract & Materials	Total Per A.
CULTURAL CASH COSTS						
Subsoil 5 shanks 1/2 x	160 HP	.16	\$ 1.36	\$3.24		\$ 4.60
Plow	160 HP	.32	2.73	6.88		9.61
Disc & Roll 2 x	160 HP	.38	3.24	8.64		11.88
Landplane 2 x	160 HP	.36	3.06	7.50		10.56
Furrow for 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 3 x	160 HP	.39	3.33	7.05		10.38
Field Cultivator 2 x	160 HP	.22	1.88	3.98		5.86
Fumigate			Contract		140.00	140.00
Plant	65 HP	.34	2.90	4.96	1/2 lb. seed 87.50	95.36
Cultivate 2 x	65 HP	.46	3.92	3.84		7.76
Fertilize, Sidedress	65 HP	.26	2.22	2.37	100 lb.N @ \$.41 41.00	45.59
Cultiv. or Furr. 5x Special		3.00	25.50	6.00		31.50
Thin & Hoe		12.00	84.12			84.12
Hoe 1 x		6.00	42.06			42.06
Prune 2 x		35.00	245.35			245.35
Set Stakes 2 men*	65 HP	7.00	108.71	28.00	No Cash Costs for Stakes	136.71
String 6 x, 9 hrs. ea.		54.00	378.54		Twine & Gloves 125.00	503.54
Fertilize in water 2 x					120 Lb.N @ \$.41 49.20	49.20
Pest and Disease Control			Contract		375.00	375.00
Irrigate 4 x		8.00	59.76	1.85	1 A-Ft @ \$35 35.00	96.61
Pull & Store Stakes		35.00	245.35	2.75		248.10
Disc & Roll Refuse 2 x 160 HP		.38	3.24	8.64		11.88
Total Cultural Cash Cost		165.53	\$1,234.43	\$98.62	\$864.37	\$2,197.42
CASH OVERHEAD						
Land Rent		@	\$56.25 per acre-month x 7 months			\$393.75
Taxes on Machinery		@	.31 per acre-month x 7 months + \$4.81**			6.98
Supervision		@	10.45 per acre-month x 7 months			73.15
General Expense		@	4% of Cultural Cash and Harvest Costs			191.90
Interest on Operating Capital		@	1.04 per acre-month			160.10
Total Cash Overhead						\$825.98
Total Cash Costs Except Harvesting						\$3,023.36
HARVESTING, PACKAGING, AND SELLING CASH COSTS						
Pick and haul to packing shed @ \$1.30/box, 2,000 boxes						\$2,600.00
Packing cost 1,400 flats @ \$2.35 + 600 lugs @ \$2.60						4,850.00
Selling cost 8% x (1400 x \$6.00 + 600 x \$7.50)						1,032.00
Total Harvesting, Packaging, and Selling Cash Costs					\$4.24 per box	\$8,482.00
Total Cultural, Overhead, Harvesting, Packaging, and Selling Cash Costs						\$11,505.36
INVESTMENT OVERHEAD						
Depreciation: Stakes	\$87.50	Special Equipment	\$5.82	Other	\$31.51	\$124.83
Interest: Stakes	\$54.69	Special Equipment	\$5.45	Other	\$23.45	83.59
Total Investment Overhead						\$208.42
Total Cost Per Acre for 2,000 boxes/A				(70% 2 layer, 30% 3 layer)		\$11,713.77
Total Cost Per Acre for 1,500 boxes/A				(70% 2 layer, 30% 3 layer)		\$ 9,593.77
Total Cost Per Acre for 2,500 boxes/A				(70% 2 layer, 30% 3 layer)		\$13,833.50
Total Cost Per Box @ 2,000 boxes/A				(70% 2 layer, 30% 3 layer)	\$5.86	
Total Cost Per Box @ 1,500 boxes/A				(70% 2 layer, 30% 3 layer)	\$6.40	
Total Cost Per Box @ 2,500 boxes/A				(70% 2 layer, 30% 3 layer)	\$5.53	

-60-

* 2 men -- 1 @ \$7.01/Hr. and 1 @ \$8.52/Hr. = \$108.71

** Taxes on Special Machinery and Stakes

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

EQUIPMENT LIST AND OPERATION COSTS FOR A 350-ACRE VEGETABLE FARM, VENTURA COUNTY DECEMBER 1981

TRACTORS	Cash Cost/Hr	New Cost	Acres	Hours Per Yr	Life-Years	DEPRECIATION		12.5% INTEREST		Hand Tractor	Irrigator	CASH COSTS PER ACRE	Paid/Hr	Cost/Hr
						Per Hr	Per Year	Per Hr	Per Year					
160 HP WD	\$17.00	\$65,000	600	1,300	10	\$6,500	\$5,000	\$4,062	\$3.15				\$5.35	\$7.01
65 HP WD	8.00	48,000	750	850	14	1,286	1.50	1,125	1.32				6.50	8.52
63 HP WD Big wheels	9.06	24,500	600	850	14	1,750	2.06	1,531	2.06				5.70	7.47
TILLAGE AND PLANTING														
Subsoiler, 5 Shanks, 7.5'	3.25	4,000	600	192	15	\$266	\$44	\$215	\$36					
Plow 5'18", 2-way 7.5'	4.58	9,000	750	240	10	900	1.20	562	.75					
Disc and Roller 13y'	5.73	11,500	2,500	475	7	1,642	.66	709	.29					
Landplane 14'	3.85	17,000	1,500	270	15	1,133	.75	1,062	.71					
Drag Ractor 20'	1.00	1,600	1,200	156	15	120	.10	112	.09					
Field Cultivator 24'	1.10	4,000	1,200	336	15	267	.22	250	.21					
Purrow or Cultivate														
4 40-inch Beds (13.3')	.35	1,000	3,500	637	10	100	.03	62	.02					
4 30-inch Rows (10')	.35	65 HP	2,450	204										
3 60-inch Rows (15')	.35	65 HP	450	104										
Bied, Shape Beds, Plant														
4 40-inch Beds (13.3')	8.60	65 HP	12,000	293	10	1,200	1.60	750	1.00					
3 60-inch Rows (tomatoes)(15')	6.60	65 HP	150	51										
Plant Beans 8 rows														
55	65 HP	2,500	200	34	15	167	.83	156	.78					
Biodiesel fertilizer														
1.10	65 HP	4,500	550	143	10	450	.82	281	.81					
TOTAL TRACTORS AND IMPLEMENTS														
		\$174,800				\$15,751		\$10,887						4.59
IRRIGATION														
Sprinkler System(1,000 gpm@10 Acres)														
2,000 Ft. gated pipe 8"		32,000	900	900	10	3,200	3.56	2,000	2.22	2.00	14.94		7.50	22.51
Irrigation pipe trailer		9,775	2,200	2,200	10	978	.44	611	.27	2.00	14.94		.42	15.43
TOTAL IRRIGATION		\$44,000		3,100	15	148	.05	129	.05	1.0			.07	
TOTAL TRACTORS, IMPLEMENTS & IRRIGATION														
		\$218,800				\$20,077		\$13,637						
TRANSPORTATION AND SHOP TOOLS														
Pickup 4 ton (2)														
		\$18,000				\$4,000		\$1,250						
Truck 1 1/2 ton														
		15,000				1,875		936						
Shop tools														
		5,500				550		344						
Tractor trailer														
		2,200				147		138						
TOTAL TRANSPORTATION AND SHOP														
		\$40,700				\$6,572		\$2,670						
MONTHLY CHARGE FOR DEPRECIATION AND INTEREST ON TRANSPORTATION AND SHOP														
						\$1.56/A-Mo		\$8.64/A-Mo						
TOTAL ALL EQUIPMENT														
		\$259,500				\$26,649		\$16,307						

OVERHEAD COSTS

LABOR COSTS

CASH COST CHARGED TO SUPERVISOR
CASH COSTS COVERED BY GENERAL EXPENSE
(4% OF CULTURAL COSTS OR 4% OF CULTURAL COSTS AND HARVEST COSTS)

1 unit 50 of 4 cost new
1 One 80.52 and 1 man @ \$7.01 per Hr.
1 One 8.07 per acre for trailer
1 Included \$2.00 per acre-inch for fuel

TAXES ON EQUIPMENT: \$1259,500 x .01 = \$12.595
4,200 acre-months = \$3.1 per acre-month