

THE COST OF

Strawberry
PRODUCTION
in the Santa Maria
and San Luis Obispo area



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San Luis Obispo and Santa Barbara Counties

STRAWBERRIES - INPUTS AND COSTS
IN THE SANTA MARIA AND SAN LUIS OBISPO AREA

by

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This leaflet was prepared by the Agricultural Extension Service to furnish management and cost information to local growers and others interested in this intensive and high-cost crop. The quantities of labor and materials used, the costs and the yields obtained as shown in these tables, are not represented as average for the area. They are designed to be typical of the better commercial producers. They should serve as a sample or guide in figuring costs or making plans for any individual farm. These sample schedules should also be considered as midpoints of rather wide ranges in the individual items. They are applicable to a certain set of conditions, as explained below under assumptions. Different land types and sizes and kinds of equipment will have different costs.

These figures were developed with the assistance of a small group of local growers who looked up their own costs for each item and operation and then met with the authors and discussed each item and helped arrive at the typical figure to use. Total costs shown are, therefore, a summation of these individual items, as selected for the conditions assumed.

Strawberries as a Crop

Strawberries are grown here, largely for the fresh market, with only those in surplus or not suited for shipment being sold to freezers. This area is in the southern part of San Luis Obispo County and northern part of Santa Barbara County. Here are the recent statistics showing acreage, production and value, as compiled by the Agricultural Commissioners.

	<u>1958</u>	<u>1959</u>
<u>Santa Barbara County</u>		
Strawberry acreage in bearing	1,242	898
Total Production		
Trays Market	1,052,092	649,509
Tons to freezer	4,518	4,563
Value Market Berries	\$2,318,187	\$1,603,384
Value Freezer Berries	\$903,643	\$1,277,677

<u>San Luis Obispo County</u>		
Strawberry acreage in bearing	570	511
Total Production		
Trays Market	912,000	996,500
Tons to Freezer	--	--
Value Market Berries	\$1,477,400	\$1,892,900
Value Freezer Berries	--	--

Assumptions on Which These Costs are Based

Land - Reasonably level, previously cropped land. Fumigation, with a recommended mixture of chloropicrin and methyl bromide is assumed and a moderate amount of releveling before planting. On new land leveling costs could be considerably more but fumigation costs would be less.

Land Charges - Costs are shown mainly on a rental basis, with rent at \$120 an acre. Owner-operator's costs are about the same, as shown per acre in extra columns in tables 3 and 4. Here, owner's costs of taxes on the land and interest and depreciation on the irrigation well and pump and interest on the "agricultural value" of land are included in place of rent. The assumed agricultural value of \$1500 an acre is below local market values which include other elements of value.

Size of Business - A unit of 20 acres was used as the basis for figuring overhead costs on the equipment used. It is presumed the operator, whether owner or renter would own the equipment shown in table 2 and use it exclusively for 20 acres of strawberries, part of which would be planted new each year.

Varieties - Lassen and Shasta are the two main varieties grown. They have about the same costs per acre but with different yields have different costs of the product, as shown in summary table 1 for Lassen and table 6 for Shasta. Both are assumed to have a planting life of three years and cost of planting is spread over these three years in proportion to yield. Costs are shown in detail for the first year in table 3 and second year in table 4 for Lassen. Third-year costs in the summary tables are estimated from the second-year costs and so are not shown in detail.

Yields - The yield per acre is known to vary considerably by variety and in different fields, ages of planting and seasons as affected by weather. Those assumed and shown in tables are typical for the growers consulted. Yield and costs are shown entirely on the basis of market trays of 12 pounds of fruit. Some freezer berries would be sold. They would have about the same cost per pound with container cost deducted.

Labor and Field Power Costs - Labor and operation costs in the following tables are figured at the following hourly rates: Man labor for tractor and skilled work usually performed by the operator \$1.35, hand labor \$1.05, 10 h.p. tractor \$.40, pickup \$1.50. Tractor and pickup or truck rates are cash costs including repairs, taxes, insurance and license fees. Owned equipment and resulting interest and depreciation is shown in table 2, from which totals for those items are carried in the other tables.

TABLE 1 - SUMMARY OF STRAWBERRY INPUTS AND COSTS FOR 3 YEARS
LASSEN VARIETY - RENTAL BASIS

	First Year	Second Year	Third Year	Total (or Av.)
Yield trays per acre	2,000	4,000	2,000	8,000
Land preparation, plants and planting	(\$1,200 amortized below)			
Cultural labor, tractor and truck work	390	331	300	1,021
Cultural materials, water, fertilizer, etc.	105	229	220	554
Cash overhead costs incl. \$120 A. Rent	162	164	162	488
Amortization of planting cost with interest	300	600	300	1,200
Depreciation on renter's equipment	85	85	85	255
Interest on investment in equipment at 6%	32	32	32	96
Total all costs up to harvesting	1,074	1,441	1,099	3,614
Harvesting & containers, inc. ins. & gen'l. exp. @1.25	2,500	5,000	2,500	10,000
Total all costs per acre	3,574	6,441	3,599	13,614
Cost per tray	1.79	1.61	1.80	1.70

The above table shows an average cost per acre of \$4,538 and \$1.70 per tray of market berries for the 3 years with the Lassen Variety. Freezer berries, with the same production and picking cost, would cost 11.3 cents per pound - \$1.70 minus 35¢ for container, divided by 12.

TABLE 2 - INVESTMENT, INTEREST AND DEPRECIATION ON FACILITIES

This investment overhead is based on a 20 acre unit, about 1/3 planted each year	Original Cost 20 Acres	Original Cost	Av. Value	Int. at 6%	Depreciation
			Dollars per Acre		
Tractor and equipment	3,000	150	75	4	10
Irrigation pipe, gated aluminum	10,000	500	250	15	42
Sprinkler pipe & booster for new plantings	2,500	125	62	4	12
Two pickups, 3/4 ton	4,600	230	115	7	15
Sheds, toilets and small equipment	1,200	60	30	2	6
Subtotal renters equipment	21,300	1,065	532	32	85
Irrigation well and pump, 450 g.p.m.	5,000	250	125	8	13
Land, agricultural value	30,000	1,500	1,500	90	--
Total investment, owner-operator	56,300	2,815	2,157	130	98

The above equipment and facilities were assumed as a basis of investment overhead costs in the following tables. The subtotal shows the figures for what a renter would need and probably own. The total is for everything as for an owner-operator. The average value shown above is estimated at half the original cost for depreciable items. Over the years such items decline in value from cost to zero, or a low salvage value, so average value over the years is about half the original cost. It may also be considered as about the cost of used or second-hand equipment.

Interest on investment is figured at 6% of the average value and is included as a proper part of total cost of production. It represents "wages" of the invested capital. Depreciation is figured at appropriate rates based on probable useful life -- 15 years for tractor and pickup, 12 for miscellaneous items, 12 for aluminum pipe, 10 for miscellaneous items and 20 for well and pump.

TABLE 3 - SAMPLE INPUTS AND COSTS FOR STRAWBERRIES, FIRST YEAR
LASSEN VARIETY, YIELD 2,000 TRAYS PER ACRE

Preparation and Planting	Man Labor	Small Tractor	Pick up	Cost per Acre	Cost per Tray
	hours per acre				
Land leveling, hired custom 7 hr. at \$15				105	
Manure, 5 to 20 tons applied				70	
Reworking land, hired				6	
Fumigation, hired, materials and tarping				338	
Commercial fertilizer and insecticide				48	
Harrow and list, hired				6	
Roll beds and mark rows	1	1		3	
Plants 22,000 at \$16				352	
Planting by hand	100		5	114	
Irrigate twice with sprinklers	5		1	7	
General expense on above				54	
Total preparation and planting	106	1	6	1,103	
First Year Growing Costs					
Cultivate 5 times	5	5		9	
Weeding and cutting runners, 4 times	200			216	
Irrigation, 50 times	100			135	
Side dress with fertilizer twice	2	2		4	
Dust about 8 times	4	4		8	
Miscel. other cultural work	10	1	3	18	
Total cultural work	321	12	3	390	.20
Irrigation water, power to pump 6.5 acre feet at 3.60				23	
Fertilizer 800 lbs. of mixed commercial fertilizer				36	
Fertilizer, nitrogen in irrigation water				10	
Dust, insecticide and sulfur				36	
Total cultural materials			owner	105	.05
Total cultural costs			495	495	.25
General expense, est. at 5% of above			25	25	
County taxes, on equipment \$6.00, Land \$16			22	6	
Rent				120	
Repairs to equipment			6	4	
Compensation and other insurance			7	7	
Total cash overhead costs			60	162	.08
Total cash costs			555	657	.33
First year share of planting cost 1/4 of 1,200			300	300	.15
Depreciation on equipment (table 2)			98	85	.04
Interest on investment (table 2)			130	32	.02
Total all costs except harvesting			1,083	1,074	.54
Picking, labor cost at 75¢, 2,000 trays			1,500	1,500	.75
Supervision and hauling			180	180	.09
Containers at 35¢ per tray			700	700	.35
General expense and insurance, harvesting			120	120	.06
Total harvesting costs			2,500	2,500	1.25
Total all costs			3,583	3,574	1.79

Labor costs above are based on the following hourly rates: man labor \$1.35 and \$1.05, small tractor 40¢, pickup \$1.50. Tractor and truck rates are cash costs including repairs, license and insurance.

The \$1,103 planting cost is not included in the above total. With interest over half cost for 3 years, this becomes \$1,200, which is charged to the 3 years in proportion to yield as shown in table 1. Hence, \$300 is charged above to the first year.

TABLE 4 - SAMPLE INPUTS AND COSTS FOR STRAWBERRIES, SECOND YEAR
LASSEN VARIETY, WITH A YIELD OF 4,000 TRAYS

	Man	Small	Pick	Cost per Acre	Cost per Tray
	Labor	Tractor	up		
	Hours per Acre				
Application of manure	4	2		6	
Rotobeat leaves	4	4		7	
Cultivation twice	2	2		4	
Weeding	100			108	
Irrigation 60 times	120			162	
Side dress with fertilizer twice	2	2	1	6	
Dust or spray about 8 times	4	4		7	
Fumigate, using tarp	12			16	
Miscellaneous other cultural work	10	1	1	15	
Total cultural work	258	15	2	331	.08
Irrigation water, power to pump 7.5 A. ft. 125 ft. @ \$3.60				27	
Manure 5 tons at \$10				50	
Commercial fertilizer 800 lbs. @ \$90 a ton				36	
Nitrogen fertilizer in irrigation water, 100 lb. at 10¢				10	
Insecticide and sulfur dusts				36	
Mehtyl bromide for fumigation				70	
Total cultural materials			owner	229	.06
Total cultural work and materials			560	560	.14
General expense, estimated at 5% of above			28	28	
County taxes, land \$16, equipment \$6.00			22	6	
Rent				120	
Repairs to equipment other than included elsewhere			6	4	
Compensation and other insurance			6	6	
Total cash overhead costs			62	164	.04
Total cash costs			622	724	.18
Second year share of planting cost with interest			600	600	.15
Depreciation on equipment (table 2)			98	85	.02
Interest on investment			130	32	.01
Total all costs except harvesting			1,450	1,441	.36
Total harvesting as detailed in table 3			5,000	5,000	1.25
Total all costs			6,450	6,441	1.61

Aside from harvesting, the second year costs shown above are around \$1,450 an acre. This is the approximate cost level regardless of yield, although it is said heavier yields may be associated with higher expenditures for cultural care. Total costs for an owner-operator shown above in the first column are about the same as for a renter. In the following table a summary of costs for varying yields is shown. Growing costs per acre are assumed to be about the same and harvesting cost is computed at \$1.25 per tray at all yields, as shown in detail in table 3.

TABLE 5 - COSTS SUMMARY, SECOND YEAR WITH VARYING YIELDS, LASSEN VARIETY, OWNER BASIS, MARKET BERRIES

Yield trays per acre	2,500	3,000	3,500	4,000	4,500	5,000
Cost per acre up to harvest	1,400	1,410	1,430	1,450	1,480	1,500
Harvesting cost at \$1.25 tray	3,125	3,750	4,375	5,000	5,625	6,250
Total cost per acre	4,525	5,160	5,805	6,450	7,105	7,750
Total cost per tray	1.81	1.72	1.66	1.61	1.58	1.55

TABLE 6 - SUMMARY OF SHASTA STRAWBERRY COSTS FOR 3 YEARS
RENTAL BASIS WITH YIELDS SHOWN
Costs about same as for Lassen

Yield Trays per Acre	1st Year 500	2nd Year 3,000	3rd Year 2,500	Total 3 Years 6,000
Land preparation planting 25,000 plants	\$1,280			
Costs per Acre				
Cultural labor, tractor, pickup work	390	330	300	1,020
Cultural materials	105	229	220	554
Overhead costs including \$120 rent	162	164	162	488
Amortization of planting cost with interest	107	640	533	1,280
Depreciation renter's equipment	85	85	85	255
Interest on investment renter's equipment	32	32	32	96
Total cost up to harvesting	881	1,480	1,332	3,693
Harvesting at \$1.25 per tray	625	3,750	3,125	7,500
Total cost per acre	1,506	5,230	4,457	11,193
Cost per tray	3.01	1.74	1.78	1.87

It is known locally that the Shasta variety yields less than the Lassen in this area. Growing costs are about the same as shown for Lassen in tables 3 and 4. It is usual to plant more plants per acre of Shasta than Lassen. So there is a slightly higher planting cost to be spread over the three years of production. At the presumed yields shown above, cost per tray would be somewhat higher than for the heavier yielding Lassens as shown in table 1. With higher production costs per tray, Shasta's would need to bring a higher price to be as profitable as Lassens.