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STRAWBERRIES

An Expensive Crop To Grow

1959

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SAMPLE COSTS OF PRODUCING
STRAWBERRIES IN SANTA CRUZ
AND MONTEREY COUNTIES

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SAMPLE COSTS OF PRODUCING STRAWBERRIES
in Monterey and Santa Cruz Counties

INTRODUCTION

During the last several years a number of important changes have come about resulting in a need of revision of cost production estimates. The previous cost study printed in 1956 should be considered obsolete. A continued interest in strawberries as an intensive crop has resulted in the need for current information on the investment required and annual costs and approximate returns at probable yields and prices. The input and cost information presented here has two main objects: (1) To help the potential grower estimate his own probable costs and foresee the capital required in deciding whether to plant or not; and (2) To help growers in analyzing and comparing their costs to see whether they can improve their earnings. Those associated with the industry in marketing and processing will also find these typical costs helpful in their operations.

These costs are not average costs. They are typical costs built up item by item after discussion with a number of local growers under a rather wide range of conditions. Costs vary widely from farm to farm and year to year. It is impractical to present a schedule of costs for each set of conditions such as kind of land, size of business, equipment and location. A typical set of conditions were assumed and this schedule was prepared in enough detail to serve as a guide. Growers may modify this study to fit their own operations. Consider this a sample set of inputs and costs under the assumptions stated below. We believe the costs shown are typical for 1959 reflecting fruit prices received in 1958.

ASSUMPTIONS ON WHICH THESE COSTS ARE BASED

1. A suitable clean location with expectations of good commercial yields.
2. Level to gently rolling land rented for \$100 an acre, with the landlord furnishing the well and pump. The operating tenant would install a temporary reservoir, necessary pipe, and flumes for irrigation, and remove them at the end of four years, which is considered the life of the lease and the strawberry cycle. These are charged to the first year, and it is assumed salvage value would equal removal costs.
3. Size of business--20 acres through the four years, no other farming.
4. Land preparation in the first year hired by hour or contract with costs shown at \$5 an hour for a 40 hp crawler tractor, driver, and equipment.
5. Owned equipment: A 15 hp wheel tractor with suitable cultivating, fertilizing and dusting attachments--tractor operating cash costs, including repairs, \$0.60 per hour; a 1½ ton truck--cash cost \$1.80 per hour.
6. Labor and wage rates: Skilled labor and supervision by the operator and an employee are figured at \$1.35 per hour. Hand labor is figured at \$1.10. Both rates are at total cost to the grower, including insurance and procurement. Mass operations include part of the time at the higher rate of supervision.
7. General expense is estimated at 7 per cent of labor and material costs the first year and 5% thereafter. This is assumed to cover office expense, business use of car, interest on operating capital, and some allowance for management not included in the field supervision.
8. Yields: 1st year 4000 lbs; 2nd year 24,000; 3rd 22,000 and 4th year 12,000 lbs. per Acre.
9. Depreciation on grower's movable equipment is based on the years of life shown for each group for new equipment at 1958 costs.
10. Interest on the investment is figured at 5% on half of the original cost, since it would average that value over its lifetime if new, or be about that if second hand.

SUMMARY

Table 1. SAMPLE INPUTS AND COSTS FOR STRAWBERRIES
For a Four-Year Life

	First Year	Second Year	Third Year	Fourth Year	Total Four Years
Yield, pounds per acre	(4000)	24000	22000	12000	58000
Land preparation and manure	\$ 220.00	\$	\$	\$	\$ 220.00
Irrigation flumes, pipe, etc.	254.75				254.75
Plants and planting	424.43				424.43
Cultural labor and field power	404.82	314.47	314.47	279.91	1313.67
Materials, water, fert., pest control	86.05	98.08	98.08	74.15	356.36
Total cultural labor and materials	\$1390.05	\$ 412.55	\$ 412.55	\$ 354.06	\$2569.21
Total harvesting and hauling cost	(below)	1113.70	1026.50	573.95	2714.15
Total cultural and harvesting	\$1390.05	\$1526.25	\$1439.05	\$ 928.01	\$5283.36
Total cash overhead costs	224.30	218.31	196.95	178.40	817.96
Total cash costs	\$1614.35	\$1744.56	\$1636.00	\$1106.41	\$6101.32
Depreciation operator's equipment	30.00	30.00	30.00	30.00	120.00
Amortization - planting & irrig. fac.	-----	758.00	694.60	-----	-----
Total cash and depreciation costs	\$1644.35	\$2532.56	\$2360.60	\$1136.41	\$6221.32
Int. on investment - oper. equip.	8.25	8.25	8.25	8.25	33.00
Int. on average value of stand		58.70	17.37	-----	76.07
Total all costs	\$1652.60	\$2599.51	\$2386.22	\$1144.66	\$6330.39
Less value first year crop, less harv.	200.00				200.00
Net cost of planting	\$1452.60				\$6130.39
Cost per pound		10.8¢	10.8¢	9.6¢	10.6¢

Here is the summary of costs over the entire four-year assumed life of the planting. The crop the first year, being small, was used as a deduction to arrive at the net cost of establishing the planting, \$1452.60 per acre. This is included in 2nd and 3rd year costs as amortization of the planting. Where all costs are included in the 4-year total, this amortization of stand is omitted to avoid duplication.

Interest on invested capital is included at 5%. In the first year it is included in the general expense, figured at 7% of expenditures. As amortization of stand begins at the start of the 2nd year, investment declines, so interest on the planting appears as such in the 2nd and 3rd years only--the stand investment having been recovered by the fourth year.

Total costs for all 4 years reduced by the small income the 1st year, come to \$6130.39, or an average of 10.6¢ per pound for the 3 years of production.

THE FOLLOWING PAGES SHOW HOW THIS INFORMATION WAS DEVELOPED.

Table 3. SAMPLE INPUTS AND COSTS FOR STRAWBERRIES
Second Year--With a Yield of 24000 lbs. per Acre

	Hours per Acre			Cost Per Acre	Cost Per Lb.
	Man Labor	15 h.p. Tractor	1½ T Truck		
Prune, rake and burn	24.0			\$ 26.40	
Cultivation, 3 times	2.0	2.0		3.90	
Weeding	150.0			165.00	
Side dress with fertilizer	1.2	1.0	0.2	2.58	
Irrigation about 30 times @ 3 hrs. each	90.0			99.00	
Dust or spray about 5 times	1.8	1.8	0.1	3.69	
Miscellaneous other cultural work	10.0	1.0	1.0	13.90	
Total cash cultural labor costs	279.0	5.8	1.3	\$ 314.47	1.4¢
Picking at 55¢ per 14 lb. freezer tray	1100.0	est. (1714) trays		\$ 942.70	3.9¢
Supervision and hauling	100.0		20.0	171.00	0.7¢
Total harvesting costs	1200.0		20.0	\$1113.70	4.6¢
Total labor and field power costs	1479.0	5.8	21.3	\$1428.17	6.0¢
Irrigation water, power to pump 60 Acre inches, 200 ft. lift				31.18	
Fertilizer for side dressing 300 lb. 16-20 @ \$86 a ton				12.90	
Fertilizer in irrigation water 100 lb. N @ 14¢				14.00	
Dust and spray materials				40.00	
Total material cost				\$ 98.08	0.4¢
Total labor, material and field power costs				\$1526.25	6.4¢
General expense - office, car, etc., at 5% of above				\$ 76.31	
County taxes on tenant's equipment				2.00	
Repairs to equipment other than tractor and truck				10.00	
Compensation and other insurance				30.00	
Return on land				100.00	
Total cash overhead costs				\$ 218.31	0.9¢
Total cash costs				\$1744.56	7.3¢
Investment overhead is based on 20-acre unit of strawberries only	Orig. Cost	Av. Value	5% Int.	Depreciation	
	20 A	Dollars per Acre			
Plants, irrig. flumes, etc. *	\$29052.00	\$1174.00	\$58.70	\$758.00	
Tractor and cultivator	2000.00	50.00	2.50	10.00	
Fertil. spray, dust equip.	1200.00	30.00	1.50	6.00	
Small equip. and miscellaneous	400.00	10.00	.50	4.00	
Truck	3000.00	75.00	3.75	10.00	
Total investment and deprec.	\$35652.00	\$1339.00		788.00	788.00
Total cash and depreciation costs					\$2532.56
Total interest on investment			\$66.95		66.95
Total all costs					\$2599.51

*Net costs from the preceding schedule of \$1453 are depreciated on the basis of yields, \$758 to the second year above, and \$695 to the third year, and none to the fourth. Average value for interest purposes this year is the \$1453 less half the depreciation, or \$1174, as shown.

Labor costs above are figured at the following hourly rates: man labor skilled \$1.35, ordinary \$1.10; 15 h.p. tractor, cash costs including repairs \$0.60; 1½ ton truck including repairs, license, and insurance, \$1.80. The 1100 hours for picking is an estimate to show the hours of labor with picking paid for on a piece rate basis at 55¢ per 14 lb. freezer tray.

These schedules are all shown on the basis of freezer berries. Fresh sales would involve higher picking and container costs. With picking at 60¢ a 12 lb. tray and containers and other costs the same, cost per tray would be 83¢ for the berries, 60¢ for picking and 35¢ for the containers, or a total of \$1.78.

Table 4. SAMPLE INPUTS AND COSTS FOR STRAWBERRIES
Third Year--With a Yield of 22,000 lbs. per Acre

	Hours per Acre			Cost Per Acre	Cost Per Lb.
	Man Labor	15 h.p. Tractor	1½ T Truck		
Cultural labor costs same as 2nd year	279	5.8	1.3	\$ 314.47	1.4¢
Picking at 55¢ per 14 lb. tray	1000	(1571 trays)		864.05	3.9¢
Supervision and hauling	95		19.0	162.45	.8
Total harvesting costs	1095		19.0	\$1026.50	4.7¢
Total labor and field power costs	1374	5.8	20.3	\$1340.97	6.1¢
Total material costs, same as 2nd year				98.08	0.4¢
Sub-total labor, field power and material costs				\$1439.05	6.5¢
General expense, 5% of above				\$ 71.95	
County taxes on tenant's equipment				2.00	
Repairs to equipment other than tractors				10.00	
Compensation and other insurance				13.00	
Rent on land				100.00	
Total cash overhead costs				\$ 196.95	0.9¢
Total cash costs				\$1636.00	7.4¢
	Orig. Cost	Av. Value	5% Int.	Depre- ciation	
Investment overhead based on 20-Acre unit of strawberries	20 Acres	Dollars per Acre			
Plants, irrig., flumes, etc.*	\$29052.	\$347.50	\$17.37	\$694.60	
Tractor and cultivator	2000.	50.00	2.50	10.00	
Fertil., dust, spray equip.	1200.	30.00	1.50	6.00	
Misc. small equipment	400.	10.00	.50	4.00	
1½ ton truck	3000.	75.00	3.75	10.00	
Total investment & deprec.	\$35652.	\$512.50		\$724.60	724.60 3.3¢
Total cash and depreciation costs				\$2360.60	10.7¢
Total interest on investment			\$25.62	25.62	.1¢
Total costs of production				\$2386.22	10.8¢

*Remaining cost of planting after second year depreciation is taken this year. With value at start of season of \$695 an acre average value for the year is half of that, or \$347.50. No value is left to be taken in the fourth year since that year is sometimes doubtful and at best, yield is too low to bear much in the way of costs.

Costs for the third year are virtually the same as the second year, except for the lower picking costs. The reduced yield and the lower depreciation and interest on investment in the stand, results in a total cost per pound of 10.8¢, the same as in the second year.

If the condition of the planting from disease were so poor that there would be little expectation of enough production in a fourth year to cover costs, the planting would probably be removed at the end of picking in the third year, with little effect on the above costs. Rent for fourth year would have to be borne by some other crop.

This set of sample costs is based on irrigation with flumes. An alternative method, also widely used is some planting, is irrigated from portable gated furrow pipes, that are placed and removed for each irrigation. Investment is about the same. The portable pipe permits cultivation, spraying, etc., with larger equipment between irrigations, but requires more irrigation labor in the moving of the pipe.

Table 5. SAMPLE INPUTS AND COSTS FOR STRAWBERRIES
Fourth Year--With a Yield of 12000 lbs. per Acre

	Hours per Acre			Cost Per Acre	Cost Per Lb.	
	Man Labor	15 h.p. Tractor	1½ T Truck			
Prune, rake, and burn	24.0			\$ 26.40		
Cultivation 3 times	2.0	2.0		3.90		
Weeding	150.0			165.00		
Side dress with fertilizer	1.2	1.0	0.2	2.58		
Irrigation about 20 times	60.0			66.00		
Dust or spray 3 times	1.0	1.0	0.1	2.13		
Miscellaneous other cultural work	10.0	1.0	1.0	13.90		
Total cultural labor	248.2	5.0	1.3	\$ 279.91	2.3c	
Picking at 55c per 14 lb. freezer tray	600.0	(857 trays)		\$ 471.35	3.9c	
Supervision and hauling	60.0		12.0	102.60	.9	
Total harvest cost	660.0		12.0	\$ 573.95	4.8c	
Total labor and field power cost	908.2	5.0	13.3	\$ 853.86	7.1c	
Irrigation water power to pump 42 acre inches, 200 feet lift				\$ 27.85		
Fertilizer, side dress - 300 lb. 16-20				12.90		
Fertilizer in irrigation water 60 lb. N @ 14c				8.40		
Dust and spray materials				25.00		
Total material cost				\$ 74.15	.6c	
Total labor, material, and field power costs				\$ 928.01	7.7c	
General expense, 5% of above				46.40		
County taxes on operator's equipment				2.00		
Repairs to equipment				8.00		
Compensation and other insurance				22.00		
Rent of land				100.00		
Total cash overhead costs				\$ 178.40	1.5c	
Total cash costs				\$1106.41	9.2c	
	Orig. Cost 20 Acres	Dollars per Acre				
		Av. Value	5% Int.	Depreciation		
Plants, etc., already written off	\$29052.	\$	\$	\$		
Tractor and cultivator	2000.	50.00	2.50	10.00		
Fert., dust, and spray equip.	1200.	30.00	1.50	6.00		
Small equipment and misc.	400.	10.00	.50	4.00		
Truck	3000.	75.00	3.75	10.00		
Total investment and Dep.	\$35652.	\$165.00		\$30.00	30.00	0.3c
Total cash and depreciation costs					\$1136.41	9.5c
Total interest on investment			\$8.25		8.25	0.1c
Total all costs					\$1144.66	9.6c

The above schedule presumes cultural work would cease with the end of profitable picking in the fourth year. Cost of removal of the plants, flume, pipe, reservoir, etc., is not shown above, because it was assumed the salvage value for future use in another planting elsewhere would about cover the removal cost.

The first operation--prune, rake, and burn--in 2nd, 3rd, and 4th years is sometimes accomplished by an oil and dinitro spray, to kill the leaves, followed by a rotobearer to remove and break them up. Adequate evidence of lack of damage to plant crowns and subsequent yields is not yet available to prove the economy of this practice.

The above schedule can be used to estimate the yield that would be required in the 4th year to make it pay to carry the planting through that year. All costs above except harvesting come to \$571 an acre. A price of 12c, less 4.8c harvesting, or 7.2c, would require 7930 lbs. to cover all costs.