

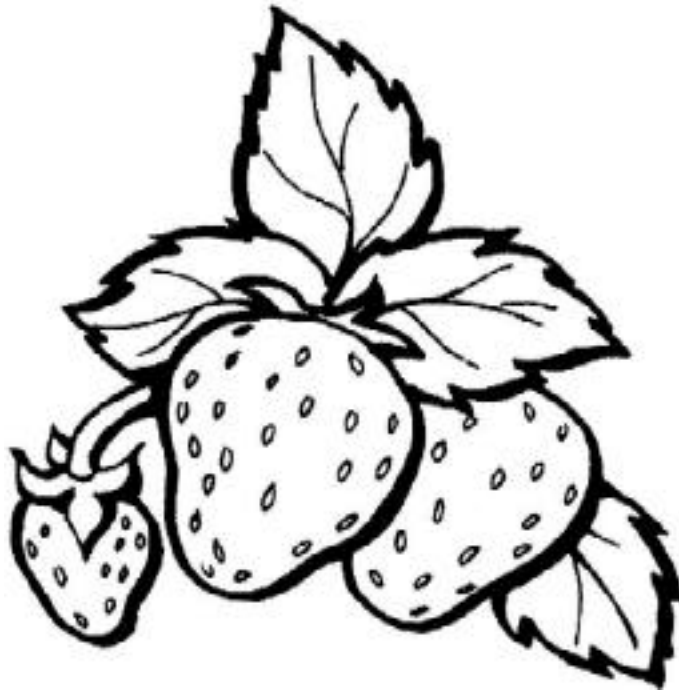
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UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2001

SAMPLE COSTS TO PRODUCE  
***STRAWBERRIES***



**SOUTH COAST REGION – SANTA MARIA VALLEY**  
**Santa Barbara County**

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INTRODUCTION

The sample costs to produce strawberries in the South Coast Region – Santa Maria Valley are presented in this study. The study is intended as a guide only, and can be used to make production decisions, determine potential returns, prepare budgets and evaluate production loans. The practices described are based on production procedures considered typical for this crop and area, and will not apply to every situation. Sample costs for labor, materials, equipment and custom services are based on current figures. A blank column, “Your Costs”, is provided to enter your actual costs on Tables 1 and 2.

The hypothetical farm operation, production practices, overhead, and calculations are described under assumptions. For additional information or explanation of calculations used in the study call the Department of Agricultural and Resource Economics, University of California, Davis, (530) 752-3589 or the UC Cooperative Extension office in your county.

Sample Cost of Production Studies for many commodities from 1931 to current are available and can be requested through the Department of Agricultural Economics, UC Davis, (530) 752-1515. Current studies, those produced during the last five years, can be downloaded from the department website http://coststudies.ucdavis.edu or obtained from selected county UC Cooperative Extension offices.

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## ASSUMPTIONS

The following assumptions refer to tables 1 to 6 and pertain to sample costs to produce strawberries in the South Coast Region – Santa Maria Valley. Practices described are not recommendations, but represent production procedures considered typical for strawberry production in the South Coast Region – Santa Maria Valley. Some costs and practices may not be applicable to all situations every production year. Cultural practices and costs for strawberry production varies by grower and region, and can be significant. Therefore practices and inputs used in the cost study serve as a guide only. *The use of trade names in this report does not constitute an endorsement or recommendation by the University of California nor is any criticism implied by omission of other similar products.*

**Farm.** The farm consists of 85 contiguous acres of land. Strawberries are being established on 80 acres and five acres are roads, irrigation system and shop/equipment area. The land is divided into 4-20 acres blocks/fields 250 feet long. The grower rents the land and a shop on the site.

### Cultural Practices and Material Inputs

**Land Preparation.** (Tables 1, 3). The grower does a series of operations: disc and ringroll 2X (X equals number of passes over the land), subsoil 2X, disc and ringroll 2X, plow 1X, disc and ringroll 1X, triplane 2X, and chisel 1X. The field is disced a total of 5 times and subsoiled or ripped 30 to 36 inches deep. The field is smoothed and leveled with a triplane. Three beds 64 inches wide and 14 inches high are listed and shaped in one operation. Farmers with this acreage will own a large tractor for land preparation. Smaller growers usually rent a large tractor for land preparation or will have the work done by a custom operator. Land preparation costs by a custom operator range from \$500 to \$650 per acre.

**Plant Establishment.** (Tables 1, 2, 3). Several varieties are available for planting in the area, but no specific variety is assumed in this study. Plants in the area are planted on 60 to 68 inch beds. In this study, the grower plants on sixty-four inch beds, 14-inch bed height, 4 rows per bed and a 16-inch plant spacing for a total of 25,000 plants per acre. A total of 5% of the plants will be replanted and are included in the plant population. The beds are made the entire length of the adjoining acreage. After fumigation, roads, using a tracklayer tractor with blade, are made to divide the field into smaller blocks 200 to 300 feet long. Holes are punched in the plastic mulch using a mechanical punch machine. Plants are delivered to the edge of the blocks where planting labor gathers the plants in a bucket and places the strawberry plants in the punched holes.

**Fertilization.** (Tables 1, 2, 3). A slow release fertilizer, 18-6-8, at 1000 pounds per acre is drilled preplant in the bed using a fertilizer drill with bed shaper. Additionally, growers may also apply liquid fertilizer during the season through the drip lines.

**Irrigation.** (Tables 1, 2, 3) The grower rents sprinkler pipe for the preplant and establishment sprinkler irrigations. Prior to listing, the field is sprinkler irrigated for 12 hours. Two men plus the tractor driver lay and pickup the pipe. Two drip-lines per bed, using a tape layer machine are buried in the beds prior to fumigation. After the field is divided into blocks/small fields, the lateral lines are buried at the edge of the block and the drip lines connected and tested for leaks. The field is preirrigated using the drip system. Following planting, sprinkler pipe is laid out and the field is sprinkled two-hours per day for 15 days. Two irrigators manage the sprinkler and drip irrigation. From December through February, the field is drip irrigated as necessary, and

during the harvest season, February through July, every three to four days. Effective rainfall is not taken into account, therefore a total of 28 acre inches including the preplant irrigations is applied.

**Pests.** (Tables 1, 2, 3). The pesticides and rates mentioned in this cost study are listed in the *UC IPM Pest Management Guidelines, Strawberries*. For more information on other pesticides available, pest identification, monitoring, and management visit the UC IPM website at [www.ipm.ucdavis.edu](http://www.ipm.ucdavis.edu). Inputs cited in this report are not recommendation but are based on participating grower surveys and pesticide use reports. Written recommendations are required for many pesticides and are made by licensed pest control advisors. For information and pesticide use permits, contact the local county Agricultural Commissioner's office.

**Fumigation.** (Tables 1, 2, 3). The field is bed fumigated using a bed shaper/fumigation/plastic mulch-laying machine. The fumigants Methyl Bromide and Chloropicrin are injected into the beds as the clear plastic mulch is being laid across and down the sides of the bed. Five men including the tractor driver can do approximately 4 acres per 8-hour day. Current regulations have caused growers to do more flat fumigation which cost approximately \$1,800 per acre. Flat fumigation is done by custom operators. In addition the grower has a cost for disposing of the plastic fumigation covering. Check with your agricultural commissioner and farm advisor for current regulations.

**Weeds.** In addition to preplant fumigation, weeds are controlled by hand weeding from November through June. Weeding times vary by grower and month; the study assumes a total of 76 hours per acre distributed over the 8 months.

**Diseases.** Powdery mildew (*Sphaerotheca macularis*) and Botrytis fruit rot (*Botrytis cinerea*) are the two diseases treated in this study. Treatments are combined with the insect control. Fungicide treatments are made every 12 to 16 days through mid April and every 20 to 25 days thereafter ending in mid June. All treatments are grower applied.

**Insects.** Two-spotted mite (*Tetranychus urticae*), beet armyworm (*Spodoptera exigua*) and lygus (*Lygus hesperus*) are the main insects controlled. Mites are controlled early in the season with the beneficial insect persimilis (*Phytoseiulus persimilis*) followed by miticide applications. Treatments for insects are combined with the fungicide treatments. The treatments are shown in Table A.

DATE	DISEASE		INSECTS		
	Botrytis	Mildew	Mites	Worms	Lygus
Dec				Dipel	
Jan	Captan		Persimilis		
Jan	Captan				
Feb	Captan	Rally	Persimilis		
Feb	Rovral	Benlate			
Mar		Rally	Agrimek		
Mar		Thiolux	Agrimek		
Apr	Rovral	Thiolux			
May	Captan		Danitol		Danitol
Jun		Thiolux	Danitol		Danitol
RATES PER ACRE:					
	Agrimek	16.0 oz	Persimilis	16,000 ea	
	Benlate	1.0 lb	Rally	5.0 oz	
	Captan	4.0 lb	Rovral	1.5 lb	
	Danitol	16.0 oz	Savy	06.0 oz	
	Dipel	01.0 lb	Thiolux	5.0 lb	

**Harvest.** (Tables 1, 2, 3). The crop is harvested from March through mid-July with peak harvest in May and June. The early harvested strawberries go to fresh market and as other growing areas such as the Central Coast region come in to production, the growers shift to the freezer market. In this study the percent of the crop harvested each month is shown in Table B. Prior to harvest the plastic mulch is cut from the bottom of the

	March	April	May	June	July
Fresh %	15	25	20		
Freezer %			10	20	10

furrow bed with tractor and sickle knife to cool down the soil for harvest. Labor with sickles finish cutting and pulling the mulch that is hauled to the dump. During harvest, the grower runs three 30 man crews with a general foreman for crew supervision, one field checker to check field for proper picking, and one picking card puncher per crew to count the boxes picked by each picker. For fresh market the picker pushes a picking cart that holds a fiberboard tray and 12 one-pint containers. The picker picks the ripe strawberries by hand and places them in the container/trays. Depending upon the market other container types such as consumer trays and stems are used, but not included in this study. For the freezer market, the picker places an 18-pound plastic tray on the picking cart. The fresh market trays are purchased by the grower and the plastic freezer trays furnished by the freezer. (See Labor for picking costs). The grower uses two one-ton flatbed trucks that holds two to three pallets of 400 fresh market trays or 180 freezer trays per load. One truck driver delivers the strawberries to the cooler or freezer; one truck loader stacks the boxes on the truck. The truck driver takes about an hour per load to deliver the filled trays and pick up the empty freezer trays. In addition, the grower will have at least one tractor, trailer, and toilet in the field.

**Yields.** (Tables 2, 6). Strawberry yields are measured in trays per acre for fresh and freezer market. The standard tray is the 12-pint tray that ranges from 10 to 12 pounds per tray. Other types such as consumer packs ranging from 6 pounds

YEAR	ACRE	FRESH			FREEZER			TOTAL	
		lb/acre	<sup>2</sup> tray/acre	\$/tray	lb/acre	<sup>3</sup> tray/acre	\$/tray	lb/acre	% fresh
96	4,548	29,664	2,472	4.33	17,760	987	3.49	47424	63
97	3,373	36,372	3,031	4.57	23,160	1,287	5.02	59532	61
98	3,281	24,852	2,071	5.58	31,440	1,747	5.84	56292	44
99	3,163	27,720	2,310	6.41	35,520	1,973	5.32	63240	44
00	3,550	31,308	2,609	5.81	27,060	1,503	4.06	58368	54

<sup>1</sup>Ag Commissioner Crop Report-Santa Barbara County      <sup>2</sup>12lb      <sup>3</sup>18lb

to 8 pounds and consumer stem packs are used depending upon the market. The weight used in this study is 12 pounds per tray for fresh market and 18 pounds per tray for freezer strawberries. Freezer trays delivered to the cooler usually weigh 18 to 20 pounds. Total per acre yield in this study is 60,300 pounds rounded to 60% or 36,000 pounds (3,000 trays) delivered to fresh market and 40% or 24,300 pounds (1,350 trays) delivered to the freezer. Average yields per acre for Santa Barbara County are shown in Table C.

**Returns.** (Tables 2, 6). Returns vary during the season. Based on market conditions, the grower returns are estimated at \$5.80 per 12-pound tray for fresh market and \$5.04 per 18-pound tray (\$0.28 lb) for freezer market. The estimated return provides a basis for a range of yields and prices shown in Table 6. Average grower returns for the last five years are shown in Table C.

**Assessments.** (Tables 1, 2, 3). The grower pays 2.5 cents per tray and the processor pays 2.5 cents to the Strawberry Commission for research and marketing.

**Year-end Cleanup.** (Tables 1, 2, 3) The plastic mulch and drip tape are pulled and rolled by hand and hauled to the dump. The field is then disced one time in preparation for the next crop and the operation is incorporated with land preparation in this study.

**Labor.** (Tables 1, 2, 3). Hourly wages for workers are \$9.00 for machine operators, and \$7.00 per hour for field labor. Pickers are usually paid a base pay plus piecework, depending on the time of harvest. In this study, picker pay is calculated using the field labor rate. Adding 34% for the employers share of federal and state payroll taxes, insurance, and other possible benefits gives the labor rates shown of \$12.06 per hour for skilled labor, and \$9.38 per hour for field labor. Labor for operations involving machinery are 20% higher than the operation time given in Table 1 to account for the extra labor involved in equipment set up, moving, maintenance, work breaks, and repair.

## Overhead

**Cash Overhead.** (Tables 1, 2, 3, 4). Cash overhead consists of various cash expenses paid out during the year that are assigned to the whole farm and not to a particular operation. These costs include property taxes, interest on operating capital, office expense, liability and property insurance, sanitation services, and equipment repairs. Employee benefits, insurance, and payroll taxes are included in labor costs and not in overhead (see Labor).

*Property Taxes.* Counties charge a base property tax rate of 1% on the assessed value of the property. In some counties special assessment districts exist and charge additional taxes on property including equipment, buildings, and improvements. For this study, county taxes are calculated as 1% of the average value of the property. Average value equals new cost plus salvage value divided by 2 on a per acre basis.

*Interest On Operating Capital.* Interest on operating capital is based on cash operating costs and is calculated monthly until harvest at a nominal rate of 10.51% per year. A nominal interest rate is the typical market rate for borrowed funds. It is assumed the operating loan goes through harvest, therefore the postharvest operation costs are discounted back to the harvest month using a negative interest charge.

*Insurance.* Insurance for farm investments varies depending on the assets included and the amount of coverage. Property insurance provides coverage for property loss and is charged at 0.666% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs \$509 for the entire farm.

*Office Expense.* Office and business expenses are estimated at \$500 per acre. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, utilities, and miscellaneous expenses.

*Sprinkler Pipe.* Forty-five joints or sections per acre are rented for three months during land preparation and plant establishment

*Land Rent.* The 85 acres is rented for cash at \$1,100 per acre or \$1,169 per producing acre. The rented land includes the irrigation system, equipment yard, above ground fuel tanks and shop maintained by the owner.

*Sanitation Services.* Sanitation services provide a double portable toilet and single toilet with washing equipment and cost the farm \$3,444 annually. The cost includes delivery and 12 months of weekly service for the double toilet and 7 months of weekly service for the single.

*Supervisor/Management Salaries.* Wages for management are not included as a cash cost. Returns above total costs are considered a return to management and risk.

**Non-Cash Overhead.** (Tables 1, 2, 3, 4). Non-cash overhead, shown on an annual per acre basis is calculated as the capital recovery cost for equipment and other farm investments. Although farm equipment on strawberry farms in the South Coast Region are purchased new or used, this study shows the current purchase price for new equipment. The new purchase price is adjusted to 40% to indicate a mix of new and used equipment. They represent the capital recovery cost for investments on an annual per acre basis.

*Capital Recovery Costs.* Capital recovery cost is the annual depreciation and interest costs for a capital investment. It is the amount of money required each year to recover the difference between the purchase price and salvage value (unrecovered capital). It is equivalent to the annual payment on a loan for the investment with the down payment equal to the discounted salvage value. This is a more complex method of calculating ownership costs than straight-line depreciation and opportunity costs, but more accurately represents the annual costs of ownership because it takes the time value of money into account (Boehlje and Eidman). The formula for the calculation of the annual capital recovery costs is  $((\text{Purchase Price} - \text{Salvage Value}) \times \text{Capital Recovery Factor}) + (\text{Salvage Value} \times \text{Interest Rate})$ .

*Salvage Value.* Salvage value is an estimate of the remaining value of an investment at the end of its useful life. For farm machinery the remaining value is a percentage of the new cost of the investment (Boehlje and Eidman). The percent remaining value is calculated from equations developed by the American Society of Agricultural Engineers (ASAE) based on equipment type and years of life. The life in years is estimated by dividing the wear out life, as given by ASAE by the annual hours of use in this operation. For other investments including irrigation systems, buildings, and miscellaneous equipment, the value at the end of its useful life is zero. The salvage value and purchase price for land are the same because land does not depreciate. The purchase price and salvage value for equipment and investments are shown in Table 5.

*Capital Recovery Factor.* Capital recovery factor is the amortization factor or annual payment whose present value at compound interest is 1. The amortization factor is a table value that corresponds to the interest rate used and the life of the machine.

*Interest Rate.* The interest rate of 6.70% used to calculate capital recovery cost is the United States Department of Agriculture-Economic Reporting Service's (USDA-ERS) ten year average of California's agricultural sector long-run real rate of return to production assets from current income. It is used to reflect the long-term realized rate of return to these specialized resources that can only be used effectively in the agricultural sector, not including inflation. In other words, the next best alternative use for these resources is in another agricultural enterprise.

*Land.* Land values in the region for this study are approximately \$19,000 per acre for sandy loam soil.

*Irrigation System.* The system is based on one 75 horsepower electric pump lifting 30 acre-inches from a water level depth of 120 feet. The pump and 300-foot deep well already existed on the site and the irrigation system costs are charged to the landowner. Water is pumped through a filtration station into main lines. Reusable lateral lines owned by the grower are buried each year at the edge of the strawberry field and are connected to the main and drip lines. The field configuration requires 3,480 feet per block. Two drip lines are buried in each bed prior to planting. The lateral lines have a 3-year life and the drip lines are an annual expense.

**Equipment Cash Costs.** (Table 1, 5). Equipment costs are composed of three parts: non-cash overhead, cash overhead, and operating costs. Both of the overhead factors have been discussed in previous sections. The operating costs consist of fuel, lubrication, and repairs. The fuel, lube, and repair cost per acre for each operation in Table 2 is determined by multiplying the total hourly operating cost in Table 5 for each piece of equipment used for the cultural practice by the number of hours per acre for that operation. Tractor time is 10% higher than implement time (operation time) for a given operation to account for fueling, moving equipment, and setup time.

*Repairs, Fuel and Lube.* Repair costs are based on purchase price, annual hours of use, total hours of life, and repair coefficients formulated by the American Society of Agricultural Engineers (ASAE). Fuel and lubrication costs are also determined by ASAE equations based on maximum PTO horsepower, and type of fuel used. Prices for on-farm delivery of diesel and gasoline are \$1.26 and \$1.51 per gallon, respectively.

**Risk.** While this study makes every effort to model a production system based on typical, real world practices, it cannot fully represent financial, agronomic and market risks which affect the profitability and economic viability of strawberry production. The risks associated with producing and marketing strawberries should not be minimized.

**Table Values.** Due to rounding, the totals may be slightly different from the sum of the components.



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**Table 1. COSTS PER ACRE to PRODUCE STRAWBERRIES**  
 SOUTH COAST REGION- Santa Maria Valley 2001

Operation	Operation Time (Hrs/A)	Cash and Labor Cost per acre					Total Cost	Your Cost
		Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/ Rent			
<b>Cultural:</b>								
Disc/Roll 5X	0.95	14	23	0	0	37		
Subsoil 2X	1.50	22	35	0	0	57		
Plow 1X	0.30	4	4	0	0	8		
Level/Smooth Field 2X	0.32	5	8	0	0	12		
List/Shape Beds	0.90	13	25	0	0	38		
Fertilize-18-6-8	0.25	4	2	463	0	469		
Fumigate/Lay Mulch	2.00	104	15	563	0	563		
Mulch for above operation	0.00	0	0	298	0	298		
Install Drip Tape 2 line/bed	1.50	22	14	240	0	275		
Cut/Grade Roads	2.50	36	19	0	0	55		
Lay Laterals/Connect Drip	0.08	109	1	0	0	110		
Irrigate-Sprinkle/Layout/Pickup Pipe	2.00	231	8	41	0	279		
Irrigate-Drip	29.00	272	0	149	0	421		
Punch Holes	0.69	10	3	0	0	13		
Plant	42.00	394	0	1,600	0	1,994		
Worms-Dipel	0.58	8	3	13	0	25		
Botrytis-Captan	1.17	17	7	31	0	55		
Mites-Persimillis	5.00	47	0	320	0	367		
Bot/Mil-Captan/Rally	0.58	8	3	33	0	45		
Bot/Mil-Rovral/Benlate	0.58	8	3	56	0	67		
Mil/Mite-Rally/Agrimek	0.58	8	3	131	0	143		
Mil/Mite-Thiolux/Agrimek	0.58	8	3	113	0	125		
Bot/Mil/Mite-Rovral/Thiolux/Savy	0.58	8	3	126	0	138		
Bot/Mite/Lygus-Captan/Danitol	0.58	8	3	34	0	46		
Mildew/Mite/Lygus-Thiolux/Danitol	0.58	8	3	23	0	35		
Weed	76.00	713	0	0	0	713		
Cut Plastic Prior to Harvest	0.28	145	1	0	0	146		
Haul Above Plastic to Dump	0.03	0	0	0	6	6		
Year End Remove/Haul/Dump Plastic/Tape	0.04	57	0	0	50	108		
<b>TOTAL CULTURAL COSTS</b>	<b>170.17</b>	<b>2,285</b>	<b>192</b>	<b>4,230</b>	<b>56</b>	<b>6,763</b>		
<b>Harvest:</b>								
Harvest/Record Fresh	554.17	5,198	0	4,200	0	9,398		
Haul/Load Fresh	2.50	182	33	0	0	215		
Harvest/Record Freezer	404.97	3,799	0	0	0	3,799		
Haul/Load Freezer	2.50	153	33	0	0	186		
<b>TOTAL HARVEST COSTS</b>	<b>964.14</b>	<b>9,332</b>	<b>66</b>	<b>4,200</b>	<b>0.00</b>	<b>13,598</b>		
<b>Assessment:</b>								
Strawberry Commission	0.00	0	0	118	0	118		
<b>TOTAL ASSESSMENT COSTS</b>	<b>0.00</b>	<b>0</b>	<b>0</b>	<b>118</b>	<b>0</b>	<b>118</b>		
Interest on operating capital @ 10.51%						911		
<b>TOTAL OPERATING COSTS/ACRE</b>		<b>11,616</b>	<b>259</b>	<b>8,548</b>	<b>56</b>	<b>21,390</b>		
<b>TOTAL OPERATING COSTS/TRAY</b>						<b>4.92</b>		
<b>Cash Overhead:</b>								
Liability Insurance						7		
Office Expense						500		
Sanitation Fee						43		
Land Rent						1,169		
Pipe Rent						250		
Property Taxes						21		
Property Insurance						14		
Investment Repairs						11		
<b>TOTAL CASH OVERHEAD COSTS</b>						<b>2,014</b>		
<b>TOTAL CASH COSTS/ACRE</b>						<b>23,405</b>		
<b>TOTAL CASH COSTS/TRAY</b>						<b>5.38</b>		

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**Table 1. Continued**

Operation	Cash and Labor Cost per acre		
	Per producing acre	Annual cost capital recovery	Total Cost
<b>Non-cash Overhead</b>			<b>Your Cost</b>
Shop Tools	158	16	16
Harvest Carts 70	13	3	3
Hand Tools	57	6	6
Irrigation System -Lateral Lines	200	76	76
Equipment	3,107	327	327
<b>TOTAL NON-CASH OVERHEAD COSTS</b>	<b>3,537</b>	<b>429</b>	<b>429</b>
<b>TOTAL COSTS/ACRE</b>			<b>23,833</b>
<b>TOTAL COSTS/TRAY</b>			<b>5.48</b>

\*Cost per tray is total of 12# and 18# trays

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**Table 2. COSTS and RETURNS PER ACRE to PRODUCE STRAWBERRIES**  
 SOUTH COAST REGION- Santa Maria Valley 2001

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
<b>GROSS RETURNS</b>					
Fresh Market	3,000	12lb tray	5.80	17,400	
Freezer Market	1,350	18lb tray	5.04	6,804	
<b>TOTAL GROSS RETURNS</b>	<b>4,350</b>			<b>24,204</b>	
<b>OPERATING COSTS</b>					
<b>Water:</b>					
Water	28.00	acin	6.75	189	
<b>Materials:</b>					
T-Tape	10,890.00	foot	0.02	240	
Mulch 1.25m	350.00	lb	0.85	297	
Crate/Basket/Wire	3,000.00	each	1.40	4,200	
<b>Plants:</b>					
Strawberry Plants	25,000.00	each	0.06	1,600	
<b>Fertilizer:</b>					
18-6-8 Slow Release	1,000.00	lb	0.46	463	
<b>Fumigant:</b>					
Methyl Bromide + Chloropicrin 50/50	225.00	lb	2.50	563	
<b>Insecticide:</b>					
Dipel DF	1.00	lb	12.75	13	
Agri-Mek 0.15 EC	32.00	floz	6.78	217	
Savy	6.00	floz	14.08	84	
Danitol	32.00	floz	1.16	37	
<b>Fungicide:</b>					
Captan 50W	16.00	lb	3.87	62	
Rally 40W	9.00	oz	4.46	40	
Rovral	3.00	lb	25.00	75	
Benlate	1.00	lb	18.00	18	
Thiolux	18.00	lb	0.70	13	
<b>Miticide:</b>					
Persimilis (Predatory Mites)	32.00	thou	10.00	320	
<b>Custom:</b>					
Dump Fee	1.00	acre	56.00	56	
<b>Assessment:</b>					
Strawberry Fresh 12 lb tray	3,000.00	tray	0.03	75	
Strawberry Freezer 14 lb tray equivalent	1,736.00	tray	0.03	43	
Labor (machine)	35.01	hrs	12.06	422	
Labor (non-machine)	1,193.41	hrs	9.38	11,194	
Fuel - Gas	25.22	gal	1.51	38	
Fuel - Diesel	100.87	gal	1.26	127	
Lube				25	
Machinery repair				69	
Interest on operating capital @ 10.51%				911	
<b>TOTAL OPERATING COSTS/ACRE</b>				<b>21,390</b>	
<b>NET RETURNS ABOVE OPERATING COSTS</b>				<b>2,814</b>	

UC COOPERATIVE EXTENSION

**Table 2. Continued**

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
<b>CASH OVERHEAD COSTS:</b>					
Liability Insurance				7	
Office Expense				500	
Sanitation Fee				43	
Land Rent				1,169	
Sprinkler Rent				250	
Property Taxes				21	
Property Insurance				14	
Investment Repairs				12	
<b>TOTAL CASH OVERHEAD COSTS/ACRE</b>				<b>2,014</b>	
<b>TOTAL CASH COSTS/ACRE</b>				<b>23,405</b>	
<b>TOTAL CASH COSTS/TRAY</b>				<b>5.38</b>	
<b>NON-CASH OVERHEAD COSTS (Capital Recovery)</b>					
Shop Tools				16	
Harvest Carts 90				4	
Hand Tools				6	
Irrigation System-Lateral Lines				76	
Equipment				327	
<b>TOTAL NON-CASH OVERHEAD COSTS/ACRE</b>				<b>429</b>	
<b>TOTAL COSTS/ACRE</b>				<b>23,833</b>	
<b>TOTAL COSTS/TRAY</b>				<b>5.48</b>	
<b>NET RETURNS ABOVE TOTAL COSTS</b>				<b>371</b>	

UC COOPERATIVE EXTENSION  
**Table 3. MONTHLY CASH COSTS PER ACRE to PRODUCE STRAWBERRIES**  
 SOUTH COAST REGION- Santa Maria Valley 2001

Beginning AUG 00	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	TOTAL
Ending JUL 01	00	00	00	00	00	01	01	01	01	01	01	01	
<b>Cultural:</b>													
Disc/Roll 5X	37												37
Subsoil 2X	57												57
Plow 1X	8												8
Level/Smooth Field 2X	12												12
List/Shape Beds		38											38
Fertilize-18-6-8		469											469
Install Drip Tape 2 line/bed		275											275
Fumigate/Lay Mulch		979											979
Cut/Grade Roads		55											55
Lay Laterals/Connect Drip		110											110
Irrigate Sprinkle/Layout/Pickup Pipe		165		114									279
Irrigate-Drip			42		46	16	26	49	67	74	74	28	421
Punch Holes			13										13
Plant			1,994										1,994
Worms-Dipel					25								25
Botrytis-Captan						55							55
Mites-Persimillis						183	183						367
Bot/Mil-Captan/Rally							45						45
Bot/Mil-Rovral/Benlate							67						67
Mil/Mite-Rally/Agriemek								143					143
Mil/Mite-Thiolux/Agriemek								125					125
Bot/Mil/Mite-Rovral/Thiolux/Benlate									138				138
Bot/Mite/Lygus-Captan/Danitol										46			46
Mildew/Mite/Lygus-Thiolux/Danitol											35		35
Weed				28	131	84	122	94	94	84	75		713
Cut Plastic							146						146
Haul Plastic to Dump							6						6
Remove/Haul/Dump Plastic/Drip Tape												108	108
<b>TOTAL CULTURAL COSTS</b>	<b>114</b>	<b>2,091</b>	<b>2,048</b>	<b>142</b>	<b>202</b>	<b>339</b>	<b>595</b>	<b>410</b>	<b>299</b>	<b>204</b>	<b>184</b>	<b>135</b>	<b>6,763</b>
<b>Harvest:</b>													
Harvest/Record Fresh								2,535	3,813	3,050			9,398
Haul/Load Fresh								57	87	70			215
Harvest/Record Freezer										898	1,952	948	3,799
Haul/Load Freezer										44	95	47	186
<b>TOTAL HARVEST COSTS</b>								<b>2,592</b>	<b>3,900</b>	<b>4,062</b>	<b>2,047</b>	<b>995</b>	<b>13,598</b>
<b>Assessment:</b>													
Strawberry Commission												118	118
<b>TOTAL ASSESSMENT COSTS</b>												<b>118</b>	<b>118</b>
Interest on operating capital	1	19	37	38	40	43	48	75	112	149	168	179	911
<b>TOTAL OPERATING COSTS/ACRE</b>	<b>115</b>	<b>2,110</b>	<b>2,086</b>	<b>180</b>	<b>242</b>	<b>382</b>	<b>644</b>	<b>3,077</b>	<b>4,311</b>	<b>4,415</b>	<b>2,399</b>	<b>1,429</b>	<b>21,390</b>
<b>OVERHEAD:</b>													
Liability Insurance						7							7
Office Expense	42	42	42	42	42	42	42	42	42	42	42	42	500
Sanitation Fee	4	4	4	4	4	4	4	4	4	4	4	4	43
Land Rent											1,169		1,169
Pipe Rent				250									250
Property Taxes									21				21
Property Insurance							14						14
Investment Repairs	1	1	1	1	1	1	1	1	1	1	1	1	11
<b>TOTAL CASH OVERHEAD COSTS</b>	<b>46</b>	<b>46</b>	<b>46</b>	<b>296</b>	<b>46</b>	<b>53</b>	<b>60</b>	<b>46</b>	<b>67</b>	<b>46</b>	<b>1,215</b>	<b>46</b>	<b>2,014</b>
<b>TOTAL CASH COSTS/ACRE</b>	<b>161</b>	<b>2,156</b>	<b>2,132</b>	<b>476</b>	<b>288</b>	<b>435</b>	<b>704</b>	<b>3,124</b>	<b>4,378</b>	<b>4,462</b>	<b>3,614</b>	<b>1,475</b>	<b>23,405</b>

UC COOPERATIVE EXTENSION  
**Table 4. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT,  
and BUSINESS OVERHEAD COSTS**  
SOUTH COAST REGION- Santa Maria Valley 2001

**ANNUAL EQUIPMENT COSTS**

Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead		Total
						Insur- ance	Taxes	
01	205HP Crawler	152,000	15	29,592	15,169	605	908	16,681
01	42HP 4WD Tractor	27,830	15	5,418	2,777	111	166	3,054
01	55HP 2WD Tractor	32,269	15	6,282	3,220	128	193	3,541
01	75HP 4WD Tractor	45,000	15	8,761	4,491	179	269	4,939
01	85HP Crawler	45,000	15	8,761	4,491	179	269	4,939
01	90HP 4WD Tractor	46,750	10	13,809	5,550	202	303	6,055
01	Blade Bulldozer	1,012	15	97	105	4	6	114
01	Disc Offset 14'	15,516	10	2,744	1,977	61	91	2,129
01	Drip Machine 3-64"R	8,500	15	816	882	31	47	960
01	Fertilizer Drill 3-64"R16'	10,000	15	960	1,038	37	55	1,129
01	Fume/Plastic 1-64"R	17,500	15	1,680	1,817	64	96	1,977
01	Fume/Plastic 1-64"R2	17,500	15	1,680	1,817	64	96	1,977
01	Knife-Sickle 64"	1,250	15	120	130	5	7	141
01	Lister/Shaper 3-64"R	50,000	15	4,800	5,191	182	274	5,647
01	Plow 5 bottom	25,740	15	2,471	2,672	94	141	2,907
01	Punch Machine 1-64"	5,000	15	480	519	18	27	565
01	Ringroller 20'	15,800	15	1,517	1,640	58	87	1,785
01	Ripper - 5 Shank	8,346	15	801	866	30	46	943
01	Sprayer 20' boom	3,630	15	349	377	13	20	410
01	Trailer-Flatbed	8,500	10	1,503	1,083	33	50	1,166
01	Trailer-Pipe	1,950	20	102	177	7	10	194
01	Triplane 15'	18,750	15	1,800	1,947	68	103	2,118
01	Truck 1 Ton #1	36,000	10	10,634	4,274	155	233	4,663
01	Truck 1 Ton #2	36,000	10	10,634	4,274	155	233	4,663
<b>TOTAL</b>		<b>621,343</b>		<b>114,308</b>	<b>65,402</b>	<b>2,450</b>	<b>3,678</b>	<b>71,530</b>
40% of New Cost *		248,537		45,723	26,161	980	1,471	28,612

\*Used to reflect a mix of new and used equipment

**ANNUAL INVESTMENT COSTS**

Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead			Total
					Insur- ance	Taxes	Repairs	
Fuel Tanks/Above G	6,514	20	651	584	24	36	65	709
Hand Tools	4,595	15	460	476	17	25	92	610
Harvest Carts 70	1,042	5		252	3	5	21	282
Lateral Lines	16,008	3		6,066	53	80	534	6,734
Shop Tools	12,637	15	1,264	1,310	46	70	253	1,679
<b>TOTAL INVESTMENT</b>	<b>40,796</b>		<b>2,375</b>	<b>8,689</b>	<b>144</b>	<b>216</b>	<b>965</b>	<b>10,014</b>

**ANNUAL BUSINESS OVERHEAD COSTS**

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Land Rent	85	acre	1,100.00	93,500
Sprinkler Rent	80	acre	250.00	20,000
Liability Insurance	85	acre	6.36	541
Office Expense	80	acre	500.00	40,000
Sanitation Fee	80	acre	43.05	3,444

UC COOPERATIVE EXTENSION  
**Table 5. HOURLY EQUIPMENT COSTS**  
 SOUTH COAST REGION- Santa Maria Valley 2001

Yr	Description	COSTS PER HOUR							Total Costs/Hr
		Actual	Cash Overhead			Operating			
		Hours Used	Capital Recovery	Insur- ance	Taxes	Repairs	Fuel & Lube	Total Oper.	
01	205HP Crawler	337.50	17.01	0.72	1.08	2.45	17.24	19.69	39.46
01	42HP 4WD Tractor	525.10	2.12	0.08	0.13	0.45	2.99	3.44	5.76
01	55HP 2WD Tractor	623.40	2.07	0.08	0.12	0.91	3.91	4.82	7.09
01	75HP 4WD Tractor	117.30	15.31	0.61	0.92	1.27	5.34	6.61	23.45
01	85HP Crawler	220.00	8.17	0.33	0.49	0.73	6.05	6.78	15.76
01	90HP 4WD Tractor	180.40	12.31	0.45	0.67	0.80	6.40	7.20	20.63
01	Blade Rear 3 pt	206.70	0.20	0.01	0.01	0.00	0.00	0.00	0.22
01	Disc Offset 14'	89.30	8.85	0.27	0.41	1.66	0.00	1.66	11.20
01	Drip Machine 3-64"R	120.00	2.94	0.10	0.16	1.41	0.00	1.41	4.61
01	Fertilizer Drill 3-64"R16'	20.00	20.76	0.73	1.10	1.66	0.00	1.66	24.25
01	Fume/Plastic 1-64"R	100.00	7.27	0.26	0.38	1.29	0.00	1.29	9.19
01	Fume/Plastic 1-64"R2	100.00	7.27	0.26	0.38	1.29	0.00	1.29	9.19
01	Knife-Sickle 64"	22.20	2.34	0.08	0.12	0.16	0.00	0.16	2.71
01	Lister/Shaper 3-64"R	71.60	29.00	1.02	1.53	6.54	0.00	6.54	38.08
01	Plow 5 bottom	24.00	44.54	1.57	2.35	4.48	0.00	4.48	52.93
01	Punch Machine 1-64"	55.20	3.76	0.13	0.20	0.37	0.00	0.37	4.46
01	Ringroller 20'	76.00	8.63	0.30	0.46	1.16	0.00	1.16	10.56
01	Ripper - 5 Shank	120.00	2.89	0.10	0.15	1.73	0.00	1.73	4.87
01	Sprayer 20' boom	466.70	0.32	0.01	0.02	0.63	0.00	0.63	0.01
01	Trailer-Flatbed	240.00	1.81	0.06	0.08	0.86	0.00	0.86	2.80
01	Trailer-Pipe	160.00	0.44	0.02	0.03	0.02	0.00	0.02	0.51
01	Triplane 15'	25.90	30.04	1.06	1.59	1.86	0.00	1.86	34.54
01	Truck 1 Ton #1	405.60	4.22	0.15	0.23	2.28	4.34	6.62	11.22
01	Truck 1 Ton #2	400.30	4.27	0.16	0.23	2.28	4.34	6.62	11.28



UC COOPERATIVE EXTENSION  
**Table 6. RANGING ANALYSIS**  
 SOUTH COAST REGION- Santa Maria Valley 2001

**COSTS PER ACRE AT VARYING YIELD TO PRODUCE STRAWBERRIES**

		YIELD (trays/acre)						
Fresh Market 12 lb trays:		2,100	2,400	2,700	3,000	3,300	3,600	3,900
Freezer Market 18 lb trays:		945	1,080	1,215	1,350	1,485	1,620	1,755
<b>OPERATING COSTS</b>								
Cultural Cost		6,763	6,763	6,763	6,763	6,763	6,763	6,763
Harvest Cost		9,524	10,882	12,240	13,598	14,956	16,314	17,672
Assessment Cost		83	95	107	118	130	142	154
Interest on operating capital		790	831	871	911	951	991	1,032
<b>TOTAL OPERATING COSTS/acre</b>		<b>17,160</b>	<b>18,570</b>	<b>19,980</b>	<b>21,390</b>	<b>22,800</b>	<b>24,211</b>	<b>25,621</b>
<b>Total Operating Costs/tray</b>		<b>5.64</b>	<b>5.34</b>	<b>5.10</b>	<b>4.92</b>	<b>4.76</b>	<b>4.64</b>	<b>4.53</b>
<b>CASH OVERHEAD COSTS</b>		<b>2,014</b>	<b>2,014</b>	<b>2,014</b>	<b>2,014</b>	<b>2,014</b>	<b>2,014</b>	<b>2,014</b>
<b>TOTAL CASH COSTS/acre</b>		<b>19,174</b>	<b>20,585</b>	<b>21,995</b>	<b>23,405</b>	<b>24,815</b>	<b>26,225</b>	<b>27,635</b>
<b>Total Cash Costs/tray</b>		<b>6.30</b>	<b>5.92</b>	<b>5.62</b>	<b>5.38</b>	<b>5.19</b>	<b>5.02</b>	<b>4.89</b>
<b>NON-CASH OVERHEAD COSTS</b>		<b>429</b>	<b>429</b>	<b>429</b>	<b>429</b>	<b>429</b>	<b>429</b>	<b>429</b>
<b>TOTAL COSTS/acre</b>		<b>19,603</b>	<b>21,013</b>	<b>22,423</b>	<b>23,833</b>	<b>25,243</b>	<b>26,654</b>	<b>28,064</b>
<b>Total Costs/tray</b>		<b>6.44</b>	<b>6.04</b>	<b>5.73</b>	<b>5.48</b>	<b>5.28</b>	<b>5.11</b>	<b>4.96</b>

Cost per tray=total of 12 lb + 18 lb trays

**NET RETURNS PER ACRE ABOVE OPERATING COSTS FOR STRAWBERRIES**

\$/tray		YIELD (trays/acre)						
Fresh 12lb:		2,100	2,400	2,700	<b>3,000</b>	3,300	3,600	3,900
Freezer 18 lb:		945	1,080	1,215	<b>1,350</b>	1,485	1,620	1,755
4.06	3.53	-5,298	-5,014	-4,729	-4,445	-4,160	-3,876	-3,591
4.64	4.03	-3,608	-3,082	-2,556	-2,030	-1,504	-978	-452
5.22	4.54	-1,908	-1,139	-370	399	1,167	1,936	2,705
<b>5.80</b>	<b>5.04</b>	-217	793	1,803	<b>2,814</b>	3,824	4,834	5,845
6.38	5.54	1,473	2,725	3,977	5,229	6,480	7,732	8,984
6.96	6.05	3,173	4,668	6,162	7,657	9,152	10,646	12,141
7.54	6.55	4,864	6,600	8,336	10,072	11,808	13,544	15,281

**NET RETURN PER ACRE ABOVE CASH COST FOR STRAWBERRIES**

\$/tray		YIELD (trays/acre)						
Fresh 12lb		2,100	2,400	2,700	<b>3,000</b>	3,300	3,600	3,900
Freezer 18 lb		945	1,080	1,215	<b>1,350</b>	1,485	1,620	1,755
4.06	3.53	-7,313	-7,028	-6,744	-6,459	-6,175	-5,890	-5,606
4.64	4.03	-5,622	-5,096	-4,570	-4,044	-3,518	-2,992	-2,466
5.22	4.54	-3,922	-3,153	-2,384	-1,616	-847	-78	691
<b>5.80</b>	<b>5.04</b>	-2,232	-1,221	-211	<b>799</b>	1,810	2,820	3,830
6.38	5.54	-541	711	1,963	3,214	4,466	5,718	6,970
6.96	6.05	1,159	2,653	4,148	5,643	7,138	8,632	10,127
7.54	6.55	2,849	4,585	6,322	8,058	9,794	11,530	13,266

**NET RETURNS PER ACRE ABOVE TOTAL COST FOR STRAWBERRIES**

\$/tray		YIELD (trays/acre)						
Fresh 12lb		2,100	2,400	2,700	<b>3,000</b>	3,300	3,600	3,900
Freezer 18 lb		945	1,080	1,215	<b>1,350</b>	1,485	1,620	1,755
4.06	3.53	-7,741	-7,457	-7,172	-6,888	-6,603	-6,319	-6,034
4.64	4.03	-6,051	-5,525	-4,999	-4,473	-3,947	-3,421	-2,895
5.22	4.54	-4,351	-3,582	-2,813	-2,044	-1,276	-507	262
<b>5.80</b>	<b>5.04</b>	-2,660	-1,650	-640	<b>371</b>	1,381	2,391	3,402
6.38	5.54	-970	282	1,534	2,786	4,037	5,289	6,541
6.96	6.05	730	2,225	3,719	5,214	6,709	8,203	9,698
7.54	6.55	2,421	4,157	5,893	7,629	9,365	11,101	12,838