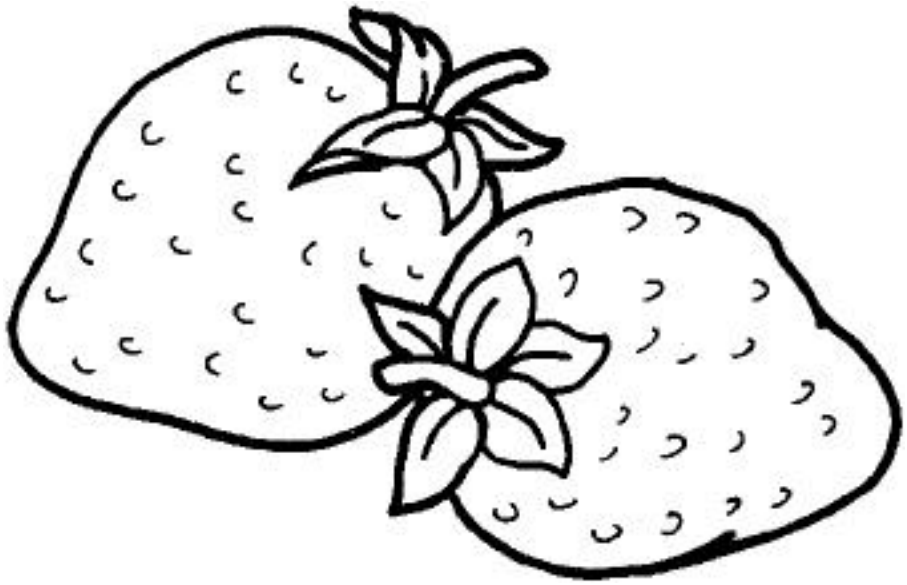
UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2001

SAMPLE COSTS TO PRODUCE

STRAWBERRIES



SOUTH COAST REGION – Ventura County

Oxnard Plains

Prepared by:

Karen M. Klonsky — Extension Specialist, Department of Agricultural and Resource Economics, UC Davis
Richard L. De Moura — Research Associate, Department of Agricultural and Resource Economics, UC Davis

In cooperation with the California Strawberry Commission

UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION
SAMPLE COSTS TO PRODUCE STRAWBERRIES
South Coast Region – Ventura County - 2001

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INTRODUCTION

The sample costs to produce strawberries in the South Coast Region – Ventura County 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 2 and 3.

The hypothetical farm operation, production practices, overhead, and calculations are described under assumptions. For additional information or explanation of calculations 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 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 – Ventura County. Practices described are not University of California recommendations, but represent production procedures considered typical for strawberry production in the South Coast Region – Ventura County. Some costs and practices may not apply to all situations every production year. Cultural practices and costs for the production of strawberries 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 70 contiguous acres – 65 rented acres and 5 acres owned by the grower. Strawberries are being planted on 60 acres, and roads and irrigation system are on 5 acres. The grower owned five acres includes a shop and homestead.

Cultural Practices and Material Inputs

Land Preparation. Discing, plowing, subsoiling and land leveling are done by a custom operator. After fumigation three beds 64-inches wide and 14-inches high are listed and shaped.

Plant Establishment. Several strawberry varieties are available for planting in the area, but no specific variety is assumed in this study. Plants in the region 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 14-inch plant spacing for a total of 29,495 plants per acre. Five percent of the plants will be replanted and are included in the plant population. The beds are listed, shaped and the plastic mulch is laid the entire length of the field. After laying the mulch, roads are made, using a tracklayer tractor with blade, to divide the field into smaller blocks 280 to 400 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. A slow release fertilizer, 18-6-8, at 750 pounds per acre is drilled preplant in the bed using a fertilizer drill with bed shaper. Growers may apply additional fertilizer during the season through the drip system or as a foliar spray, but these costs are not included in the study.

Irrigation. 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. A tape-layer machine is used to bury two drip-lines per bed. After the field is divided into blocks, lateral lines are buried at the edge of the field, then connected to the drip lines 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 June, the field is drip irrigated as necessary--during the harvest portion of the season, every three to four days. Effective rainfall is not taken into account, therefore, a total of 28 acre inches including the preplant irrigations are applied.

Pests. 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. Pesticide applications, timing, and materials vary according to pest pressure. The pesticide program shown in Table A represents a typical program for the region. Inputs cited in this report are based on grower surveys and the pesticide use reports, and are not recommendations. 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. Arthropods, soilborne fungi/diseases, nematodes, and weeds are controlled with preplant fumigation. Flat fumigation by a custom operator is the most likely method in this area. The custom operator furnishes the fumigant material (methyl bromide plus chloropicrin), plastic tarp, glue, and three men including the tractor driver. The grower furnishes two additional men to shovel and seal the plastic. The five men can do approximately 1.5 to 2 acres per hour. The grower can have additional costs, which are not included in this study of $10 to $25 per acre to obtain the fumigation permit. These costs include field measuring, field maps and fumigation layout, obtaining permission from nearby residents, and meeting with county representatives.

Weeds. In addition to preplant fumigation, weeds are controlled by hand weeding from November through June. Although weeding times vary by grower and month, the study assumes that weeding will take 76 hours per acre over the 7 months.

Diseases. Powdery mildew (*Sphaeotheca 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 June. All treatments are grower applied.

Insects. Two-spotted mite (*Tetranychus urticae*), beet armyworm (*Spodoptera exigua*), and cutworm (*Agrotix ipsilon)* are the main insects controlled. The mite is controlled with the beneficial insect persimilis (*Phytoseiulus persimilis)* early in the season, followed by a miticide application. Sevin bait is applied alone for cutworm control, and Zentari is applied as a tank mix with the fungicides for armyworm control. The insecticide treatments are shown in Table A.

TABLE A. DISEASE and INSECT APPLICATIONS

DATE	DISEASE		INSECTS	
	Botrytis	Mildew	Mites	Worms
Nov 15		Rovral		
Dec 01	Captan	Rally	Persimilis *	
Dec 15	Captan	Rally	Persimilis *	
Jan 01	Thiram + Elevate	Rally	Agrimek + Savy	
Jan 15	Captan + Elevate	Rally		
Feb 01	Thiram + Elevate	Thiolux		
Feb 15	Captan + Elevate	Thiolux		
Mar 01	Captan	Thiolux		
Mar 15	Captan	Thiolux		Sevin bait*
Apr 01	Captan	Thiolux		Zentari
Apr 15	Captan	Thiolux		Sevin bait*
May 01	Captan	Thiolux		Zentari
May 15	Captan	Thiolux		
Jun 01	Captan	Thiolux		
Jun 15	Captan	Thiolux		

RATES PER ACRE:			
Agrimek	16.0 oz	Sevin bait	40.0 lb
Captan	4.0 lb	Thiolux	5.0 lb
Rally	5.0 oz	Zentari	01.0 lb
Rovral	1.5 lb	Persimilis	25,000 ea
Savy	06.0 oz		

*Persimilis and bait applied separately (not part of tank mix)

Harvest. The crop is harvested from January through mid-July with peak harvest in April and May. The early harvested strawberries go to fresh market and as other growing areas 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. 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 grower purchases the fresh market trays and the processor furnishes the freezer trays. (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.

Table B. Percent Crop Harvested by Month

	Jar	Feb	Mar	Apr	May	June	July
Fresh % (67%)	3	3	9	27	25		
Freezer % (33%)					10	18	5

Source: Processing Strawberry Advisory Board Crop Trend Report 1998 - 2000

Yields. 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 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 66,000 pounds with 67% or 36,000 pounds (3,669 trays) delivered to fresh market and 37% or 21,780 pounds (1,225 trays) delivered to the freezer. Average per acre yields for Ventura County are shown in Table C.

Table C. YIELDS and RETURNS[1]

		FRESH		FREEZER		%
Year	Acres	Tray/ac[2]	$/tray	Tray/ac[3]	$/tray	Fresh
96	5,100	3,314	7.20	1,078	3.70	0.67
97	5,218	2,955	7.36	1,267	4.56	0.61
98	5,776	2,816	8.22	1,418	5.16	0.57
99	6,352	3,156	8.61	1,340	5.65	0.61
00	7,591	2,555	7.84	1,141	3.99	0.60

[1]Ag Commissioner Crop Report-VenturaCounty [2]12lb [3]18lb

Returns. Based on current market, the grower returns are estimated at $7.40 per 12-pound tray for fresh market and $4.80 per 18-pound tray 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. The grower pays 2.5 cents per tray to the Strawberry Commission for research and marketing. Fresh market assessment is based on a 12-pound tray and the freezer assessment on a 14-pound tray. Growers selling fresh strawberries at Farmer's Markets pay 5 cents per tray.

Year-end Cleanup. 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. The discing cost in this study is included with land preparation costs.

Labor. 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. 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, road maintenance, utilities, and miscellaneous expenses.

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

Land Rent. The 65 acres are rented for cash at $2,000 per acre or $2,166 per producing acre. The rented land includes the irrigation system and equipment yard which utilizes 5 acres.

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. 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 - Ventura County is 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. Annual ownership costs (equipment and investments) are shown in Tables 1-4. 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 ((Purchase Price – Salvage Value) x Capital Recovery Factor) + (Salvage Value x 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 is the purchase price, 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. Open irrigated and row-crop land values in the region range from $31,500 per acre to $49,000.

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. 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. 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 6 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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For information concerning the above mentioned or other University of California publications, contact UC DANR Communications Services (1-800-994-8849), your local county Cooperative Extension office or online at www.ucop.edu.

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Table 1. COSTS PER ACRE to PRODUCE STRAWBERRIES

SOUTH COAST REGION- Ventura County 2001

Operation	Operation Time (Hrs/A)	Cash and Labor Cost per acre: Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
Cultural:							
Land Prep: Disc, Plow, Subsoil, Level	0.00	0	0	0	400	400	
Irrigate-Sprinkle/Layout, Pickup Pipe	2.00	179	8	41	0	227	
List Beds	0.16	2	1	0	0	4	
Shape Beds 2X	0.26	4	2	0	0	6	
Fertilize-18-6-8	0.54	8	4	351	0	364	
Install Drip Tape 2 line/bed	1.25	27	7	240	0	274	
Lay Mulch	1.89	63	9	297	0	369	
Fumigate/Pickup Tarp	3.00	28	0	0	1,750	1,778	
Cut/Grade Roads/Maintain Roads	2.00	29	15	0	0	44	
Lay Laterals/Connect Drip	0.08	109	1	0	0	110	
Irrigate-Drip	13.00	122	0	149	0	270	
Punch Holes	0.69	10	3	0	0	13	
Plant	49.55	465	0	1,888	0	2,352	
Roll Plants	0.20	3	1	0	0	4	
Disease-Mildew	0.58	8	3	38	0	49	
Disease-Botrytis/Mildew	1.17	17	7	67	0	90	
Insect-Predatory Mite 2X	2.40	23	0	300	0	323	
Disease/Insect-Botrytis/Mildew/Mite	0.58	8	3	273	0	285	
Disease-Botrytis/Mildew	0.58	8	3	86	0	98	
Disease-Botrytis/Mildew	0.58	8	3	61	0	73	
Disease-Botrytis/Mildew 1X	1.75	25	10	57	0	93	
Disease-Botrytis/Mildew 2X	2.33	34	14	76	0	124	
Insect-Cutworms	0.11	2	1	28	0	31	
Disease/Insect-Botrytis/Mildew/Worms	1.17	17	7	63	0	87	
Weed-Hand	76.00	713	0	0	0	713	
Cut Mulch Prior to Harvest	0.28	145	2	0	0	146	
Remove/Haul/Dump -Plastic/Tape	0.12	95	1	0	56	152	
TOTAL CULTURAL COSTS	162.27	2,153	106	4,014	2,206	8,479	
Harvest:							
Harvest/Record Fresh	753.61	7,069	0	5,503	0	12,573	
Haul/Load Fresh	3.05	237	40	0	0	277	
Harvest Freezer/Haul/Record	2.27	3,507	30	0	0	3,537	
Strawberry Commission	0.00	0	0	131	0	131	
TOTAL HARVEST COSTS	758.92	10,813.00	70.00	5,635.00	0.00	16,518	
Interest on operating capital @ 10.51%						1,204	
TOTAL OPERATING COSTS/ACRE		12,966	177	9,649	2,206	26,201	
Cash Overhead:							
Liability Insurance						8	
Office Expense						500	
Sanitation Fee						57	
Land Rent						2,167	
Pipe Rent						250	
Property Taxes						21	
Property Insurance						14	
Investment Repairs						33	
TOTAL CASH OVERHEAD COSTS						3,050	
TOTAL CASH COSTS/ACRE						29,251	
Non-cash Overhead:		Per Producing Acre		Annual Cost Capital Recovery			
Buildings		819		76		76	
Fuel Tanks/Above Ground		109		10		10	
Shop Tools		211		22		22	
Harvest Carts 90		20		5		5	
Hand Tools		77		8		8	
Lateral Lines		267		101		101	
Equipment		2,170		234		234	
TOTAL NON-CASH OVERHEAD COSTS		3,672		455		455	
TOTAL COSTS/ACRE						29,705	

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Table 2. COSTS and RETURNS PER ACRE to PRODUCE STRAWBERRIES

SOUTH COAST REGION- Ventura County 2001

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Fresh Market	3,669	12 lb tray	7.40	27,151	
Freezer Market	1,225	18 lb tray	4.40	5,390	
TOTAL GROSS RETURNS	4,894			32,541	
OPERATING COSTS					
Custom:					
Land Prep: Disc, Plow, Rip, Level	1.00	acre	400.00	400	
Fumigant Tarp Pickup/Discard	1.00	acre	50.00	50	
Fumigate - Solid	1.00	acre	1,700.00	1,700	
Year end Plastic Discard Dump Fee	1.00	acre	56.00	56	
Water:					
Water	28.00	acin	6.75	189	
Fertilizer:					
18-6-8 Slow Release	0.38	ton	925.00	351	
Materials:					
T-Tape	10,890.00	foot	0.02	240	
Mulch 1.25m	350.00	lb	0.85	297	
Crate/Basket/Wire	3,669.00	each	1.50	5,503	
Plants:					
Strawberry Plants	29,495.00	each	0.06	1,888	
Fungicide:					
Rovral	1.50	lb	25.00	38	
Rally 40W	18.00	oz	4.46	80	
Captan 50W	48.00	lb	3.87	186	
Thiram 65WSB	5.00	lb	3.57	18	
Elevate	4.50	lb	32.35	146	
Thiolux	50.00	lb	0.70	35	
Insecticide:					
Persimilis (Predatory Mites)	50.00	thou	6.00	300	
Agri-Mek 0.15 EC	16.00	floz	6.78	108	
Savy	6.00	floz	14.08	84	
Sevin 5 Bait	40.00	lb	0.71	28	
Dipel DF	2.00	lb	12.75	25	
Assessment:					
Strawberry Fresh	3,669.00	tray	0.03	92	
Strawberry Freezer	1,575.00	tray	0.03	39	
Labor (machine)	34.74	hrs	12.06	419	
Labor (non-machine)	1,337.59	hrs	9.38	12,547	
Fuel - Gas	26.89	gal	1.51	41	
Fuel - Diesel	55.55	gal	1.26	70	
Lube				17	
Machinery repair				49	
Interest on operating capital @ 10.51%				1,204	
TOTAL OPERATING COSTS/ACRE				26,201	
TOTAL OPERATING COSTS/TRAY				5	
NET RETURNS ABOVE OPERATING COSTS				6,340	

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Table 2 continued

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
CASH OVERHEAD COSTS:					
Liability Insurance				8	
Office Expense				500	
Sanitation Fee				57	
Land Rent				2,167	
Pipe Rent				250	
Property Taxes				21	
Property Insurance				14	
Investment Repairs				33	
TOTAL CASH OVERHEAD COSTS/ACRE				3,050	
TOTAL CASH COSTS/ACRE				29,251	
TOTAL CASH COSTS/TRAY				6	
NON-CASH OVERHEAD COSTS (Capital Recovery)					
Buildings				76	
Fuel Tanks/Above Ground				10	
Shop Tools				22	
Harvest Carts 90				5	
Hand Tools				8	
Lateral Lines				101	
Equipment				234	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				455	
TOTAL COSTS/ACRE				29,705	
TOTAL COSTS/TRAY				6	
NET RETURNS ABOVE TOTAL COSTS				2,836	

UC COOPERATIVE EXTENSION

Table 3. MONTHLY CASH COSTS PER ACRE to PRODUCE STRAWBERRIES

SOUTH COAST REGION- Ventura County 2001

Beginning AUG 00 Ending JUL 01	AUG 00	SEP 00	OCT 00	NOV 00	DEC 00	JAN 01	FEB 01	MAR 01	APR 01	MAY 01	JUN 01	JUL 01	TOTAL
Cultural:													
Land Preparation	400												400
List Beds		4											4
Shape Beds 2X		6											6
Fertilize-18-6-8		364											364
Install Drip Tape 2 line/bed		274											274
Lay Mulch		369											369
Fumigate/Pickup Tarp		1,778											1,778
Cut, Grade, Maintain Roads		44											44
Lay Laterals/Connect Drip		110											110
Irrigate-Sprinkle/Layout/Pickup Pipe		114		114									227
Irrigate-Drip			23		30	16	16	32	39	46	46	23	270
Punch Holes			13										13
Plant			2,352										2,352
Roll Plants			4										4
Mildew[1]				49									49
Botrytis/Mildew					90								90
Mites: Predatory Mite 2X[1]					323								323
Botrytis/Mildew/Mite[1]						285							285
Botrytis/Mildew[1]						98							98
Botrytis/Mildew[1]							73						73
Botrytis/Mildew[1]							31		31	31			93
Botrytis/Mildew[1]								62			62		124
Cutworms[1]									31				31
Botrytis/Mildew/Worm[1]									44	44			87
Weed				28	131	84	122	94	94	84	75		713
Cut Mulch Prior to Harvest						146							146
Year end Cleanup												152	152
TOTAL CULTURAL COSTS	400	3,062	2,392	191	574	630	242	188	238	205	183	175	8,479
Harvest:													
Harvest/Record Fresh						712	766	2,482	4,643	3,969			12,573
Haul/Load Fresh						15	17	54	103	88			277
Harvest Freezer/Haul/Record										803	1,691	1,043	3,537
Strawberry Commission Assessment												131	131
TOTAL HARVEST COSTS						727	783	2,536	4,746	4,859	1,691	1,174	16,518
Interest on operating capital	4	30	51	53	58	63	79	103	146	191	207	219	1,204
TOTAL OPERATING COSTS/ACRE	404	3,092	2,444	244	632	1,420	1,104	2,826	5,131	5,255	2,081	1,568	26,201
Overhead:													
Liability Insurance						8							8
Office Expense	42	42	42	42	42	42	42	42	42	42	42	42	500
Sanitation Fee	5	5	5	5	5	5	5	5	5	5	5	5	57
Land Rent												2,167	2,167
Pipe Rent				250									250
Property Taxes									21				21
Property Insurance							14						14
Investment Repairs	3	3	3	3	3	3	3	3	3	3	3	3	33
TOTAL CASH OVERHEAD COSTS	49	49	49	299	49	58	63	49	70	49	49	2,216	3,050
TOTAL CASH COSTS/ACRE	453	3,141	2,493	543	681	1,478	1,167	2,876	5,201	5,304	2,130	3,784	29,251

[1] See Table A for materials applied

UC COOPERATIVE EXTENSION

Table 4. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT,

SOUTH COAST REGION- Ventura County 2001

ANNUAL EQUIPMENT COSTS

						Cash Overhead		
Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Insur-ance	Taxes	Total
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	Bed Shaper 2 -Row	8,460	15	812	878	31	46	956
01	Blade Rear 3 pt	1,012	15	97	105	4	6	114
01	Drip Tape Machine 1-Row	3,500	15	336	363	13	19	395
01	Fertilizer Drill 1-Row'	5,000	15	480	519	18	27	565
01	Knife-Sickle	1,250	15	120	130	5	7	141
01	Lister 16'	1,977	15	190	205	7	11	223
01	Mulch Machine 1-Row	10,500	15	1,008	1,090	38	58	1,186
01	Punch Machine 1-Row	5,000	15	480	519	18	27	565
01	Roller 8'	4,500	15	432	467	16	25	508
01	Sprayer 21' boom	3,630	15	349	377	13	20	410
01	Spreader-Fertilizer	9,900	12	1,371	1,149	38	56	1,242
01	Trailer-Pipe	1,950	20	102	177	7	10	194
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
TOTAL		325,528		70,076	35,057	1,317	1,978	38,353
	40% of New Cost *	130,211		28,030	14,023	527	791	15,341

*Used to reflect a mix of new and used equipment

ANNUAL INVESTMENT COSTS

					Cash Overhead			
Description	Price	Yrs Life	Salvage Value	Capital Recovery	Insur-ance	Taxes	Repairs	Total
Buildings	49,162	20		4,533	164	246	983	5,925
Fuel Tanks/Above Ground	6,514	20	651	584	24	36	65	709
Hand Tools	4,595	15	460	476	17	25	92	610
Harvest Carts 90 carts	1,170	5		283	4	6	23	316
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
TOTAL INVESTMENT	90,086		2,375	13,253	308	462	1,950	15,973

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Land Rent	65	acre	2,000.00	130,000
Liability Insurance	70	acre	7.27	509
Office Expense	60	acre	500.00	30,000
Pipe Rent	60	acre	250.00	15,000
Sanitation Fee	60	acre	57.40	3,444

UC COOPERATIVE EXTENSION

Table 5. HOURLY EQUIPMENT COSTS

SOUTH COAST REGION- Ventura County 2001

			COSTS PER HOUR						
		Actual		Cash Overhead		Operating			
Yr	Description	Hours Used	Capital Recovery	Insur-ance	Taxes	Repairs	Fuel & Lube	Total Oper.	Total Costs/Hr.
01	42HP 4WD Tractor	302.10	3.68	0.15	0.22	0.45	2.99	3.44	7.48
01	55HP 2WD Tractor	699.00	1.84	0.07	0.11	0.91	3.91	4.82	6.85
01	75HP 4WD Tractor	41.00	43.84	1.75	2.62	1.27	5.34	6.61	54.82
01	85HP Crawler	132.00	13.61	0.54	0.81	0.73	6.05	6.78	21.74
01	90HP 4WD Tractor	27.50	80.86	2.94	4.41	0.80	6.40	7.20	95.42
01	Bed Shaper 2- Row	15.60	22.55	0.79	1.19	1.08	0.00	1.08	25.62
01	Blade Rear 3 pt	125.00	0.34	0.01	0.02	0.00	0.00	0.00	0.37
01	Drip Machine 1-Row	75.00	1.94	0.07	0.10	0.58	0.00	0.58	2.69
01	Fertilizer Drill 1-Row	32.20	6.44	0.23	0.34	0.83	0.00	0.83	7.84
01	Knife-Sickle	16.60	3.12	0.11	0.16	0.16	0.00	0.16	3.56
01	Lister 16'	9.40	8.75	0.31	0.46	0.26	0.00	0.26	9.78
01	Mulch Machine 1-Row	113.20	3.85	0.14	0.20	0.77	0.00	0.77	4.96
01	Punch Machine 1-Row	41.40	5.02	0.18	0.26	0.37	0.00	0.37	5.82
01	Roller 8'	12.10	15.42	0.54	0.81	0.33	0.00	0.33	17.11
01	Sprayer 20' boom	525.00	0.29	0.01	0.02	0.63	0.00	0.63	0.94
01	Spreader-Fertilizer	6.70	68.37	2.23	3.35	2.50	0.00	2.50	76.46
01	Trailer-Pipe	120.00	0.59	0.02	0.03	0.02	0.00	0.02	0.67
01	Truck 1-Ton #1	325.80	5.25	0.19	0.29	2.28	4.34	6.62	12.35
01	Truck 1-Ton #2	318.80	5.36	0.19	0.29	2.28	4.34	6.62	12.47

UC COOPERATIVE EXTENSION

Table 6. RANGING ANALYSIS

SOUTH COAST REGION- Ventura County 2001

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

Total Yield (lbs/acre):	54,000	58,000	62,000	66,000	70,000	74,000	78,000
	YIELD (trays/acre)						
67% Fresh Market 12 lb trays:	3,015	3,238	3,462	3,685	3,908	4,132	4,355
33% Freezer Market 18 lb trays:	990	1,063	1,137	1,210	1,283	1,357	1,430
OPERATING COSTS							
Cultural Cost	8,479	8,479	8,479	8,479	8,479	8,479	8,479
Harvest Cost	13,466	14,463	15,462	16,458	17,454	18,454	19,450
Assessment Cost	115	120	126	132	137	143	148
Interest on operating capital	1,111	1,143	1,175	1,206	1,238	1,270	1,302
TOTAL OPERATING COSTS	23,171	24,204	25,242	26,275	27,308	28,346	29,379
Total Operating Costs/Tray	5.79	5.63	5.49	5.37	5.26	5.16	5.08
CASH OVERHEAD COSTS	3,050	3,050	3,050	3,050	3,050	3,050	3,050
TOTAL CASH COSTS	26,221	27,254	28,292	29,325	30,358	31,396	32,429
Total Cash Costs/Tray	6.55	6.34	6.15	5.99	5.85	5.72	5.61
NON-CASH OVERHEAD COSTS	455	455	455	455	455	455	455
TOTAL COSTS	26,675	27,708	28,746	29,779	30,813	31,850	32,884
Total Costs/Tray	6.66	6.44	6.25	6.08	5.94	5.80	5.68

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

$/tray		YIELD (trays/acre)						
Fresh 12 lb		3,015	3,238	3,462	3,685	3,908	4,132	4,355
	Freezer 18 lb	990	1,063	1,137	1,210	1,283	1,357	1,430
5.18	3.08	-4,504	-4,157	-3,807	-3,460	-3,113	-2,763	-2,416
5.92	3.52	-1,837	-1,293	-744	-201	343	892	1,436
6.66	3.96	830	1,571	2,318	3,059	3,800	4,547	5,288
7.40	4.40	3,496	4,435	5,380	6,318	7,256	8,202	9,140
8.14	4.84	6,163	7,298	8,442	9,577	10,713	11,856	12,992
8.88	5.28	8,830	10,162	11,504	12,837	14,169	15,511	16,844
9.62	5.72	11,496	13,026	14,566	16,096	17,626	19,166	20,695

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

$/tray		YIELD (trays/acre)						
Fresh 12 lb		3,015	3,238	3,462	3,685	3,908	4,132	4,355
	Freezer 18 lb	990	1,063	1,137	1,210	1,283	1,357	1,430
5.18	3.08	-7,554	-7,207	-6,856	-6,510	-6,163	-5,813	-5,466
5.92	3.52	-4,887	-4,343	-3,794	-3,250	-2,706	-2,158	-1,614
6.66	3.96	-2,220	-1,479	-732	9	750	1,497	2,238
7.40	4.40	446	1,385	2,330	3,268	4,206	5,152	6,090
8.14	4.84	3,113	4,248	5,392	6,527	7,663	8,806	9,942
8.88	5.28	5,780	7,112	8,454	9,787	11,119	12,461	13,794
9.62	5.72	8,447	9,976	11,516	13,046	14,576	16,116	17,646

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

$/tray		YIELD (trays/acre)						
Fresh 12 lb		3,015	3,238	3,462	3,685	3,908	4,132	4,355
	Freezer 18 lb	990	1,063	1,137	1,210	1,283	1,357	1,430
5.18	3.08	-8,008	-7,661	-7,311	-6,964	-6,618	-6,267	-5,920
5.92	3.52	-5,342	-4,798	-4,249	-3,705	-3,161	-2,612	-2,068
6.66	3.96	-2,675	-1,934	-1,187	-446	295	1,042	1,783
7.40	4.40	-8	930	1,875	2,814	3,752	4,697	5,635
8.14	4.84	2,659	3,794	4,938	6,073	7,208	8,352	9,487
8.88	5.28	5,325	6,658	8,000	9,332	10,665	12,007	13,339
9.62	5.72	7,992	9,522	11,062	12,591	14,121	15,661	17,191