
2000

UNIVERSITY OF CALIFORNIA - COOPERATIVE EXTENSION

SAMPLE COSTS

TO ESTABLISH A PEACH/NECTARINE ORCHARD AND PRODUCE

PEACHES/NECTARINES



JULY/AUGUST HARVESTED VARIETIES
SOUTHERN SAN JOAQUIN VALLEY

Prepared by:

Kevin R. Day U.C. Cooperative Extension Farm Advisor, Tulare County

Harry L. Andris U.C. Cooperative Extension Farm Advisor, Fresno County

Robert H. Beede U.C. Cooperative Extension Farm Advisor, Kings County

Karen M. Klonsky U.C. Cooperative Extension Economist, Department of Agricultural and Resource Economics, U.C. Davis

Richard L. De Moura U.C. Cooperative Extension Staff Research Associate, Department of Agricultural and Resource Economics, U.C. Davis

Pete Livingston Former U.C. Cooperative Extension Staff Research Associate, Department of Agricultural and Resource Economics, U.C. Davis

INTRODUCTION

The detailed costs for the establishment of a peach or nectarine orchard, and the production of July/August harvested peach and nectarine varieties in the Southern San Joaquin Valley are presented in this study. The hypothetical farm used in this report consists of 100 acres of which five are being established in peaches or nectarines.

This study is intended as a guide only. It can be used to make production decisions, determine potential returns, prepare budgets and evaluate production loans. Costs and practices detailed in this study will not be applicable to every situation. A blank, *Your Cost*, column is provided to enter your actual costs on Tables 2 and 3.

List of tables:

Table 1.	Costs Per Acre to Establish a Peach/Nectarine Orchard
Table 2.	Costs Per Acre to Produce Mature Peaches/Nectarines
Table 3.	Details of Costs Per Acre to Produce Mature Peaches/Nectarines
Table 4.	Monthly Cash Costs Per Acre to Produce Mature Peaches/Nectarines
Table 5.	Annual Equipment, Investment and Business Overhead
Table 6.	Hourly Equipment Costs
Table 7.	Ranging Analysis

This and other studies can be obtained through the Department of Agricultural and Resource Economics, U.C. Davis (530-752-1515), online at www.agecon.ucdavis.edu or from selected county Cooperative Extension offices. For an explanation of calculations or assumptions used in this study refer to the attached General Assumptions or call the Department of Agricultural and Resource Economics, University of California – Davis, (530-752-3589).

The University of California, in accordance with applicable Federal and State law and University policy, does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, medical condition (cancer-related), ancestry, marital status, citizenship, sexual orientation, or status as a Vietnam-era veteran or special disabled veteran.

Inquiries regarding the University's nondiscrimination policies may be directed to the Affirmative Action Director, University of California, Agriculture and Natural Resources, 1111 Franklin, 6th Floor, Oakland, CA 94607-5200 (510) 987-0096.

ASSUMPTIONS

The following assumptions pertain to the derivation of sample costs for orchard establishment and production of July/August harvested peach and nectarine varieties in the Southern San Joaquin Valley. Practices described are not recommendations by the University of California, but represent production procedures and materials considered typical of a well managed orchard. Costs are on an annual, per acre basis. All costs, practices, and materials will not be applicable to every situation nor used during every year. Establishment and cultural practices vary by grower and region, and variations can be significant. *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.*

Land. The farm consists of 100 acres of land. Five acres are being established as either a peach or nectarine orchard. Other orchard and vine crops are grown on 90 acres, and the remaining five acres are roads and farmstead. Land is valued at \$5,590 per producing acre and is not depreciated.

Trees. No specific variety of peach or nectarine trees are assumed in this study, except those that are harvested in July and August. Peach varieties that might be planted, but not limited to, are Elegant Lady, Summer Lady, or O'Henry. For nectarines, a partial list of varieties include: Summer Bright, Summer Fire, and August Red. The trees are planted on 16' X 18' spacing, with 151 trees per acre. The life of the orchard at the time of planting is assumed to be 20 years. The \$6.45 per tree cost includes the cost of the royalty.

Irrigation. Water for irrigation is pumped from a well. Price per acre foot for pumped water will vary from grower to grower in this region depending on the various well characteristics and irrigation factors. In this study, water is pumped from a depth of 85 feet in a 150 foot well and is calculated to cost \$32.52 per acre foot. The amount of water used by the orchard during its establishment increases each year and is shown in Table A .

Water is delivered to the orchard from the well through an underground pipe and flood valve system. The orchard is irrigated down furrows that are chemically mowed several times during the growing season. No assumption is made about effective rainfall. The life of the system is estimated at 30 years. This irrigation system is installed before the orchard is planted.

Table A. Annual water use

Year	Applied water <small>Acre-Inches</small>
1	20
2	24
3	30
4	36
5	44

Labor. Hourly wages for workers are \$8.23, and \$6.00 per hour for skilled, and field workers respectively. Adding 34% for the employer's federal and state payroll taxes and other possible employer paid benefits gives the labor rates shown of \$11.02 per hour for skilled labor, and \$8.04 per hour for field labor. Labor for operations involving machinery are 20% higher than the operation time given in Table 2 to account for the extra labor involved in equipment set up, moving, maintenance, work breaks, and repair. Wages for management are not included as a cash cost. Any return above total costs is considered a return to management and risk.

ESTABLISHMENT CULTURAL PRACTICES AND MATERIAL INPUTS

Land Preparation. This orchard is established on ground that was previously planted to deciduous trees or vines. The site is slip plowed to a depth of six feet to mix the soil and break up natural restricting soil layers. The site is disced three times to prepare the ground before the preplant fumigation. Fumigation is contracted and the fumigant, methyl bromide, is injected over the entire orchard site. Borders are put up later and water is run between the borders to settle the tilled ground. After the soil has dried, the site is laser leveled followed by two passes with an orchard float. The orchard is laid out, trees are planted and the trunks protected with wraps. All ground preparation is contracted and is done in the year prior to planting. Layout and planting are done by contractors in the spring following ground preparation. For purposes of this report all of these operations occur in year one.

Trees. The young trees are headed back and pruned in subsequent years. In the second year, two trees per acre are replanted, which are provided free by most nurseries.

Weed Control. Berms are put up during the first year and sprayed to control weeds. In subsequent seasons, they are sprayed during the dormant season with pre-emergent herbicides. An implement known as a crowder is used to pull the irrigation furrows after planting as well as clean them once every three to five years. The furrows (row middles) are sprayed four to six times per year. Five percent of the acreage is also spot sprayed with a contact herbicide.

Pest Control. Pest control starts in the second year with a pesticide treatment for mites and a dormant season spray during the winter. Both a bloom and worm spray are added in the third year to round out the pest control program.

Roping, Thinning, and Propping Limbs. Thinning begins in the third year and is performed by hand. Thinning time increases as yields increase. Tree are roped each year starting late the second year and changes to alternate years after the fourth year. Roping is the practice of tying ropes around the branches to hold and prevent them from breaking under heavy fruit loads. As yields and weight on the branches increase, the limbs are also propped.

Fertilization. Nitrogen fertilizer is applied at increasing rates during the orchard establishment and is shown in Table B. Neutral zinc is also applied with the dormant spray at a rate of 5 pounds per acre in the first year and 10 pounds in each year thereafter.

Table B. Applied nitrogen

Year	Pounds/Acre
1	38
2	57
3	64
4+	151

Establishment Costs. Cost to establish the orchard is used to determine capital recovery expenses, depreciation, and interest on investment, during the production years. The establishment cost are the sum of cash costs for land preparation, planting, trees, production expenses, and cash overhead for growing peaches or nectarines through the first year fruit is harvested. The *Total Accumulated Net Cash Cost* in the third year in Table 1 represents the establishment cost per acre. For this study, the cost is \$4,672 per acre. This establishment cost is depreciated over the remaining 17 years of assumed tree life.

PRODUCTION CULTURAL PRACTICES AND MATERIAL INPUTS

Pruning, Roping, Thinning, and Propping. Pruning is done by hand in the winter months, December and January in this study. Trees are also summer pruned about three weeks prior to harvest to improve fruit color. Additionally in nectarines, leaves are removed to improve fruit color. Roping is done in February on alternate years. Fruit thinning is done in April. Props are placed under the limbs in July and are removed after harvest.

Fertilization. Nitrogen fertilizer is applied in spring and fall. In some instances nitrogen fertilizer may need to be applied in both spring and late summer. In this study nitrogen is applied at a rate of 151 pounds of N per acre split equally between April and September. A foliar application of zinc sulfate at ten pounds per acre is applied in the autumn at leaf fall, and neutral zinc at ten pounds per acre is applied in the winter with the dormant spray.

Weed Management. Irrigation furrows are drawn in the first year immediately after planting and are cleaned every three to five years. This is accounted for in this report by averaging the cost over four years. Weeds are controlled in row middles during the spring and summer by chemical mowing using low volume sprays. Weeds on the berms are controlled by pre-emergent herbicides applied in the winter.

Insect and Disease Management. A dormant spray is applied annually to control pests, eggs, and diseases. In-season preharvest sprays are applied to protect the crop from such pests as oriental fruit moth, peach twig borer, leaf rollers, mites and fruit rot. Sprays to control thrips are applied to nectarines only.

The pesticides and rates mentioned in this cost study are listed in the *UC IPM Pest Management Guidelines, Peach* and *UC IPM Pest Management Guidelines, Nectarine*. 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. For additional production information contact your local U.C. Cooperative Extension farm advisor.

Equipment Cash Costs. Equipment costs fall into three categories: capital recovery, cash overhead, and operating costs. The cash overhead and capital recovery costs will be discussed in later sections. The operating costs consist of fuel, lubrication, and repairs.

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 hp, and fuel type. The fuel and repair cost per acre for each operation in Table 2 is determined by multiplying the total cost per hour as shown in Table 6 for each piece of equipment used in the selected operation by the hours per acre. Tractor time is 10% higher than implement time (Operation Time in Table 2) to account for fueling, moving equipment, and setup time. Prices for on-farm delivery of diesel and gasoline are \$1.09 and \$1.49 per gallon, respectively.

Harvest. Harvest starts in the third year after the orchard is planted. Harvest costs will vary according to yield. In this cost study, the crop is harvested by the grower's picking crew using ladders and buckets supplied by an independently owned and operated packing shed. Fruit is placed into half-ton field bins. The fruit is then hauled to the packing shed by a contract hauler for \$5.00 per bin. The shed packs, palletizes, cools and sells the fruit under a contract with the grower. Packing charges are assumed to be \$3.00 per box.

For growers that own their packing and cooling equipment and market their own crop, the needed equipment for packing and cooling operations should be inventoried in investment costs on Table 5, and operation costs would be calculated and placed in harvest costs in Table 1 and 2. All custom charges would be subtracted from harvest costs in Tables 1, 2, 3, 4 and 7.

Assessments. Assessment fees collected by the California Tree Fruit Agreement (CTFA) are based on boxes of peaches and nectarines sold. The CTFA assessment fee is \$0.195 per box of peaches and \$0.19 per box of nectarines.

Yields. As noted above peaches and nectarines usually begin bearing an economic crop in the third year after planting. Typical annual yields for July/August harvested varieties are measured in boxes per acre and are shown in Table C. The weight of a box of peaches or nectarines in this study is 25 pounds.

Table C. Annual yields

Year	Boxes/Acre
3	250
4	600
5	950
6	1,200
7+	1,400

A portion of the gross yields sent to packing sheds are packed for fresh market. The percent packout is the portion of the crop that meets standards for fresh market. Table D shows the average yield in tons and 25 pound boxes for peaches and nectarines in the six major producing counties in the San Joaquin Valley for the last five years.

Table D. Average yields in the San Joaquin Valley

Year	Peaches ^{1/}	Nectarines ^{1/}	Peaches ^{2/}	Nectarines ^{2/}
	----- Average Tons/Acre -----		----- Average Boxes/Acre -----	
1994	10.40	8.38	832	670
1995	8.89	6.66	711	533
1996	9.44	7.39	755	591
1997	10.58	7.30	846	584
1998	9.88	6.13	790	490

^{1/} Source: CDFA, State Crop Reports, 1994 – 1998 and includes Fresno, Kern, Kings, Madera, Merced, and Tulare Counties.

^{2/} Boxes weigh 25 pounds .

Returns. An estimated price of \$6.00 per box of July/August harvested peaches based on standard average fruit size and price distribution is used in this study. If July/August harvested nectarines were assumed instead of peaches, a \$7.00 per box price would be used. Table 7 shows net returns and costs at varying yields and prices.

Risk. The risks associated with producing and marketing peaches and nectarines are significant. While this study makes every effort to model a production system based on typical, real world practices, it does not represent financial, agronomic and market risks which affect the profitability and economic viability of peach and nectarine production. Crop insurance is a risk management tool available to growers.

OVERHEAD COSTS

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. Cash overhead costs are included in Tables 1, 2, 3, 4, and 7.

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 at 1% of the average value of the property. Average value equals new cost plus salvage value divided by two on a per acre basis. Salvage value for investments vary depending on the type of equipment.

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 10.71% per year. A nominal interest rate is the going market cost of borrowed funds. The rate used in this study is from a commercial lending institution.

Insurance. Insurance for farm investments vary depending on the assets included and the amount of coverage. Property insurance provides coverage for property loss and is charged at 0.723% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs \$455 for the entire farm.

Office Expense. Office and business expenses are estimated at \$50 per acre. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, road maintenance, etc.

Sanitation Services Sanitation services provide portable toilets for the orchard and cost the farm \$455 annually. This cost includes delivery and servicing of toilets.

Capital Recovery Costs. Although farm equipment on peach or nectarine orchards in the region might be purchased new or used, this study shows the current purchase price for new equipment. The new purchase price is adjusted to 60% to indicate a mix of new and used equipment. Annual ownership costs for equipment and other investments are included in Tables 1, 2, 3, and 5. They represent the capital recovery cost for investments on an annual per acre basis.

Capital recovery cost is the amount of money required each year to recover the difference between the purchase price and salvage value (unrecovered capital). Put another way, it is equivalent to the annual payment on a loan for the investment with the downpayment 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 calculation for the annual capital recovery costs is as follows:

$$\frac{\text{Purchase Price} - \text{Salvage Value}}{\text{Capital Recovery Factor}} + \frac{\text{Salvage Value} \times \text{Interest Rate}}$$

Salvage Value. Salvage value is an estimate of the remaining market value of an investment at the end of its useful life. It is calculated differently for different investments. For farm machinery (e.g., tractors and implements) the remaining value is a percentage of the new cost of the investment. Salvage value is calculated as

$$\text{New Price} \times \% \text{Remaining Value}$$

Salvage value for other investments including irrigation systems, buildings, and miscellaneous equipment is zero. The salvage value for land is equal to the purchase price because land does not depreciate from use. The purchase price and salvage value for certain equipment and investments are shown in Table 4.

Capital Recovery Factor. Capital recovery factor is the amortization factor or annual payment whose present value at compound interest is one. It is a function of the interest rate and years of life of the equipment.

Interest Rate. The interest rate of 7.08% used to calculate capital recovery cost is the USDA-ERS's ten year average of California's agricultural sector long-run 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. In other words, the next best alternative use for these resources is in another agricultural enterprise.

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

REFERENCES

American Society of Agricultural Engineers. 1992. *American Society of Agricultural Engineers Standards Yearbook*. St. Joseph, MI.

Boelje, Michael D., and Vernon R. Eidman. 1984. *Farm Management*. John Wiley and Sons. New York, NY

University of California, 1989. *U.C. Peaches, Plums and Nectarines, Growing and Handling for Fresh Market*. James H. LaRue and R. Scott Johnson (eds.) University of California. Cooperative Extension. Division of Agriculture and Natural Resources. Oakland, California. Publication 3331.

Integrated Pest Management Education and Publications. 1990. *U.C. Pest Management Guidelines, Peaches & Nectarines*. In M. L. Flint (ed.) UC IPM pest management guidelines. University of California. Division of Agriculture and Natural Resources. Oakland, California. Publication 3339.

Beede, Bob, Harry Andris, Kevin Day, R. Scott Johnson, Karen Klonsky, and Pete Livingston. 1992. *Sample Costs to Establish And Produce Peaches/Nectarines, July/August Harvested Varieties In The Southern San Joaquin Valley – 1992*. University of California, Cooperative Extension. Department of Agricultural and Resource Economics. Davis, CA.

Table 1.

U.C. COOPERATIVE EXTENSION
 SAMPLE COSTS PER ACRE TO ESTABLISH A PEACH/NECTARINE ORCHARD
 SOUTHERN SAN JOAQUIN VALLEY - 2000

Labor Rate: \$11.02/hr. machine labor
 \$8.04 /hr. non-machine labor

Trees Per Acre: 151
 Long Term Interest Rate: 10.71%

	Cost Per Acre						
	Year:	1	2	3	4	5	6
Yield, 25 Pound Boxes Per Acre:	0	0	250	600	950	1200	
Planting Costs:							
Land Preparation - Slip Plow - Contract	220						
Land Preparation - Disc 3X	50						
Land Preparation - Fumigate - Contract	500						
Put Up Borders	4						
Irrigate	32						
Land Preparation - Level - Contract	125						
Land Preparation - Float 2X	18						
Layout Orchard	45						
Trees: 151 Per Acre	974						
Plant and Wrap Trees	83						
TOTAL PLANTING COSTS	2,051						
Cultural Costs:							
Weed Control - Dormant Strip Spay	37	52	52	52	52	52	
Prune Trees	0	40	101	202	304	465	
Brush Disposal	0	7	9	9	9	9	
Fertilizer - Fall Zinc	8	10	10	10	10	10	
Pest Control - Dormant Spray + Neutral Zinc	0	88	88	88	88	88	
Rope Trees	0	0	37	52	0	52	
Pest Control - Bloom Spray	0	0	23	23	23	23	
Pest Control - Worms	0	0	14	14	14	14	
Pest Control - Mites	0	60	60	60	60	60	
Thin Fruit - Hand	0	0	76	150	322	567	
Put Up Berms	4	0	0	0	0	0	
Furrow Middles 1X Yr. 1 (1X every 4 years)	4	1	1	1	1	1	
Irrigate 12X	154	167	186	205	230	230	
Fertilizer - Nitrogen	20	27	29	66	65	65	
Summer Prune	0	0	35	50	75	75	
Leaf Removal (nectarines only)	0	0	125	225	300	300	
Weed Control - Spray Middles 5X (4X Yr. 1)	40	50	50	50	50	50	
Pest Control - Thrips (nectarines only)	0	0	50	50	50	50	
Pest Control - Preharvest Worms/Brown Rot Spray	0	0	79	79	79	79	
Weed Control - Spot Spray	0	4	9	9	9	9	
Prop Limbs	0	0	0	0	41	56	
Pickup Truck Use	100	100	100	100	100	100	
TOTAL CULTURAL COSTS	367	606	1,134	1,495	1,882	2,355	
Harvest Costs:							
Pick Fruit	0	0	130	261	418	573	
Haul to Shed	0	0	31	75	119	150	
Pack Fruit	0	0	750	1,800	2,850	3,600	
Sell	0	0	120	240	456	576	
TOTAL HARVEST COSTS	0	0	1,031	2,376	3,843	4,899	
Assessment Costs:							
California Tree Fruit Agreement @ \$0.195/box	0	0	49	117	185	234	
TOTAL ASSESSMENT COSTS	0	0	49	117	185	234	
Interest On Operating Capital @ 10.71%	199	26	61	97	135	179	
TOTAL OPERATING COSTS/ACRE	2,617	632	2,275	4,085	6,045	7,667	

U.C. Cooperative Extension
Table 1. continued

Year:	Cost Per Acre					
	1	2	3	4	5	6
Yield, 25 Pound Boxes Per Acre:	0	0	250	600	950	1200
Cash Overhead Costs:						
Office Expense	50	50	50	50	50	50
Liability Insurance	5	5	5	5	5	5
Sanitation Fees	4	4	4	4	4	4
Property Taxes	63	64	65	89	91	92
Property Insurance	46	46	47	65	66	66
Investment Repairs	14	14	14	14	14	14
TOTAL CASH COSTS/ACRE	2,799	815	2,460	4,312	6,275	7,898
INCOME/ACRE FROM PRODUCTION @ \$6.00/box	0	0	1,395	2,790	4,464	6,138
NET CASH COSTS/ACRE FOR THE YEAR	2,799	815	1,065	1,522	1,811	1,760
PROFIT/ACRE ABOVE CASH COSTS	0	0	0	0	0	0
ACCUMULATED NET CASH COSTS/ACRE	2,799	3,614	4,679	6,201	8,012	9,772
Capital Recovery Cost:						
Shop Building	42	42	42	42	42	42
Land @ \$5,579/Acre	410	410	410	410	410	410
Peach Establishment	0	0	0	482	482	482
Fuel Tank & Pump	7	7	7	7	7	7
Shop Tools	13	13	13	13	13	13
Furrow Irrigation System	12	12	12	12	12	12
Equipment	31	37	67	88	114	140
TOTAL NON-CASH OVERHEAD COST/ACRE	515	521	551	1,054	1,080	1,106
TOTAL COST/ACRE FOR THE YEAR	3,314	1,336	3,011	5,366	7,355	9,004
INCOME/ACRE FROM PRODUCTION	0	0	1,395	2,790	4,464	6,138
TOTAL NET COST/ACRE FOR THE YEAR	3,314	1,336	1,616	2,576	2,891	2,866
NET PROFIT/ACRE ABOVE TOTAL COST	0	0	0	0	0	0
TOTAL ACCUMULATED NET COST/ACRE	3,314	4,650	6,266	8,842	11,733	14,599

Table 2.

U.C. COOPERATIVE EXTENSION
 COSTS PER ACRE TO PRODUCE MATURE PEACHES/NECTARINES
 July/August Harvested Varieties
 SOUTHERN SAN JOAQUIN VALLEY - 2000

Operation	Operation			Cash and Labor Costs per Acre			Your Cost
	Time (Hrs/A)	Labor Cost	Fuel,Lube & Repairs	Material Cost	Custom/Rent	Total Cost	
Cultural:							
Weed Control – Dormant Strip	0.20	3	1	49	0	52	
Prune	64.00	515	0	0	0	515	
Shred Brush	0.43	6	4	0	0	10	
Pest Control - Dormant & Zinc	0.26	3	3	78	0	84	
Rope Trees (alternate years)	4.00	32	0	0	0	32	
Pest Control – Bloom	0.25	3	3	17	0	23	
Pest Control – Worms	0.26	3	3	8	0	14	
Weed Control - Spray Middles 5X	1.00	13	4	28	0	45	
Thinning – Hand	103.00	828	0	0	0	828	
Furrow Middles (1X per 4 yrs)	0.05	1	0	0	0	1	
Irrigate 12X	11.26	91	0	140	0	230	
Pest Control - Mites	0.26	3	3	54	0	60	
Fertilize - Nitrogen Split	0.40	13	1	50	0	64	
Fertilize - Fall Zinc	0.26	3	3	4	0	10	
Weed Control - Spot Spray 2X	0.40	5	2	1	0	8	
Summer Pruning	9.32	75	0	0	0	75	
Leaf Removal (nectarine only)	37.31	300	0	0	0	300	
Prop Limbs & Remove Props	1.00	78	5	0	0	82	
Pest Control - Thrips (nectarine only)	0.26	3	3	44	0	50	
Pest Control - Worms/Brown Rot	0.26	3	3	73	0	79	
Pickup Truck Use	5.70	75	25	0	0	100	
TOTAL CULTURAL COSTS	239.85	2,058	59	545	0	2,661	
Harvest:							
Pick Fruit	30.00	1,120	137	0	0	1,257	
Haul To Shed	0.00	0	0	0	225	225	
Pack Fruit	0.00	0	0	0	4,200	4,200	
Sell	0.00	0	0	0	672	672	
TOTAL HARVEST COSTS	30.00	1,120	137	0	5,097	6,354	
Assessment:							
CTFA Assessment		0	0	273	0	273	
TOTAL ASSESSMENT COSTS		0	0	273	0	273	
Interest on operating capital @						207	
TOTAL OPERATING		3,178	196	818	5,097	9,495	

U.C. COOPERATIVE EXTENSION
Table 2. continued

Cash Overhead:			
Office Expense			50
Liability Insurance			5
Sanitation Fees			4
Property Taxes			94
Property Insurance			68
Investment Repairs			14
TOTAL CASH OVERHEAD			234
TOTAL CASH COSTS/ACRE			9,730
Non-cash Overhead:			
	Per producing	Annual Cost	
Investment	Acre	Capital Recovery	
Buildings	447	42	42
Fuel Tanks & Pumps	71	7	7
Shop Tools	126	13	13
Irrigation System	140	12	12
Peach Establishment	4,679	482	482
Land - Peaches	5,790	410	410
Equipment	1,339	178	178
TOTAL NON-CASH OVERHEAD			1,144
TOTAL COSTS/ACRE			10,874

Table 3. U.C. COOPERATIVE EXTENSION
 COSTS AND RETURNS PER ACRE TO PRODUCE MATURE PEACHES/NECTARINES
 July/August Varieties
 SOUTHERN SAN JOAQUIN VALLEY - 2000

Labor Rate: \$ 11.02/hr. machine labor
 \$ 8.04/hr. non-machine labor

Interest Rate: 10.71%

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Peach/Nectarine	1400.00	box	6.00	8,400	
TOTAL GROSS RETURNS FOR PEACH/NECTARINE				8,400	
OPERATING COSTS					
Herbicide:					
Surflan 4 AS	2.00	pint	10.73	21	
Goal 2 XL	2.00	pint	13.67	27	
Roundup Ultra	4.31	pint	6.64	29	
Fungicide:					
Kocide	8.00	lb	2.99	24	
Break EC	4.00	oz	4.35	17	
Rovral	2.00	lb	23.43	47	
Insecticide:					
Dormant Oil	8.00	gal	3.75	30	
Diazinon 50 W	4.00	lb	4.99	20	
PennCap-M	2.00	pint	3.89	8	
Apollo	5.00	oz	10.75	54	
Carzol 92SP	1.00	lb	43.98	44	
Imidan 70WD	4.25	lb	6.17	26	
Fertilizer:					
Zinc Sulfate 36%	20.00	lb	0.38	8	
Ammonium Nitrate	151.00	lb N	0.33	50	
Irrigation:					
Water	44.00	acin	3.18	140	
Custom:					
Haul - Custom	45.00	bin	5.00	225	
Contract:					
Pack Fruit	1400.00	box	3.00	4,200	
Sell	1400.00	box	0.48	672	
Assessment:					
CTFA Assessment	1400.00	box	0.20	273	
Labor (machine)	49.15	hrs	11.02	542	
Labor (non-machine)	327.89	hrs	8.04	2,636	
Fuel - Gas	11.40	gal	1.49	17	
Fuel - Diesel	77.35	gal	1.09	84	
Lube				15	
Machinery repair				79	
Interest on operating capital @ 10.71%				207	
TOTAL OPERATING COSTS/ACRE				9,495	
NET RETURNS ABOVE OPERATING COSTS				-1,095	

U.C. COOPERATIVE EXTENSION

Table 3. continued

NON-CASH OVERHEAD COSTS (CAPITAL RECOVERY):	
Buildings	42
Fuel Tanks & Pumps	7
Shop Tools	13
Irrigation System	12
Peach Establishment	463
Land - Peaches	410
Equipment	178
TOTAL NON-CASH OVERHEAD COSTS/ACRE	1,125
TOTAL COSTS/ACRE	10,597
NET RETURNS ABOVE TOTAL COSTS	-2,197

Table 4.

MONTHLY CASH COSTS PER ACRE TO PRODUCE PEACH
July/August Varieties
SOUTHERN SAN JOAQUIN VALLEY - 2000

Beginning DEC 99	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	TOTAL
Ending NOV 00	99	00	00	00	00	00	00	00	00	00	00	00	
Cultural:													
Weed Control – Dormant Strip	52												52
Prune	257	257											515
Shred Brush		10											10
Pest Control - Dormant & Neutral Zn		84											84
Rope Trees (alternate years)			32										32
Pest Control - Bloom			23										23
Pest Control - Worms			14										14
Weed Control - Spray Middles			10		10		10	10		4			45
Thinning – Hand					828								828
Furrow Middles (1X per 4 yrs)					1								1
Irrigate 12X					23	47	47	47	44	23			230
Pest Control – Mites						60							60
Fertilize - Nitrogen Split Application					32					32			64
Fertilize - Fall Zinc											10		10
Weed Control - Spot Spray						4			4				8
Summer Pruning							75						75
Leaf Removal (nectarine only)							300						300
Prop Limbs & Remove Props								82					82
Pest Control - Thrips (nectarine only)								50					50
Pest Control - Worms/Brown Rot								79					79
Pickup Truck Use	9	9	9	9	9	9	9	9	9	9	9		100
TOTAL CULTURAL COSTS	319	360	88	9	904	119	441	277	57	69	19	0	2,661
Harvest:													
Pick Fruit								629	629				1,257
Haul To Shed								113	113				225
Pack Fruit								2,100	2,100				4,200
Sell								336	336				672
TOTAL HARVEST COSTS								3,177	3,177				6,354
Assessment:													
CTFA Assessment								136	136				273
TOTAL ASSESSMENT COSTS								136	136				273
Interest on operating capital	3	6	7	7	15	16	20	52	82	-1	0		207
TOTAL OPERATING COSTS/ACRE	321	366	95	16	919	136	461	3,643	3,452	68	19	0	9,495
Overhead:													
Office Expense	4	4	4	4	4	4	4	4	4	4	4	4	50
Liability Insurance			5										5
Sanitation Fees			4										4
Property Taxes		47						47					94
Property Insurance		34						34					68
Investment Repairs	1	1	1	1	1	1	1	1	1	1	1	1	14
TOTAL CASH OVERHEAD COSTS	5	86	14	5	5	5	5	86	5	5	5	5	234
TOTAL CASH COSTS/ACRE	327	452	109	21	924	141	466	3,729	3,458	74	24	5	9,730

Table 5.

WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS
SOUTHERN SAN JOAQUIN VALLEY - 2000
ANNUAL EQUIPMENT COSTS

Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead		Total
					Insur- ance	Taxes	
38 HP 2WD Tractor	21,507	15	4,187	2,208	93	128	2,429
80 HP 4WD Tractor	46,186	15	8,992	4,741	199	276	5,216
Bin Trailers W/Bin	10,500	7	2,679	1,645	48	66	1,758
Crowder - 13'	3,000	15	288	320	12	16	348
Mower/Chopper - 8'	6,713	10	1,187	874	29	40	942
Orch.Sprayer 500 G	19,741	4	7,266	4,204	98	135	4,437
Pickup Truck - 3/4	16,698	7	6,334	2,377	83	115	2,575
Pickup Truck - Used	8,000	7	800	1,396	32	44	1,472
Weed Sprayer 100 G	3,947	10	698	514	17	23	554
TOTAL	136292		32431	18278	610	844	19732
60% of New Cost *	81775		19459	10967	366	506	11839

*Used to reflect a mix of new and used equipment

ANNUAL INVESTMENT COSTS

Description	Price	Life Years	Salvage Value	Capital Recovery	Cash Overhead			Total
					Insurance	Taxes	Repairs	
INVESTMENT								
Buildings	44,693	20		4,245	162	223	894	5,524
Fuel Tanks & Pumps	7,088	20	709	656	28	39	142	865
Irrigation System	14,000	25	1,400	1,188	56	77	154	1,475
Land - Peaches	28,950	20	28,950	2,050	209	290	0	2,548
Peach Establishment	23,395	17		2,410	85	117	0	2,611
Shop Tools	12,637	15	1,264	1,344	50	70	253	1,717
TOTAL INVESTMENT	130,763		32,323	11,893	590	815	1,443	14,741

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Liability Insurance	100	Acre	4.55	455
Office Expense	100	Acre	50.00	5,000
Sanitation Fees	100	Acre	3.90	390

Table 6.

U.C. COOPERATIVE EXTENSION
HOURLY EQUIPMENT COSTS
SOUTHERN SAN JOAQUIN VALLEY - 2000

Description	COSTS PER HOUR							Total Costs/Hr.
	Actual Hours Used	Capital Recovery	Cash Overhead			Operating		
			Insur- ance	Taxes	Repairs	Fuel & Lube	Total Oper.	
38 HP 2WD Tractor	799.5	1.66	0.07	0.10	0.38	2.34	2.72	4.55
80 HP 4WD Tractor	1,066.4	2.67	0.11	0.16	1.10	4.92	6.02	8.96
Bin Trailers W/Bin	382.0	2.58	0.07	0.10	1.56	0.00	1.56	4.32
Crowder - 13'	132.2	1.45	0.05	0.07	0.77	0.00	0.77	2.35
Mower/Chopper - 8'	200.1	2.62	0.09	0.12	2.75	0.00	2.75	5.57
Orch.Sprayer 500 G	499.9	5.05	0.12	0.16	3.49	0.00	3.49	8.81
Pickup Truck - 3/4	284.2	5.02	0.18	0.24	1.22	3.43	4.65	10.08
Pickup Truck - Used	284.2	2.95	0.07	0.09	0.58	3.43	4.01	7.12
Weed Sprayer 100 G	150.0	2.05	0.07	0.09	1.05	0.00	1.05	3.26

Table 7.

U.C. COOPERATIVE EXTENSION
RANGING ANALYSIS
SOUTHERN SAN JOAQUIN VALLEY - 2000

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE PEACH/NECTARINE

	YIELD (Box/Acre)						
	980	1,120	1,260	1,400	1,540	1,680	1,820
OPERATING COSTS/ACRE:							
Cultural Cost	2,661	2,661	2,661	2,661	2,661	2,661	2,661
Harvest Cost (includes assessments)	4,520	5,222	5,925	6,627	7,329	8,032	8,734
Interest on operating capital	179	188	198	207	216	225	235
TOTAL OPERATING COSTS/ACRE	7,361	8,072	8,784	9,495	10,207	10,919	11,630
TOTAL OPERATING COSTS/BOX	7.51	7.21	6.97	6.78	6.63	6.50	6.39
CASH OVERHEAD COSTS/ACRE	232	233	233	234	235	236	236
TOTAL CASH COSTS/ACRE	7,592	8,305	9,017	9,730	10,442	11,154	11,866
TOTAL CASH COSTS/BOX	7.75	7.42	7.16	6.95	6.78	6.64	6.52
NON-CASH OVERHEAD COSTS/ACRE	1,116	1,126	1,135	1,144	1,153	1,161	1,168
TOTAL COSTS/ACRE	8,708	9,431	10,153	10,874	11,595	12,315	13,034
TOTAL COSTS/BOX	8.89	8.42	8.06	7.77	7.53	7.33	7.16

NET RETURNS PER ACRE ABOVE OPERATING COSTS FOR PEACH/NECTARINE

PRICE (DOLLARS/BOX)	YIELD (Box/Acre)						
	980	1,120	1,260	1,400	1,540	1,680	1,820
Peach/Nectarine							
4.20	-3,245	-3,368	-3,492	-3,615	-3,739	-3,863	-3,986
4.80	-2,657	-2,696	-2,736	-2,775	-2,815	-2,855	-2,894
5.40	-2,069	-2,024	-1,980	-1,935	-1,891	-1,847	-1,802
6.00	-1,481	-1,352	-1,224	-1,095	-967	-839	-710
6.60	-893	-680	-468	-255	-43	169	382
7.20	-305	-8	288	585	881	1,177	1,474
7.80	283	664	1,044	1,425	1,805	2,185	2,566

NET RETURNS PER ACRE ABOVE CASH COSTS FOR PEACH/NECTARINE

PRICE (DOLLARS/BOX)	YIELD (Box/Acre)						
	980	1,120	1,260	1,400	1,540	1,680	1,820
Peach/Nectarine							
4.20	-3,476	-3,601	-3,725	-3,850	-3,974	-4,098	-4,222
4.80	-2,888	-2,929	-2,969	-3,010	-3,050	-3,090	-3,130
5.40	-2,300	-2,257	-2,213	-2,170	-2,126	-2,082	-2,038
6.00	-1,712	-1,585	-1,457	-1,330	-1,202	-1,074	-946
6.60	-1,124	-913	-701	-490	-278	-66	146
7.20	-536	-241	55	350	646	942	1,238
7.80	52	431	811	1,190	1,570	1,950	2,330

NET RETURNS PER ACRE ABOVE TOTAL COSTS FOR PEACH/NECTARINE

PRICE (DOLLARS/BOX)	YIELD (Box/Acre)						
	980	1,120	1,260	1,400	1,540	1,680	1,820
Peach/Nectarine							
4.20	-4,592	-4,727	-4,861	-4,994	-5,127	-5,259	-5,390
4.80	-4,004	-4,055	-4,105	-4,154	-4,203	-4,251	-4,298
5.40	-3,416	-3,383	-3,349	-3,314	-3,279	-3,243	-3,206
6.00	-2,828	-2,711	-2,593	-2,474	-2,355	-2,235	-2,114
6.60	-2,240	-2,039	-1,837	-1,634	-1,431	-1,227	-1,022
7.20	-1,652	-1,367	-1,081	-794	-507	-219	70
7.80	-1,064	-695	-325	46	417	789	1,162