
UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2009

SAMPLE COSTS TO
ESTABLISH AND PRODUCE
PEACHES



Fresh Market

July and August Harvested Varieties
SAN JOAQUIN VALLEY - SOUTH

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INTRODUCTION

Sample costs to establish a peach orchard and produce fresh market peaches, July/August harvest, in the southern San Joaquin Valley are presented in this study. This 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 production practices described in this study are those considered typical for growing peaches in the San Joaquin Valley, but they 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”, in Tables 2 and 3 is provided to enter your farm costs.

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

Sample Cost of Production Studies for many commodities can be downloaded at <http://coststudies.ucdavis.edu>, requested through the Department of Agricultural and Resource Economics, UC Davis, (530) 752-1515 or obtained from the local county UC Cooperative Extension offices. Some archived studies are also available on the website.

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ASSUMPTIONS

The assumptions refer to Tables 1 to 8 and pertain to sample costs to establish and produce fresh market peaches in the southern San Joaquin Valley. The cultural practices shown represent production operations and materials considered typical of a well-managed orchard in the region. Costs, materials, and practices in this study will not apply to all farms. Timing of and types of cultural practices will vary among growers within the region and from season to season due to variables such as variety, weather, soil, and insect and disease pressure. **The use of trade names and cultural practices 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 or cultural practices.**

Land. The farm consists of 100 contiguous acres. Ten acres are being planted to peaches and will reach maturity in six years. Other orchard and vine crops are grown on 85 acres; the remaining five acres are road and farmstead. The owner farms the orchard.

Orchard Establishment Cultural Practices and Material Inputs (Table 1)

Crop season is December through November.

Land (Site) Preparation. This orchard is established on ground that has been previously planted to other tree, field or row crops. The land is assumed to be deep, well drained, and either a class I or II soil. The orchard site allows for a uniform water flow (i.e. flood or furrow irrigation). Custom operators begin land preparation by deep ripping four to five feet deep to break up any underlying hardpan or mix stratified soils that would affect root penetration and water infiltration. Following ripping, the ground is disked three times to prepare the ground for the preplant fumigation. The field is fumigated solid untarped with methyl bromide by a custom applicator. After fumigation, borders are put up for an irrigation to settle the tilled ground. When the soil has dried, the site is laser leveled followed by two passes with an orchard float. For purposes of this report all land preparation is included in the first year costs.

Trees. No specific freestone peach varieties or rootstocks are planted in this study. Cultivars that are representative of the costs incurred in this study include: Elegant Lady, Summer Lady, Zee Lady, O'Henry and Autumn Flame. Common rootstocks available are Nemaguard, Nemared and Lovell. The trees are planted on a 16-foot X 18-foot (tree x row) spacing, 151 trees per acre. The life of the orchard at the time of planting is estimated to be 15 years.

Plant. Planting the orchard starts in January by marking tree sites, digging holes, planting, and placing tree wraps on the trunk. Immediately after planting, berms are put up in the tree row. In the second year, 2% of the trees or three trees per acre are planted to replace dead and/or weak trees. The nursery furnishes the trees free and the grower incurs the replanting costs.

Prune/Thin/Rope/Prop. New trees are topped at planting and regular pruning begins in December, which is the beginning of the second season. The prunings are placed in the row middles and shredded with the grower's equipment. Fruit thinning by hand begins in March or April of the third year and the thinning time increases each year as the yields increase. Summer pruning begins in June or July of the third year. Trees are roped each year starting in February of the third 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 increase the weight on the branches increase. To prevent the branches from breaking, the branches are propped with poles or boards about one month prior to anticipated harvest (July in this study), beginning in the fifth year and removed after harvest.

Irrigation. Water costs include water at \$4.00 per acre-inch (\$48 per acre-foot) and irrigation labor at 0.94 hours per acre per irrigation. Price per acre-foot for water will vary depending on the irrigation district, and/or various well characteristics, and other irrigation factors. The amount of water applied to the orchard during the establishment period increases each year and is shown in Table A. In addition to the 20 acre-inches applied the first year, 10 acre-inches were applied during land preparation after ripping to settle the ground. Water is delivered to the orchard from the well through an underground pipe and flood valve system to furrows along the tree rows. No assumption is made about effective rainfall. If leveling costs will be excessive, pressurized irrigation systems should be considered that do not require leveling. Irrigation furrows are made with the grower's tractor and crowder implement after planting to establish a permanent tillage reduced irrigation system.

Year	Acre-inches per Year
1	20
2	24
3	30
4	36
5+	44

Fertilization. Nitrogen (N) is the major nutrient required for proper tree growth and optimum yields. Nitrogen fertilizer (calcium nitrate) is applied by hand and the amount applied increases each year up to the fourth year. Beginning in the fourth year, UN32 fertilizer is applied with the grower's tractor pulling an applicator loaned by the fertilizer company. Annual rates of actual N are shown in Table B. Neutral Zinc at five pounds per acre in the first year and 10 pounds per acre thereafter is applied each year with the dormant spray. Zinc sulfate at 10 pounds per acre is foliar applied in the fall (October). Leaf samples for nutrient analysis are taken beginning in the fourth year.

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

Pest Management. The pesticides and rates mentioned in this cost study as well as other materials available are listed in *UC Integrated Pest Management Guidelines, Peaches* available online at www.imp.ucdavis.edu. Pesticides mentioned in the study are commonly used, but are not recommendations.

Weeds. The tree row (berm) is sprayed with Surflan immediately after the berm is made. Beginning in the second season, the tree rows are sprayed during the dormant period (December) with preemergent herbicides-- Goal and Surflan. The irrigation furrows (middles) are sprayed with Roundup four to six times per year – February, April, June, July, September. Five percent of the acreage is also spot sprayed in May and July with Roundup. The irrigation furrows are cleaned once or twice each year (once in this study) with an orchard brush rake. Afterwards the cleanings/brush are shredded

Insects. Insects treated in this study are peach twig borer (PTB), oriental fruit moth (OFM), San Jose scale, katydids, mites and aphids. A dormant spray, Oil and Diazinon (with zinc and Ziram), is applied in December/January at the beginning of the second establishment year and in subsequent years to control PTB, scale, mites and aphids. Apollo insecticide for mite control is applied in May. Beginning in the third year, Imidan insecticide is applied in April for worm (PTB, OFM) control and suppression of katydids. Imidan is also applied in July (with Adament) as a preharvest spray for katydid and some worm control.

Disease. Ziram is applied with the dormant spray for peach leaf curl control. Beginning in the third year, Orbit fungicide is applied at 20-40 % bloom (February) for brown rot blossom blight control. Beginning in the fourth year, a second application with Rally is applied 7 to 10 days later (late February/early March) at 80 – 100% bloom. Adament fungicide (mixed with the Imidan insect spray) is applied in July as a preharvest spray for ripe fruit rot prevention.

Harvest. Harvest starts in the third establishment year. Harvest costs will vary according to yield. The crop is harvested by hand and hauled to a packing shed for cooling, storing, and selling. The grower furnishes one tractor and bin trailer for the first harvest and two tractors and trailers in the following years.

Year	Boxes/acre
3	250
4	700
5	1,000
6	1,200

Boxes = 25 lbs.

Yields and Returns. Although peaches begin bearing an economic crop in the third year after planting, yield maturity is not reached until the sixth year. Typical annual yields for the July/August harvested varieties are shown in Table D.

Production Cultural Practices and Material Inputs – Mature Trees (Tables 2-8)

Crop season in this study is December through November.

Cultural operations and timing will vary over seasons and location.

Prune/Rope/Thin/Prop. Pruning is done by hand in the winter months, December and January. The prunings are placed in the row middles and shredded with the grower’s equipment. Trees are also summer pruned about three weeks prior to harvest to improve fruit color. Roping or tying ropes around the branches to hold and prevent them from breaking is done in February on alternate years and 1/2 the cost is charged to the orchard each year. Fruit thinning is done by hand in April. Six to eight weeks prior to harvest (July in this study), props are placed under the limbs to help support the heavy loads and keep the branches from breaking and then removed after harvest.

Irrigation. The cost includes water pumping or district costs at \$4.00 per acre-inch (\$48 per acre-foot) and irrigation labor at 0.94 hours per acre per irrigation. Price per acre-foot for water will vary depending on the irrigation district, and/or various well characteristics, and other irrigation factors. The irrigation period is typically from late March through early October. The trees are assumed to have a seasonal consumptive water use of 36 acre-inches. The irrigation efficiency is approximately 82%; therefore a total of 44 acre-inches is applied during the year. Water is delivered to the orchard from the well or district ditch through an underground pipe and flood valve system to furrows along the tree rows. The furrows are cleaned and reformed every year in the spring using a brush rake. The trash from the furrow is then shredded. No assumption is made about effective rainfall.

Fertilization. Nitrogen fertilizer is applied in the spring (April) and the fall (September). In this study nitrogen (N) 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 10 pounds per acre is applied in the autumn at leaf fall (October), and neutral zinc at 10 pounds per acre is applied in the winter (December) with the dormant spray. The majority of growers in the region apply zinc during the dormant season only.

Leaf Sampling. Leaf - tissue samples - samples for nutritional analyses are taken in June or July and the fertilizers applied according to the recommendations. The samples are collected and analyzed by a commercial lab and costs \$75 per sample or \$7.50 per acre (one sample per 10 acres)

Pest Management. The pesticides and rates mentioned in this cost study are listed in *UC Integrated Pest Management Guidelines, Peaches*. For information on other pesticides available, pest identification, monitoring, and management visit the UC IPM website at www.ipm.ucdavis.edu. For information and pesticide use permits, contact the local county agricultural commissioner's office. **Pesticides mentioned in this study are used to calculate rates and costs. Although growers commonly use the pesticides mentioned, many**

other pesticides are available. Check with your PCA and/or the UC IPM website for current recommendations. Adjuvants are recommended for use with many pesticides for effective control, but the adjuvants and their costs are not included in this study. Pesticide costs may vary by location, brand, and grower volume. Pesticide costs in this study are taken from a single dealer and shown as full retail.

Pest Control Adviser (PCA). Written recommendations are required for many commercially applied pesticides and are written by licensed pest control advisers. In addition the PCA will monitor the field for agronomic problems including pests, diseases, and nutritional status. Growers may hire private PCAs or receive the service as part of a service agreement with an agricultural chemical and fertilizer company. The grower has a full service agreement with the Ag chemical company.

Weed. Weeds are controlled in the tree rows (berm) during the winter (December/January) with residual pre-emergence herbicides – Goal and Surflan combination. In May and July, the grower uses an ATV and sprayer to apply Roundup as a spot spray (weedy spots) in the tree row. Irrigation furrows made in the first year are cleaned once each year with a brush rake or similar type implement. The weeds are controlled in the row middles (furrows) during the spring and summer – February, April, June, July, September – by chemical mowing (Roundup).

Insects. A dormant spray, Oil, Diazinon (mixed with Ziram and zinc), is applied in the winter (December/January) to control pests, eggs, and diseases – peach twig borer (PTB), mites, scale, aphids. In-season preharvest sprays are applied to protect the crop from such pests as oriental fruit moth (OFM), peach twig borer, leaf rollers, mites and fruit rot. Imidan for worm control (PTB or OFM and katydid suppression) is applied in April. Apollo insecticide for mite control is applied in May. A preharvest spray with Imidan (mixed with Adament) is applied in July for Katydid control and some worm control.

Diseases. Ziram fungicide for peach leaf curl control is applied with the insect dormant spray. Orbit fungicide is applied in February at 20-40% bloom for blossom blight. A second application 7 to 10 days later (late February/early March) at 80% to 100% bloom is made with Rally fungicide. Adament fungicide for ripe fruit rot control is applied with the preharvest insect spray (July).

Harvest. The orchard reaches maturity in the sixth year. The harvests costs will vary according to yield. The crop is harvested by the grower’s picking crew using ladders and picking bags supplied by an independently owned and operated packing shed. The packer also furnishes the bins and the grower furnishes two tractors and trailers for moving the bins around the field. The picked fruit is placed into half-ton plastic field bins that hold approximately 850 to 900 pounds of fruit. Typically, the field packouts are in the 60% to 80% range, but are not accounted for in this study; therefore the bins hauled represents marketable fruit only. The fruit is hauled to the packing shed by a contract hauler for \$5.50 per bin. The shed packs, palletizes, cools and sells the fruit under a contract with the grower. Packing charges are assumed to be \$4.25 per box.

Yields. The average annual yield for July/August harvested varieties over the remaining life of the orchard is 1,200 25-pound boxes per acre. Average county yields for all varieties of freestone peaches for fresh market are shown in Table E. The averages include early, midseason, and late peaches as well as orchards in different years of production.

Year	Tons/Acre ¹	Boxes/Acre ²
2004	11.85	948
2005	10.35	828
2006	8.43	674
2007	10.46	836
2008	10.36	829

¹ Source: Ag Commissioner Crop Reports Fresno, Tulare. ² Boxes weigh 25 lbs

Returns. An estimated average price over the last few years of \$10.00 per box based on grower and marketer input is used to determine income over a range of prices and yields. Return prices for fresh market peaches at different yields and prices are shown in Table 5.

Assessments: The California Tree Fruit Agreement (CTFA) assesses fees on boxes of peaches sold. The current fee for peaches is \$0.0275 per 25-pound box equivalent. The CTFA conducts research and marketing programs to benefit producers of peaches, plums, and nectarines.

Pickup/ATV. The study assumes business use mileage of 90 miles per acre per year for the pickup. The all terrain vehicle (ATV) is used for spot spraying and is included in those specific costs. Use of the ATV for monitoring the orchard and checking the irrigation is shown under the ATV operation and assumes a use of 2.70 hours per acre. The pickup and ATV information is an assumption that is not based on any specific data.

Labor, Equipment and Interest

Labor. Labor rates of \$20.70 per hour for machine operators and \$11.04 for general labor includes payroll overhead of 38%. The basic hourly wages are \$15.00 for machine operators and \$8.00 for general labor. The overhead includes the employers' share of federal and California state payroll taxes, workers' compensation insurance for orchard/fruit crops (code 0016), and a percentage for other possible benefits. Workers' compensation costs will vary among growers, but for this study the cost is based upon the average industry final rate as of January 2009 (California Department of Insurance, unreferenced). 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 field repair.

Wages for management are not included as a cash cost. Any return above total costs is considered a return to management and risk. However, growers wanting to account for management may wish to add a fee. The manager makes all production decisions including cultural practices, action to be taken on pest management recommendations, and labor.

Equipment Operating Costs. 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 power take off (PTO) horsepower and fuel type. Prices for **on-farm delivery** of diesel and gasoline are \$3.70 (excludes excise taxes) and \$3.36 per gallon, respectively. The fuel prices are the average costs from July through December 2008 derived from American Automobile Association (AAA) and Energy Information Administration monthly data. The cost includes a 2.25% sales tax for diesel fuel, and federal and excise taxes plus an 8% sales tax on gasoline. The federal and state excise tax on gasoline used on the farm can be refunded for on-farm use when filing your income tax. The fuel, lube, and repair cost per acre for each operation in the "Cost Per Acre to Produce" table is determined by multiplying the total hourly operating cost in the "Hourly Equipment Costs" table for each piece of equipment used from the Operation Time (Hrs/A) column by the hours per acre. Tractor time is 10% higher than implement time for a given operation to account for setup, travel and down time.

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 5.75% per year. A nominal interest rate is the typical market cost of borrowed funds. The interest cost of post harvest operations is discounted back to the last harvest month using a negative interest charge. The rate will vary depending upon various factors, but the rate in this study is considered a typical lending rate by a farm lending agency as of January 2009.

Risk. Production risks should not be minimized. 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 peach production.

Cash Overhead Costs

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.

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.

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 0.82% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs \$621 for the 100 acre farm or \$6.54 per producing acre (95 acres).

Office Expense. Office and business expenses are estimated at \$75.00 per producing acre (95 acres). These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, shop and office utilities, and miscellaneous administrative charges. The cost is a general estimate and not based on any actual data.

Sanitation Services. Sanitation services provide double portable toilets, washbasins, soap, and towels for the orchard and cost the farm \$235 per month. The monthly service charge is an average of four to six California sanitation companies and locations. The cost includes delivery and five months of weekly service. The sanitation costs are estimated and not based on any specific data. Growers using contract labor may not have a cost because many labor contractors provide their own sanitation facilities.

Management/Supervisor Salaries. The grower farms the orchard; therefore no salaries are included for management. Returns above costs are considered a return to management.

Investment Repairs. Annual maintenance is calculated as two percent of the purchase price.

Non-Cash Overhead

Non-Cash overhead is calculated as the capital recovery cost for equipment and other farm investments.

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 (tractors and implements) 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 for land is the purchase price because land does not depreciate. The purchase price and salvage value for equipment and investments are shown in the tables.

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 4.75% is used to calculate capital recovery. The rate will vary depending upon size of loan and other lending agency conditions, but is a suggested rate by a farm lending agency in January 2009.

Establishment Cost. Costs to establish the orchard are used to determine capital recovery expenses, depreciation, and interest on investment for the production years. Establishment cost is the sum of the costs for land preparation, planting, trees, cash overhead and production expenses for growing the trees through the first year that peaches are harvested minus any returns from production. In Table 1, the Total Accumulated Net Cash Cost in the third year represents the establishment cost. For this study the cost is \$7,349 per producing acre or \$73,490 for the 10-acre orchard. The establishment cost is spread over the remaining 12 producing years of the 15 years of orchard life.

Irrigation System. For this study, the orchard is irrigated down furrows that are chemically mowed several times during the growing season. Water is delivered to the orchard from a well or district ditch and distributed to the orchard by way of underground mainlines and valves. The irrigation system is installed before the orchard is planted and the life of the irrigation system is estimated at 30 years. Pressurized (micro-sprinkler) systems are also used in some orchards, but the initial capital costs are higher.

Land. The orchard is established on ground previously planted to deciduous trees or vines. Field or row cropland costs range from \$5,000 to \$12,000 per acre. Land in this study is valued at \$8,500 per acre or \$8,947 per producing acre. Land values with tree crops (includes the tree value) range from \$7,000 to \$14,000 per acre.

Building. The metal building/buildings on a cement slab total 1,800 square feet.

Tools. This includes shop tools, hand tools, and miscellaneous field tools such as pruning tools.

Fuel Tanks. Two 500-gallon fuel tanks using gravity feed are on metal stands. The tanks are setup in a cement containment pad that meets federal, state, and county regulations.

Equipment. Farm equipment is purchased new or used, but the 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 shown in the Whole Farm Annual Equipment, Investment, and Business Overhead Costs table. 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 repairs, fuel, and lubrication and are discussed under operating costs.

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

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UC COOPERATIVE EXTENSION
Table 1. COSTS PER ACRE TO ESTABLISH A PEACH ORCHARD
 SAN JOAQUIN VALLEY - South 2009

	Cost Per Acre					
	Year:	1st	2nd	3rd	4th	5th
Yield: 25 Pound Boxes Per Acre				250	700	1,000
Planting Costs:						
Land Prep: Deep Rip (custom)		115				
Land Prep: Disc 3X		60				
Land Prep: Fumigate Solid Untarped (custom)		2,000				
Land Prep: Make Irrigation Borders		9				
Irrigate: Water & Labor		65				
Land Prep: Level (custom)		210				
Land Prep: Float 2X		24				
Plant: Layout, Plant, Wrap Trees		204	5			
Trees: 151 per acre		1,065				
Plant: Make Berms		9				
TOTAL PLANTING COSTS		3,760	5			
Cultural Costs:						
Weed: Dormant Strip (Yr 1, Surflan. Yr 2+, Surflan, Goal)		54	74	74	74	74
Irrigate: Make Furrows		8	6			
Weed: Spray Middles (Yr 1, 4X. Yr 2+, 5X) (Roundup)		78	98	98	98	98
Irrigate 12X (water & labor)		204	204	244	268	300
Fertilize: N (Yr 1-3, CaNO3. Yr 4+, UN32)		75	106	117	106	106
Fertilize: Zinc Sulfate		19				
Prune: Hand			55	139	278	417
Prune: Shred Brush (Yr 1, 1X. Yr 2+, 2X)			16	41	41	41
Insect: Dormant (Ziram, Oil, Diazinon). Fertilize: Zn			174	185	185	185
Irrigate: Rake Furrows				5	5	5
Insect: Mites (Apollo)			66	66	66	66
Weed: Spot Spray (Roundup)			6	13	14	14
Fertilize: Fall Zinc (zinc sulfate)			24	24	24	24
Rope Trees				50	72	
Disease: Brown Rot 25% Bloom (Orbit)				34	34	34
Thin: Hand				104	206	442
Insect: Worms (Imidan)				67	67	67
Prune: Summer				48	69	103
Insect: Worms (Imidan). Disease: Brn Rot (Adament)				119	119	119
Disease: Brown Rot 80-100% Bloom (Rally)					38	38
Fertilize: Leaf Samples & Analysis					8	8
Prop Limbs & Remove Props						56
Pickup (Business Use)		120	120	120	120	120
<u>ATV</u>		<u>72</u>	<u>72</u>	<u>72</u>	<u>72</u>	<u>72</u>
TOTAL CULTURAL COSTS		629	1,021	1,619	1,962	2,387
Harvest Costs:						
Pick Fruit				364	1,052	1,503
Haul to Shed				44	110	160
Pack Fruit				1,063	2,975	4,250
Sell				275	770	1,100
TOTAL HARVEST COSTS				1,745	4,907	7,012
Assessment Costs:						
California Tree Fruit Agreement				7	20	28
TOTAL ASSESSMENT COSTS				7	20	28
Interest On Operating Capital @ 5.75%		255	39	51	84	110
TOTAL OPERATING COSTS/ACRE		4,644	1,065	3,422	6,973	9,538

UC COOPERATIVE EXTENSION
Table 1. CONTINUED
 SAN JOAQUIN VALLEY - South 2009

	Cost Per Acre					
	Year:	1st	2nd	3rd	4th	5th
Yield: 25 Pound Boxes Per Acre				250	700	1,000
Cash Overhead Costs:						
Office Expense		75	75	75	75	75
Liability Insurance		7	7	7	7	7
Sanitation Fees (toilets)		12	12	12	12	12
Property Taxes		100	101	102	104	104
Property Insurance		9	9	10	12	12
Investment Repairs		35	35	35	35	35
TOTAL CASH OVERHEAD COSTS		238	239	241	244	245
TOTAL CASH COSTS/ACRE		4,882	1,304	3,663	7,216	9,783
INCOME/ACRE FROM PRODUCTION				2,500	7,000	10,000
NET CASH COSTS/ACRE FOR THE YEAR		4,882	1,304	1,163	216	
PROFIT/ACRE ABOVE CASH COSTS						217
ACCUMULATED NET CASH COSTS/ACRE		4,882	6,186	7,349	7,565	7,348
Non-Cash Overhead (Capital Recovery Cost):						
Buildings		50	50	50	50	50
Fuel Tanks		4	4	4	4	4
Shop & Field Tools		14	14	14	14	14
Flood Irrigation System		57	57	57	57	57
Land		425	425	425	425	425
Equipment		38	47	66	85	93
TOTAL NON-CASH OVERHEAD COST/ACRE		588	597	616	634	642
TOTAL COST/ACRE FOR THE YEAR		5,470	1,901	4,279	7,850	10,425
INCOME/ACRE FROM PRODUCTION				2,500	7,000	10,000
TOTAL NET COST/ACRE FOR THE YEAR		5,470	1,901	1,779	850	425
NET PROFIT/ACRE ABOVE TOTAL COST						
TOTAL ACCUMULATED NET COST/ACRE		5,470	7,371	9,149	10,000	10,425

UC COOPERATIVE EXTENSION
Table 2. COSTS PER ACRE TO PRODUCE PEACHES
 SAN JOAQUIN VALLEY - South 2009

Operation	Operation Time (Hrs/A)	Cash and Labor Costs per Acre					Total Cost	Your Cost
		Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/ Rent	Total		
Cultural:								
Weed: Dormant Strip (Surflan, Goal)	0.28	7	3	64	0	74		
Prune: Trees	64.00	707	0	0	0	707		
Prune: Shred Brush & Furrow Cleanings	0.86	21	20	0	0	41		
Insect: Dormant (Oil, Ziram, Diazinon). Disease: (Ziram). Fertilizer: (zinc)	0.31	8	7	170	0	185		
Rope Trees 1X/2Yr (1/2 cost)	4.00	44	0	0	0	44		
Disease: Blossom Blight @ 20-40% Bloom (Orbit)	0.31	8	7	20	0	34		
Disease: Blossom Blight @ 80-100% Bloom (Rally)	0.31	8	7	23	0	38		
Weed: Spray Middles 5X (Roundup)	1.41	35	15	48	0	98		
Irrigate: 12X (water & labor)	11.27	124	0	176	0	300		
Insect: Worms (Imidan)	0.31	8	7	53	0	67		
Thin: Fruit by Hand	103.00	1,137	0	0	0	1,137		
Weed: Rake (clean) Furrows	0.11	3	2	0	0	5		
Fertilize: N (split application) (UN32)	0.26	6	3	97	0	106		
Insect: Mites (Apollo)	0.31	8	7	51	0	66		
Weed: Spot Spray 2X (Roundup) ATV	0.40	10	1	2	0	13		
Prune: Summer Pruning	9.32	103	0	0	0	103		
Fertilize: Leaf Samples & Nutrition Analysis	0.00	0	0	0	8	8		
Prop Limbs & Remove Props	1.00	113	10	0	0	123		
Insect: Worms, Katydid (Imidan). Disease: Brown Rot (Adament)	0.31	8	7	105	0	119		
Fertilize: Fall Zinc	0.31	8	7	9	0	24		
Pickup: Farm Use	3.00	75	45	0	0	120		
ATV: Irrigation & General Field Use	2.70	67	4	0	0	72		
TOTAL CULTURAL COSTS	203.78	2,506	154	816	8	3,483		
Harvest:								
Pick Fruit	6.00	1,623	180	0	0	1,803		
Haul To Shed	0.00	0	0	0	198	198		
Pack Fruit	0.00	0	0	0	5,100	5,100		
Sell	0.00	0	0	0	1,200	1,200		
TOTAL HARVEST COSTS	6.00	1,623	180	0	6,498	8,301		
Assessment:								
CTFA Assessment	0	0	0	34	0	34		
TOTAL ASSESSMENT COSTS	0	0	0	34	0	34		
Interest on operating capital @ 5.75%						147		
TOTAL OPERATING COSTS/ACRE		4,129	334	849	6,506	11,965		
CASH OVERHEAD:								
Office Expense						75		
Liability Insurance						7		
Sanitation Fees						12		
Property Taxes						141		
Property Insurance						42		
Investment Repairs						35		
TOTAL CASH OVERHEAD COSTS						312		
TOTAL CASH COSTS/ACRE						12,277		
NON-CASH OVERHEAD:								
		Per producing Acre		Annual Cost Capital Recovery				
Buildings		632		50		50		
Fuel Tanks		47		4		4		
Shop Tools		158		14		14		
Irrigation System		900		57		57		
Orchard Establishment		7,349		818		818		
Land		8,947		425		425		
Equipment		1,016		102		102		
TOTAL NON-CASH OVERHEAD COSTS		19,049		1,469		1,469		
TOTAL COSTS/ACRE						13,746		

UC COOPERATIVE EXTENSION
Table 3. COSTS AND RETURNS PER ACRE TO PRODUCE PEACHES
 SAN JOAQUIN VALLEY - South 2009

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Fresh Peaches	1,200.00	box	10.00	12,000	
TOTAL GROSS RETURNS	1,200.00	box	10.00	12,000	
OPERATING COSTS					
Herbicide:					
Surflan 4 AS	2.00	pint	14.51	29	
Goal 2 XL	2.00	pint	17.25	35	
Roundup Ultra Max	5.20	pint	9.50	49	
Fungicide:					
Ziram 76DF	8.00	lb	5.51	44	
Orbit	4.00	oz	4.88	20	
Rally 40W	4.25	oz	5.50	23	
Adament 50 WG	6.00	oz	8.64	52	
Insecticide:					
Superior Oil (Dormant Oil)	8.00	gal	7.90	63	
Diazinon 50 W	4.00	lb	10.45	42	
Imidan 70WSB	8.50	lb	12.39	105	
Apollo 42%	5.00	oz	10.22	51	
Fertilizer:					
UN32 (32-0-0, 11.0 lbs per gallon)	151.00	lb N	0.64	97	
Neutral Zinc	10	lb	2.10	21	
Zinc Sulfate 36%	10.00	lb	0.88	9	
Irrigation:					
Water	44.00	acin	4.00	176	
Custom/Contract:					
Leaf Sampling & Nutrition Analysis	0.10	ac	75.00	8	
Haul to Packer	36.00	bin	5.50	198	
Pack Fruit	1,200.00	box	4.25	5,100	
Sell (10% of Return Price)	1,200.00	box	1.00	1,200	
Assessment:					
CTFA Assessment (\$0.028 per 25 lb box)	1,200.00	box	0.03	34	
Labor (machine)	29.00	hrs	20.70	600	
Labor (non-machine)	319.59	hrs	11.04	3,528	
Fuel - Gas	0.93	gal	3.36	3	
Fuel - Diesel	67.76	gal	3.70	251	
Lube				38	
Machinery repair				42	
Interest on operating capital @ 5.75%				147	
TOTAL OPERATING COSTS/ACRE				11,965	
NET RETURNS ABOVE OPERATING COSTS				35	
CASH OVERHEAD COSTS:					
Office Expense				75	
Liability Insurance				7	
Sanitation Fees				12	
Property Taxes				141	
Property Insurance				42	
Investment Repairs				35	
TOTAL CASH OVERHEAD COSTS/ACRE				312	
TOTAL CASH COSTS/ACRE				12,277	

UC COOPERATIVE EXTENSION
Table 3. CONTINUED
 SAN JOAQUIN VALLEY - South 2009

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
NON-CASH OVERHEAD COSTS (Capital Recovery):					
Buildings				50	
Fuel Tanks				4	
Shop Tools				14	
Irrigation System				57	
Orchard Establishment				818	
Land				425	
Equipment				102	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				1,469	
TOTAL COSTS/ACRE				13,746	
NET RETURNS ABOVE TOTAL COSTS				-1,746	

UC COOPERATIVE EXTENSION
Table 4. MONTHLY CASH COSTS PER ACRE TO PRODUCE PEACHES
 SAN JOAQUIN VALLEY - South 2009

Beginning DEC 08	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	TOTAL
Ending NOV 09	08	09	09	09	09	09	09	09	09	09	09	09	
Cultural:													
Weed: Dormant Strip (Surflan, Goal)	74												74
Prune: Trees	353	353											707
Prune: Shred Brush & Furrow Cleanings		21			20								41
Insect: Dormant (Oil, Ziram, Diazinon). Disease: (Ziram). Fertilizer: (zinc)		185											185
Rope Trees 1X/2Yr (1/2 cost)			44										44
Disease: Blossom Blight @ 20-40% Bloom (Orbit)			34										34
Disease: Blossom Blight @ 80-100% Bloom (Rally)			38										38
Weed: Spray Middles 5X (Roundup)			20		20		20	20		20			98
Irrigate: 12X (water & labor)				25	25	30	70	55	45	25	25		300
Insect: Worms (Imidan)					67								67
Thin: Fruit by Hand					1,137								1,137
Weed: Rake (clean) Furrows					5								5
Fertilize: N (split application) (UN32)					53					53			106
Insect: Mites (Apollo)						66							66
Weed: Spot Spray 2X (Roundup) ATV						6		6					13
Prune: Summer Pruning							103						103
Fertilize: Leaf Samples & Nutrition Analysis								8					8
Prop Limbs & Remove Props								123					123
Insect: Worms, Katydid (Imidan). Disease: Brown Rot (Adament)								119					119
Fertilize: Fall Zinc (zinc sulfate)											24		24
Pickup: Farm Use	10	10	10	10	10	10	10	10	10	10	10	10	120
ATV: Irrigation & General Field Use	7	7	7	7	7	7	7	7	7	7	7	7	72
TOTAL CULTURAL COSTS	443	575	153	42	1,344	119	209	347	62	114	65	10	3,483
Harvest:													
Pick Fruit								902	902				1,803
Haul To Shed								99	99				198
Pack Fruit								2,550	2,550				5,100
Sell								600	600				1,200
TOTAL HARVEST COSTS								4,151	4,151				8,301
Assessment:													
CTFA Assessment								17	17				34
TOTAL ASSESSMENT COSTS								17	17				34
Interest on operating capital @ 5.75%	2	5	6	6	12	13	14	35	56	-1	0	0	147
TOTAL OPERATING COSTS/ACRE	445	580	158	47	1,356	131	223	4,550	4,285	113	65	10	11,965

UC COOPERATIVE EXTENSION
Table 4. CONTINUED
 SAN JOAQUIN VALLEY - South 2009

Beginning DEC 08	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	TOTAL
Ending NOV 09	08	09	09	09	09	09	09	09	09	09	09	09	
CASH OVERHEAD:													
Office Expense	6	6	6	6	6	6	6	6	6	6	6	6	75
Liability Insurance			7										7
Sanitation Fees	1	1	1	1	1	1	1	1	1	1	1		12
Property Taxes		71						71					141
Property Insurance		21						21					42
Investment Repairs	3	3	3	3	3	3	3	3	3	3	3	3	35
TOTAL CASH OVERHEAD COSTS	10	102	17	10	10	10	10	102	10	10	10	9	312
TOTAL CASH COSTS/ACRE	456	682	175	58	1,367	142	233	4,652	4,295	124	75	19	12,277

UC COOPERATIVE EXTENSION
Table 5. RANGING ANALYSIS
 SAN JOAQUIN VALLEY – South 2009

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE PEACHES

	YIELD (25 lb box/acre)						
	800	900	1,000	1,100	1,200	1,300	1,400
OPERATING COSTS:							
Cultural Cost	3,483	3,483	3,483	3,483	3,483	3,483	3,483
Harvest: Pick & Haul	1,334	1,501	1,668	1,834	2,001	2,168	2,335
Pack & Sell	4,200	4,725	5,250	5,775	6,300	6,825	7,350
Assessment	22	25	28	31	34	36	39
Interest on operating capital @ 5.75%	127	132	137	142	147	152	157
TOTAL OPERATING COSTS/ACRE	9,166	9,866	10,566	11,265	11,965	12,664	13,364
<i>Total Operating Costs/box</i>	11.46	10.96	10.57	10.24	9.97	9.74	9.55
CASH OVERHEAD COSTS/ACRE	311	311	312	312	312	313	313
TOTAL CASH COSTS/ACRE	9,477	10,177	10,878	11,577	12,277	12,977	13,677
<i>Total Cash Costs/box</i>	11.85	11.31	10.88	10.52	10.23	9.98	9.77
NON-CASH OVERHEAD COSTS/ACRE	1,459	1,462	1,464	1,467	1,469	1,472	1,474
TOTAL COSTS/ACRE	10,936	11,639	12,342	13,044	13,746	14,449	15,151
<i>Total Costs/box</i>	13.67	12.93	12.34	11.86	11.45	11.11	10.82

NET RETURNS PER ACRE ABOVE OPERATING COSTS

PRICE \$/box	YIELD (25 lb box/acre)						
	800	900	1,000	1,100	1,200	1,300	1,400
6.00	-4,366	-4,466	-4,566	-4,665	-4,765	-4,864	-4,964
8.00	-2,766	-2,666	-2,566	-2,465	-2,365	-2,264	-2,164
10.00	-1,166	-866	-566	-265	35	336	636
12.00	434	934	1,434	1,935	2,435	2,936	3,436
14.00	2,034	2,734	3,434	4,135	4,835	5,536	6,236
16.00	3,634	4,534	5,434	6,335	7,235	8,136	9,036
18.00	5,234	6,334	7,434	8,535	9,635	10,736	11,836

NET RETURNS PER ACRE ABOVE CASH COSTS

PRICE \$/box	YIELD (25 lb box/acre)						
	800	900	1,000	1,100	1,200	1,300	1,400
6.00	-4,677	-4,777	-4,878	-4,977	-5,077	-5,177	-5,277
8.00	-3,077	-2,977	-2,878	-2,777	-2,677	-2,577	-2,477
10.00	-1,477	-1,177	-878	-577	-277	23	323
12.00	123	623	1,122	1,623	2,123	2,623	3,123
14.00	1,723	2,423	3,122	3,823	4,523	5,223	5,923
16.00	3,323	4,223	5,122	6,023	6,923	7,823	8,723
18.00	4,923	6,023	7,122	8,223	9,323	10,423	11,523

NET RETURNS PER ACRE ABOVE TOTAL COSTS

PRICE \$/box	YIELD (25 lb box/acre)						
	800	900	1,000	1,100	1,200	1,300	1,400
6.00	-6,136	-6,239	-6,342	-6,444	-6,546	-6,649	-6,751
8.00	-4,536	-4,439	-4,342	-4,244	-4,146	-4,049	-3,951
10.00	-2,936	-2,639	-2,342	-2,044	-1,746	-1,449	-1,151
12.00	-1,336	-839	-342	156	654	1,151	1,649
14.00	264	961	1,658	2,356	3,054	3,751	4,449
16.00	1,864	2,761	3,658	4,556	5,454	6,351	7,249
18.00	3,464	4,561	5,658	6,756	7,854	8,951	10,049

UC COOPERATIVE EXTENSION
Table 6. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS
 SAN JOAQUIN VALLEY - South 2009

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead		Total
						Insur- ance	Taxes	
09	40 HP 2WD Tractor	14,941	15	2,909	1,278	73	89	1,440
09	80 HP 4WD Tractor	55,307	15	10,767	4,730	271	330	5,332
09	All Terrain Vehicle	6,500	7	2,466	808	37	45	890
09	Bin Trailers #1	1,970	15	189	178	9	11	197
09	Bin Trailers #2	1,970	15	189	178	9	11	197
09	Brush Rake 18'	6,175	20	322	475	27	32	534
09	Mower/Chopper - 8'	8,200	10	1,450	932	40	48	1,020
09	Orchard Sprayer 500 G	22,800	10	4,032	2,593	110	134	2,837
09	Pickup Truck - 3/4 ton	32,000	7	12,139	3,978	181	221	4,380
09	Spot Sprayer ATV 20 gal	511	10	90	58	2	3	64
09	Weed Sprayer 100 G	3,424	10	606	389	17	20	426
TOTAL		153,798		35,159	15,597	775	945	17,316
60% of New Cost *		92,279		21,095	9,358	465	567	10,390

*Used to reflect a mix of new and used equipment

ANNUAL INVESTMENT COSTS

Description	Price	Life	Value	Recovery	Cash Overhead			Total
					Insurance	Taxes	Repairs	
INVESTMENT								
Buildings 1,800 sqft	60,000	20		4,713	246	300	1,200	6,459
Fuel Tanks 2-500 gal	4,500	20		353	18	23	90	484
Irrigation System	85,500	30		5,404	351	428	1,710	7,892
Land	850,000	20	850,000	40,375	0	8,500	0	48,875
Orchard Establishment	73,490	12		8,175	301	367	0	8,844
Shop Tools	15,000	15	1,200	1,364	66	81	300	1,812
TOTAL INVESTMENT	1,088,490		851,200	60,385	983	9,698	3,300	74,366

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm		Price/ Unit	Total Cost
		Unit		
Liability Insurance	95	acre	6.54	621
Office Expense	95	acre	75.00	7,125
Sanitation Fees	95	acre	12.36	1,174

UC COOPERATIVE EXTENSION
Table 7. HOURLY EQUIPMENT COSTS
 SAN JOAQUIN VALLEY - South 2004

Yr	Description	COSTS PER HOUR							Total Costs/Hr.	
		Actual Hours Used	Capital Recovery	Cash Overhead			Operating			Total Oper.
				Insur- ance	Taxes	Repairs	Fuel & Lube			
09	40 HP 2WD Tractor	801	0.96	0.05	0.07	0.67	8.36	9.03	10.11	
09	80 HP 4WD Tractor	800	3.55	0.20	0.25	1.06	16.72	17.78	21.78	
09	All Terrain Vehicle	285	1.70	0.08	0.09	0.48	1.16	1.64	3.51	
09	Bin Trailers #1	166	0.64	0.03	0.04	0.28	0.00	0.28	0.99	
09	Bin Trailers #2	166	0.64	0.03	0.04	0.28	0.00	0.28	0.99	
09	Brush Rake 18'	125	2.28	0.13	0.16	0.84	0.00	0.84	3.41	
09	Mower/Chopper - 8'	200	2.80	0.12	0.12	3.46	0.00	3.46	6.50	
09	Orchard Sprayer 500 G	200	7.76	0.33	0.40	3.92	0.00	3.92	12.41	
09	Pickup Truck - 3/4 ton	285	8.37	0.38	0.46	2.36	12.76	15.12	24.33	
09	Spot Sprayer ATV 20 gal	150	0.23	0.01	0.01	0.14	0.00	0.14	0.39	
09	Weed Sprayer 100 G	150	1.56	0.07	0.08	0.92	0.00	0.92	2.63	

UC COOPERATIVE EXTENSION
Table 8. OPERATIONS WITH EQUIPMENT AND MATERIALS
 SAN JOAQUIN VALLEY - South 2009

Operation	Operation Month	Equipment		Non-Machine Labor Hrs	Material	Broadcast Rate/acre	Unit
		Tractor	Implement				
Weed: Dormant Strip	December	40HP 2WD	Weed Sprayer		Surflan	2.00	pt
					Goal	2.00	pt
Weed: Spray Middles 5X	February	40HP 2WD	Weed Sprayer		Roundup	1.00	pt
	April	40HP 2WD	Weed Sprayer		Roundup	1.00	pt
	June	40HP 2WD	Weed Sprayer		Roundup	1.00	pt
	July	40HP 2WD	Weed Sprayer		Roundup	1.00	pt
	September	40HP 2WD	Weed Sprayer		Roundup	1.00	pt
Weed: Spot Spray	May	ATV	ATV Sprayer		Roundup	0.10	pt
	July	ATV	ATV Sprayer		Roundup	0.10	pt
Weed: Rake/Clean Furrows	April	80HP MFWD	Brush rake				
Prune: Hand	December			32.00			
	January			32.00			
Prune: Shred Brush	January	80HP MFWD	Mower/Chopper				
Prune: Shred Brush from cleaning furrows	April	80HP MFWD	Mower/Chopper				
Rope Trees (Alternate Years)	February			4.00			
Thin Fruit	April			103.00			
Prune: Summer	June			9.30			
Prop Limbs & Remove Props	July			8.00			
Insect: Dormant. Fertilize: Dormant	January	80HP MFWD	Orchard Sprayer		Ziram	8.00	lbs
					Oil	8.00	gal
					Diazinon	4.00	lbs
					Neutral Zn	10.00	lbs
					Orbit	4.00	floz
Disease: Bloom	February	80HP MFWD	Orchard Sprayer		Rally	4.25	oz
Disease: Bloom	February	80HP MFWD	Orchard Sprayer		Imidan	4.25	lbs
Insect: Worms	April	80HP MFWD	Orchard Sprayer		Apollo	5.00	oz
Insect: Mites	May	80HP MFWD	Orchard Sprayer		Imidan	4.25	lbs
Insect: Worms. Disease: Fruit Rot	July	80HP MFWD	Orchard Sprayer		Adament	6.00	oz
Irrigate	March			0.94	Water	3.66	acin
	April			0.94	Water	3.70	acin
	May			0.94	Water	4.88	acin
	June			2.82	Water	9.76	acin
	July			1.88	Water	8.54	acin
	August			1.88	Water	6.10	acin
	September			0.94	Water	3.70	acin
	October			0.94	Water	3.66	acin
Fertilize: Nitrogen Split	April	40HP 2WD	Spreader (loaned)		UN32	75.50	lbs N
	September	40HP 2WD	Spreader (loaned)		UN32	75.50	lbs N
Fertilize: Leaf Collection & Analysis	July	Custom			Leaf Samples	7.50	acin
Fertilize: Fall Zinc	October	80HP MFWD	Orchard Sprayer		Zinc Sulfate	10.00	lbs
Harvest: Pick Fruit	July	40HP 2WD	Bin Trailers	60.00			
	August	40HP 2WD	Bin Trailers	60.00			
Harvest: Haul	July	Custom			18 Bins	5.50	bin
	August	Custom			18 bins	5.50	bin
Pack Fruit	July	Custom			600 Boxes	4.25	box
	August	Custom			600 Boxes	4.25	box