UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2001

SAMPLE COSTS TO ESTABLISH A PRUNE ORCHARD AND PRODUCE

PRUNES

(DRIED PLUMS)

SACRAMENTO VALLEY

French Variety & Low-Volume Irrigation

Prepared by:

Richard P. Buchner	Farm Advisor, UC Cooperative Extension, Tehama and Shasta Counties
John P. Edstrom	Farm Advisor, UC Cooperative Extension, Colusa County
William H. Krueger	Farm Advisor, UC Cooperative Extension, Glenn County
William H. Olson	Farm Advisor, UC Cooperative Extension, Butte County
Wilbur O. Reil	Farm Advisor, UC Cooperative Extension, Yolo and Solano Counties
Karen M. Klonsky	Extension Specialist, Department of Agricultural and Resource Economics, UC Davis
Richard L. De Moura	Staff Research Associate, Department of Agricultural and Resource Economics, UC Davis

UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

SAMPLE COSTS TO ESTABLISH A PRUNE ORCHARD and PRODUCE PRUNES

(Dried Plums)

Sacramento Valley - 2001

CONTENTS

INTRODUCTION

The sample costs to establish a prune orchard and produce prunes in the Sacramento Valley are presented in this study. The study is intended as a guide only, and can be used to make production decisions, determine potential returns, prepare budgets and evaluate production loans. The practices described are based on production procedures considered typical for this crop and area, and will not apply to every situation. Sample costs for labor, materials, equipment and custom services are based on current figures. A blank column, "*Your Costs*", is provided to enter your actual costs on Tables 2 and 3.

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

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

ASSUMPTIONS

The following assumptions pertain to sample costs to establish a prune orchard and produce prunes in the Sacramento Valley. Practices described are not recommendations, but represent production procedures considered typical for prune production in the Sacramento Valley. Some costs and practices may not be applicable to all situations every production year. Cultural practices and costs for the production of prunes 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 105 contiguous acres of land. Prunes are being established on one hundred acres and five acres are roads, irrigation system and farmstead. The orchard is farmed by the owner and established on ground previously planted to field and row crops. The land is assumed to be adequately drained class II soil.

Trees. Improved French, is planted on an 18' X 18' diamond spacing, 15.6 feet between rows at 155 trees per acre. Orchard life is estimated to be 30 years.

Establishment Cultural Practices and Material Inputs

Land Preparation. Land preparation begins with deep ripping in two directions to a two to three foot depth to break up underlying compaction. The ground is disced three times and floated two to three times to level and smooth the surface. All preplant operations are done in the year prior to planting, however costs are shown in the first year. Fumigation, not included in this study, should be considered if nematodes represent a potention problem. Currently, fumigation cost will be approximately $2,000 per acre.

Planting, Training, and Pruning. Tree sites are marked, holes are dug, trees planted, painted, and a tree wrap is installed. New trees are topped soon after planting. Pruning begins in the first dormant season and the costs are shown in the second year. Also, in the second year, 2% or 3 trees per acre are replanted. In the fifth year branches are tied with twine to reduce limb breakage.

Fertilization. Nitrogen is the major nutrient required for proper tree growth and yield. Nitrogen is applied through the irrigation system. Annual rates of actual N per acre are shown in Table A. Starting in the fourth year potassium sulfate is banded down the tree row at 400 pounds of material per acre.

Table A. Applied Nitrogen

Year	N lb/acre	UN-32 gal/acre
1	25	7.1
2	50	14.2
3	75	21.4
4+	100	28.6

Irrigation. Water costs will vary depending on the irrigation district, power source, well characteristics, and irrigation setup. In this study, water is pumped from an onsite well and is estimated to cost $45.96 per acre-foot ($3.93/acre inch). No assumption is made regarding effective rainfall. Applied water increases during the establishment years as indicated in Table B.

Table B. Applied Irrigation Water

Year	AcFt/Yr	AcIn/Yr
1	0.75	9
2	1.50	18
3	2.00	24
4	2.50	30
5+	2.50	30

Pest Management. Best management practices (BMP) are assumed. BMP's are shown in Table 2 and the input details are in Table 3.

Weeds. Chemical weed control begins the first year with the preemergent-residual herbicide, Surflan, sprayed in the tree row followed by in-season spot spraying with Roundup, a foliar-applied herbicide. In subsequent years a herbicide combination of Surflan, Goal, and Roundup is applied as a dormant strip spray for broader spectrum weed control. The summer strip spray uses the foliar-applied herbicide. Vegetation in the row middles is managed by mowing five times during the growing season.

Insects. In this study, insect control is initiated in the third year with a dormant spray of supreme oil and Asana to control San Jose scale, peach twig borer, and various aphids and mites. In the fourth year and every third year thereafter, an in-season miticide spray of Vendex is assumed. In this study one-third of the cost is included each year.

Diseases. Brown rot, and scab during bloom are the diseases considered. Treatments for both begin in the fourth year with an application of Vanguard fungicide. Treatments for prune rust begin in the summer (July) of the fourth year with an application of wettable sulfur.

Production Cultural Practices and Material Inputs

Pruning and Suckering. Pruning is done by hand during the winter months. It is assumed for this study that 28.7 labor hours per acre are required to complete pruning. Prunings are placed in the row middles and shredded using a flail mower.

Fertilization. Leaf samples are taken in July to determine nutrition requirements. Liquid nitrogen as UN-32 is applied through the irrigation system at 100 pounds of N per acre in two applications, 2/3 in early May and 1/3 in July. Potassium levels are maintained with banded applications of potassium sulfate at 400 pounds of material per acre per year applied in November.

Pests. The pesticides and rates mentioned in this cost study are listed in the *UC IPM Pest Management Guidelines, Prunes* and *Prune Orchard Management.* For more information on other pesticides available, pest identification, monitoring, and management visit the UC IPM website at www.ipm.ucdavis.edu. Inputs cited in this report 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.

Weeds. Weeds in mature orchards are controlled with the same combination of chemical and cultural (mowing) practices as when being established.

Insects and Diseases. Insects and diseases are managed the same as in the fifth year of establishment.

Harvest. Prunes begin production in the fourth year and reach full production in the seventh year. In this study, the crop is harvested and hauled by a custom harvester. Custom harvest operations are charged on

fresh (undried) tons. Drying reduces the weight of fresh prunes by approximately 3:1 dry ratio. The grower pays the drying costs.

For growers that own harvesting equipment, the equipment used for harvest is added to the equipment and investment inventories in Table 5 and the custom harvest charges replaced with the grower harvest and hauling costs in Tables 1 to 3.

Yields. Annual yields for prunes are measured in dry tons per acre. Typical yields from the fourth year of orchard establishment to maturity are shown in Table C.

Table C. Annual Yields

	Tons Per Acre	
Year	Green[1]	Dry
4	2.4	0.80
5	4.0	1.33
6	8.0	2.67
7+	12.0	4.00

[1]3 green tons=1 dry ton

Assessments. Under a state marketing order, the California Prune Board (CPB) collects mandatory assessment fees. This assessment is charged to the grower to fund prune marketing, advertising, and research programs administered by the CPB. The portion of the assessment paid by the grower is $30 per dry ton.

Returns. Based on current market conditions, the grower returns are estimated at $800 per dry ton or $0.40 per pound. The estimated return also provides a basis for a range of yields and prices as in Table 6. Average grower returns for the last five years are shown in Table D.

Table D. Grower Returns

Year	$/dry ton
1995	1,044
1996	838
1997	814
1998	763
1999	892

Risk. The risks associated with producing and marketing prunes 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 prune production.

Labor. Hourly wages for workers are $8.75 and $7.00 per hour for skilled and field workers, respectively. Adding 34% for the employers share of federal and state payroll taxes, insurance, and other possible benefits gives the labor rates shown of $11.73 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 2 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.

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 $572 for the entire farm.

Office Expense. Office and business expenses are estimated at $40 per acre. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, road maintenance, and miscellaneous expenses.

Sanitation Services. Sanitation services provide a single portable toilet with washing equipment for the orchard and cost the farm $756 annually. The cost includes delivery and 7 months of weekly service.

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 prune orchards in the Sacramento Valley 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 (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 (e.g., 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 wearout 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 Table 5.

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

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

Land. Land values in the region range from $1,800 for Class III soil to $5,000 for Class I soil. Bare ground is this study is valued at $3,000 per acre for the 105 acres or $3,150 per acre for the 100 producing acres.

Irrigation System. The cost is based on one 75 horsepower electric pump lifting 30 acre-inches from a water level depth of 90 feet. The pump and 300-foot deep well already existed on the site, and the cost of the irrigation system is for the recasing of the well, refurbishment of the pump and the installation of a new filtration system, and micro sprinklers. Water is pumped through a filtration station into a micro-sprinkler system, one sprinkler per tree. The cost of pumping water and irrigation labor is included as cultural costs in Tables 2 and 3. The life of the irrigation system is estimated to be 30 years for the pump and filtration system, and 15 years for the micro-sprinklers.

Establishment Cost. Costs to establish the orchard are used to determine the non-cash overhead expenses, capital recovery, and interest on investment for the production years. The establishment cost is the sum of cash costs for land preparation, planting, trees, production expenses, and cash overhead for growing prune trees through the first year fruit is harvested less returns from production. The *Accumulated Net Cash Cost* in the fourth year shown in Table 1 represents the establishment cost per acre. For this study, the cost is $3,624 per acre or $362,400 for the 100-acre orchard. Establishment cost is amortized beginning in the fifth year over the remaining 26 years of production.

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.

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

REFERENCES

American Society of Agricultural Engineers. (ASAE). 1994. *American Society of Agricultural Engineers Standards Yearbook*. St. Joseph, MO.

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

Klonsky, Karen, Richard Buchner, John Edstrom, Bill Krueger, Bill Olson, Wilbur Reil, and Pete Livingston. 1998. *Sample Costs to Establish a Prune Orchard and Produce Prunes.* Department of Agricultural and Resource Economics, University of California Cooperative Extension. Davis, CA.

Prune Marketing Committee. "Grower Returns Five Year", furnished by Tony Ross, Controller. Phone request May 15, 2001. Prune Marketing Committee, Sacramento, CA.

Statewide IPM Project. 2000. "UC Pest Management Guidelines, Prunes". In M. L. Flint (ed.) *UC IPM Pest Management Guidelines.* Pub. 3339. IPM Education and Publication. University of California, Division of Agriculture and Natural Resources. Oakland, CA.

University of California. 1981. *Prune Orchard Management.* Pub. 3269. University of California, Division of Agriculture and Natural Resources. Oakland, CA.

United States Department of Agriculture-Economic Reporting Service. *Farm Financial Ratios Indicating Solvency and Profitability 1960 – 99, California*. 2001. www.ers.usda.gov/data/farmbalancesheet/fbsdmu.htm

---

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.

UC COOPERATIVE EXTENSION

Table 1. SAMPLE COSTS PER ACRE TO ESTABLISH A PRUNE ORCHARD

SACRAMENTO VALLEY - 2001

	Cost Per Acre						
Year:	1st	2nd	3rd	4th	5th	6th	*7th
Green Tons Per Acre	0	0	0	2.40	4.80	8.00	12.00
Planting Costs:							
Land Preparation - Subsoil 2X	250						
Land Preparation - Disc 3X	15						
Land Preparation - Float 2X	21						
Land Preparation - Build Berms	2						
Layout Orchard, Dig Holes & Plant	209	3					
Trees: 155 Per Acre (2%Replant In 2nd Year)	729	14					
Paint & Wrap Trees	38	1					
TOTAL PLANTING COSTS	1,264	18	0	0	0	0	0
Cultural Costs:							
Insect Control - Dormant Spray			21	21	21	21	21
Tie Trees					75		
Pruning & Suckering	49	122	183	244	269	269	269
Brush Disposal			20	37	41	41	41
Fertilizer - Nitrogen	14	24	29	39	39	39	39
Fertilizer - Potassium				73	73	73	73
Weed Control - Summer Strip Spray	8	9	9	9	9	9	9
Weed Control - Dormant Strip Spray	39	46	54	54	54	54	54
Disease Control - Bloom				18	26	26	26
Disease Control - Summer				7	7	7	7
Insect Control - In-Season Spray				22	22	22	22
Pollination				13	25	25	25
Mow 5X	27	27	27	27	27	27	27
Irrigate	39	75	99	122	122	122	122
Pickup Truck Use	58	58	58	58	58	58	58
ATV Use	22	22	22	22	22	22	22
Consultant Services				25	25	25	25
Leaf Analysis			2	2	2	2	2
TOTAL CULTURAL COSTS	256	383	524	793	917	842	842
Harvest Costs:							
Shake, Catch, & Field Size				54	108	180	300
Haul To Dryer				17	34	56	84
Dry Fruit				240	480	800	1,200
TOTAL HARVEST COSTS	0	0	0	311	622	1,036	1,584
Assessments:							
California Prune Board				24	48	80	120
TOTAL ASSESSMENT COSTS				24	48	80	120
Interest On Operating Capital @ 10.51%	117	19	27	26	36	35	41
TOTAL OPERATING COSTS/ACRE	1,637	420	551	1,154	1,623	1,993	2,587
Cash Overhead Costs:							
Office Expense	40	40	40	40	40	40	40
Sanitation Fees	8	8	8	8	8	8	8
Liability Insurance	6	6	6	6	6	6	6
Property Taxes	44	43	44	44	44	44	44
Property Insurance	8	8	9	9	9	9	9
Investment Repairs	19	19	20	20	20	20	20
TOTAL CASH OVERHEAD COSTS	125	125	127	127	127	127	127
TOTAL CASH COSTS/ACRE	1,762	545	677	1,280	1,749	2,120	2,714
INCOME/ACRE FROM PRODUCTION	0	0	0	640	1,280	2,133	3,200
NET CASH COSTS/ACRE FOR THE YEAR	1,762	545	677	640	469	0	0
PROFIT/ACRE ABOVE CASH COSTS	0	0	0	0	0	13	486
ACCUMULATED NET CASH COSTS/ACRE	1,762	2,307	2,984	**3,624**	4,093	4,080	3,594

Table 1. continued

	Cost Per Acre						
Year:	1st	2nd	3rd	4th	5th	6th	7th
Green Tons Per Acre:	0	0	0	2.40	4.80	8.00	12.00
Capital Recovery Cost:							
Land @ $3,150/Producing Acre	211	211	211	211	211	211	211
Shop Building	45	45	45	45	45	45	45
Fuel Tanks-Gravity	6	6	6	6	6	6	6
Irrigation System	98	98	98	98	98	98	98
Shop Tools	13	13	13	13	13	13	13
Ladders - 10 Total			2	2	2	2	2
Hand Tools	5	5	5	5	5	5	5
Equipment	74	65	80	80	80	80	80
TOTAL CAPITAL RECOVERY COST	452	443	460	460	460	460	460
TOTAL COST/ACRE FOR THE YEAR	2,214	988	1,137	1,740	2,209	2,580	3,174
INCOME/ACRE FROM PRODUCTION	0	0	0	640	1,280	2,133	3,200
TOTAL NET COST/ACRE FOR THE YEAR	2,214	988	1,137	1,100	929	447	0
NET PROFIT/ACRE ABOVE TOTAL COST	0	0	0	0	0	0	26
TOTAL ACCUMULATED NET COST/ACRE	2,214	3,202	4,339	5,439	6,368	6,815	6,789

*See production year for complete list of operations and costs

UC COOPERATIVE EXTENSION

Table 2. COSTS PER ACRE to PRODUCE PRUNES

SACRAMENTO VALLEY - 2001

Operation	Operation Time (Hrs/A)	Cash and Labor Cost per acre: Labor Cost	Fuel,Lube & Repairs	Material Cost	Custom/ Rent	Total Cost
CULTURAL:						
Pest Control - Dormant	0.23	3	3	15	0	21
Pruning & Sucker	28.70	269	0	0	0	269
Chop Brush	0.33	38	3	0	0	41
Pest Control - Bloom	0.23	3	3	20	0	26
Fertilize - Nitrogen	0.00	0	0	39	0	39
Fertilize - Potassium	0.22	3	2	66	3	73
Irrigate	0.42	4	0	118	0	122
Mow Centers - 5X	1.12	16	11	0	0	27
Insect Control-In Season 1X/3yr	0.08	1	1	20	0	22
Shaker-Thin Fruit 1X/2yr	0.00	0	0	0	25	25
Pollination	0.00	0	0	0	25	25
Weed Control - Summer Strip	0.14	2	1	6	0	9
Pest Control - Summer	0.23	3	3	1	0	7
Weed Control - Dormant Strip	0.14	2	1	51	0	54
Pickup Truck Use	2.85	40	17	0	0	58
ATV Use	1.42	20	2	0	0	22
PCA Service	0.00	0	0	0	25	25
Leaf Analysis	0.00	0	0	0	2	2
TOTAL CULTURAL COSTS	36.11	404	48	337	80	868
HARVEST:						
Harvest & Field Sort	0.00	0	0	0	300	300
Haul To Dryer	0.00	0	0	0	84	84
Dry Fruit	0.00	0	0	0	1,200	1,200
TOTAL HARVEST COSTS	0.00	0	0	0	1,584	1,584
ASSESSMENT:						
California Prune Board	0.00	0	0	120	0	120
TOTAL ASSESSMENT COSTS	0.00	0	0	120	0	120
Interest on operating capital @ 10.51%						41
TOTAL OPERATING COSTS/ACRE		404	48	457	1,664	2613
CASH OVERHEAD:						
Office Expense						40
Liability Insurance						6
Sanitation Fee						8
Property Taxes						44
Property Insurance						8
Investment Repairs						20
TOTAL CASH OVERHEAD COSTS						126
TOTAL CASH COSTS/ACRE						2,739

NON-CASH OVERHEAD: Investment	Per producing Acre	Annual Cost Capital Recovery	
Buildings	492	45	45
Fuel Tanks (Above Ground)	65	6	6
Shop Tools	126	13	13
Hand Tools	46	5	5
Irrigation Pump/Filter System	150	12	12
Irrigation Micro Sprinklers	800	86	86
Land	3,150	211	211
Ladders - 10 each	13	2	2
Establishment Cost	3,624	298	298
Equipment	665	80	80
TOTAL NON-CASH OVERHEAD COSTS	9,131	757	757
TOTAL COSTS/ACRE			3,496

UC COOPERATIVE EXTENSION

Table 3. COSTS AND RETURNS PER ACRE to PRODUCE PRUNES

SACRAMENTO VALLEY - 2001

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Prunes	4.00	ton	800.00	3,200	
OPERATING COSTS					
Insecticide:					
Supreme Oil	4.00	gal	2.80	11	
Asana XL	4.00	floz	1.00	4	
Fungicide:					
Vanguard WG	5.00	floz	3.99	20	
Sulfur - Wettable	5.00	lb	0.20	1	
Miticide:					
Vendex 50WP	0.66	lb	31.00	20	
Herbicide:					
Roundup Ultra	1.78	pt	6.06	11	
Surflan 4 AS	3.04	pt	11.98	36	
Goal 2 XL	0.76	pt	13.32	10	
Fertilizer:					
UN-32	100.00	lb N	0.39	39	
Sulfate of Potash	400.00	lb	0.17	66	
Rent:					
Spreader-Fertilizer	1.00	acre	2.50	3	
Water:					
Water - Pumped	30.00	acin	3.93	118	
Custom:					
Hives-Pollination	0.50	acre	50.00	25	
Shake-Thin Fruit	0.50	acre	50.00	25	
Harvest-Shake/Catch	12.00	ton	22.50	270	
Size Fruit	12.00	ton	2.50	30	
Haul Fruit	12.00	ton	7.00	84	
Dry Fruit	12.00	ton	100.00	1,200	
Leaf Analysis	1.00	acre	2.00	2	
Assessment:					
CA Prune Board	4.00	ton	30.00	120	
Contract:					
PCA Fees	1.00	acre	25.00	25	
Labor (machine)	8.39	hrs	11.73	98	
Labor (non-machine)	32.62	hrs	9.38	306	
Fuel - Gas	8.09	gal	1.51	12	
Fuel - Diesel	11.01	gal	1.26	14	
Lube				4	
Machinery repair				18	
Interest on operating capital @ 10.51%				41	
TOTAL OPERATING COSTS/ACRE				2,613	
NET RETURNS ABOVE OPERATING COSTS				587	
CASH OVERHEAD COSTS:					
Office Expense				40	
Liability Insurance				6	
Sanitation Fee				8	
Property Taxes				44	
Property Insurance				8	
Investment Repairs				20	
TOTAL CASH OVERHEAD COSTS/ACRE				126	
TOTAL CASH COSTS/ACRE				2,739	

UC COOPERATIVE EXTENSION
Table 3 continued

NON-CASH OVERHEAD COSTS (Capital Recovery)	
Buildings	45
Fuel Tanks/Above Ground	6
Shop Tools	13
Hand Tools	5
Irrigation Pump/Filter System	12
Irrigation Micro Sprinklers	86
Land	211
Ladders - 10 each	2
Establishment Cost	298
Equipment	80
TOTAL NON-CASH OVERHEAD COSTS/ACRE	757
TOTAL COSTS/ACRE	3,496
NET RETURNS ABOVE TOTAL COSTS	-296

UC COOPERATIVE EXTENSION
Table 4. MONTHLY CASH COSTS PER ACRE to PRODUCE PRUNES
SACRAMENTO VALLEY - 2001

Beginning JAN 01 Ending DEC 01	JAN 01	FEB 01	MAR 01	APR 01	MAY 01	JUN 01	JUL 01	AUG 01	SEP 01	OCT 01	NOV 01	DEC 01	TOTAL
Cultural:													
Pest Control - Dormant	21												21
Pruning & Sucker			269										269
Chop Brush			41										41
Pest Control - Bloom			26										26
Fertilize - Nitrogen					26		13						39
Fertilize - Potassium											73		73
Irrigate					20	27	31	26	18				122
Mow Centers - 5X				5	5	5	5	5					27
Insect Control-In Season 1X/3yr				22									22
Shaker-Thin Fruit 1X/2yr					25								25
Pollination			25										25
Weed Control - Summer Strip					9								9
Pest Control - Summer							7						7
Weed Control - Dormant Strip										54			54
Pickup Truck Use	5	5	5	5	5	5	5	5	5	5	5	5	58
ATV Use	2	2	2	2	2	2	2	2	2	2	2	2	22
PCA Service	2	2	2	2	2	2	2	2	2	2	2		25
Leaf Analysis					2								2
TOTAL CULTURAL COSTS	30	9	370	37	97	41	65	40	27	64	82	7	868
Harvest:													
Harvest & Field Sort								300					300
Haul To Dryer								84					84
Dry Fruit								1,200					1,200
TOTAL HARVEST COSTS								1,584					1,584
Assessment:													
California Prune Board								120					120
TOTAL ASSESSMENT COSTS								120					120
Interest on operating capital	0	0	4	4	5	5	6	21	-1	-1	-1	0	41
TOTAL OPERATING COSTS/ACRE	30	9	373	41	102	46	70	1,764	26	62	81	6	2,613
OVERHEAD:													
Office Expense	3	3	3	3	3	3	3	3	3	3	3	3	40
Liability Insurance	6												6
Sanitation Fee	1	1	1	1	1	1	1	1	1	1			8
Property Taxes	22						22						44
Property Insurance	4						4						8
Investment Repairs	2	2	2	2	2	2	2	2	2	2	2	2	20
TOTAL CASH OVERHEAD COSTS	38	6	6	6	6	6	32	6	6	6	6	5	126
TOTAL CASH COSTS/ACRE	68	15	379	46	107	52	102	1,770	31	68	87	11	2,739

UC COOPERATIVE EXTENSION

Table 5. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, and BUSINESS OVERHEAD COSTS

SACRAMENTO VALLEY - 2001

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead: Insurance	Cash Overhead: Taxes	Total
01	75HP 4WD Tractor	45,000	15	8,761	4,491	179	269	4,939
01	ATV 4WD	7,430	7	2,818	1,036	34	51	1,121
01	Mower - Flail 10'	10,272	10	1,817	1,309	40	60	1,410
01	Orch.Sprayer 500 G	19,741	10	3,491	2,516	77	116	2,709
01	Pickup Truck 1/2 T	24,500	7	9,294	3,415	113	169	3,696
01	Weed Sprayer 100 G	3,947	10	698	503	15	23	542
TOTAL		110,890		26,879	13,269	459	689	14,416
60% of New Cost*		66,534		16,127	7,961	275	413	8,650

*Used to reflect a mix of new and used equipment

ANNUAL INVESTMENT COSTS

Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead: Insurance	Cash Overhead: Taxes	Cash Overhead: Repairs	Total
INVESTMENT								
Buildings	49,162	20		4,533	164	246	983	5,925
Establishment Cost	362,400	26		29,801	0	0	0	29,801
FuelTanks/Above Ground	6,514	20	651	584	24	36	33	677
Hand Tools	4,595	15	460	476	17	25	92	610
Ladders - 10 each	1,250	10	140	165	5	7	13	190
Land Prunes	315,000	30	315,000	21,105	0	3,150	0	24,255
Irrigation Pump/Filter Sys	15,000	30		1,173	50	75	50	1,348
Irrigation Micro-Sprinkler	80,000	15		8,618	266	400	533	9,817
Shop Tools	12,637	15	1,264	1,310	46	70	253	1,679
TOTAL INVESTMENT	846,058		317,515	65,360	572	4,008	1,691	71,631

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Liability Insurance	105	acre	5.45	572
Office Expense	100	acre	40.00	4,000
Sanitation Fee	100	acre	7.56	756

UC COOPERATIVE EXTENSION

Table 6. HOURLY EQUIPMENT COSTS

SACRAMENTO VALLEY - 2001

Yr	Description	Actual Hours Used	COSTS PER HOUR: Capital Recovery	Cash Overhead: Insurance	Cash Overhead: Taxes	Operating: Repairs	Operating: Fuel & Lube	Operating: Total Oper.	Total Costs/Hr.
01	75HP 4WD Tractor	298.90	9.01	0.36	0.54	1.91	5.34	7.25	17.16
01	ATV 4WD	142.50	4.36	0.14	0.22	0.55	1.16	1.71	6.43
01	Mower - Flail 10'	144.80	5.42	0.17	0.25	2.23	0.00	2.23	8.07
01	Orch.Sprayer 500 G	76.30	19.77	0.61	0.91	3.32	0.00	3.32	24.62
01	Pickup Truck 1/2 T	285.00	7.19	0.24	0.36	1.79	4.34	6.13	13.92
01	Weed Sprayer 100 G	28.60	10.56	0.32	0.49	1.05	0.00	1.05	12.43

UC COOPERATIVE EXTENSION
Table 7. RANGING ANALYSIS
SACRAMENTO VALLEY - 2001

COSTS PER ACRE AT VARYING YIELD TO PRODUCE PRUNES

	YIELD (dried ton/acre)						
	1.50	2.00	2.50	3.00	3.50	4.00	4.50
OPERATING COSTS/ACRE:							
Cultural Cost	868	868	868	868	868	868	868
Harvest Cost	594	792	990	1,188	1,386	1,584	1,782
Assessment Cost	45	60	75	90	105	120	135
Interest on operating capital	32	34	35	37	39	41	43
TOTAL OPERATING COSTS/ACRE	1,539	1,754	1,968	2,183	2,398	2,613	2,828
TOTAL OPERATING COSTS/TON	1,026	877	787	728	685	653	628
CASH OVERHEAD COSTS/ACRE	126	126	126	126	126	126	126
TOTAL CASH COSTS/ACRE	1,665	1,880	2,094	2,309	2,524	2,739	2,954
TOTAL CASH COSTS/TON	1,110	940	838	770	721	685	656
NON-CASH OVERHEAD COSTS/ACRE	757	757	757	757	757	757	757
TOTAL COSTS/ACRE	2,422	2,637	2,852	3,067	3,281	3,496	3,711
TOTAL COSTS/TON	1,615	1,319	1,141	1,022	937	874	825

NET RETURNS PER ACRE ABOVE OPERATING COSTS FOR PRUNES

PRICE	YIELD (dried ton/acre)						
$/ton	1.50	2.00	2.50	3.00	3.50	4.00	4.50
650.00	-564	-454	-343	-233	-123	-13	97
700.00	-489	-354	-218	-83	52	187	322
750.00	-414	-254	-93	67	227	387	547
800.00	-339	-154	32	217	402	587	772
850.00	-264	-54	157	367	577	787	997
900.00	-189	46	282	517	752	987	1,222
950.00	-114	146	407	667	927	1,187	1,447

NET RETURN PER ACRE ABOVE CASH COST FOR PRUNES

PRICE	YIELD (dried ton/acre)						
$/ton	1.50	2.00	2.50	3.00	3.50	4.00	4.50
650.00	-690	-580	-469	-359	-249	-139	-29
700.00	-615	-480	-344	-209	-74	61	196
750.00	-540	-380	-219	-59	101	261	421
800.00	-465	-280	-94	91	276	461	646
850.00	-390	-180	31	241	451	661	871
900.00	-315	-80	156	391	626	861	1,096
950.00	-240	20	281	541	801	1,061	1,321

NET RETURNS PER ACRE ABOVE TOTAL COST FOR PRUNES

PRICE	YIELD (dried ton/acre)						
$/ton	1.50	2.00	2.50	3.00	3.50	4.00	4.50
650.00	-1,447	-1,337	-1,227	-1,117	-1,006	-896	-786
700.00	-1,372	-1,237	-1,102	-967	-831	-696	-561
750.00	-1,297	-1,137	-977	-817	-656	-496	-336
800.00	-1,222	-1,037	-852	-667	-481	-296	-111
850.00	-1,147	-937	-727	-517	-306	-96	114
900.00	-1,072	-837	-602	-367	-131	104	339
950.00	-997	-737	-477	-217	44	304	564