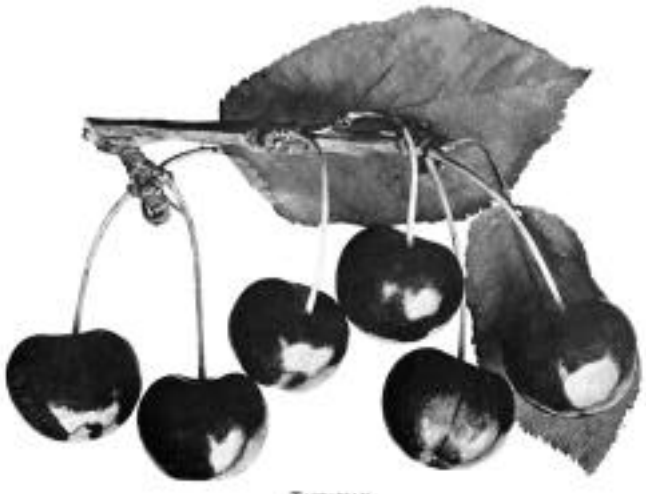
UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2001

SAMPLE COSTS TO ESTABLISH AN ORCHARD AND PRODUCE

SWEET CHERRIES



SAN JOAQUIN VALLEY- NORTH

Sprinkler Irrigation

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SAMPLE COST TO ESTABLISH a CHERRY ORCHARD
and PRODUCE SWEET CHERRIES
San Joaquin Valley – North 2001

CONTENTS

INTRODUCTION

The sample costs to establish a cherry orchard and produce sweet cherries under sprinkler irrigation in the northern 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. Practices described are based on those production practices considered typical for the crop and area, but 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 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 are available and can be requested through the Department of Agricultural and Resource Economics, UC Davis, (530) 752-1515. Current studies can be downloaded from the department website at http://coststudies.ucdavis.edu or obtained from selected county UC Cooperative Extension offices.

ASSUMPTIONS

The assumptions pertain to sample costs to establish a cherry orchard and produce sweet cherries in the northern San Joaquin Valley. Practices described are not University of California recommendations, but represent production practices and materials considered typical of a well managed orchard. The costs, materials, and practices shown in this study may not be applicable to all situations. Establishment and cultural practices vary by grower and region and the variations can be significant. The costs are on shown on an annual, per acre basis. *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 hypothetical farm consists of 80 contiguous acres of land. Cherries are being established on 40 acres, other crops occupy 36 acres, and roads, irrigation system, and farmstead occupy four acres. The orchard is farmed by the owner.

CULTURAL PRACTICES AND MATERIAL INPUTS

Site Preparation. All operations that prepare the orchard for planting are normally done the year prior to planting, but costs are shown in the first year. The site is subsoiled to break up any hardpan, and disced twice to pulverize large clods. Laser leveling is done by a contract leveling company. Fumigation before planting is based on previous crop history and nematode sampling. A commercial fumigation company applies an untarped pre-plant fumigation to sixty percent of the orchard. The fumigant is applied in strips where trees will be planted.

Trees. No specific variety or rootstock is assumed in this study. Trees are planted on a 18' X 18' spacing or 134 trees per acre. The life of the orchard in this study is estimated to be 20 years.

Planting, Training, and Pruning. Planting the orchard starts by surveying and marking tree sites. Trees are planted and painted with white interior water-base latex paint (mixed 1:1 with water) to protect against sunburn. Pruning, training, and suckering begin the first year and labor time required for pruning increases in the subsequent years. Mature orchards are pruned by hand crews in the winter and early summer. Prunings are stacked in the row middles, moved by a tractor with a brush rake into a pile and burned.

Table A. Annual Fertilizer Rates @ 20% N

Year	lb/acre
1	56
2	56
3	111
4	167
5	222
6	278
7	333
8	389
9	445
10+	500

Fertilization. During the first two years an N-P-K fertilizer (20% nitrogen) is spread by hand along the tree rows. Beginning in the third year, fertilizer is applied using a fertilizer spreader. Nitrogen requirements are shown in Table A but actual amounts to apply should be determined by leaf analysis. Minor nutrients, Nutra Phos ZMP, is applied as a foliar with the April worm spray. Zinc sulfate is applied with the late fall dormant spray.

Irrigation. The total irrigation cost includes the water cost and irrigation labor. Water for irrigation is supplied from a well. The water cost for individual orchards will vary depending on the amount of water pumped, energy source, and irrigation district. In this study, irrigation water is calculated to cost $35.52 per

acre foot. No assumption is made about effective rainfall. The amount of water applied to the orchard each year will vary as shown for the establishment and production years in Table B.

Table B. Cherry Orchard Water Use

Year	Acre-ft/Yr
1-3	1.5
4-6	2.0
7+	2.5

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

Cherry pest and disease management is determined by the seasonal pest pressure and will vary among growers and years. During the second and third years, the total material applied is less than in the production years because of the smaller trees. Beginning in the fourth year, the full label rates are applied.

A general bacteriocide application of copper sulfate, hydrated lime (Bordeaux) and dormant oil begins in the late fall of the second year. A delayed dormant application of Superior Oil and Diazinon, an insecticide, begins in the fifth year.

Beginning in April of the fifth year, Asana is applied post-bloom for fruit-feeding worms (green fruitworm and fruittree leafroller). A minor nutrient foliar fertilizer is mixed with the worm spray. Beginning in the second year, three in-season treatments with Asana are made for leafhopper control to prevent the spread of Western X (Buckskin) disease. Omite, a miticide, is added to the second treatment. Leafhopper sprays are not needed in cherry growing areas where Western X disease is not present. A Sevin bait application for earwig control begins in the fifth year. All insect and mite treatments continue into production years.

Fungicides treatments to control bloom and fruit diseases start in the fifth year. In this study, two applications of Rovral are made during bloom in March and early April, and one preharvest fungicide application of Rovral and Rubigan is made in May.

Orchard Floor Management. During the first four years, weeds in the row middles are disced five times per year. Beginning the fifth year, the middles are mowed five times per year. Weeds in the tree rows are controlled with fall-applied pre and postemergent (residual) herbicides, Goal and Surflan, and a contact herbicide, Gramoxone. Two in-season spot sprays with the contact herbicide, Roundup, is applied to 20% of the orchard each time. The fall residual strip spray is applied to 25% of the acreage the first two years, 30% the third, 40% the fourth and 50% thereafter.

Growth Regulators. A January dormant oil application is used to synchronize and accelerate bloom. A pre-harvest gibberellic acid (GA) spray is applied to cherries to delay harvest, produce firmer and larger fruit. GA is not used in every orchard every year. In this study, GA is applied to the entire orchard in April, beginning in the fifth year.

Harvest. Cherries are hand picked in 30 pound field lugs and hauled to the packer. In this study the grower contracts to have the cherry crop harvested at a cost of $5 per 30 pound field lug. Cherries are loaded on trucks in the field and hauled to packinghouses for $0.25 per lug. Sorting and packing result in a 75% fresh fruit pack-out, 20% cullage, and 5% brining cherries. Packinghouses in this study charge $5.50 per 18 pound box to sort and pack the fruit. Sweet cherries are sold fresh domestically and abroad. Cherries packed export for Japan require fumigation and other special handling. Cherry packinghouses levy an additional charge for these services. This study assumes an export packing charge of $7 per packed box.

Yields and Returns. Cherries begin bearing an economic crop in the fifth year and reach maturity in the ninth year. Gross field yields are sorted resulting in a 75% fresh fruit pack-out and 5% of the gross is sold for brining cherries. Assumed annual per acre yields for cherries measured in 30 pound field lugs (gross harvested yield), 18 pound packed boxes (packed yield), and pounds of cherries for brining are shown in Table C.

Table C. Annual yield per acre

Year	Gross	Packed	Brining
	30 lb	18 lb	lb
5	80	100	120
6	160	200	240
7	240	300	360
8	320	400	480
9+	360	450	540

Cherries sold for export typically command higher prices than those sold for domestic trade. This study assumes that 25% of the fresh market crop is exported to Japan and 10% to other export destinations, at a price of $32 per 18 pound box. Sixty five percent is sold domestically for $22 per box. Brining cherries are sold for $0.26 per pound. Prices and yields are used in this study to estimate income and net returns on Table 3. Returns over a range of yields are shown in Table 7.

Assessment. The California Cherry Advisory Board assesses commercially grown cherries in the state to pay for cherry promotion and research. The mandatory assessment is $0.30 per 18 pound packed box.

Labor. Hourly wages for workers are $9.00 for skilled workers and $6.75 per hour for field workers. Adding 34% for the employer's share of federal and state payroll taxes, insurance, and other possible benefits gives the labor rates shown of $12.06 per hour for skilled labor and $7.71 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.

Risk. While this study makes every effort to model a production system based on typical, real world practices, it cannot fully represent financial, agronomic and market risks which affect the profitability and economic viability of cherry 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, equipment repairs, and crop insurance. Cash overhead costs are included in Tables 1-5.

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. Salvage value for investments will vary.

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 going market cost of borrowed funds. The interest cost of post harvest operations are discounted back to the last harvest month using a negative interest charge.

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 0.666% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs $509 for the entire farm.

Office Expense. Office and business expenses are estimated at $110 per acre. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, road maintenance, and miscellaneous administrative charges.

Sanitation Services. Sanitation services provide portable toilets for the orchard and cost the farm $648 annually. This cost includes delivery and servicing of a single toilet and washing unit for 6 months.

Crop Insurance. Multi-peril crop insurance is purchased at a cost of $150 per acre.

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

Non-cash Overhead. Non-cash overhead is calculated as the capital recovery cost for equipment and other farm investments. Farm equipment on cherry orchards in the region is purchased new or used. 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 Tables 1, 2, 4, and 5.

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 (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 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.

Land. Land is valued at $7,000 per acre or $7,368 per producing acre. The land is assumed to be old orchard ground on class I soil.

Irrigation System. The orchard is irrigated using a sprinkler irrigation system. Water is pumped from a well and distributed to the orchard by way of underground mainlines and sprinklers. The life of the irrigation system is estimated at 20 years. The irrigation system is installed before the orchard is planted. The irrigation system is considered an improvement to the property and is shown in the non-cash overhead sections of Tables 1-3 and the investments portion of Table 5.

Establishment Cost. Costs to establish the orchard are used to determine capital recovery expenses, depreciation, 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 cherry trees through the first year fruit is harvested minus any returns from production. The *Total Accumulated Net Cash Cost* in the fifth year shown in Table 1 represents the establishment cost per acre. For this study, the cost is $6,220 per acre or $248,800 for the 40 acres planted to cherries. Establishment cost is amortized over the remaining 15 years that the orchard is assumed to be in production.

Equipment 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 repairs, fuel, and lubrication. The fuel, lube, and repair cost per acre for each operation in Table 1 is determined by multiplying the total hourly operating cost in Table 5 for each piece of equipment used for the selected operation 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.

Repairs, Fuel and Lube. Repair costs are based on purchase price, annual hours of use, total hours of life, and repair coefficients formulated by ASAE. Fuel and lubrication costs are also determined by ASAE equations based on maximum PTO horsepower, and fuel type. 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.

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For information concerning the above mentioned University of California publications contact UC DANR Communications Services (1-800-994-8849) or http://danrcs.ucdavis.edu or your local county Cooperative Extension office.

UC COOPERATIVE EXTENSION

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

SAN JOAQUIN VALLEY – NORTH 2001

	Cost Per Acre					
Year:	1st	2nd	3rd	4th	5th	6th
Total Tons Per Acre:					1.2	2.4
Domestic Fresh (18 lb boxes):					65	130
Export Fresh (18 lb boxes):					35	70
Brining (lbs):					120	240
Planting Costs:						
Land Preparation - Rip 2X	250					
Land Preparation - Disc 2X	17					
Land Preparation - Laser Level	125					
Land Preparation - Fumigate - Strip	870					
Survey, Plant & Paint Trees	167	1	1	2	2	2
Trees: 130 Per Acre @ $6.00 each	838	6	6	12	12	18
TOTAL PLANTING COSTS	2,267	7	7	14	14	20
Cultural Costs:						
Pruning & Training - Dormant		113	158	204	249	294
Pruning & Training - Summer	7	18	36	54	72	91
Brush Disposal				19	28	30
Fertilizer - N-P-K	17	17	21	29	37	45
Pest Control/Fertilize - Worm/Minor Nutrient Spray					39	39
Pest Control/Fertilize - Dormant Spray/Zinc		36	36	36	51	65
Pest Control - Delayed Dormant Spray					44	44
Pest Control - Fungicide 3X					103	187
Pest Control - Earwigs					13	12
Pest Control - Leafhopper/Mite 3X		61	61	102	103	103
Weed Control - Disc 5X Yrs 1-4	63	63	63	63		
Weed Control - Mow Middles 5X					73	73
Weed Control - Spot Spray 20% of Acreage - 2X	19	19	19	19	19	19
Weed Control - Fall Strip Spray	52	52	61	80	98	98
Irrigate	70	70	70	89	89	89
Growth Regulator - Bloom Stimulant Spray					46	46
Gibberellic Acid Spray					44	44
Pollination					50	50
Pickup Truck Use	57	57	57	57	57	57
ATV Use	46	46	46	46	46	46
TOTAL CULTURAL COSTS	331	552	628	798	1,261	1,432
Harvest & Assessment Costs:						
Pick					440	880
Load & Haul					20	40
Pack					650	1,300
Export Packing Charge					175	350
California Cherry Advisory Board					30	60
TOTAL HARVEST & ASSESSMENT COSTS					1,315	2,630
Interest On Operating Capital @ 10.51%	74	27	32	46	25	31
TOTAL OPERATING COSTS/ACRE	2,672	586	667	858	2,615	4,113

UC COOPERATIVE EXTENSION
Table 1. continued

	Cost Per Acre					
Year:	1st	2nd	3rd	4th	5th	6th
Tons Per Acre					120	240
Cash Overhead Costs:						
Office Expense	110	110	110	110	110	110
Liability Insurance	6	6	6	6	6	6
Sanitation Fees	9	9	9	9	9	9
Property Taxes	92	94	94	95	95	95
Property Insurance	12	14	14	14	14	14
Investment Repairs	48	48	48	48	48	48
TOTAL CASH OVERHEAD COSTS	277	281	281	282	282	282
TOTAL CASH COSTS/ACRE	2,949	867	948	1,140	2,897	4,395
INCOME/ACRE FROM PRODUCTION					2,581	5,162
NET CASH INCOME/ACRE FOR THE YEAR						767
NET CASH COSTS/ACRE FOR THE YEAR	2,949	867	948	1,140	316	
ACCUMULATED NET CASH COSTS/ACRE	2,949	3,816	4,764	5,904	**6,220**	5,452
Non-Cash Overhead Costs (Capital Recovery):						
Buildings	54	54	54	54	54	54
Shop Tools	17	17	17	17	17	17
Sprinkler Irrigation System	129	129	129	129	129	129
Hand Tools	6	6	6	6	6	6
Ladders - 50 Each	27	27	27	27	27	27
Land	494	494	494	494	494	494
Equipment	122	184	187	173	197	197
TOTAL INTEREST ON INVESTMENT	849	911	914	900	924	924
TOTAL COST/ACRE FOR THE YEAR	3,798	1,778	1,862	2,040	3,821	5,319
INCOME/ACRE FROM PRODUCTION					2,971	5,942
TOTAL NET INCOME/ACRE FOR THE YEAR						-623
TOTAL NET COST/ACRE FOR THE YEAR	3,798	1,778	1,862	2,040	850	
TOTAL ACCUMULATED NET COST/ACRE	3,798	5,576	7,438	9,478	10,328	9,704

UC COOPERATIVE EXTENSION

Table 2. COSTS PER ACRE to PRODUCE SWEET CHERRIES

SAN JOAQUIN VALLEY - NORTH 2001

Operation	Operation Time (Hrs/A)	Cash and Labor Cost per acre: Labor Cost	Fuel,Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
Cultural:							
Weed Control - Fall Strip Spray	0.30	4	1	93		98	
Weed Control - Mow 5X	3.00	43	30			73	
Weed Control - Spot Spray 2X	0.60	9	2	8		19	
Pest Control - Delayed Dormant	0.25	4	3	37		44	
Pest Control - Fungicide 3X	0.75	11	9	168		187	
Pest Control - Earwigs	0.50	5	0	9		13	
Pest Control-Leafhopper/Mite 3X	0.75	11	9	83		103	
Pest/Fertilize - Worm/Minor Nutrients	0.25	4	3	31		37	
Pest/Fertilize – Dormant/Zinc	0.25	4	3	58		65	
Fertilize - 500 lbs 20-6-27/acre	0.25	4	1	73		77	
Train & Prune - Summer	12.00	109				109	
Train & Prune - Dormant	40.00	362				362	
Brush Disposal	1.00	21	9			30	
Growth Regulator - Bloom Stimulant	0.25	4	3	40		46	
Gibberellic Acid Spray	0.25	4	3	37		44	
Pollination	0.00				50	50	
Trees - 3 Trees/acre replanted	0.00			19		19	
Backhoe-Plant & paint trees	2.00	18			42	61	
Irrigate 8X	2.00	18		95		113	
Pickup Truck Use	2.85	41	16			57	
ATV Use	2.85	41	5			46	
TOTAL CULTURAL COSTS	70.10	715	95	749	92	1,651	
Harvest:							
Pick	0.00			1,980		1,980	
Load & Haul	0.00			90		90	
Pack	0.00			2,925		2,925	
Export Packing Charge	0.00				1,106	1,106	
California Cherry Advisory Board	0.00			135		135	
TOTAL HARVEST COSTS	0.00			5,130	1,106	6,236	
Interest on operating capital @ 10.51%						68	
TOTAL OPERATING COSTS/ACRE		715	95	5,879	1,198	7,956	
TOTAL OPERATING COSTS/BOX*						18	
Cash Overhead:							
Office Expense						110	
Liability Insurance						6	
Sanitation Fees						9	
Crop Insurance						150	
Property Taxes						126	
Property Insurance						35	
Investment Repairs						48	
TOTAL CASH OVERHEAD COSTS						484	
TOTAL CASH COSTS/ACRE						8,440	
TOTAL CASH COSTS/BOX*						19	
Non-cash Overhead:		Per producing Acre		-- Annual Cost -- Capital Recovery			
Buildings		588		54		54	
Shop Tools		166		17		17	
Hand Tools		60		6		6	
Sprinkler System		1,400		129		129	
Ladders - 50 Total		192		27		27	
Land		7,368		494		494	
Cherry Establishment		6,220		670		670	
Equipment		1,508		196		196	
TOTAL NON-CASH OVERHEAD COSTS		17,504		1,594		1,594	
TOTAL COSTS/ACRE						10,003	
TOTAL COSTS/BOX*						22	

*450 boxes/acre (domestic + export)

UC COOPERATIVE EXTENSION

Table 3. COSTS AND RETURNS PER ACRE to PRODUCE SWEET CHERRIES

SAN JOAQUIN VALLEY - NORTH 2001

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Ac	Your Cost
GROSS RETURNS					
Domestic Fresh	292.00	box	22.00	6,424	
Export Fresh	158.00	box	32.00	5,056	
Brining	540.00	lb	0.26	140	
TOTAL GROSS RETURNS				11,620	
OPERATING COSTS					
Herbicide:					
Goal 2 XL	1.50	pint	12.25	18	
Surflan 4 AS	4.00	pint	15.71	63	
Gramoxone Extra	2.00	pint	5.74	11	
Roundup Ultra	1.20	pint	6.06	7	
Fungicide:					
Hydrated Lime	30.00	lb	0.19	6	
Copper Sulfate	30.00	lb	1.00	30	
Rovral	6.00	lb	24.00	144	
Rubigan	6.00	oz	3.56	21	
Insecticide:					
Dormant Emulsion	3.00	gal	2.64	8	
Superior Oil	4.00	gal	3.19	13	
Diazinon 50 W	4.00	lb	6.09	24	
Sevin Bait	10.00	lb	0.89	9	
Asana XL	41.00	oz	1.04	43	
Growth Regulator:					
Dormant Emulsion	15.00	gal	2.64	40	
ProGibb 4%	40.00	oz	0.93	37	
Adjuvant:					
K-27 Spreader	16.00	oz	0.15	2	
Nufilm P	12.00	oz	0.25	3	
Acaracide:					
Omite 30 WP	6.00	lb	7.89	47	
Fertilizer:					
Nutra-phos ZMP	10.00	lb	2.15	22	
20-6-27	500.00	lb	0.15	73	
Zinc Sulfate 36% Powder	30.00	lb	0.49	15	
Water:					
Water - Pumped	30.00	acin	3.15	95	
Tree:					
Tree - Sweet Cherry	3.00	each	6.25	19	
Contract:					
Pollination Fee	2.00	hive	25.00	50	
Plant & Paint Tree	3.00	tree	0.65	2	
Export Packing Fee	158.00	box	7.00	1,106	
Custom:					
Backhoe Tree	3.00	tree	13.50	41	
Harvest:					
Picker Charge	360.00	lug	3.30	1,188	
Contractor Charge	360.00	lug	2.20	792	
Load & Haul Charge	360.00	lug	0.25	90	
Packing Charge	450.00	box	6.50	2,925	
Assessment:					
Assessment Fee	450.00	box	0.30	135	

UC COOPERATIVE EXTENSION

Table 3. continued

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Ac	Your Cost
Labor (machine)	16.32	hrs	12.06	197	
Labor (non-machine)	57.25	hrs	9.05	518	
Fuel - Gas	9.04	gal	1.51	14	
Fuel - Diesel	30.73	gal	1.26	39	
Lube				8	
Machinery repair				35	
Interest on operating capital @ 10.51%				68	
TOTAL OPERATING COSTS/ACRE				7,956	
TOTAL OPERATING COSTS/BOX*				18	
NET RETURNS ABOVE OPERATING COSTS				3,665	
CASH OVERHEAD COSTS:					
Office Expense				110	
Liability Insurance				6	
Sanitation Fees				9	
Crop Insurance				150	
Property Taxes				126	
Property Insurance				35	
Investment Repairs				48	
TOTAL CASH OVERHEAD COSTS/ACRE				484	
TOTAL CASH COSTS/ACRE				8,440	
TOTAL CASH COSTS/BOX*				19	
NON-CASH OVERHEAD COSTS (Capital Recovery)					
Buildings				54	
Shop Tools				17	
Sprinkler system				129	
Hand Tools				6	
Ladders - 50 Total				27	
Land				494	
Cherry establishment				670	
Equipment				196	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				1,594	
TOTAL COSTS/ACRE				10,033	
TOTAL COSTS/BOX*				22	
NET RETURNS ABOVE TOTAL COSTS				1,587	

*450 boxes/acre (domestic + export)

UC COOPERATIVE EXTENSION

Table 4. MONTHLY CASH COSTS PER ACRE to PRODUCE SWEET CHERRIES

SAN JOAQUIN VALLEY - NORTH 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:													
Weed Control - Fall Strip											98		98
Pest Control – Dormant/Zinc											65		65
Train & Prune - Dormant	362												362
Brush Disposal	30												30
Growth Regulator - Bloom	46												46
Pest Control - Delayed Dormant		44											44
Pollination				50									50
Pest Control - Fungicide 3X			55	55	77								187
Trees - 3 trees/acre replanted			19										19
Backhoe-Plant & paint trees			61										61
Pest Control - Earwigs				13									13
Pest Control - Worm/Minor Nutrients				37									37
Weed Control - Mow 5X				15	15	15		15	15				73
Irrigate 8X				12	15	15	30	30	12				113
Weed Control - Spot Spray 2X				9			9						19
Gibberellic Acid Spray				44									44
Train & Prune - Summer						109							109
Pest Control-Leafhopper/Mites						18	66		18				103
Fertilize - 500 Lbs 20-6-27/acre						77							77
Pickup Truck Use	5	5	5	5	5	5	5	5	5	5	5		57
ATV Use	4	4	4	4	4	4	4	4	4	4	4		46
TOTAL CULTURAL COSTS	448	53	144	245	115	243	114	54	54	9	172		1,651
Harvest:													
Pick					1,980								1,980
Load & Haul					90								90
Pack					2,925								2,925
Export Packing Charge					1,106								1,106
California Cherry Advisory Board					135								135
TOTAL HARVEST COSTS					6,236								6,236
Interest on operating capital	4	4	6	8	63	-5	-3	-2	-2	-2	-2		69
TOTAL OPERATING COSTS/ACRE	452	57	150	252	6,415	238	111	51	52	8	170		7,956
TOTAL OPERATING COSTS/BOX*	1	0	0	1	13	0	0	0	0	0	0		17
Overhead:													
Office Expense	10	10	10	10	10	10	10	10	10	10	10		110
Liability Insurance		6											6
Sanitation Fees					9								9
Crop Insurance	150												150
Property Taxes	63						63						126
Property Insurance	18						18						35
Investment Repairs	4	4	4	4	4	4	4	4	4	4	4	4	48
TOTAL CASH OVERHEAD COSTS	245	20	14	14	23	14	95	14	14	14	14	4	484
TOTAL CASH COSTS/ACRE	697	78	164	266	6,437	252	206	65	66	22	184	4	8,440
TOTAL CASH COSTS/BOX*	1	0	0	1	13	1	0	0	0	0	0	0	18

*450 boxes/acre (domestic + export)

UC COOPERATIVE EXTENSION

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

SAN JOAQUIN VALLEY - NORTH 2001

ANNUAL EQUIPMENT COSTS

						Cash Overhead		
Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Insur-ance	Taxes	Total
01	25 HP 2WD Tractor	16,195	15	3,153	1,616	64	97	1,777
01	80 HP 2WD Tractor	35,500	15	6,911	3,543	141	212	3,896
01	ATV 4WD	7,430	7	2,818	1,036	34	51	1,121
01	Brush Rake - 10'	2,245	25	64	186	8	12	206
01	Front End Loader	4,852	15	466	504	18	27	548
01	Mower - Flail 10'	9,600	10	1,698	1,223	38	56	1,317
01	Orch.Sprayer 500 G	19,741	4	7,266	4,145	90	135	4,370
01	Pickup 1/2 ton	16,500	7	1,650	2,837	60	91	2,988
01	Spin/Spreader -3PT	1,738	20	91	158	6	9	173
01	Weed Sprayer 100 g	3,424	10	342	456	13	19	487
TOTAL		117,225		24,459	15,704	472	708	16,884
	60% of New Cost *	70,335		14,675	9,422	283	425	10,130

*Used to reflect a mix of new and used equipment

ANNUAL INVESTMENT COSTS

					Cash Overhead			
Description	Price	Yrs Life	Salvage Value	Capital Recovery	Insur-ance	Taxes	Repairs	Total
Buildings	44,693	20		4,121	149	223	894	5,387
Cherry Establishment	248,800	15		26,802	829	1,244	0	28,874
Hand Tools	4,595	15	460	476	17	25	92	610
Ladders - 50 Total	7,700	10		1,081	26	38	154	1,299
Land 80 acres	560,000	20	560,000	37,520	0	5,600	0	43,120
Shop Tools	12,637	15	1,264	1,310	46	70	253	1,679
Sprinkler system	56,000	20		5,163	186	280	1,120	6,750
TOTAL INVESTMENT	934,425		561,724	76,473	1,253	7481	2,513	87,719

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Crop Insurance	40	acre	150.00	6,000
Liability Insurance	80	acre	6.36	509
Office Expense	76	acre	110.00	8,360
Sanitation Fees	76	acre	8.52	648

UC COOPERATIVE EXTENSION

Table 6. HOURLY EQUIPMENT COSTS

SAN JOAQUIN VALLEY - NORTH 2001

			COSTS PER HOUR						
		Actual		Cash Overhead		Operating			
Yr	Description	Hours Used	Capital Recovery	Insur-ance	Taxes	Repairs	Fuel & Lube	Total Oper.	Total Costs/Hr.
01	25 HP 2WD Tractor	50.60	19.16	0.76	1.15	0.68	1.78	2.46	23.54
01	80 HP 2WD Tractor	297.00	7.16	0.29	0.43	1.51	5.69	7.20	15.07
01	ATV 4WD	285.00	2.18	0.07	0.11	0.55	1.16	1.71	4.07
01	Brush Rake - 10'	40.00	2.80	0.12	0.17	0.30	0.00	0.30	3.38
01	Front End Loader	40.00	7.56	0.27	0.40	0.68	0.00	0.68	8.90
01	Mower - Flail 10'	120.00	6.12	0.19	0.28	2.08	0.00	2.08	8.66
01	Orch.Sprayer 500 G	110.00	22.61	0.49	0.74	3.49	0.00	3.49	27.33
01	Pickup 1/2 ton	285.00	5.97	0.13	0.19	1.21	4.34	5.55	11.84
01	Spin/Spreader -3PT	10.00	9.48	0.37	0.55	0.64	0.00	0.64	11.03
01	Weed Sprayer 100 G	111.00	2.46	0.07	0.10	0.91	0.00	0.91	3.54

UC COOPERATIVE EXTENSION
Table 7. RANGING ANALYSIS
SAN JOAQUIN VALLEY - NORTH 2001

COSTS PER ACRE AT **VARYING YIELD** TO PRODUCE SWEET CHERRIES

	YIELD (boxes/acre)						
Domestic Fresh:	142	192	242	292	342	392	442
Export Fresh:	78	105	131	158	184	211	238
OPERATING COSTS/ACRE:							
Cultural Cost	1,651	1,651	1,651	1,651	1,651	1,651	1,651
Harvest Cost	3,033	4,100	5,168	6,236	7,304	8,372	9,439
Interest on operating capital	40	50	59	68	78	87	96
TOTAL OPERATING COSTS/ACRE	4,724	5,801	6,878	7,956	9,033	10,110	11,187
Total Operating Costs/box	21	20	18	18	17	17	16
CASH OVERHEAD COSTS/ACRE	484	484	484	484	484	484	484
TOTAL CASH COSTS/ACRE	5,208	6,285	7,362	8,440	9,517	10,594	11,671
Total Cash Costs/box	24	21	20	19	18	18	17
NON-CASH OVERHEAD COSTS/ACRE	1,594	1,594	1,594	1,594	1,594	1,594	1,594
TOTAL COSTS/ACRE	6,802	7,879	8,956	10,033	11,110	12,188	13,265
Total Costs/box	31	27	24	22	21	20	20

NET RETURNS PER ACRE **ABOVE OPERATING COSTS** FOR SWEET CHERRIES

PRICE ($)			YIELD						
Domestic (box)			142	192	242	292	342	392	442
	Export (box)		78	105	131	158	184	211	238
		Brining (lb)	264	356	448	540	632	724	816
13.00	23.00	0.23	-1,023	-808	-616	-401	-209	6	221
16.00	26.00	0.24	-361	86	507	954	1,375	1,822	2,269
19.00	29.00	0.25	302	981	1,631	2,309	2,859	3,638	4,317
22.00	32.00	0.26	965	1875	2754	3665	4544	5454	6365
25.00	35.00	0.27	1,627	2,770	3,878	5,020	6,128	7,271	8,413
28.00	38.00	0.28	2,290	3,664	5,001	6,376	7,712	9,087	10,461
31.00	41.00	0.29	2,952	4,559	6,124	7,731	9,297	10,903	12,510

NET RETURN PER ACRE **ABOVE CASH COST** FOR SWEET CHERRIES

PRICE ($)			YIELD						
Domestic (box)			142	192	242	292	342	392	442
	Export (box)		78	105	131	158	184	211	238
		Brining (lb)	264	356	448	540	632	724	816
13.00	23.00	0.23	-1,507	-1,292	-1,100	-885	-693	-478	-263
16.00	26.00	0.24	-845	-1	23	470	891	1,338	1,785
19.00	29.00	0.25	-182	497	1,147	1,825	2,475	3,154	3,833
22.00	32.00	0.26	480	1,391	2,270	3,181	4,060	4,970	5,881
25.00	35.00	0.27	1143	2286	3393	4536	5644	6787	7929
28.00	38.00	0.28	1,806	3,180	4,517	5,892	7,228	8,603	9,977
31.00	41.00	0.29	2,468	4,075	5,640	7,247	8,812	10,419	12,026

NET RETURNS PER ACRE **ABOVE TOTAL COST** FOR SWEET CHERRIES

PRICE ($)			YIELD						
Domestic (box)			142	192	242	292	342	392	442
	Export (box)		78	105	131	158	184	211	238
		Brining (lb)	264	356	448	540	632	724	816
13.00	23.00	0.23	-3,101	-2,886	-2,694	-2,479	-2,287	-2,072	-1,857
16.00	26.00	0.24	-2,438	-1,992	-1,571	-1,124	-703	-256	191
19.00	29.00	0.25	-1,776	-1,097	-447	232	882	1,560	2,239
22.00	32.00	0.26	-1,113	-202	676	1,587	2,466	3,377	4,287
25.00	35.00	0.27	-451	692	1,800	2,943	4,050	5,193	6,336
28.00	38.00	0.28	212	1,587	2,923	4,298	5,635	7,009	8,684
31.00	41.00	0.29	875	2,481	4,047	5,653	7,219	8,825	10,432

Box = 18 lbs