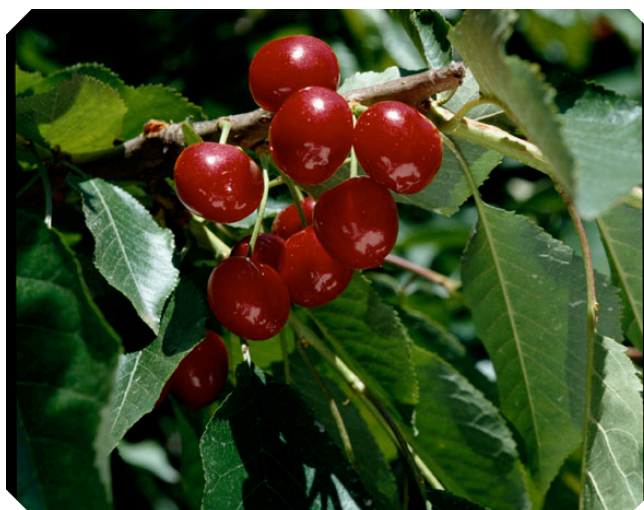

UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2005

SAMPLE COSTS TO ESTABLISH
AN ORCHARD AND PRODUCE
SWEET CHERRIES



SAN JOAQUIN VALLEY- NORTH

Micro-Sprinkler Irrigation

Prepared by:

Joe A. Grant

UC Cooperative Extension Farm Advisor, San Joaquin County

Janet L. Caprile

UC Cooperative Extension Farm Advisor, Contra Costa County

William C. Coates

UC Cooperative Extension Farm Advisor, San Benito County

Karen M. Klonsky

UC Cooperative Extension Specialist, Department of Agricultural and Resource Economics, UC Davis

Richard L. De Moura

UC Cooperative Extension Staff Research Associate, Department of Agricultural and Resource Economics, UC Davis

**SAMPLE COST TO ESTABLISH AN ORCHARD
and PRODUCE SWEET CHERRIES
San Joaquin Valley – North 2005**

CONTENTS

INTRODUCTION	2
ASSUMPTIONS	3
Establishment Cultural Practices and Material Inputs.....	3
Production Cultural Practices and Material Inputs.....	5
Cash Overhead	8
Non-Cash Overhead.....	9
REFERENCES.....	11
Table 1. SAMPLE COSTS PER ACRE TO ESTABLISH A CHERRY ORCHARD	12
Table 2. MATERIALS AND CUSTOM WORK COSTS PER ACRE – ESTABLISHMENT YEARS	14
Table 3. COSTS PER ACRE TO PRODUCE SWEET CHERRIES.....	16
Table 4. COSTS AND RETURNS PER ACRE TO PRODUCE SWEET CHERRIES	18
Table 5. MONTHLY CASH COSTS – SWEET CHERRIES.....	20
Table 6. RANGING ANALYSIS.....	21
Table 7. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT AND BUSINESS OVERHEAD	23
Table 8. HOURLY EQUIPMENT COSTS	24
Table 9. OPERATIONS, EQUIPMENT & MATERIALS	25

INTRODUCTION

Sample costs to establish an orchard and produce sweet cherries under micro-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 production practices considered typical for the crop and area, but these same practices will not apply to every situation. The sample costs for labor, materials, equipment and custom services are based on current figures. A blank column, “*Your Costs*”, in Tables 3 and 4 is provided for entering 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 are available and can be requested through the Department of Agricultural and Resource Economics, UC Davis, (530) 752-4424. Current studies and some archived studies can be downloaded from the department website at <http://coststudies.ucdavis.edu> or obtained from selected county UC Cooperative Extension offices.

The University of California is an affirmative action/equal opportunity employer
The University of California and the United States Department of Agriculture, Risk Management Agency, cooperating.

ASSUMPTIONS

The assumptions refer to Tables 1 to 9 and pertain to sample costs to establish a cherry orchard and produce cherries in the northern San Joaquin Valley. The cultural practices shown represent production operations and materials considered typical on 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 establishment and cultural practices will vary among growers within the region and from season to season due to variables such as weather, soil, and insect and disease pressure. The study does not represent a single farm and is intended as a guide only. **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 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 owner farms the orchard.

Establishment Cultural Practices and Material Inputs

The following practices refer to Tables 1 & 2.

Site Preparation. The land was previously planted to cherries. Orchard removal costs are not included. 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 twice to break up any hardpan, and pull-up old tree roots, then disced twice, followed by laser leveling. The field is then strip (tree row) fumigated, untarped. Fumigation before planting is based on previous crop history and nematode sampling. Custom operators are hired to subsoil, level, and fumigate.

Trees. No specific sweet cherry variety or rootstock is assumed in this study. Some varieties that may be planted are Bing (planted on the majority of the acreage), Chelan, Tieton and Rainier in the northern San Joaquin Valley and Brooks, Tulare, Garnet, in the southern San Joaquin Valley. Trees are planted on an 18-foot X 18-foot spacing or 134 trees per acre. The life of the orchard in this study is estimated to be 25 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. Carton or wraps are placed around the tree to protect against damage by vertebrate pests and herbicide drift. Pruning to train trees to the desired shape begins in the first year and is completed in the fifth year. Annual dormant pruning, beginning in the second year and summer pruning, beginning in the first year are done to maintain tree architecture and ensure vigor and productivity. In the fourth and subsequent years, the dormant prunings are placed in the row middles and shredded, while the summer prunings are shredded with the normal cultural practices.

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. In June of 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 to the wetted area (see Irrigation) using a fertilizer spreader. Nitrogen requirements are shown in Table A, but actual amounts to apply should be determined by leaf analysis. A cost for leaf sampling is not included, but will vary according to the number of

samples taken and nutrients analyzed. Nutra-Phos ZMP, a foliar micronutrient fertilizer, is applied beginning in the fourth year with the April worm spray.

Irrigation. The total irrigation cost includes the pumping cost and irrigation labor. Water for irrigation is supplied from a well and distributed to the orchard through a micro-sprinkler irrigation system wetting 70% of the orchard floor. The water cost for individual orchards will vary depending on the amount of water pumped, irrigation system (drip, micro-sprinkler, overhead sprinkler, flood, or other) energy source, and irrigation district. In this study, irrigation water is calculated to cost \$60.00 per acre-foot or \$5 per acre-inch. 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.

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

Pollination. In the first year of crop set (4th year), two bee hives per acre are placed in the field and maintained by the beekeeper.

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 (1/2 rate) than in the production years because of the smaller trees. Beginning in the fourth year, the full label rates are applied.

Nematodes. In this study an untarped strip application (tree row) of Methyl Bromide at 400 pounds per treated acre on a 9-foot strip (200 lbs per broadcast acre) is applied prior to planting by a custom applicator (Telone may be substituted). The land is assumed to be a cherry replant site without any nematodes. On sites where nematode (*Pratylenchus vulnus*) is present, a fully tarped broadcast application at approximately \$1,800 per acre may be required. On new sites not previously planted to cherries and without nematodes, fumigation is rarely necessary.

Insect. Beginning in the second year, four in-season treatments with Asana (late June, July, August, September) are made for leafhopper control to prevent the spread of Western X (Buckskin) disease. Onager is added to the first Asana treatment and Omite to the second for mite control. Beginning in April of the fourth year, Intrepid insecticide is applied post-bloom for fruit-feeding worms (green fruitworm and fruittree leafroller). A minor nutrient foliar fertilizer is mixed with the worm spray. Sevin spray is applied in April for earwig control beginning in the fourth year. A delayed dormant application of Superior Oil and Diazinon, an insecticide, begins in the fifth year. Leafhopper sprays are not needed in cherry growing areas where Western X disease is not present.

Diseases. A general bactericide application of copper sulfate plus hydrated lime (Bordeaux) and dormant oil begins in the late fall (November) of the second year. Fungicide treatments to control bloom and fruit diseases start in the fourth year. In this study, one application of Rovral plus Superior oil and one of Pristine are made during bloom in March and early April for control of bloom diseases, followed by a post-bloom (late-April) Cabrio treatment for powdery mildew. One spray of Elite and Elevate fungicides are applied prior to harvest (May) for controlling fruit decay fungi.

Weeds (Orchard Floor Management). During the first three years, weeds in the row middles are disced five times per year. In the fourth and subsequent years, the weeds in the middles are mowed five times per year. Beginning in the first year, weeds in the tree rows are controlled with fall-applied pre and postemergent (residual) herbicides - Goal and Surflan, and a contact herbicide, Gramoxone. The fall residual strip spray is applied to 30% of the orchard during the first three years and 50% thereafter. Two in-season spot sprays with the contact herbicide, Roundup, are applied to 20% of the orchard each time. During the first three years, the grower makes two passes per middle with a ten-foot wide disc and a single pass with a ten-foot wide mower thereafter.

Growth Regulators. Beginning in the fourth year, a late January application of calcium ammonium nitrate fertilizer (CAN 17) plus Entry surfactant is used to accelerate bloom and harvest. 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 fourth year.

Harvest. Cherries begin bearing an economic crop in the fourth or fifth year (fourth year in this study) and reach maturity in the ninth year. The cherries are hand picked into 30-pound field lugs and transferred to shallow bins, which are subsequently trucked to the packing facility. In this study the grower contracts to have the cherry crop harvested and hauled to the packer for \$0.40 per pound.

Yields and Returns. Gross field yields are sorted, resulting in a 75% fresh fruit pack-out and 5% are sold for brining cherries. Assumed annual per acre yields for cherries measured in 30 pound field lugs (gross field harvested yield), 18 pound packed boxes (sorted & 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 field lug	18 lb box	lb
4	60	75	60
5	80	100	120
6	160	200	240
7	240	300	360
8	320	400	480
9+	360	450	540

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 and is not based on any specific data. Sixty five percent are sold domestically for \$26 per box based on 2000 to 2004 Crop Reports. Brining cherries are sold for \$0.17 per pound based on the same reports.

Assessments. See Assessments in production section.

Production Cultural Practices and Material Inputs

Prune. Hand crews prune mature orchards in the winter (January) and early summer (June). Winter prunings are stacked in the row middles and shredded. Summer prunings are destroyed during regular disking or mowing operations.

Fertilization. An NPK fertilizer (20-6-27) is applied in June using a fertilizer spreader. The fertilizer is applied to the wetted area (see Irrigation) on the orchard floor. Nitrogen requirements are shown in Table A, but actual amounts to apply should be determined by leaf analysis. Minor nutrients (Nutra-Phos ZMP) are applied as a foliar with the April worm spray.

Irrigation. The total irrigation cost includes the pumping costs and irrigation labor. Water for irrigation is supplied from a well and delivered to the micro-sprinklers on the orchard floor. The micro-sprinklers are assumed to cover 70% of the orchard floor. 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 \$60.00 per acre-foot (\$5 per acre-inch). Irrigation labor is calculated at 0.08 hours per acre-inch. An average of 2.5 acre-feet (30 acre inches) is applied each year. No assumption is made about effective rainfall.

Pollination. Two hives per acre are placed in the orchard in March by a beekeeper.

Pest Management. The pesticides and rates mentioned in this cost study are listed in *UC Integrated Pest Management Guidelines, Cherries*. For information on other pesticides available, pest identification, monitoring, and management visit the UC IPM website at www.ipm.ucdavis.edu. Information and pesticide use permits are available through 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, other pesticides are available. Spray adjuvants are recommended for use with many pesticides, but are not accounted for in this study. Pesticide costs vary by location, brand, and grower volume. Pesticide costs in this study are from a single dealer and shown as full retail. **Cherry pest and disease management is determined by the seasonal pest pressure and will vary among growers and years.**

Pest Control Adviser (PCA). A state-licensed pest control adviser monitors the field for agronomic problems including pests, diseases, and nutritional status. Growers may hire private consultants on a per acre basis or receive a similar service as part of an agreement with an agricultural chemical and fertilizer company. Separate costs for a PCA are not included in this study.

Insect. Superior Oil and Diazinon are applied as a delayed dormant spray (February) to help manage scale, aphids, mites, and lepidopterous pests. In April, Intrepid insecticide is applied post-bloom for fruit-feeding worms (green fruitworm and fruittree leafroller). A minor nutrient foliar fertilizer is mixed with the worm spray. Four in-season treatments (late June, July, August, September) with Asana are made for leafhopper control to prevent the spread of Western X (Buckskin) disease. Onager is added to the first Asana treatment and Omite to the second for mite control. A Sevin spray for earwig control is applied in April. Leafhopper sprays are not needed in cherry growing areas where Western X disease is not present.

Diseases. Fungicides treatments are made to control bloom and fruit diseases such as Brown Rot, Botrytis rot and Powdery Mildew. In this study, one application of Rovral plus Superior oil and one of Pristine are made during bloom in March and early April for control of bloom diseases, followed by a post-bloom (late April) Cabrio treatment for powdery mildew. One spray with Elite and Elevate fungicides are applied in May prior to harvest for controlling fruit decay fungi. A general bactericide application of copper sulfate, hydrated lime (Bordeaux) and dormant oil is applied in the late fall (November) or early winter.

Weeds (Orchard Floor Management). Middles are mowed five times per year – April, May, June, August, September. Weeds in the tree rows are controlled with fall-applied pre- and post emergent (residual) herbicides. Goal, Surflan and Gramoxone are used in a single pre-emergence fall (November) treatment applied to 50% (9 ft. strip) of the orchard. Two in-season (April, July) spot sprays with the contact herbicide, Roundup, are applied to 20% of the orchard each time.

Growth Regulators. A late January application of calcium ammonium nitrate fertilizer plus Entry surfactant is used to accelerate bloom and harvest. ProGibb (gibberellic acid, GA) is applied to the orchard in April to enhance fruit firmness and size. GA is not used in every orchard every year.

Plant. Weak or dead trees are replaced each year. It is assumed that three trees are replanted each year. The cost includes a custom backhoe service to dig out the old trees, planting labor, wraps, and whitewash.

Harvest. Cherry harvest begins in May and is usually completed by mid June. The cherries are hand picked into 30-pound field lugs, then transferred into shallow bins that are trucked to the packing facility. In this study the grower contracts to have the cherry crop harvested and hauled to the packer for \$0.40 per pound. Pack-out (amount of fruit delivered from the field that meets quality standards for packing and sale) will vary from year to year, due to various factors such as weather, diseases, insects, and crop yield. Sorting and packing in this study results in a 75% fresh fruit pack-out, 20% cullage, and 5% brining cherries. Packing house charges and calculations will vary and are also affected by the pack-out rate. A great variety of packages are now used in the cherry industry due to the increased number of export destinations, popularity of consumer packaging, and increased sales through warehouse retailers. The houses charge for total fruit delivered (in-charge) and for the net fruit packed (out-charge). In this study, the packing charge is assumed to be \$8.50 per 18 pound box using 75% packout. Sweet cherries are sold fresh domestically and abroad. Cherries packed for export to Japan and some other countries 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. The average field yield over the remaining life of the orchard is 5.40 tons (10,800 lbs) per acre. Fresh packout will vary from year to year, but for this study, gross field yields are sorted resulting in a 75% fresh fruit pack-out with 5% of the gross sold for brining cherries. Assumed annual per acre yields for cherries measured in 30-pound field lugs (gross field harvested yield), 18-pound packed boxes (sorted & packed yield), and pounds of cherries for brining are shown in Table C.

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 and is not based on any specific data. The remaining 65% are sold domestically for \$26 per box based on 2000 to 2004 Crop Reports. Brining cherries are sold for \$0.17 per pound based on the same reports. Prices and yields are used in this study to estimate income and net returns on Table 4. Returns over a range of yields are shown in Table 6.

Assessment. The California Cherry Advisory Board assesses commercially grown Bing, Rainier, Van and Lambert cherries to pay for cherry promotion and research. Other varieties are not assessed. The mandatory assessment is \$0.02 per packed pound. One-half of this assessment is paid by the grower and one-half is paid by the packing house.

Pickup/ATV. The study assumes a business use mileage for the pickup and ATV. The All Terrain Vehicle or ATV is used for monitoring the orchard and checking the irrigation. The costs are estimated and not from any specific data.

Labor. The basic hourly wage for equipment operators is \$9.00 per hour and for general labor is \$6.75 per hour. Adding payroll overhead of 43% gives labor rates of \$12.87 for equipment operators and \$9.65 per hour for general labor. The overhead includes the employers' share of federal and California state payroll taxes, workers' compensation insurance for fruit orchards (code 0016), and a percentage for other possible benefits. Workers' compensation insurance costs will vary among growers, but for this study the cost is based upon the average industry final rate as of January 1, 2005 (California Department of Insurance). Labor for operations involving machinery are 20% higher than the operation time given in Table 3 to account for the extra labor involved in equipment set up, moving, maintenance, work breaks, and field repair.

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 7.65% 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.

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 that affect the profitability and economic viability. Crop insurance is a risk management tool available to growers.

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.

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.

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 0.69% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs \$529 for the entire farm.

Office Expense. Office and business expenses are estimated at \$120 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 farm and cost the orchard \$900 annually. The monthly service charge is an average of four to six California sanitation companies and locations. This cost includes delivery and servicing of a single toilet and washing unit for 6 months. The sanitation costs are estimated and not based on any specific grower data. Growers using contract labor may not have a cost because many labor contractors provide their own sanitation facilities.

Crop Insurance. Multi-peril crop insurance, a revenue program with weather trigger, at 75% of established federal price is purchased at a cost of \$168 per acre.

Management and Supervisor Wages. Wages for management are not included as cash cost. Returns above total costs are 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.

Capital Recovery Costs. Capital recovery costs are 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 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 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 6.01% used to calculate capital recovery cost is the USDA-ERSs 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.

Land. Land values (2005 Trends) are affected by many factors, and range from \$5,000 to \$15,000 per acre. Producing orchards range in price from \$13,000 to \$18,000 per acre, or more. The cropland in this study is valued at \$10,000 per acre. The land is assumed to be Class I soil formerly planted to cherries.

Irrigation. The orchard is irrigated using a micro-sprinkler irrigation system with 70% coverage. The sprinklers were installed prior to planting and are expected to have a 25-year life, the same as the orchard. The sprinklers will be removed when the orchard is removed. Water is pumped from a well and distributed to the orchard by way of underground mainlines. The well, a 25 horsepower (HP) pump and the installation labor are included in the irrigation system cost. This well and pump serve only the 40-acre orchard. Other well(s) are used on the remaining property and are not included. Water is pumped from a 120-foot depth. The irrigation system is considered an improvement to the property and has a 25-year life.

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 fourth year shown in Table 1 represents the establishment cost per acre. For this study, the cost is

\$6,429 per acre or \$257,160 for the 40 acres planted to cherries. Establishment cost is amortized over the remaining 21 years that the orchard is assumed to be in production.

Equipment Costs. 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 in the Whole Farm Equipment, Investment and Business Overhead Tables. 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.

REFERENCES

- American Society of Farm Managers and Rural Appraisers. 2005. *Trends in Agricultural Land & Lease Values*. California Chapter of the American Society of Farm Managers and Rural Appraisers. Woodbridge, CA. pp 15-21.
- American Society of Agricultural Engineers. 1994. *American Society of Agricultural Engineers Standards Yearbook*. Russell H. Hahn and Evelyn E. Rosentreter (ed.) St. Joseph, MO. 41st edition.
- Boehlje, Michael D., and Vernon R. Eidman. 1984. *Farm Management*. John Wiley and Sons. New York, NY.
- California State Automobile Association. 2005. *Gas Price Survey 2004*. AAA Public Affairs, San Francisco, CA.
- Doanes. *Facts and Figures for Farmers*. 1984. Doane Publishing, St. Louis, MO. p. 290.
- Grant, Joe A., Janet L. Caprile, Karen M. Klonsky, Kathleen M. Kelley, and Richard L. De Moura. *Sample Costs to Establish an Orchard and Produce Sweet Cherries*. 2001. University of California Cooperative Extension. Davis, CA.
- Energy Information Administration. 2004. *Weekly Retail on Highway Diesel Prices*. Internet accessed January 2005. <http://tonto.eis.doe.gov/oog/info/wohdp>.
- University of California Statewide IPM Project. 2002. *UC Pest Management Guidelines, Cherries*. University of California, Davis, CA. <http://www.ipm.ucdavis.edu>
- United States Department of Agriculture-Economic Reporting Service. *Farm Financial Ratios Indicating Solvency and Profitability 1960 – 2002, California*. 2005. www.ers.usda.gov/data/farbalancesheet/fbsdmu.htm. Internet; accessed January 4, 2005.

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 2005

	Year:	Cost Per Acre					
		1st	2nd	3rd	4th	5th	6th
Total Field Tons Per Acre:					0.9	1.2	2.4
Domestic Fresh (18 lb boxes):					50	65	130
Export Fresh (18 lb boxes):					25	35	70
Brining (lbs):					60	120	240
Planting Costs:							
Land Preparation: Rip 2X (custom)		250					
Land Preparation: Disc 2X		16					
Land Preparation: Laser Level (custom)		150					
Land Preparation: Fumigate-Tree Row (custom)		650					
Plant: Survey, Plant, Paint Trees, Wrap (Replant Yrs 2+)		891	1	1	3	3	3
Trees: 134 Per Acre @ \$6.65 each (Replants Yrs 2-3, 1. Yrs 4+, 2)		185	7	7	13	13	13
TOTAL PLANTING COSTS		2,142	8	8	16	16	16
Cultural Costs:							
Prune & Train: Dormant			121	169	217	265	314
Prune: Shred Brush					7	7	7
Growth Regulator: Bloom Stimulant Spray (CAN17, Entry)					97	97	97
Insect: Delayed Dormant Spray (Superior Oil, Diazinon)						54	54
Pollination: (2 hives)					100	100	100
Disease: Bloom & Fruit Diseases (Rovral, Oil)					56	56	56
Insect: Earwigs (Sevin)					45	45	45
Disease: Bloom & Fruit Diseases (Pristine)					38	38	38
Insect: Worm (Intrepid). Fertilize: Foliar Nutrient Spray (NutraPhos)					56	56	56
Weed: Disc 5X (Yrs 1-3, 2 passes/middle)		45	45	45			
Weed: Mow Middles 5X (1 pass per middle)					27	27	27
Irrigate: 8X (water and labor)		104	104	104	139	139	139
Disease: Powdery Mildew (Cabrio)					27	27	27
Weed: Spot Spray 20% of acres - 2X (Roundup)		18	18	18	18	18	18
Growth Regulator: Gibberellic Acid Spray (ProGibb)					69	69	69
Disease: Preharvest Fruit Diseases (Elite & Elevate)					110	110	110
Prune & Train: Summer		8	19	39	58	77	97
Insect: Leafhopper (Asana), Mite (Onager). Yrs 2-3, 1/2 label rate			46	46	83	83	83
Fertilize: (20-6-27) [Yr 1-2 hand applied]		22	22	30	42	54	66
Insect: Leafhopper/Mite (Asana, Omite) Yrs 2-3, 1/2 label rate			40	40	71	71	71
Insect: Leafhopper (Asana) 2X, 1/2 label rate			30	30	44	44	44
Weed: Fall Strip Spray (Goal, Surflan, Gramoxone) Yr 1-3, 30%, Yr 4+, 50% of acres		50	50	50	80	80	80
Insect: Fall Spray (Oil, Copper, Lime). Yrs 2-3, 1/2 label rate			37	37	64	64	64
Pickup Truck Use		64	64	64	64	64	64
ATV Use		50	50	50	50	50	50
TOTAL CULTURAL COSTS		361	646	723	1,562	1,695	1,776
Harvest & Assessment Costs:							
Pick & Haul					720	960	1,920
Pack					638	850	1,700
Export Packing Charge					175	245	490
California Cherry Advisory Board Assessment					14	18	36
TOTAL HARVEST & ASSESSMENT COSTS					1,547	2,073	4,146
Interest On Operating Capital @ 7.65%		52	23	27	17	23	38
TOTAL OPERATING COSTS/ACRE		2,555	677	758	3,142	3,807	5,976

UC COOPERATIVE EXTENSION

Table 1. continued

	Year:	Cost Per Acre					6th
		1st	2nd	3rd	4th	5th	
Total	Field Tons Per Acre:				0.9	1.2	2.4
Cash Overhead Costs:							
Office Expense		120	120	120	120	120	120
Liability Insurance		7	7	7	7	7	7
Sanitation Fees		23	23	23	23	23	23
Property Taxes		124	125	126	128	128	128
Property Insurance		13	13	14	16	16	16
Investment Repairs		61	61	61	65	65	65
TOTAL CASH OVERHEAD COSTS		348	349	351	359	359	359
TOTAL CASH COSTS/ACRE		2,903	1,026	1,109	3,501	4,166	6,335
INCOME/ACRE FROM PRODUCTION		0	0	0	2,110	2,830	5,661
NET CASH INCOME/ACRE FOR THE YEAR		0	0	0	0	0	0
NET CASH COSTS/ACRE FOR THE YEAR		2,903	1,026	1,109	1,391	1,336	674
ACCUMULATED NET CASH COSTS/ACRE		2,903	3,929	5,038	6,429	7,764	8,439
Non-Cash Overhead Costs: (Capital Recovery)							
Buildings		77	77	77	77	77	77
Shop Tools		19	19	19	19	19	19
Sprinkler Irrigation System		70	70	70	70	70	70
Irrigation (pump, well)		69	69	69	69	69	69
Ladders - 50 Each					32	32	32
Land		633	633	633	633	633	633
Equipment		72	89	100	121	123	123
TOTAL INTEREST ON INVESTMENT		940	957	968	1,021	1,023	1,023
TOTAL COST/ACRE FOR THE YEAR		3,843	1,983	2,077	4,522	5,189	7,358
INCOME/ACRE FROM PRODUCTION		0	0	0	2,110	2,830	5,661
TOTAL NET INCOME/ACRE FOR THE YEAR		0	0	0	0	0	0
TOTAL NET COST/ACRE FOR THE YEAR		3,843	1,983	2,077	2,412	2,359	1,697
TOTAL ACCUMULATED NET COST/ACRE		3,843	5,826	7,903	10,315	12,673	14,371

UC COOPERATIVE EXTENSION
Table 2. MATERIALS AND CUSTOM WORK COSTS PER ACRE - ESTABLISHMENT YEARS
 SAN JOAQUIN VALLEY - NORTH 2005

	Unit	\$/Unit	Year 1		Year 2		Year 3		Year 4		Year 5		Year 6	
			units	\$	units	\$	units	\$	units	\$	units	\$	units	\$
OPERATING COSTS														
Tree/Tree Aids:														
Sweet Cherry Tree	tree	6.65	134.00	891	1.00	7	1.00	7	2.00	13	2.00	13	2.00	13
Paint/Whitewash	tree	0.01	134.00	1	1.00	0	1.00	0	2.00	0	2.00	0	2.00	0
Carton/Tree Wrap	tree	0.12	134.00	16	1.00	0	1.00	0	2.00	0	2.00	0	2.00	0
Irrigation:														
Water (growing season)	acin	5.00	18.00	90	18.00	90	18.00	90	24.00	120	24.00	120	24.00	120
Fertilizer:														
20-6-27	lb	0.22	56.00	12	56.00	12	111.00	24	167.00	36	222.00	48	278.00	61
CAN 17 (growth regulator)	lb	0.13							316.00	40	316.00	40	316.00	40
Nutra-Phos ZMP	lb	1.60							10.00	16	10.00	16	10.00	16
Herbicide:														
Goal 2XL	pint	16.41	0.90	15	0.90	15	0.90	15	1.50	25	1.50	25	1.50	25
Surflan 4 AS	pint	9.90	2.40	24	2.40	24	2.40	24	4.00	40	4.00	40	4.00	40
Gramoxone Max	pint	7.62	0.75	6	0.75	6	0.75	6	1.25	10	1.25	10	1.25	10
Roundup Ultra Max	pint	7.62	0.80	6	0.80	6	0.80	6	0.80	6	0.80	6	0.80	6
Insecticide:														
Asana XL	floz	1.08			24.00	26	24.00	26	48.00	52	48.00	52	48.00	52
Intrepid 2F	floz	2.58							12.00	31	12.00	31	12.00	31
Diazinon 50W	lb	7.79							4.00	31	4.00	31	4.00	31
Dormant Emulsion Oil	gal	3.85	1.50	6	1.50	6	1.50	6	3.00	12	3.00	12	3.00	12
Omite 30WP	lb	8.15	3.00	24	3.00	24	3.00	24	6.00	49	6.00	49	6.00	49
Onager	floz	3.38	9.00	30	9.00	30	9.00	30	18.00	61	18.00	61	18.00	61
Superior Oil	gal	3.49							1.00	3	5.00	17	5.00	17
Sevin 80S	lb	7.20							5.00	36	5.00	36	5.00	36
Fungicide:														
Copper Sulfate	lb	1.26	15.00	19	15.00	19	15.00	19	30.00	38	30.00	38	30.00	38
Hydrated Lime	lb	0.21	15.00	3	15.00	3	15.00	3	30.00	6	30.00	6	30.00	6
Cabrio	oz	2.06							9.00	19	9.00	19	9.00	19
Elite 45WP	oz	4.75							8.00	38	8.00	38	8.00	38
Elevate 50 WDG	lb	42.45							1.50	64	1.50	64	1.50	64
Pristine	oz	2.40							12.00	29	12.00	29	12.00	29
Rovral 4F	pint	27.40							1.60	44	1.60	44	1.60	44
Growth Regulator:														
ProGibb 4%(Gibberellic Acid)	floz	1.68							36.00	60	36.00	60	36.00	60

UC COOPERATIVE EXTENSION
Table 2 continued
 SAN JOAQUIN VALLEY - NORTH 2005

	Unit	\$/Unit	Total Per Acre									
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6				
			units	\$	units	\$	units	\$	units	\$	units	\$
Adjuvant/Surfactant:												
Entry	gal	48.40					1.00	48	1.00	48	1.00	48
Assessments:												
California Cherry Advisory Board	lb	0.01					1,350.00	14	1800.00	18	3600.00	36
Custom:												
Subsoil/Rip	acre	125.00	2.00	250								
Laser Level	acre	150.00	1.00	150								
Fumigate (Methyl Bromide) Tree Row	acre	650.00	1.00	650								
Layout, Plant, Paint, Headback	acre	1.25	134.00	168			1.00	1	2.00	3	2.00	3
Harvest Packing Charge	18# box	8.50					75.00	638	100.00	850	200.00	1,700
Export Packing Charge	18# box	7.00					25.00	175	35.00	245	70.00	490
Pick & Haul	lb	0.40					1800.00	720	2400.00	960	4800.00	1,920
Pollination (Hives)	hive	50.00					2.00	100	2.00	100	2.00	100
Labor (machine)	hrs	12.87	10.64	137	11.76	151	12.06	155	14.38	185	14.75	190
Labor (non-machine)	hrs	9.65	3.30	32	17.00	164	23.00	222	30.42	294	37.42	361
Fuel - Gas	gal	2.02	9.03	18	9.03	18	9.03	18	9.03	18	9.03	18
Fuel - Diesel	gal	1.51	11.00	17	15.02	23	15.36	23	23.72	36	25.04	38
Lube			5	5		6		6		8		8
Machinery repair			16	16		22		23		38		40
Interest @ 7.65%			52	52		23		27		17		23
Total Operating Costs/Acre			2,555	677		756		3,140		3,806		5,974

UC COOPERATIVE EXTENSION
Table 3. COSTS PER ACRE to PRODUCE SWEET CHERRIES
 SAN JOAQUIN VALLEY - NORTH 2005

Operation	Operation Time (Hrs/A)	Cash and Labor Cost per acre				Total Cost	Your Cost
		Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/ Rent		
Cultural:							
Prune: Dormant	40.00	386	0	0	0	386	
Prune: Shred Prunings	0.23	4	3	0	0	7	
Growth Regulator: Bloom Stimulant (CAN17, Entry)	0.31	5	4	89	0	97	
Insect: Delayed Dormant (Superior Oil, Diazinon)	0.31	5	4	45	0	54	
Pollination: (2 hives)	0.00	0	0	0	100	100	
Disease: Brown Rot (Rovral, Oil)	0.31	5	4	47	0	56	
Trees - 3 Trees/acre replanted	0.00	0	0	20	0	20	
Plant: Replant (backhoe, plant, paint, wrap trees)	0.00	0	0	0	49	49	
Insect: Earwigs (Sevin)	0.31	5	4	36	0	45	
Disease: Bloom & Fruit (Pristine)	0.31	5	4	29	0	38	
Insect: Worm (Intrepid). Fertilize: Foliar (NutraPhos)	0.31	5	4	47	0	56	
Weed: Mow 5X (1 10ft pass/middle)	0.93	14	13	0	0	27	
Irrigate: (water & labor) 8X	2.40	23	0	150	0	173	
Disease: Powdery Mildew (Cabrio)	0.31	5	4	19	0	27	
Weed: Spot Spray 20% of acres (Roundup) 2X	0.60	9	3	6	0	18	
Growth Regulator: Gibberellic Acid (ProGibb)	0.31	5	4	60	0	69	
Disease: Preharvest Fruit Decay Fungi (Elevate, Elite)	0.31	5	4	102	0	110	
Prune: Summer	12.00	116	0	0	0	116	
Insect: Leafhopper/Mites (Asana/Onager)	0.31	5	4	74	0	83	
Fertilize: (20-6-27)	0.25	4	2	109	0	115	
Insect: Leafhopper/Mites (Asana/Omite)	0.31	5	4	62	0	71	
Insect: Leafhopper (Asana) 2X	0.61	9	8	26	0	44	
Weed: Fall Strip (Goal, Surflan, Gramoxone)	0.30	5	1	74	0	80	
Disease: Bactericide (Copper, Lime, Oil).	0.31	5	4	56	0	64	
Pickup Truck Use	2.85	44	20	0	0	64	
ATV Use	2.85	44	6	0	0	50	
TOTAL CULTURAL COSTS	66.74	715	104	1,050	149	2,018	
Harvest:							
Pick & Haul	0.00	0	0	0	4,320	4,320	
Pack	0.00	0	0	0	3,825	3,825	
Export Packing Charge	0.00	0	0	0	1,106	1,106	
California Cherry Advisory Board	0.00	0	0	81	0	81	
TOTAL HARVEST COSTS	0.00	0	0	81	9,251	9,332	
Interest on operating capital @ 7.65%						73	
TOTAL OPERATING COSTS/ACRE		715	104	1,131	9,400	11,422	
Cash Overhead:							
Office Expense						120	
Liability Insurance						7	
Sanitation Fees						23	
Crop Insurance						168	
Property Taxes						160	
Property Insurance						38	
Investment Repairs						65	
TOTAL CASH OVERHEAD COSTS						581	
TOTAL CASH COSTS/ACRE						12,003	

UC COOPERATIVE EXTENSION
Table 3. continued
 SAN JOAQUIN VALLEY - NORTH 2005

Operation	Operation Time (Hrs/A)	Cash and Labor Cost per acre		Total Cost	Your Cost
Non-cash Overhead:	Per producing Acre	-- Annual Cost -- Capital Recovery			
Buildings 2400 sqft	1,053	77		77	
Tools: Shop/Field	197	19		19	
Micro-Sprinkler System	900	70		70	
Irrigation System (pump & well)	875	69		69	
Ladders: (50)	239	32		32	
Land	10,526	633		633	
Orchard Establishment	6,429	547		547	
Equipment	1,071	123		123	
TOTAL NON-CASH OVERHEAD COSTS	21,290	1,570		1,570	
TOTAL COSTS/ACRE				13,573	

UC COOPERATIVE EXTENSION
Table 4. COSTS AND RETURNS PER ACRE to PRODUCE SWEET CHERRIES
 SAN JOAQUIN VALLEY - NORTH 2005

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Domestic Fresh	292.00	box	26.00	7,592	
Export Fresh	158.00	box	32.00	5,056	
Brining	540.00	lb	0.17	92	
TOTAL GROSS RETURNS				12,740	
OPERATING COSTS					
Herbicide:					
Goal 2 XL	1.50	pint	16.41	25	
Surflan 4 AS	4.00	pint	9.90	40	
Gramoxone Max	1.25	pint	7.62	10	
Roundup UltraMax	0.80	pint	7.62	6	
Fungicide:					
Hydrated Lime	30.00	lb	0.21	6	
Copper Sulfate	30.00	lb	1.26	38	
Cabrio	9.00	oz	2.06	19	
Elevate 50 WDG	1.50	lb	42.45	64	
Elite 45WP	8.00	oz	4.75	38	
Pristine	12.00	oz	2.40	29	
Rovral 4F	1.60	oz	27.40	44	
Insecticide:					
Asana XL	48.00	floz	1.08	52	
Diazinon 50 W	4.00	lb	7.79	31	
Dormant Emulsion	3.00	gal	3.85	12	
Intrepid 2F	12.00	lb	2.58	31	
Onager	18.00	floz	3.38	61	
Omite 30 WP	6.00	lb	8.15	49	
Sevin 80S	5.00	lb	7.20	36	
Superior Oil	5.00	gal	3.49	17	
Growth Regulator:					
CAN 17 (17-0-0) [see Fertilizer]					
ProGibb 4%	36.00	floz	1.68	60	
Adjuvant:					
Entry	1.00	gal	48.40	48	
Fertilizer:					
Nutra-phos ZMP (Ca, S, Mn, Zn, P) 20-6-27	10.00	lb	1.60	16	
CAN 17 (17-0-0) [12.64 lbs/gal]	500.00	lb	0.22	109	
	316.00	lb	0.13	40	
Water:					
Water - Pumped	30.00	acin	5.00	150	
Tree:					
Tree - Sweet Cherry	3.00	each	6.65	20	
Tree Aids:					
Carton/Tree Wrap	3.00	each	0.12	0	
Paint/Whitewash	3.00	each	0.01	0	
Custom/Contract:					
Pollination Fee	2.00	hive	50.00	100	
Plant & Paint Tree	3.00	tree	1.25	4	
Backhoe Tree	3.00	tree	15.00	45	
Custom/Contract - Harvest:					
Picker Charge (includes haul to packinghouse)	10,800.00	lb	0.40	4,320	
Packing Charge	450.00	box	8.50	3,825	
Export Packing Fee	158.00	box	7.00	1,106	
Assessment:					
Assessment Fee (Growers Portion)	8,100.00	lb	0.01	81	

UC COOPERATIVE EXTENSION
Table 4. continued
 SAN JOAQUIN VALLEY - NORTH 2005

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
Labor (machine)	14.75	hrs	12.87	190	
Labor (non-machine)	54.40	hrs	9.65	525	
Fuel - Gas	9.03	gal	2.02	18	
Fuel - Diesel	25.04	gal	1.51	38	
Lube				8	
Machinery repair				40	
Interest on operating capital @ 7.65%				73	
TOTAL OPERATING COSTS/ACRE				11,422	
NET RETURNS ABOVE OPERATING COSTS				1,317	
CASH OVERHEAD COSTS:					
Cash Overhead:				120	
Office Expense				7	
Liability Insurance				23	
Sanitation Fees				168	
Crop Insurance				160	
Property Taxes				38	
Property Insurance				65	
TOTAL CASH OVERHEAD COSTS/ACRE				581	
TOTAL CASH COSTS/ACRE				12,003	
NON-CASH OVERHEAD COSTS (Capital Recovery)					
Buildings 2400 sqft				77	
Tools: Shop/Field				19	
Micro-Sprinkler System				70	
Irrigation System (pump & well)				69	
Ladders: (50)				32	
Land				633	
Orchard Establishment				547	
Equipment				123	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				1,570	
TOTAL COSTS/ACRE				13,573	
NET RETURNS ABOVE TOTAL COSTS				-833	

UC COOPERATIVE EXTENSION
Table 5. MONTHLY CASH COSTS PER ACRE to PRODUCE SWEET CHERRIES
 SAN JOAQUIN VALLEY - NORTH 2005

	JAN 05	FEB 05	MAR 05	APR 05	MAY 05	JUN 05	JUL 05	AUG 05	SEP 05	OCT 05	NOV 05	DEC 05	TOTAL
Beginning JAN 05													
Ending DEC 05													
Cultural:													
Prune: Dormant	386												386
Prune: Shred Prunings	7												7
Growth Regulator: Bloom Stimulant (CAN17, Entry)	97												97
Insect: Delayed Dormant (Superior Oil, Diazinon)		54											54
Pollination: (2 hives)			100										100
Disease: Brown Rot (Rovral, Oil)			56										56
Trees - 3 Trees/acre replanted			20										20
Plant: Replant (backhoe, plant, paint, wrap trees)			49										49
Insect: Earwigs (Sevin)				45									45
Disease: Bloom & Fruit (Pristine)				38									38
Insect: Worm (Intrepid). Fertilize: Foliar (Nutraphos)				56									56
Weed: Mow 5X (1 10ft pass/middle)				5	5	5							27
Irrigate: (water & labor) 8X				17	23	23	46	46					173
Disease: Powdery Mildew (Cabrio)				27									27
Weed: Spot Spray 20% of acres (Roundup) 2X				9			9						18
Growth Regulator: Gibberellic Acid (ProGibb)				69									69
Disease: Preharvest Fruit Decay Fungi (Elevate, Elite)					110								110
Prune: Summer						116							116
Insect: Leafhopper/Mites (Asana/Onager)						83							83
Fertilize: (20-6-27)						115							115
Insect: Leafhopper/Mites (Asana/Omitie)							71						71
Insect: Leafhopper (Asana) 2X								22			22		44
Weed: Fall Strip (Goal, Surflan, Gramoxone)											80		80
Disease: Bactericide (Copper, Lime, Oil).											64		64
Pickup Truck Use	6	6	6	6	6	6	6	6	6	6	6	6	64
ATV Use	5	5	5	5	5	5	5	5	5	5	5	5	50
TOTAL CULTURAL COSTS	500	64	236	277	149	352	136	84	55	10	154	0	2,018
Harvest:													
Pick & Haul					4,320								4,320
Pack					3,825								3,825
Export Packing Charge					1,106								1,106
California Cherry Advisory Board Assessment					81								81
TOTAL HARVEST COSTS	0	0	0	0	9,332	0	0	0	0	0	0	0	9,332
Interest on operating capital @ 7.65%	3	4	5	7	67	-5	-3	-2	-1	-1	-1	0	73
TOTAL OPERATING COSTS/ACRE	503	68	241	284	9,549	347	134	82	53	9	153	0	11,422
TOTAL OPERATING COSTS/BOX*	1.12	0.15	0.53	0.63	21.22	0.77	0.30	0.18	0.12	0.02	0.34	0	25

UC COOPERATIVE EXTENSION
Table 5. continued
 SAN JOAQUIN VALLEY - NORTH 2005

	JAN 05	FEB 05	MAR 05	APR 05	MAY 05	JUN 05	JUL 05	AUG 05	SEP 05	OCT 05	NOV 05	DEC 05	TOTAL
Beginning JAN 05													
Ending DEC 05													
Cash Overhead:													
Office Expense	10	10	10	10	10	10	10	10	10	10	10	10	120
Liability Insurance		7											7
Sanitation Fees					23								23
Crop Insurance			168										168
Property Taxes	80							80					160
Property Insurance	19						19						38
Investment Repairs	5	5	5	5	5	5	5	5	5	5	5	5	65
TOTAL CASH OVERHEAD COSTS	114	190	15	15	38	15	114	15	15	15	15	15	581
TOTAL CASH COSTS/ACRE	618	258	256	299	9,587	363	248	97	69	25	169	15	12,003
TOTAL CASH COSTS/BOX*	1.37	0.57	0.57	0.66	21.30	0.81	0.55	0.22	0.15	0.05	0.37	0.03	27

*Box = 450 18 lb boxes/acre

UC COOPERATIVE EXTENSION
Table 6. RANGING ANALYSIS
 SAN JOAQUIN VALLEY - NORTH 2005

	YIELD (18 lb boxes/acre)											
	Domestic Fresh:	142.00	192.00	242.00	292.00	342.00	392.00	442.00	492.00	542.00	592.00	642.00
OPERATING COSTS/ACRE:	Export Fresh:	78.00	105.00	131.00	158.00	184.00	211.00	238.00	265.00	292.00	319.00	346.00
Cultural Cost		2,018	2,018	2,018	2,018	2,018	2,018	2,018	2,018	2,018	2,018	2,018
Harvest Cost (Pick, Haul, Pack, Assessment)		4,538	6,136	7,734	9,332	10,930	12,528	14,126	15,724	17,322	18,920	20,518
Interest on operating capital		42	52	63	73	83	93	103	113	123	133	143
TOTAL OPERATING COSTS/ACRE		6,598	8,206	9,815	11,423	13,031	14,639	16,247	17,855	19,463	21,071	22,679
TOTAL OPERATING COSTS/BOX*		30	28	26	25	25	24	24	23	23	22	22
CASH OVERHEAD COSTS/ACRE		581	581	581	581	581	581	581	581	581	581	581
TOTAL CASH COSTS/ACRE		7,179	8,787	10,396	12,004	13,612	15,220	16,828	18,436	20,044	21,652	23,260
TOTAL CASH COSTS/BOX*		33	30	28	27	26	25	25	24	24	23	23
NON-CASH OVERHEAD COSTS/ACRE		1,570	1,570	1,570	1,570	1,570	1,570	1,570	1,570	1,570	1,570	1,570
TOTAL COSTS/ACRE		8,749	10,357	11,966	13,574	15,182	16,790	18,398	20,006	21,614	23,222	24,830
TOTAL COSTS/BOX*		40	35	32	30	30	29	28	28	27	27	27

*Box Total = Domestic + Export

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE SWEET CHERRIES

UC COOPERATIVE EXTENSION
Table 6 continued
 SAN JOAQUIN VALLEY – North 2005

NET RETURNS PER ACRE ABOVE OPERATING COSTS

PRICE (\$/box)		PRICE (\$/lb)	YIELD (18 lb boxes/acre)						
Domestic			142	192	242	292	342	392	442
Export Fresh			78	105	131	158	184	211	238
			YIELD (lb/acre)						
		Brining	264	356	448	540	632	724	816
18.00	24.00	0.15	-2,130	-2,177	-2,248	-2,294	-2,364	-2,410	-2,457
22.00	28.00	0.17	-1,245	-981	-747	-483	-248	16	280
26.00	32.00	0.19	-360	214	754	1,328	1,869	2,443	3,016
30.00	36.00	0.21	525	1,409	2,255	3,138	3,986	4,869	5,752
34.00	40.00	0.23	1,411	2,604	3,756	4,949	6,102	7,296	8,489
38.00	44.00	0.25	2,296	3,799	5,257	6,760	8,219	9,722	11,225
42.00	48.00	0.27	3,181	4,994	6,758	8,571	10,336	12,148	13,961
46.00	52.00	0.29	4,067	6,189	8,259	10,382	12,452	14,575	16,698
50.00	56.00	0.31	4,952	7,384	9,760	12,192	14,569	17,001	19,434

NET RETURNS PER ACRE ABOVE CASH COSTS

PRICE (\$/box)		PRICE (\$/lb)	YIELD (18 lb boxes/acre)						
Domestic Fresh			142	192	242	292	342	392	442
Export Fresh			78	105	131	158	184	211	238
			YIELD (lb/acre)						
		Brining	264	356	448	540	632	724	816
18.00	24.00	0.15	-2,711	-2,758	-2,829	-2,875	-2,945	-2,991	-3,038
22.00	28.00	0.17	-1,826	-1,562	-1,328	-1,064	-829	-565	-301
26.00	32.00	0.19	-941	-367	173	747	1,288	1,862	2,435
30.00	36.00	0.21	-56	828	1,674	2,557	3,405	4,288	5,171
34.00	40.00	0.23	830	2,023	3,175	4,368	5,521	6,715	7,908
38.00	44.00	0.25	1,715	3,218	4,676	6,179	7,638	9,141	10,644
42.00	48.00	0.27	2,600	4,413	6,177	7,990	9,755	11,567	13,380
46.00	52.00	0.29	3,486	5,608	7,678	9,801	11,871	13,994	16,117
50.00	56.00	0.31	4,371	6,803	9,179	11,611	13,988	16,420	18,853

NET RETURNS PER ACRE ABOVE TOTAL COSTS

PRICE (\$/box)		PRICE (\$/lb)	YIELD (18 lb boxes/acre)						
Domestic Fresh			142	192	242	292	342	392	442
Export Fresh			78	105	131	158	184	211	238
			YIELD (lb/acre)						
		Brining	264	356	448	540	632	724	816
18.00	24.00	0.15	-4,281	-4,328	-4,399	-4,445	-4,515	-4,561	-4,608
22.00	28.00	0.17	-3,396	-3,132	-2,898	-2,634	-2,399	-2,135	-1,871
26.00	32.00	0.19	-2,511	-1,937	-1,397	-823	-282	292	865
30.00	36.00	0.21	-1,626	-742	104	987	1,835	2,718	3,601
34.00	40.00	0.23	-740	453	1,605	2,798	3,951	5,145	6,338
38.00	44.00	0.25	145	1,648	3,106	4,609	6,068	7,571	9,074
42.00	48.00	0.27	1,030	2,843	4,607	6,420	8,185	9,997	11,810
46.00	52.00	0.29	1,916	4,038	6,108	8,231	10,301	12,424	14,547
50.00	56.00	0.31	2,801	5,233	7,609	10,041	12,418	14,850	17,283

UC COOPERATIVE EXTENSION
**Table 7. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT,
and BUSINESS OVERHEAD COSTS**
SAN JOAQUIN VALLEY - NORTH 2005

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead		Total
						Insur- ance	Taxes	
05	25 HP 2WD Tractor	19,305	15	3,758	1,828	80	115	2,023
05	80 HP 2WD Tractor	45,000	15	8,761	4,260	185	269	4,715
05	ATV 4WD	6,700	7	2,542	898	32	46	976
05	Mower - Flail 10'	10,000	15	960	989	38	55	1,082
05	Orch.Sprayer 500 Gal PTO	21,000	7	5,358	3,125	91	132	3,348
05	Pickup 1/2 ton	16,500	7	1,650	2,760	63	91	2,914
05	Shredder 10'	8,500	15	816	841	32	47	920
05	Spin/Spreader -3PT	12,000	15	1,152	1,187	45	66	1,298
05	Weed Sprayer 100 G	4,000	15	384	396	15	22	433
TOTAL		143,005		25,381	16,284	581	842	17,707
60% of New Cost *		85,803		15,229	9,770	349	505	10,624

*Used to reflect a mix of new and used equipment

ANNUAL INVESTMENT COSTS

Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead			Total
					Insur- ance	Taxes	Repairs	
Buildings 2,400 sqft	80,000	30		5,818	276	400	1,600	8,094
Orchard Establishment	257,160	21		21,878	887	1,286	0	24,051
Irrigation (Pump, Well) 40 acres (Cherries)	35,000	25		2,741	121	175	700	3,736
Ladders - 50 Total	9,553	10		1,299	33	48	191	1,570
Land - 80 acres	800,000	20	800,000	48,080	0	8,000	0	56,080
Micro Sprinkler System - 40 acres	36,000	25		2,819	124	180	720	3,843
Tools: Shop & Field	15,000	15	1,500	1,481	57	83	300	1,921
TOTAL INVESTMENT	1,232,713		801,500	84,115	1,498	10,171	3,511	99,295

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Crop Insurance	40	acre	168.00	6,720
Liability Insurance	76	acre	6.96	529
Office Expense	76	acre	120.00	9,120
Sanitation Fees	40	acre	22.50	900

UC COOPERATIVE EXTENSION
Table 8. HOURLY EQUIPMENT COSTS
 SAN JOAQUIN VALLEY - NORTH 2005

Yr	Description	COSTS PER HOUR							Total Costs/Hr.
		Actual Hours Used	Capital Recovery	Cash Overhead			Operating		
				Insur- ance	Taxes	Repairs	Fuel & Lube	Total Oper.	
05	25 HP 2WD Tractor	102	10.79	0.47	0.68	0.83	2.13	2.96	14.90
05	80 HP 2WD Tractor	456	5.60	0.24	0.35	1.94	6.82	8.76	14.95
05	ATV 4WD	228	2.36	0.08	0.12	0.49	1.55	2.04	4.60
05	Mower - Flail 10'	91	6.52	0.25	0.36	3.97	0.00	3.97	11.10
05	Orch.Sprayer 500 Gal PTO	306	6.12	0.18	0.26	3.64	0.00	3.64	10.20
05	Pickup 1/2 ton	228	7.26	0.16	0.24	1.21	5.81	7.02	14.68
05	Shredder 10'	18	27.78	1.06	1.54	3.83	0.00	3.83	34.21
05	Spin/Spreader -3PT	20	35.61	1.36	1.97	4.51	0.00	4.51	43.45
05	Weed Sprayer 100 G	72	3.30	0.13	0.18	1.05	0.00	1.05	4.66

UC COOPERATIVE EXTENSION
Table 9. OPERATIONS WITH EQUIPMENT & MATERIALS
 SAN JOAQUIN VALLEY – North 2005

Operation	Operation		Implement	Field	Material	Broadcast	Unit
	Month	Tractor		Labor			
				Hr/Acre		Rate/acre	
Prune: Dormant	Jan			40.00			
Prune: Shred Prunings	Jan	80HP 2WD	Shredder				
Growth Regulator: Bloom Stimulant (CAN17, Entry)	Feb	80HP 2WD	Orchard Sprayer		CAN 17	316.00	lb
					Entry	1.00	gal
Insect: Delayed Dormant (Superior Oil, Diazinon)	Feb	80HP 2WD	Orchard Sprayer		Superior Oil	4.00	gal
					Diazinon	4.00	lb
Pollination: (2 hives)	Mar	Custom			Bee Hives	2.00	acre
Disease: Brown Rot (Rovral)	Mar	80HP 2WD	Orchard Sprayer		Rovral 4F	2.00	pt
					Superior Oil	1.00	gal
	Apr	80HP 2WD	Orchard Sprayer		Pristine	12.00	oz
Disease: Powdery Mildew (Cabrio)	Apr	80HP 2WD	Orchard Sprayer		Cabrio	9.00	oz
Trees - 3 Trees/acre replanted	Mar				Trees	3.00	each
Plant: Backhoe, plant, paint, wrap trees	Mar				Plant & Paint	1.25	each
					Backhoe	15.00	each
					Carton	3.00	each
					Paint	3.00	each
Insect: Earwigs (Sevin)	Apr	80HP 2WD	Orchard Sprayer		Sevin	5.00	lb
Insect: Worm (Intrepid) Fertilize: Foliar (NutraPhos)	Apr	80HP 2WD	Orchard Sprayer		Intrepid	12.00	floz
					NutraPhos	10.00	lb
Weed: Mow 5X (1 10ft pass/middle)	Apr	80HP 2WD	Mower Flail 10'				
	May	80HP 2WD	Mower Flail 10'				
	June	80HP 2WD	Mower Flail 10'				
	Aug	80HP 2WD	Mower Flail 10'				
	Sept	80HP 2WD	Mower Flail 10'				
Irrigate: (water & labor) 8X	Apr			0.24	Water	3.00	acin
	May			0.32	Water	4.00	acin
	June			0.32	Water	4.00	acin
	July			0.64	Water	8.00	acin
	Aug			0.64	Water	8.00	acin
	Sept			0.24	Water	3.00	acin
Weed: Spot Spray 20% of acres (Roundup) 2X	Apr	25HP 2WD	Weed Sprayer		Roundup	0.40	pt
	July	25HP 2WD	Weed Sprayer		Roundup	0.44	pt
Growth Regulator: Gibberellic Acid (ProGibb)	Apr	80HP 2WD	Orchard Sprayer		ProGibb (GA)	36.00	floz
Disease: Brown Rot (Elevate, Elite) Preharvest	May	80HP 2WD	Orchard Sprayer		Elevate	1.50	lb
					Elite	8.00	oz
Prune: Summer				12.00			
Insect: Leafhopper (Asana), Mite (Onager)	June	80HP 2WD	Orchard Sprayer		Asana	12.00	floz
					Onager	18.00	floz
Insect: Leafhopper (Asana), Mite (Omite)	July	80HP 2WD	Orchard Sprayer		Asana	12.00	floz
					Omite	6.00	floz
Insect: Leafhopper (Asana) 2X	August	80HP 2WD	Orchard Sprayer		Asana	12.00	floz
	Sept	80HP 2WD	Orchard Sprayer		Asana	12.00	floz
							lb
Fertilize: (20-6-27)	June	25HP 2WD	Spin/Spreader		20-6-27	500.00	lb
Weed: Fall Strip (Goal, Surflan, Gramoxone)	Nov	25HP 2WD	Weed Sprayer		Goal	1.50	pt
					Surflan	4.00	pt
					Gramoxone	1.25	pt
Disease: Bactericide (Copper, Lime, Oil).	Nov	80HP 2WD	Orchard Sprayer		Hydrated Lime	30.00	lb
					Copper Sulfate	30.00	lb
					Dormant Oil	3.00	gal
Harvest: Pick & Haul	May	Contract					
Harvest: Sort & Pack	May	Contract					
Harvest: Export Packing Charge	May	Contract					