
UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2011

SAMPLE COSTS TO ESTABLISH
AN ORCHARD AND PRODUCE
SWEET CHERRIES



SAN JOAQUIN VALLEY- NORTH

Micro-Sprinkler Irrigation

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and PRODUCE SWEET CHERRIES
San Joaquin Valley – North 2011**

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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 2 and 3 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. 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.

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ASSUMPTIONS

The assumptions refer to Tables 1 to 8 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 of a well-managed orchard in the region. Costs, materials, and practices in this study will not apply to all farms. Timing of and types of 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 Table 1.

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 Nitrogen Applied

Year	Lb N/acre
1	10
2	10
3	20
4	30
5	35
6	40
7	45
8	50
9	60
10+	60

Fertilization. In June of the first two years an N-P-K fertilizer (15-15-15) is spread by hand around the trees. Beginning in the third year, liquid fertilizer (CAN17) is sprayed on the wetted area (see Irrigation) and irrigated in. Nitrogen requirements are shown in Table A, but actual amounts to apply should be determined by leaf analysis. Leaf sampling for nutrient analysis begins in July of the second year. Soluble 20-20-20 plus micronutrients fertilizer is foliar applied beginning in the fourth year with the April worm spray. Some fields may show zinc and manganese deficiencies thus requiring additional minor nutrient sprays.

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 in Table B for the establishment and production years.

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 advisers. 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 \$3,200 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. Spotted Wing Drosophila (a new pest) is treated beginning in the fourth year.

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; thereafter, the grower makes a single pass with a ten-foot wide mower.

Growth Regulators. Beginning in the fourth year, a late January application of calcium ammonium nitrate fertilizer (CAN 17) plus a surfactant is used to accelerate bloom and harvest. A pre-harvest gibberellic acid (GA) spray is applied to cherries to enhance fruit size and firmness. In this study, GA is applied to the entire orchard in April. CAN 17 and GA are not used in every orchard every 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 harvested into picking buckets, transferred into 30-pound field lugs and then into shallow bins that are trucked to the packing facility. In this study the grower contracts to have the cherry crop harvested for \$0.34 per pound. It is assumed the packer hauls the cherries to the packing house.

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.

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 35% of the fresh market crop is exported at a price of \$40 per 18-pound box. Sixty five percent are sold domestically for \$35 per box based on 2005 to 2009 Crop Reports. Brining cherries are sold for \$0.19 per pound based on the same reports.

Assessments. See Assessments in production section.

Production Cultural Practices and Material Inputs

Tables 2 to 8

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.

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.

Fertilization. CAN17 at 60 pounds of N per acre (or 2 applications at 30 pounds) is sprayed on the ground in late April or early May using a fertilizer applicator furnished by the fertilizer dealer. The fertilizer is applied to the wetted area and irrigated in. Nitrogen requirements are shown in Table A, but actual amounts to apply should be determined by leaf analysis. Leaf samples are taken in July. Minor nutrients, (soluble 20-20-20 with micronutrients) at 5 pounds per acre are applied as a foliar with the April worm spray (one month after petal fall). Some fields may show zinc and manganese deficiencies thus requiring additional minor nutrient sprays applied in April with the 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. A Sevin spray for earwig control is applied in April. In late April and early May, three sprays are applied to control the new pest Spotted Wing Drosophila. 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. 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, respectively, for control of bloom diseases, followed by a post-bloom (late April) Cabrio treatment for powdery mildew. One spray with Elite and Elevate fungicides is 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. Beginning in the fourth year, a late January application of calcium ammonium nitrate fertilizer (CAN 17) plus a surfactant is used to accelerate bloom and harvest. A pre-harvest gibberellic acid (GA) spray (ProGibb) is applied to the cherries to enhance fruit firmness and size. In this study, GA is applied to the entire orchard in April, beginning in the fourth year. CAN 17 and GA are not used in every orchard every year.

Harvest. Cherry harvest begins in May and is usually completed by mid June. The cherries are hand harvested into picking buckets, transferred into 30-pound field lugs and then into shallow bins that are trucked to the packing facility. In this study the grower contracts to have the cherry crop harvested for \$0.34 per pound. It is assumed that the packer hauls the cherries to the packing shed, although some growers do their own hauling and would incur an additional cost. 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. In this study, the packing (\$8 per box) and sales commission (8% of \$35) charges are assumed to be \$10.80 per 18 pound box using 75% packout. Sweet cherries are sold fresh domestically and abroad. Cherries packed for some export markets require fumigation and other special handling. Cherry packinghouses levy an additional charge for these services. This study assumes an export packing charge of \$5.00 per packed box.

Yields. 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.

Returns. Cherries sold for export typically command higher prices than those sold for domestic trade. This study assumes that 35% of the fresh market crop is exported at a price of \$40 (\$35 + export charge) per 18-pound box. The remaining 65% are sold domestically for \$35 per box based on 2005 to 2009 Crop Reports. Brining cherries are sold for \$0.19 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 with brining returns remaining constant are shown over a range of yields 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, Equipment, and Interest

Labor. The basic hourly wage for equipment operators is \$12.00 per hour and for general labor is \$8.00 per hour. Adding payroll overhead of 36% gives labor rates of \$16.32 for equipment operators and \$10.88 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, 2011 (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.

Equipment Operating Costs. Repair costs are based on purchase price, annual hours of use, total hours of life and repair coefficients formulated by the ASAE equations based on maximum power takeoff (PTO) horsepower, and fuel type. Prices for on-farm delivery of diesel and gasoline are \$2.60 and \$3.10 per gallon, respectively. The cost includes a 2.5 % local sales tax on diesel fuel and 7.5% sales tax on gasoline. The fuel prices are the 2010 average costs derived from the Energy Information Administration monthly data for California. Gasoline also includes federal and state excise tax, which are refundable for on-farm use when filing your income tax. 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 7 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.

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 7.75% per year. A nominal interest rate is the typical market cost of borrowed funds. The interest cost of post harvest operations is discounted back to the last harvest month using a negative interest charge.

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 0.775% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs \$587 for the entire farm.

Office Expense. Office and business expenses are estimated at \$150 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 assumed to cost \$168 per acre and is not based on any specific calculations.

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 4.75% is used to calculate capital recovery costs. The rate will vary depending upon the loan size and other lending agency conditions. The rate is the suggested rate by a farm lending in January 2011.

Land. Land values (2010 Trends) are affected by many factors, and range from \$8,000 to \$15,000 per acre. Producing orchards range in price from \$15,000 to \$20,000 per acre, or more. The cropland in this study is valued at \$12,000 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 \$7,503 per acre or \$300,120 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.

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UC COOPERATIVE EXTENSION
Table 1. COSTS PER ACRE TO ESTABLISH A CHERRY ORCHARD
 SAN JOAQUIN VALLEY – NORTH 2011

	Cost Per Acre					
	Year:	1st	2nd	3rd	4th	5th
Total Tons Per Acre:					0.5	1.2
Domestic Fresh (18 lb boxes):					50	65
Export Fresh (18 lb boxes):					25	35
Brining (lbs):					60	120
Planting Costs:						
Land Preparation: Rip 2X (custom)		250				
Land Preparation: Disc 2X		22				
Land Preparation: Laser Level (custom)		210				
Land Preparation: Fumigate-Tree Row (custom)		900				
Plant: Survey, Plant & Paint Trees (Replant Yrs 2+)		182	1	1	3	3
Trees: 134 Per Acre @ \$6.65 each (Replants Yrs 2-3, 1 tree. Yrs 4+, 2 trees)		891	7	7	13	13
TOTAL PLANTING COSTS		2,455	8	8	16	16
Cultural Costs:						
Weed: Disc 5X (Yrs 1-3, 2 passes/middle.)		60	60	60		
Irrigate: 8X (water and labor)		106	106	106	141	141
Weed: Spot Spray 20% of acres - 2X (Roundup)		21	21	21	21	21
Prune & Train: Summer		9	22	44	65	87
Fertilize: (Yr 1 & 2, 15-15-15. Yr 3+, CAN17))		36	36	27	37	42
Weed: Fall Strip Spray (Goal, Surflan, Gramoxone) Yr 1-3, 30%, Yr 4+, 50% of acres		63	63	63	99	99
Prune & Train: Dormant			136	190	245	299
Insect: Leafhopper (Asana), Mite (Onager). Yrs 2-3, 1/2 label rate			50	50	89	89
Fertilize: Leaf Sampling & Nutritional Analysis			2	2	2	2
Insect: Leafhopper/Mite (Asana, Omite) Yrs 2-3, 1/2 rate			43	43	74	74
Insect: Leafhopper (Asana) 2X			36	36	49	49
Insect: Fall Spray (Oil, Copper, Lime). Yrs 2-3, 1/2 label rate			67	67	122	122
Prune: Shred Brush					9	9
Growth Regulator: Bloom Stimulant Spray (CAN17, Entry)					117	117
Pollination: (2 hives)					280	280
Disease: Bloom & Fruit Diseases (Rovral, Oil)					66	66
Insect: Earwigs (Sevin)					67	67
Disease: Bloom & Fruit Diseases (Pristine)					57	57
Insect: Worm (Intrepid). Fertilize: Foliar Nutrient Spray (20-20-20 with minors)					48	48
Weed: Mow Middles 5X (1 pass per middle)					35	35
Disease: Powdery Mildew (Cabrio)					34	34
Growth Regulator: Gibberellic Acid Spray (ProGibb)					72	72
Insect: SWD 3X (Warrior, Success, Malathion)					299	299
Disease: Preharvest Fruit Diseases (Elite & Elevate)					125	125
Insect: Delayed Dormant Spray (Superior Oil, Diazinon)						86
Pickup Truck Use		85	85	85	85	85
ATV Use		64	64	64	64	64
TOTAL CULTURAL COSTS		443	791	859	2,304	2,471
Harvest & Assessment Costs:						
Harvest (hand pick)					612	816
Packing and Sales Charges					810	1,080
Export Packing Charge					125	175
California Cherry Advisory Board Assessment					14	18
TOTAL HARVEST & ASSESSMENT COSTS			0	0	1,561	2,089
Interest On Operating Capital @ 5.75%		45	20	23	16	22
TOTAL OPERATING COSTS/ACRE		2,943	820	890	3,897	4,598

UC COOPERATIVE EXTENSION
Table 1. CONTINUED
 SAN JOAQUIN VALLEY – NORTH 2011

	Cost Per Acre					
	Year:	1st	2nd	3rd	4th	5th
Total Tons Per Acre:					0.5	1.2
Domestic Fresh (18 lb boxes):					50	65
Export Fresh (18 lb boxes):					25	35
Brining (lbs):					60	120
Cash Overhead Costs:						
Office Expense		150	150	150	150	150
Liability Insurance		8	8	8	8	8
Sanitation Fees		23	23	23	23	23
Property Taxes		149	150	150	153	153
Property Insurance		18	18	19	20	20
Investment Repairs		78	78	78	83	83
TOTAL CASH OVERHEAD COSTS		425	427	427	436	436
TOTAL CASH COSTS/ACRE		3,369	1,246	1,317	4,333	5,035
INCOME/ACRE FROM PRODUCTION		0	0	0	2,761	3,698
NET CASH INCOME/ACRE FOR THE YEAR		0	0	0	0	0
NET CASH COSTS/ACRE FOR THE YEAR		3,369	1,246	1,317	1,571	1,337
ACCUMULATED NET CASH COSTS/ACRE		3,369	4,615	5,931	7,503	8,840
Non-Cash Overhead Costs (Capital Recovery):						
Buildings		67	67	67	67	67
Shop Tools		18	18	18	18	18
Sprinkler Irrigation System		97	97	97	97	97
Irrigation (pump, well)		86	86	86	86	86
Ladders - 50 Each					32	32
Land		600	600	600	600	600
Equipment		60	77	77	100	102
TOTAL INTEREST ON INVESTMENT		928	945	945	1,000	1,001
TOTAL COST/ACRE FOR THE YEAR		4,296	2,191	2,262	5,333	6,036
INCOME/ACRE FROM PRODUCTION		0	0	0	2,761	3,698
TOTAL NET INCOME/ACRE FOR THE YEAR		0	0	0	0	0
TOTAL NET COST/ACRE FOR THE YEAR		4,296	2,191	2,262	2,571	2,338
TOTAL ACCUMULATED NET COST/ACRE		4,296	6,487	8,749	11,320	13,658

UC COOPERATIVE EXTENSION
Table 2. COSTS PER ACRE to PRODUCE SWEET CHERRIES
 SAN JOAQUIN VALLEY - NORTH 2011

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	435	0	0	0	435		
Prune: Shred Prunings	0.23	4	4	0	0	9		
Growth Regulator: Bloom Stimulant (CAN17, Entry)	0.31	6	6	89	0	100		
Insect: Delayed Dormant (Superior Oil, Diazinon)	0.31	6	6	74	0	86		
Pollination: (2 hives)	0.00	0	0	0	280	280		
Disease: Brown Rot (Rovral, Oil)	0.31	6	6	54	0	66		
Trees - 3 Trees/acre replanted	0.00	0	0	20	0	20		
Plant: Backhoe, plant, paint, wrap trees	0.00	0	0	0	58	58		
Insect: Earwigs (Sevin)	0.31	6	6	55	0	67		
Disease: Bloom & Fruit (Pristine)	0.31	6	6	45	0	57		
Insect: Worm (Intrepid). Fertilize: Foliar (20-20-20)	0.31	6	6	36	0	48		
Weed: Mow 5X (1 10ft pass/middle)	0.93	18	17	0	0	35		
Irrigate: (water & labor) 8X	2.40	26	0	150	0	176		
Disease: Powdery Mildew (Cabrio)	0.31	6	6	22	0	34		
Weed: Spot Spray 20% of acres (Roundup) 2X	0.60	12	3	6	0	21		
Growth Regulator: Gibberellic Acid (ProGibb)	0.31	6	6	60	0	72		
Fertilize: N (CAN17)	0.25	5	1	62	0	68		
Insect: Spotted Wing Drosophila (Warrior, Success, Malathion) 3X	0.31	6	6	264	0	276		
Disease: Preharvest Fruit Decay Fungi (Elevate, Elite)	0.31	6	6	114	0	125		
Prune: Summer	12.00	131	0	0	0	131		
Insect: Leafhopper/Mites (Asana/Onager)	0.31	6	6	77	0	89		
Fertilize: Leaf Sampling & Analysis	0.00	1	0	0	2	2		
Insect: Leafhopper/Mites (Asana/Omite)	0.31	6	6	62	0	74		
Insect: Leafhopper (Asana) 2X	0.61	12	11	26	0	49		
Weed: Fall Strip (Goal, Surflan, Gramoxone)	0.30	6	2	92	0	99		
Disease: Bactericide (Copper, Lime, Oil).	0.31	6	6	111	0	122		
Pickup Truck Use	2.85	56	29	0	0	85		
ATV Use	2.85	56	8	0	0	64		
TOTAL CULTURAL COSTS	67.05	839	150	1,421	339	2,750		
Harvest:								
Harvest (hand pick)	0.00	0	0	3,672	0	3,672		
Packing & Sales Charge	0.00	0	0	4,860	0	4,860		
Export Packing Charge	0.00	0	0	0	790	790		
California Cherry Advisory Board Assessment	0.00	0	0	81	0	81		
TOTAL HARVEST COSTS	0.00	0	0	8,613	790	9,403		
Interest on operating capital @ 5.75%						60		
TOTAL OPERATING COSTS/ACRE		839	150	10,034	1,129	12,213		
Cash Overhead:								
Office Expense						150		
Liability Insurance						8		
Sanitation Fees						23		
Crop Insurance						168		
Property Taxes						190		
Property Insurance						49		
Investment Repairs						83		
TOTAL CASH OVERHEAD COSTS						670		
TOTAL CASH COSTS/ACRE						12,883		

UC COOPERATIVE EXTENSION
Table 2. CONTINUED
 SAN JOAQUIN VALLEY - NORTH 2011

Operation	Operation Time (Hrs/A)	Cash and Labor Cost per acre			Total Cost	Your Cost
		Labor Cost	Fuel, Lube & Repairs	Material Cost		
Non-Cash Overhead:		Per producing Acre		Annual Cost Capital Recovery		
Buildings 2400 sqft		1,053		67	67	
Tools: Shop/Field		197		18	18	
Micro-Sprinkler System		1,400		97	97	
Irrigation System (pump & well)		1,250		86	86	
Ladders: (50)		250		32	32	
Land		12,632		600	600	
Orchard Establishment		7,503		572	572	
Equipment		893		99	99	
TOTAL NON-CASH OVERHEAD COSTS		25,178		1,571	1,571	
TOTAL COSTS/ACRE					14,454	

UC COOPERATIVE EXTENSION
Table 3. COSTS AND RETURNS PER ACRE to PRODUCE SWEET CHERRIES
 SAN JOAQUIN VALLEY - NORTH 2011

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Domestic Fresh	292.00	box	35.00	10,220	
Export Fresh	158.00	box	40.00	6,320	
Brining	540.00	lb	0.19	103	
TOTAL GROSS RETURNS				16,643	
OPERATING COSTS					
Herbicide:					
Goal 2 XL	1.50	pint	17.25	26	
Surflan 4 AS	4.00	pint	14.51	58	
Gramoxone Inteon	1.25	pint	6.15	8	
Roundup WeatherMax	0.80	pint	7.38	6	
Fungicide:					
Hydrated Lime	30.00	lb	0.25	8	
Copper Sulfate	30.00	lb	2.65	80	
Cabrio	9.00	oz	2.47	22	
Elevate 50 WDG	1.50	lb	49.12	74	
Elite 45WP	8.00	oz	5.01	40	
Pristine	12.00	oz	3.76	45	
Rovral 4F	1.60	pint	29.07	47	
Insecticide:					
Asana XL	48.00	floz	1.08	52	
Diazinon 50 W	4.00	lb	10.65	43	
Dormant Emulsion	3.00	gal	7.90	24	
Intrepid 2F	12.00	floz	2.58	31	
Malathion 5EC	12.00	pint	5.60	67	
Onager	18.00	floz	3.58	64	
Omite 30 WP	6.00	lb	8.23	49	
Sevin 80S	5.00	lb	11.00	55	
Success 2SC	21.00	floz	7.47	157	
Superior Oil	5.00	gal	7.90	40	
Warrior II	7.68	floz	5.25	40	
Growth Regulator:					
CAN 17 (17-0-0) [see Fertilizer]	316.00	lb	0.13	40	
ProGibb 4%	36.00	floz	1.68	60	
Adjuvant:					
Entry	1.00	gal	48.40	48	
Fertilizer:					
20-20-20+micronutrients (soluble)	5.00	lb	1.10	6	
CAN 17 (17-0-0) [12.64 lbs/gal]	60.00	lb N	1.04	62	
Water:					
Water - Pumped	30.00	acin	5.00	150	
Tree/Tree Aids:					
Tree - Sweet Cherry	3.00	each	6.65	20	
Carton/Tree Wrap	3.00	each	0.15	0	
Paint/Whitewash	3.00	each	0.01	0	
Custom/Contract:					
Pollination Fee	2.00	hive	140.00	280	
Plant & Paint Tree	3.00	tree	1.20	4	
Backhoe Tree	3.00	tree	18.00	54	
Nutrient Analysis	0.05	each	32.00	2	
Custom/Contract - Harvest:					
Picker Charge	10,800.00	lb	0.34	3,672	
Packing Charge (\$8) + Sales Charge (\$2.80)	450.00	box	10.80	4,860	
Export Packing Fee	158.00	box	5.00	790	
Assessment:					
California Cherry Advisory Board (Growers Portion)	8,100.00	lb	0.01	81	

UC COOPERATIVE EXTENSION
Table 3. CONTINUED
 SAN JOAQUIN VALLEY - NORTH 2011

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
Labor (machine)	15.11	hrs	16.32	247	
Labor (non-machine)	54.45	hrs	10.88	592	
Fuel - Gas	9.03	gal	3.10	28	
Fuel - Diesel	26.36	gal	2.60	69	
Lube				14	
Machinery repair				39	
Interest on operating capital @ 5.75%				60	
TOTAL OPERATING COSTS/ACRE				12,213	
NET RETURNS ABOVE OPERATING COSTS				4,429	
CASH OVERHEAD COSTS:					
Office Expense				150	
Liability Insurance				8	
Sanitation Fees				23	
Crop Insurance				168	
Property Taxes				190	
Property Insurance				49	
Investment Repairs				83	
TOTAL CASH OVERHEAD COSTS/ACRE				671	
TOTAL CASH COSTS/ACRE				12,883	
NON-CASH OVERHEAD COSTS (Capital Recovery)					
Buildings 2400 sqft				67	
Tools: Shop/Field				18	
Micro-Sprinkler System				97	
Irrigation System (pump & well)				86	
Ladders: (50)				32	
Land				600	
Orchard Establishment				572	
Equipment				99	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				1,571	
TOTAL COSTS/ACRE				14,454	
NET RETURNS ABOVE TOTAL COSTS				2,188	

UC COOPERATIVE EXTENSION
Table 4. MONTHLY CASH COSTS PER ACRE to PRODUCE SWEET CHERRIES
 SAN JOAQUIN VALLEY - NORTH 2011

Beginning JAN 11	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Ending DEC 11	11	11	11	11	11	11	11	11	11	11	11	11	
Cultural:													
Prune: Dormant	435												435
Prune: Shred Prunings	9												9
Growth Regulator: Bloom Stimulant (CAN17, Entry)	100												100
Insect: Delayed Dormant (Superior Oil, Diazinon)		86											86
Pollination: (2 hives)			280										280
Disease: Brown Rot (Rovral, Oil)			66										66
Trees - 3 Trees/acre replanted			20										20
Plant: Backhoe, plant, paint, wrap trees			58										58
Insect: Earwigs (Sevin)				67									67
Disease: Bloom & Fruit (Pristine)				57									57
Insect: Worm (Intrepid). Fertilize: Foliar (20-20-20)				48									48
Weed: Mow 5X (1 10ft pass/middle)				7	7	7		7	7				35
Irrigate: (water & labor) 8X				18	23	23	47	47	18				176
Disease: Powdery Mildew (Cabrio)				34									34
Weed: Spot Spray 20% of acres (Roundup) 2X				11			11						21
Growth Regulator: Gibberellic Acid (ProGibb)				72									72
Fertilize: N (CAN17)				68									68
Insect: SW Drosophila (Warrior, Success, Malathion) 3X					276								276
Disease: Preharvest Fruit Decay Fungi (Elevate, Elite)					125								125
Prune: Summer						131							131
Insect: Leafhopper/Mites (Asana/Onager)						89							89
Fertilize: Leaf Sampling & Analysis							2						2
Insect: Leafhopper/Mites (Asana/Omite)							74						74
Insect: Leafhopper (Asana) 2X								25	25				49
Weed: Fall Strip (Goal, Surflan, Gramoxone)											99		99
Disease: Bactericide (Copper, Lime, Oil).											122		122
Pickup Truck Use	8	8	8	8	8	8	8	8	8	8	8	8	85
ATV Use	6	6	6	6	6	6	6	6	6	6	6	6	64
TOTAL CULTURAL COSTS	558	99	438	395	446	264	147	92	63	14	235		2,750
Harvest:													
Harvest (hand pick)					3,672								3,672
Packing & Sales Charge					4,860								4,860
Export Packing Charge					790								790
California Cherry Advisory Board					81								81
TOTAL HARVEST COSTS					9,403								9,403
Interest on operating capital @ 5.75%	3	3	5	7	54	-4	-2	-2	-2	-1	-1		60
TOTAL OPERATING COSTS/ACRE	560	103	443	402	9,903	260	145	90	61	12	234		12,213
TOTAL OPERATING COSTS/BOX	1.25	0.23	0.98	0.89	22.01	0.58	0.32	0.20	0.14	0.03	0.52		27

UC COOPERATIVE EXTENSION
Table 4. CONTINUED
 SAN JOAQUIN VALLEY - NORTH 2011

Beginning JAN 11	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Ending DEC 11	11	11	11	11	11	11	11	11	11	11	11	11	
Cash Overhead:													
Office Expense	13	13	13	13	13	13	13	13	13	13	13	13	150
Liability Insurance		8											8
Sanitation Fees					23								23
Crop Insurance		168											168
Property Taxes	95						95						190
Property Insurance	25						25						49
Investment Repairs	7	7	7	7	7	7	7	7	7	7	7	7	83
TOTAL CASH OVERHEAD COSTS	139	195	19	19	42	19	139	19	19	19	19	19	671
TOTAL CASH COSTS/ACRE	699	298	462	422	9,945	280	284	110	81	32	253	19	12,884
TOTAL CASH COSTS/BOX*	1.55	0.66	1.03	0.94	22.10	0.62	0.63	0.24	0.18	0.07	0.56	0.04	29

*Box = 450 18 lb boxes per acre

UC COOPERATIVE EXTENSION
Table 5. RANGING ANALYSIS
 SAN JOAQUIN VALLEY - NORTH 2011

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE SWEET CHERRIES

	YIELD (18 lb boxes/acre)							
	Domestic Fresh:	142.00	192.00	242.00	292.00	342.00	392.00	442.00
Export Fresh:	78.00	105.00	131.00	158.00	184.00	211.00	238.00	
OPERATING COSTS/ACRE:								
Cultural Cost	2,750	2,750	2,750	2,750	2,750	2,750	2,750	2,750
Harvest Cost (Pick, Pack, Assessment)	4,573	6,183	7,793	9,403	11,013	12,623	14,233	14,233
Interest on operating capital @ 5.75%	37	45	53	60	68	76	83	83
TOTAL OPERATING COSTS/ACRE	7,360	8,978	10,596	12,213	13,831	15,449	17,066	17,066
TOTAL OPERATING COSTS/BOX	33	30	28	27	26	26	25	25
CASH OVERHEAD COSTS/ACRE	671	671	671	671	671	671	671	671
TOTAL CASH COSTS/ACRE	8,031	9,649	11,267	12,884	14,502	16,120	17,737	17,737
TOTAL CASH COSTS/BOX	37	32	30	29	28	27	26	26
NON-CASH OVERHEAD COSTS/ACRE	1,571	1,571	1,571	1,571	1,571	1,571	1,571	1,571
TOTAL COSTS/ACRE	9,602	11,220	12,838	14,455	16,073	17,691	19,308	19,308
TOTAL COSTS/BOX	44	38	34	32	31	29	28	28

Box Total = Domestic + Export

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
15.00	20.00	0.19	-3,620	-3,930	-4,261	-4,570	-4,901	-5,211	-5,521
20.00	25.00	0.19	-2,520	-2,445	-2,396	-2,320	-2,271	-2,196	-2,121
25.00	30.00	0.19	-1,420	-960	-531	-70	359	819	1,279
30.00	35.00	0.19	-320	525	1,334	2,180	2,989	3,834	4,679
35.00	40.00	0.19	780	2,010	3,199	4,430	5,619	6,849	8,079
40.00	45.00	0.19	1,880	3,495	5,064	6,680	8,249	9,864	11,479
45.00	50.00	0.19	2,980	4,980	6,929	8,930	10,879	12,879	14,879
50.00	55.00	0.19	4,080	6,465	8,794	11,180	13,509	15,894	18,279
55.00	60.00	0.19	5,180	7,950	10,659	13,430	16,139	18,909	21,679

NET RETURNS PER ACRE ABOVE CASH 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
15.00	20.00	0.19	-4,291	-4,601	-4,932	-5,241	-5,572	-5,882	-6,192
20.00	25.00	0.19	-3,191	-3,116	-3,067	-2,991	-2,942	-2,867	-2,792
25.00	30.00	0.19	-2,091	-1,631	-1,202	-741	-312	148	608
30.00	35.00	0.19	-991	-146	663	1,509	2,318	3,163	4,008
35.00	40.00	0.19	109	1,339	2,528	3,759	4,948	6,178	7,408
40.00	45.00	0.19	1,209	2,824	4,393	6,009	7,578	9,193	10,808
45.00	50.00	0.19	2,309	4,309	6,258	8,259	10,208	12,208	14,208
50.00	55.00	0.19	3,409	5,794	8,123	10,509	12,838	15,223	17,608
55.00	60.00	0.19	4,509	7,279	9,988	12,759	15,468	18,238	21,008

UC COOPERATIVE EXTENSION
Table 5. CONTINUED
 SAN JOAQUIN VALLEY - NORTH 2011

NET RETURNS PER ACRE ABOVE TOTAL 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
		Brining	YIELD (lb/acre)						
			264	356	448	540	632	724	816
15.00	20.00	0.19	-5,862	-6,172	-6,503	-6,812	-7,143	-7,453	-7,763
20.00	25.00	0.19	-4,762	-4,687	-4,638	-4,562	-4,513	-4,438	-4,363
25.00	30.00	0.19	-3,662	-3,202	-2,773	-2,312	-1,883	-1,423	-963
30.00	35.00	0.19	-2,562	-1,717	-908	-62	747	1,592	2,437
35.00	40.00	0.19	-1,462	-232	957	2,188	3,377	4,607	5,837
40.00	45.00	0.19	-362	1,253	2,822	4,438	6,007	7,622	9,237
45.00	50.00	0.19	738	2,738	4,687	6,688	8,637	10,637	12,637
50.00	55.00	0.19	1,838	4,223	6,552	8,938	11,267	13,652	16,037
55.00	60.00	0.19	2,938	5,708	8,417	11,188	13,897	16,667	19,437

UC COOPERATIVE EXTENSION
**Table 6. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT,
and BUSINESS OVERHEAD COSTS**
SAN JOAQUIN VALLEY - NORTH 2011

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead		
						Insur- ance	Taxes	Total
11	25 HP 2WD Tractor	13,900	15	2,706	1,189	64	83	1,336
11	80 HP 2WD Tractor	34,000	15	6,619	2,908	157	203	3,268
11	ATV 4WD	7,430	7	2,818	924	40	51	1,015
11	Mower - Flail 10'	10,000	15	960	902	42	55	999
11	Orch.Sprayer 500 Gal PTO	22,800	7	5,817	3,185	111	143	3,439
11	Pickup 1/2 ton	16,500	7	1,650	2,622	70	91	2,783
11	Shredder 10'	8,500	15	816	767	36	47	849
11	Weed Sprayer 100 G	4,000	15	384	361	17	22	400
TOTAL		117,130		21,770	12,770	538	695	14,089
60% of New Cost *		70,278		13,062	7,714	323	417	8,453

*Used to reflect a mix of new and used equipment

ANNUAL INVESTMENT COSTS

Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead			
					Insur- ance	Taxes	Repairs	Total
Buildings 2,400 sqft	80,000	30		5,057	310	400	1,600	7,367
Orchard Establishment (40 acres)	300,120	21		22,896	1,163	1,501	0	25,559
Irrigation (Pump, Well) 40 acres (Cherries)	50,000	25		3,459	194	250	1,000	4,903
Ladders - 50 Total	10,000	10		1,279	39	50	200	1,568
Land - 80 acres	960,000	20	960,000	45,600	0	9,600	0	55,200
Micro Sprinkler System - 40 acres	56,000	25		3,874	217	280	1,120	5,491
Tools: Shop & Field	15,000	15	1,500	1,350	64	83	300	1,796
TOTAL INVESTMENT	1,471,120		961,500	83,516	1,986	12,163	4,220	101,885

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Price/ Unit	Total Cost
Crop Insurance	40 acre	168.00	6,720
Liability Insurance	76 acre	7.72	587
Office Expense	76 acre	150.00	11,400
Sanitation Fees	40 acre	22.50	900

UC COOPERATIVE EXTENSION
Table 7. HOURLY EQUIPMENT COSTS
SAN JOAQUIN VALLEY - NORTH 2011

Yr	Description	COSTS PER HOUR							
		Actual Hours Used	Capital Recovery	Cash Overhead		Operating			Total Costs/Hr.
				Insur- ance	Taxes	Repairs	Fuel & Lube	Total Oper.	
11	25 HP 2WD Tractor	102	7.02	0.38	0.49	0.62	3.67	4.29	12.18
11	80 HP 2WD Tractor	470	3.71	0.20	0.26	1.52	11.75	13.27	17.44
11	ATV 4WD	228	2.43	0.10	0.13	0.55	2.38	2.93	5.59
11	Mower - Flail 10'	91	5.95	0.28	0.36	4.07	0.00	4.07	10.66
11	Orch.Sprayer 500 Gal PTO	319	6.00	0.21	0.27	3.99	0.00	3.99	10.47
11	Pickup 1/2 ton	228	6.90	0.19	0.24	1.22	8.91	10.13	17.46
11	Shredder 10'	18	25.33	1.19	1.54	3.97	0.00	3.97	32.03
11	Weed Sprayer 100 G	72	3.01	0.14	0.18	1.06	0.00	1.06	4.39

UC COOPERATIVE EXTENSION
Table 8. OPERATIONS WITH EQUIPMENT
 SAN JOAQUIN VALLEY - NORTH 2011

Operation	Operation Month	Tractor	Implement	Field Labor Hr/Acre	Material	Broadcast Rate/acre	Unit
Prune: Dormant	Jan			40.00			
Prune: Shred Prunings	Jan	80HP 2WD	Shredder 10'				
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				Bee Hives	2.00	acre
Disease: Brown Rot (Rovral)	Mar	80HP 2WD	Orchard Sprayer		Rovral 4F	1.60	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	3.00	each
					Backhoe	3.00	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 NPK w/micros	Apr	80HP 2WD	Orchard Sprayer		Intrepid	12.00	floz
					20-20-20	5.00	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)	Apr	25HP 2WD	Weed Sprayer		Roundup	0.40	pt
	July	25HP 2WD	Weed Sprayer		Roundup	0.40	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
Insect: Spotted Wing Drosophila 3X	May 3X	80HP 2WD	Orchard Sprayer		Malathion	12.00	pt
					Success	21.00	floz
					Warrior	7.68	floz
Prune: Summer	June			12.00			
Fertilize: N	April	25HP 2WD	Applicator (loaned)		CAN 17	60.00	lb N
Fertilize: Leaf Sampling and Analysis	July	ATV			Analysis	0.05	acre
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	lb
Insect: Leafhopper (Asana)	August	80HP 2WD	Orchard Sprayer		Asana	12.00	floz
	Sept	80HP 2WD	Orchard Sprayer		Asana	12.00	floz
							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					