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UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2005

SAMPLE COSTS  
TO ESTABLISH A VINEYARD AND PRODUCE  
**WINE GRAPES**

Cabernet Sauvignon



San Joaquin Valley North  
CRUSH DISTRICT 11  
of San Joaquin and Sacramento Counties

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**SAMPLE COST TO ESTABLISH A VINEYARD  
AND PRODUCE WINE GRAPES**  
**Cabernet Sauvignon – Drip Irrigation**  
 San Joaquin Valley North (Crush District 11) 2005  
 San Joaquin and Sacramento Counties

**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.....	8
REFERENCES.....	11
Table 1. SAMPLE COSTS PER ACRE TO ESTABLISH A VINEYARD.....	12
Table 2. MATERIALS AND CUSTOM WORK COSTS PER ACRE – ESTABLISHMENT YEARS .....	14
Table 3. COSTS PER ACRE TO PRODUCE WINE GRAPES.....	15
Table 4. COSTS AND RETURNS PER ACRE TO PRODUCE WINE GRAPES.....	16
Table 5. MONTHLY CASH COSTS – WINE GRAPES.....	18
Table 6. RANGING ANALYSIS.....	19
Table 7. WHOLE FARM EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS.....	20
Table 8. HOURLY EQUIPMENT COSTS .....	21
Table 9. OPERATIONS WITH EQUIPMENT .....	21

**INTRODUCTION**

Sample costs to establish a vineyard and produce wine grapes under drip irrigation in the northern San Joaquin Valley – Crush District 11 of Sacramento and San Joaquin counties 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 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.

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## ASSUMPTIONS

The assumptions refer to Tables 1 to 9 and pertain to sample costs to establish the vineyard and produce wine grapes in the northern San Joaquin Valley – Crush District 11 of Sacramento and San Joaquin counties. For district location and other related information, see the website <http://www.lodiwine.com>. The cultural practices described represent production operations and materials considered typical on a well-managed vineyard 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 or the Lodi-Woodbridge Winegrape Commission nor is any criticism implied by omission of other similar products or cultural practices.**

**Farm.** The hypothetical 200 contiguous acre farm, located on the valley floor in Crush District 11 of San Joaquin and Sacramento counties, is owned and operated by the grower. Sixty acres of wine grapes are being established and are the basis of this study. In addition, 135 acres of mature vineyards are in production, and roads, irrigation systems, fencing, and farmstead occupy five acres.

### **Establishment Cultural Practices and Material Inputs**

The following practices refer to Tables 1 & 2.

**Vineyard Conversion and Land Preparation.** The new vineyard is being planted on land that had an existing vineyard. The old grapevines are removed in the fall. After the vines have been pushed out and burned, soil amendments may be added at this time. The land is slip plowed twice to a depth of 5-6 feet to break up hardpan, improve root penetration, water infiltration and also pull up additional roots remaining from the previous vines. The ground is then disced two times. The field is fumigated untarped, and immediately disced and cultipacked in a single operation to seal the fumigated surface. The field is floated (triplaned) two times. The following spring the ground is cultivated (disced) two times with a pre-emergent, residual herbicide applied during the first discing and the material further incorporated with the second discing. All operations that prepare the vineyard for planting are done in the year prior to planting, but costs are shown in the first year. Custom or contract operators do all operations except the discing and herbicide application.

**Vines.** Potted benchgraft vines, Cabernet Sauvignon variety, are planted on a 7-foot x 10-foot spacing at 622 vines per acre. Vines are trained to a bilateral cordon at 44 inches above ground and spur pruned. Cordons are the horizontal branches and spurs or shoots are the bearing units on the cordon. The grapevines are assumed to begin yielding fruit in three years and produce for an additional 22 years.

**Planting.** The field is marked and laid out in the fall or spring (April) prior to planting at which time the T-stakes (vine stakes) are installed. Planting starts in early spring (May) and is done by hand. The potted plants are placed in the planting hole and the soil formed around the roots. The following year an average of 2% or 13 vines per acre will be replanted.

**Trellis System.** A commercial trellis company installs the system. The cost in the study is for complete installation and includes materials and labor. The system is assumed to be installed between February and June and the cross arms between June and October. The trellis system is designed to support a bilateral cordon trained and spur pruned vineyard. The system in this study utilizes metal T stakes at each vine with end posts at row ends to anchor the wires. Five permanent wires are secured to the end posts and attached to the metal T stakes. The drip line is suspended from the bottom strand with drip clips. The trellis system is considered as

part of the vineyard since it will be removed when the vines are removed; therefore, it is included as part of the establishment cost.

**Training.** Training and pruning establish the vine framework and these techniques will vary with variety and trellis system. In this study, training during the establishment years includes pruning, tying, suckering, shoot positioning, and shoot thinning. All operations are not done each year, nor are all the operations used for other training methods or trellis systems. The prunings during the first three years are placed in between the vine rows (vine middles) and are chopped during the first discing.

*First Year.* The vines are allowed to grow freely with no attempt at training.

*Second Year.* During dormancy (February) vines are pruned back to two bud spurs to provide shoots of which one is selected for trunk development. Green tying, which includes suckering, tying, and vine training is done in May, June, and July, but can be done from April through September. Vines are trained by tying one shoot up the T stake to become the main trunk. During the latter part of the season, this shoot is topped at or slightly below the cordon wire. Two lateral shoots are selected from the trunk as the bilateral cordons. Any remaining lower laterals are also pruned and the cordons cut back to the appropriate length as determined by girth. Suckering is the removal of sprouts from the rootstock that compete with the main trunk and cordons for water and nutrients.

*Third Year.* Green tying in May and June continues by extending the cordons along the permanent cordon wire and selecting spur positions. Canes from spurs are pruned appropriately. Slower growing vines continue to be trained; however, year three is the last year that the vines are trained in this study. The vines are mechanically trimmed in September prior to harvest. After the vines are trained, canopy management including shoot positioning, thinning, and suckering trunks and cordons will start.

**Irrigation.** Irrigation costs in the tables includes pumped water plus labor. In this study water is calculated to cost \$60.00 per acre-foot. No assumption is made about effective rainfall. During the first two years, irrigations begin in May and end around September. In the third year additional irrigations are made postharvest. The amount of water applied to the vineyard period varies each year as shown in Table A.

Table A. Applied Irrigation Water			
Year	AcIn/Year		
	Preharvest	Postharvest	Total
1	6	0	6
2	10	0	10
3+	13	3	16

*Drip System.* Mainlines are laid out in the fall prior to trellis installation. The drip line is laid on top of the ground. After planting the drip line is attached to the drip wire on the trellis system. If needed, the ground is preirrigated to ease the hand digging for the planting hole. The drip system includes the tape or drip line, laterals, fertilizer injectors, filters, and the installation labor. The labor also includes laying out the line and hanging it on the bottom trellis wire. The system is considered part of the vineyard and removed when the vineyard is removed.

**Pest Management.** The pesticides and rates mentioned in this cost study as well as other materials available are listed in *UC Integrated Pest Management Guidelines, Grapes*. Pesticides mentioned in the study are commonly used, but are not recommendations.

*Insects.* Many insects attack grapevines, therefore monitoring begins in the first year. Leafhoppers (*Erythroneura elegantula* and *E. variabilis*) can cause serious problems and in this study, they are controlled with Provado insecticide beginning in June of the third year. The material is applied with the grower's tractor and vineyard sprayer.

**Diseases.** Many pathogens attack grapevines, but the major disease assumed in this study is powdery mildew (*Uncinula necator*). Powdery mildew control begins in April of the third year, but timing depends upon the disease pressure, which can vary from year to year. Sulfur dust is applied five times and Rally, a sterol inhibitor, one time and Flint, a strobilurine, one time.

**Weeds.** Prior to planting, Treflan, a preemergent herbicide, is applied with a spray boom attached to the front of a disc. Incorporation is completed with a second discing. The row middles are cultivated (disced) three to five times per season during the establishment years. The vine rows are sprayed in late fall or winter during the first two years with a combination of herbicides such as Prowl, Goal and Roundup. Surflan, Goal, and Roundup are applied to the vine rows in the winter (winter strip spray) beginning in the third year. Summer weed control in the vine row begins in the second year with Roundup herbicide applied by the grower.

**Vertebrate.** Jackrabbits (*Lepus californicus*) are the major pest, although cottontail (*Sylvilagus audubonii*), and brush rabbit (*S. bachmani*) can also cause damage. Milk cartons placed around the young vines at planting protect the vines from rabbit damage. Another method is to build a fence around the vineyard.

**Fertilization.** Liquid fertilizer, 5-0-12, is applied through the drip line at 500 pounds per acre during the first three years. This applies nitrogen at 25 pounds per acre and potassium at 60 pounds per acre.

**Harvesting.** Harvesting starts in the third year. In this study the crop is custom harvested by machine. Hauling to the winery is contracted and the grower pays both the harvest and hauling costs.

Year:	3	4+
Tons Per Acre:	3.0	6.5

**Yield.** Typical annual yields for Cabernet Sauvignon in Crush District 11 are shown in Table B.

### Production Cultural Practices and Material Inputs

Refer to tables 3 - 9

**Vine Management.** Pruning is done during the winter months, February in this study. The prunings are placed in the row middles and chopped/shredded. The prunings are incorporated into the soil during the first discing in March. Winter tying, where cordons are tied to the cordon wire with twine at the trunk and at each end of the cordons is done in March. Subsequently, trunk suckering is done in April, shoot removal in May, and leaf removal in June. Suckering is the removal of water sprouts from the trunk and below the soil surface. Shoot removal is the operation whereby the weak shoots, which lack vigor and do not originate from the fruiting spur buds, are removed. If needed, the clusters may be thinned later (cluster thinning) in the season to reduce crop load or remove clusters that may be delayed in maturity or potential rot sites due to compactness. During leaf removal the basal leaves are removed in and around the fruit zone to allow for exposure and better air movement. Shoot positioning, thinning, and suckering trunks and cordons continue through the production years. Positioning and thinning shoots allows vines space to develop good fruit clusters, and opens the canopy to allow greater air movement through the vines and around the clusters. Pruning costs in this study are based on an hourly rate, although much of the pruning in the region is done by piecework.

**Fertilization.** Fertilizer can be applied through the drip system throughout the year. In this study a fertilizer containing nitrogen and potassium (5-0-12) is applied equally in May and October at a rate of 15 pounds of N and 30 pounds of K per acre per application (300 pounds of material per application). Labor costs for applying the fertilizer are assumed to be included in the irrigation labor.

**Irrigation.** Irrigation costs in the tables includes pumped water and irrigation labor. In this study the water is calculated to cost \$60.00 per acre-foot (\$5/acre-inch) based on pumping costs as provided by the

growers. Thirteen acre-inches are applied during the growing season beginning in April and three acre-inches are applied post harvest. No assumption is made about effective rainfall. Irrigation labor is averaged over the season, although extra time may be required during the first irrigation to flush and check the system, and make any necessary repairs.

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

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

*Weeds.* Herbicide choice is a function of weed pressure, which can change over time. In this vineyard vine row weeds (strip spray) are controlled with a tank mix of Surflan, Goal, and Roundup applied during December or January. Roundup herbicide, is used primarily for summer weed control in the vine row as a strip or spot spray. It is assumed that although the spray applicator drives every row, material is applied to 40% (vine row) of the field acreage. Resident vegetation in the row middles is managed with one mowing in March, at which time the prunings are shredded, and with four discings per season – March, April, June, October.

*Insects.* Grape leafhopper (*Erythroneura elegantula*), variegated leafhopper (*Erythroneura variabilis*), Pacific spider mite (*Tetranychus pacificus*) and Willamette spider mite (*Eotetranychus willamettei*) are the most important insects in the area. In this study Provado is applied in June (combined with mildew spray) to control leafhoppers. Mites are controlled with Omite in July (combined with mildew spray). Incidental pests such as omnivorous leafroller (OLR), leaf folder, vine mealybug, and thrips are not accounted for, but may require an additional material for control in one of the spray applications or as an additional spray application.

*Diseases.* Many diseases attack grapevines, but the major disease assumed in this study is powdery mildew (*Uncinula necator*). Powdery mildew treatments begin in mid-April with five dusting sulfur applications at 12 to 14 day intervals followed by two fungicide applications (Rally and Flint), each with different modes of action. Sulfur is applied once in April, three times in May, and once in June. Rally (sterol inhibitor) is applied in June and Flint (strobilurine) in July.

**Harvest.** The crop is machine harvested by a custom operator. Hauling to the winery is contracted and the grower pays \$15 per ton for local hauls. Additional charges will apply to hauls considered being out of the local area.

**Yields.** Yield maturity is reached in the fourth year. An assumed average yield of 6.5 tons per acre is used to calculate yields over the production years. Typical yield range for Cabernet Sauvignon in Crush District 11 is 4.5 to 7.5 tons per acre. Annual yields are measured in tons as shown in Table B.

**Returns.** Return prices per ton for wine grapes are determined by variety and percent sugar (Brix). The effect of sugar percentages on prices (low and high) is shown in Table C for Crush District 11 growers. Use of return prices for grapes is for calculating net returns to growers at different yields and price as shown in the Ranging Analysis Table. An estimated price of \$450 per ton for Cabernet Sauvignon wine grapes is used in this study.

Table C. Annual Returns for Cabernet Sauvignon  
Crush District 11<sup>1</sup>

Year	Range <sup>2</sup>		Weighted Average
	Low	High	
2000	100	1,200	582
2001	125	1,208	508
2002	65	1,208	434
2003	90	1,200	375
2004	250	1,850	374
Average	126	1,333	455

<sup>1</sup>Final Grape Crush Report 2000 – 2004. <sup>2</sup>Based on minimum of 100 ton lots

**Assessments.** The Lodi-Woodbridge Winegrape Commission supports Winegrape promotion, research, and education for Crush District 11 growers. The commission assesses growers \$0.0045 (\$4.50 per \$1,000) on the gross crop returns (yield x returns). A mandatory assessment by the California Department of Food and Agriculture (CDFA) assesses growers \$0.002 (\$2.00 per \$1,000) on the gross crop returns to support the Pierces Disease/Glassy Winged Sharpshooter Insect program. Although not included as an assessment in this study, the Lodi District Grape Growers Association, a voluntary organization represents growers in Crush District 11 and serves the political interests of the growers. The association assesses the growers \$3 per bearing/non-bearing acres with a total minimum of \$150 and maximum of \$1,500.

**Labor.** The basic hourly wage for equipment operators is \$10.50 per hour and for general labor is \$6.75 per hour. Adding payroll overhead of 37% gives labor rates of \$14.38 for equipment operators and \$9.25 per hour for general labor. The overhead includes the employers' share of federal and California state payroll taxes, workers' compensation insurance for vineyards (code 0040), 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.

**Pickup/ATV.** It is assumed that the pickup is used for business and personal use. Time and mileage use for the pickup and ATV are not taken from any specific data.

**Equipment Operating Costs.** Repair costs are based on purchase price, annual hours of use, total hours of life, and repair coefficients formulated by American Society of Agricultural Engineers (ASAE). Fuel and lubrication costs are also determined by ASAE equations based on maximum power takeoff (PTO) horsepower, and fuel type. Prices for on-farm delivery of diesel and gasoline are \$1.95 and \$2.25 per gallon, respectively. The price is based on the growers May, 2005 delivery invoice. The cost may include a 2% local sales tax on diesel fuel and 8% sales tax on gasoline. 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 3 is determined by multiplying the total hourly operating cost in Table 8 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 7.65% 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.** The risks associated with crop production should not be minimized. While this study makes every effort to model a production system based on typical, real world practices, it cannot fully represent financial, agronomic and market risks, which affect profitability and economic viability. Growers may purchase Federal crop insurance to reduce the production risk associated with specific natural hazards. Insurance policies vary and range from a basic catastrophic loss policy to one that insures losses for up to 75% of a crop. Insurance costs will depend on the type and level of coverage.

### **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 management.

**Property Taxes.** Counties charge a base property tax rate of 1% on the assessed value of the property. In some counties special assessment districts exist and charge additional taxes on property including equipment, buildings, and improvements. For this study, county taxes are calculated as 1% of the average value of the property. Average value equals new cost plus salvage value divided by 2 on a per acre basis.

**Insurance.** Insurance for farm investments varies depending on the assets included and the amount of coverage. Property insurance provides coverage for property loss and is charged at 0.69% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs \$734 for the entire farm.

**Office Expense.** Office and business expenses are estimated at \$125 per acre. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, shop and office utilities, and miscellaneous administrative charges.

**Sanitation Services.** Sanitation services provide portable toilets for the vineyard and cost the farm \$2,014 annually. The cost for this includes a double toilet, delivery and 9 months of weekly service.

**Management/Supervisor Wages.** A salary for a farm manager for the 200-acre farm is included to indicate that a cash cost for professional supervision of the vineyard is incurred. An expense of \$68,500 per year that includes 37% for payroll overhead and insurance benefits is used in this study.

**Investment Repairs.** Annual maintenance is calculated as 2 percent of the purchase price.

### **Non-Cash Overhead**

Non-cash overhead is calculated as the capital recovery cost for equipment and other farm investments. Farm equipment in the region is purchased new or used.

**Capital Recovery Costs.** Capital recovery cost is the annual depreciation and interest costs for a capital investment. It is the amount of money required each year to recover the difference between the purchase price and salvage value (unrecovered capital). It is equivalent to the annual payment on a loan for the investment with the down payment equal to the discounted salvage value. This is a more complex method of calculating ownership costs than straight-line depreciation and opportunity costs, but more accurately represents the annual costs of ownership because it takes the time value of money into account (Boehlje and Eidman). The formula for the calculation of the annual capital recovery costs is  $((\text{Purchase Price} - \text{Salvage Value}) \times \text{Capital Recovery Factor}) + (\text{Salvage Value} \times \text{Interest Rate})$ .



*Salvage Value.* Salvage value is an estimate of the remaining value of an investment at the end of its useful life. For farm machinery (tractors and implements) the remaining value is a percentage of the new cost of the investment (Boehlje and Eidman). The percent remaining value is calculated from equations developed by the American Society of Agricultural Engineers (ASAE) based on equipment type and years of life. The life in years is estimated by dividing the wear out life, as given by ASAE by the annual hours of use in this operation. For other investments including irrigation systems, buildings, and miscellaneous equipment, the value at the end of its useful life is zero. The salvage value for land is the purchase price because land does not depreciate. The purchase price and salvage value for equipment and investments are shown in Table 7.

*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-ERS's ten-year average of California's agricultural sector long-run rate of return to production assets from current income. It is used to reflect the long-term realized rate of return to these specialized resources used effectively in the agricultural sector.

**Establishment Cost.** Costs to establish the vineyard are used to determine capital recovery expenses, depreciation, and interest on investment for the production years. Establishment cost is the sum of the costs for land preparation, trellis system, drip system, planting, vines, cash overhead and production expenses for growing the vines through the first year that grapes are harvested minus any returns from production. The Total Accumulated Net Cash Cost on Table 1, in the third year represents the establishment cost. For this study the cost is \$12,852 per acre or \$771,120 for the 60-acre vineyard. The establishment cost is spread over the remaining 22 years of the 25 years the vineyard is in production.

**Irrigation System.** 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 60-acre vineyard. 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.

**Land.** Bare land as valued by the grower participants is \$15,000 per acre or \$15,385 per planted (195) acres. Limited cropland sales in the Lodi area in 2004 showed a range of \$8,000 to \$10,000 for cropland and \$11,000 to \$18,000 for vineyard sales (2005 Trends in Agricultural Land).

**Building.** The shop building(s) consists of 2,400 square feet of metal building on a cement slab.

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

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

**Equipment 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.

**Acknowledgements.** Thank you to The Lodi Woodbridge Winegrape Commission and Mohr-Fry Ranch for providing meeting rooms and to the growers that provided input.

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UC COOPERATIVE EXTENSION  
**Table 1. SAMPLE COSTS PER ACRE TO ESTABLISH A VINEYARD**  
 SAN JOAQUIN VALLEY NORTH (CRUSH DISTRICT 11) 2005

	Cost Per Acre			
	Year:	1st	2nd	3rd
Tons Per Acre:				3.00
<b>Planting Costs:</b>				
Vineyard Removal – Custom		350		
Land Prep: Slip Plow 2X – Custom		600		
Land Prep: Disc 4X – Custom		140		
Land Prep: Fumigate – Custom		1,200		
Land Prep: Cultivate 1X (Disc + Cultipacker) – Custom		35		
Land Prep: Apply Herbicide & Incorporate (Treflan)		33		
Land Prep: Float/Triplane 2X – Custom		40		
Mark , Layout, Stake Vineyard (stakes included in trellis costs)		45		
Dig Hole, Plant, Wrap Vines		228	21	
Vines: 622 Per Acre (2% Replant In 2nd Year)		1,773	37	
<b>TOTAL PLANTING COSTS</b>		<b>4,444</b>	<b>58</b>	
<b>Other Costs:</b>				
Install Trellis: Custom		2,808		
Install Drip System: Custom		1,200		
<b>TOTAL OTHER SYSTEM COSTS</b>				
<b>Cultural Costs:</b>				
Prune: Hand			106	153
Irrigate		67	96	126
Fertilize: (5-0-12)		31	31	31
Train: Green Tie (Sucker, Tie & Train) 3X			649	343
Weed: Winter Strip Spray (Yr 1 & 2, Goal, Prowl, Roundup, Yr 3, Surflan, Goal, Roundup)		79	79	119
Weed: Hand		123	123	
Weed: Disc (3X Year 1, 5X Year 2-3)		37	62	62
Weed: Summer Strip Spray (Roundup)			25	25
Insect: Leafhoppers (Provado)				65
Shoot Positioning/Thin				153
Disease: Mildew 5X (Dusting Sulfur)				45
Disease: Mildew 1X (Rally)				52
Disease: Mildew 1X (Flint)				65
Trim Vines: (mechanical)				11
Pickup Truck Use		26	26	27
ATV Use		16	16	16
<b>TOTAL CULTURAL COSTS</b>		<b>379</b>	<b>1,213</b>	<b>1,293</b>
<b>Harvest Costs:</b>				
Pick Fruit: Custom (machine harvest)				275
Haul To Winery				45
<b>TOTAL HARVEST COSTS</b>				<b>320</b>
<b>Assessments:</b>				
Lodi – Woodbridge Winegrape Commission & CDFS Sharpshooter				9
<b>TOTAL ASSESSMENT COSTS</b>				<b>9</b>
Interest On Operating Capital @ 7.65%		373	29	43
<b>TOTAL OPERATING COSTS/ACRE</b>		<b>9,203</b>	<b>1,300</b>	<b>1,665</b>

UC COOPERATIVE EXTENSION  
Table 1. continued

Year	Cost Per Acre		
	1st	2nd	3rd
Tons Per Acre			3.00
Cash Overhead Costs:			
Office Expense	125	125	125
Liability Insurance	4	4	4
Sanitation Fees	10	10	10
Managers Salary	351	351	351
Property Taxes	161	161	162
Property Insurance	5	5	6
Investment Repairs	21	21	21
<b>TOTAL CASH OVERHEAD COSTS</b>	<b>677</b>	<b>677</b>	<b>679</b>
<b>TOTAL CASH COSTS/ACRE</b>	<b>9,881</b>	<b>1,977</b>	<b>2,344</b>
<b>INCOME/ACRE FROM PRODUCTION</b>			<b>1,350</b>
<b>NET CASH COSTS/ACRE FOR THE YEAR</b>	<b>9,881</b>	<b>1,977</b>	<b>2,344</b>
<b>PROFIT/ACRE ABOVE CASH COSTS</b>			<b>0</b>
<b>ACCUMULATED NET CASH COSTS/ACRE</b>	<b>9,881</b>	<b>11,858</b>	<b>12,852</b>
Non-Cash Overhead (Capital Recovery):			
Shop Building	30	30	30
Fuel Tanks	1	1	1
Shop Tools	6	6	6
Irrigation System (well & pump)	46	46	46
Land	925	925	925
Equipment	29	27	57
<b>TOTAL INTEREST ON INVESTMENT</b>	<b>1,036</b>	<b>1,035</b>	<b>1,065</b>
<b>TOTAL COST/ACRE FOR THE YEAR</b>	<b>10,917</b>	<b>3,012</b>	<b>3,409</b>
<b>INCOME/ACRE FROM PRODUCTION</b>			<b>1,350</b>
<b>TOTAL NET COST/ACRE FOR THE YEAR</b>	<b>10,917</b>	<b>3,012</b>	<b>2,059</b>
<b>NET PROFIT/ACRE ABOVE TOTAL COST</b>			
<b>TOTAL ACCUMULATED NET COST/ACRE</b>	<b>10,917</b>	<b>13,929</b>	<b>15,988</b>

UC COOPERATIVE EXTENSION  
**Table 2. MATERIALS AND CUSTOM WORK COSTS PER ACRE - ESTABLISHMENT YEARS**  
 SAN JOAQUIN VALLEY NORTH (CRUSH DISTRICT 11) 2005

	Unit	\$/Unit	Year 1		Year 2		Year 3	
			Total Per Acre					
			units	\$	units	\$	units	\$
<b>OPERATING COSTS</b>								
<b>Custom:</b>								
Vineyard Removal	acre	350.00	1.00	350				
Slip Plow	acre	300.00	2.00	600				
Disc	acre	35.00	5.00	175				
Fumigate - Untarped	acre	1,200.00	1.00	1,200				
Triplane/Float	acre	20.00	2.00	40	0			0
Trellis System	acre	2,808.00	1.00	2,808				0
Drip Irrigation System	acre	1,200.00	1.00	1,200				
Machine Harvest	acre	275.00		0	0		1.00	275
Haul to Winery	ton	15.00		0	0		3.00	45
<b>Fertilizer:</b>								
05-00-12	lb	0.06	500.00	31	500.00	31	500.00	31
<b>Fungicide:</b>								
Dusting Sulfur	lb	0.18					75.00	14
Rally 40W	oz	4.89		0		0	4.00	20
Flint	oz	16.49					2.00	33
<b>Insecticide:</b>								
Provado Solupak	oz	43.95		0		0	0.75	33
<b>Herbicide:</b>								
Treflan HFP	pint	4.74	1.00	5		0		0
Prowl 3.3 EC	pint	3.81	3.84	15	3.84	15		0
Goal 2XL	pint	16.21	2.40	39	2.40	36	2.40	39
Surflan 4 AS	pint	16.96		0			3.20	54
Roundup Ultra Max	pint	8.56	1.20	10	2.70	21	2.40	21
<b>Water:</b>								
Water - Pumped:	acin	5.00	6.00	30	10.00	50	16.00	80
<b>Vines:</b>								
Grafted Vines	each	2.85	622.00	1,773	13.00	37		0
Milk cartons	each	0.06	622.00	37	13.00	1		0
Vine Ties	acre	12.00		0	3.00	36	3.00	36
<b>Assessments:</b>								
Lodi – Woodbridge Winegrape Commission	Gross \$	0.0045					*1,350.00	6
CDFR Sharpshooter	Gross \$	0.0020					*1,350.00	3
Labor (equipment)	hrs	14.38	5.57	80	6.18	89	12.11	174
Labor (general)	hrs	9.25	42.77	396	98.22	909	71.22	659
Fuel - Gas	gal	2.25	4.18	9	4.18	9	4.25	10
Fuel - Diesel	gal	1.95	9.67	19	10.14	20	25.65	50
Lube				3		4		9
Machinery repair				12		12		32
Interest				373		29		43
<b>TOTAL OPERATING COSTS</b>				9,205		1,300		1,665

\*Based on income: \$450/ton x 3 ton yield

UC COOPERATIVE EXTENSION  
**Table 3. COSTS PER ACRE to PRODUCE WINE GRAPES**  
 SAN JOAQUIN VALLEY NORTH (CRUSH DISTRICT 11) 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		
<b>Cultural:</b>							
Weed: Winter Strip Spray (Surflan, Goal, Roundup)	0.67	12	3	103	0	119	
Prune: Hand	30.00	278	0	0	0	278	
Prune: Chop/Shred Prunings	0.30	5	4	0	0	9	
Weed: Disc 4X	1.68	29	20	0	0	49	
Prune: Winter Tie	8.80	81	0	12	0	93	
Prune: Trunk Sucker	5.50	51	0	0	0	51	
Disease: Mildew 5X (Sulfur Dust)	1.42	25	7	14	0	45	
Irrigate:	5.00	46	0	80	0	126	
Prune: Shoot Removal/Shoot Position	16.50	153	0	0	0	153	
Fertilize: through drip 2X (5-0-12)	0.00	0	0	37	0	37	
Prune: Leaf Removal	16.50	153	0	0	0	153	
Prune: Trim Vines (mechanical)	0.69	12	10	0	0	22	
Disease: Mildew (Rally). Insect: Leafhopper (Provado)	1.05	18	14	52	0	84	
Weed: Summer Strip Spray- (Roundup)	0.67	12	3	10	0	25	
Disease: Mildew (Flint). Insect: Mites (Omite)	1.05	18	14	91	0	123	
Pickup Truck Use	0.86	15	12	0	0	27	
ATV Use	0.86	15	1	0	0	16	
<b>TOTAL CULTURAL COSTS</b>	<b>91.55</b>	<b>921</b>	<b>90</b>	<b>399</b>	<b>0</b>	<b>1,411</b>	
<b>Harvest:</b>							
Machine Harvest	0.00	0	0	0	275	275	
Haul To Winery	0.00	0	0	0	98	98	
<b>TOTAL HARVEST COSTS</b>	<b>0.00</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>373</b>	<b>373</b>	
<b>Assessment:</b>							
Crop Assessments	0.00	0	0	20	0	20	
<b>TOTAL ASSESSMENT COSTS</b>	<b>0.00</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>0</b>	<b>20</b>	
Interest on operating capital						51	
<b>TOTAL OPERATING COSTS/ACRE</b>		<b>921</b>	<b>90</b>	<b>419</b>	<b>373</b>	<b>1,854</b>	
<b>CASH OVERHEAD:</b>							
Office Expense						125	
Liability Insurance						4	
Sanitation Fees						10	
Manager Salary						351	
Property Taxes						226	
Property Insurance						50	
Investment Repairs						278	
<b>TOTAL CASH OVERHEAD COSTS</b>						<b>1,045</b>	
<b>TOTAL CASH COSTS/ACRE</b>						<b>2,899</b>	
<b>NON-CASH OVERHEAD:</b>							
		Per producing		Annual Cost			
		Acre		Capital Recovery			
Building 2,400 sq ft'		410		30		30	
Fuel Tanks 2 - 500 gal		18		1		1	
Tools-Shop/Field		62		6		6	
Irrigation system (well, pump)		583		46		46	
Land		15,385		925		925	
Vineyard Establishment		12,852		1,068		1,068	
Equipment		426		53		53	
<b>TOTAL NON-CASH OVERHEAD COSTS</b>		<b>29,735</b>		<b>2,129</b>		<b>2,129</b>	
<b>TOTAL COSTS/ACRE</b>						<b>5,028</b>	

UC COOPERATIVE EXTENSION  
**Table 4. COSTS AND RETURNS PER ACRE to PRODUCE WINE GRAPES**  
 SAN JOAQUIN VALLEY NORTH (CRUSH DISTRICT 11) 2005

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
<b>GROSS RETURNS</b>					
Wine Grape - Cabernet Sauvignon	6.50	ton	450.00	2,925	
<b>OPERATING COSTS</b>					
<b>Herbicide:</b>					
Goal 2XL	2.40	pint	16.21	39	
Surflan 4 AS	3.20	pint	16.96	54	
Roundup Ultra Max	2.40	pint	8.56	21	
<b>Vine Aids:</b>					
Tying Materials	1.00	acre	12.00	12	
<b>Fungicide:</b>					
Dusting Sulfur	75.00	lb	0.18	14	
Rally	4.00	oz	4.75	19	
Flint	2.00	oz	16.49	33	
<b>Water:</b>					
Water-Pumped	16.00	acin	5.00	80	
<b>Fertilizer:</b>					
5-0-12 (liquid fertilizer)	600.00	lb	0.06	37	
<b>Insecticide:</b>					
Provado 1.6 Solupak	0.75	oz	43.96	33	
Omite 30W	7.00	lb	8.23	58	
<b>Custom:</b>					
Machine Harvest	1.00	acre	275.00	275	
Haul to Winery	6.50	ton	15.00	98	
<b>Assessment:</b>					
Lodi – Woodbridge Winegrape Commission	2,925.00	*gross value	0.0045	15	
CDFA Sharpshooter Program	2,925.00	*gross value	0.0020	6	
Labor (equipment)	11.11	hrs	14.38	160	
Labor (general)	82.30	hrs	9.25	761	
Fuel - Gas	4.25	gal	2.25	10	
Fuel - Diesel	22.50	gal	1.95	44	
Lube				8	
Machinery repair				29	
Interest on operating capital @ 7.65%				51	
<b>TOTAL OPERATING COSTS/ACRE</b>				<b>1,854</b>	
<b>NET RETURNS ABOVE OPERATING COSTS</b>				<b>1,071</b>	
<b>CASH OVERHEAD COSTS:</b>					
Office Expense				125	
Liability Insurance				4	
Sanitation Fees				10	
Manager Salary				351	
Property Taxes				226	
Property Insurance				50	
Investment Repairs				278	
<b>TOTAL CASH OVERHEAD COSTS/ACRE</b>				<b>1,045</b>	
<b>TOTAL CASH COSTS/ACRE</b>				<b>2,899</b>	



UC COOPERATIVE EXTENSION

Table 4 continued

	Quantity/ Acre	Price or Unit Cost/Unit	Value or Cost/Acre	Your Cost
NON-CASH OVERHEAD COSTS (Capital Recovery)				
Building 2,400 sq ft			30	
Fuel Tanks 2 - 500 gal			1	
Tools-Shop/Field			6	
Irrigation system (well, pump)			46	
Land			925	
Vineyard Establishment			1,068	
Equipment			53	
TOTAL NON-CASH OVERHEAD COSTS/ACRE			2,129	
TOTAL COSTS/ACRE			5,028	
NET RETURNS ABOVE TOTAL COSTS			-2,103	

\*Based on Gross Income \$450/ton x 6.50 ton

UC COOPERATIVE EXTENSION  
**Table 5. MONTHLY CASH to PRODUCE WINE GRAPES**  
 SAN JOAQUIN VALLEY NORTH (CRUSH DISTRICT 11) 2005

Beginning JAN 05	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Ending DEC 05	05	05	05	05	05	05	05	05	05	05	05	05	
Cultural:													
Weed: Winter Strip Spray (Surflan, Goal, Roundup)	119												119
Prune: Hand		278											278
Prune: Chop/Shred Prunings			9										9
Weed: Disc 4X			12	12		12				12			49
Prune: Winter Tie			93										93
Prune: Trunk Sucker				51									51
Disease: Mildew 5X (Sulfur Dust)				9	27	9							45
Irrigate:				12	12	24	27	27	12	12			126
Prune: Shoot Removal/Shoot Position					153								153
Fertilize: through drip 2X (5-0-12)					19					19			37
Prune: Leaf Removal						153							153
Prune: Trim Vines (mechanical)						11			11				22
Disease: Mildew (Rally). Insect: Leafhopper (Provado)						85							85
Weed: Summer Strip Spray (Roundup)						25							25
Disease: Mildew (Flint). Insect: Mites (Omite)							123						123
Pickup Truck Use	2	2	2	2	2	2	2	2	2	2	2	2	27
ATV Use	1	1	1	1	1	1	1	1	1	1	1	1	16
<b>TOTAL CULTURAL COSTS</b>	<b>122</b>	<b>281</b>	<b>119</b>	<b>88</b>	<b>214</b>	<b>323</b>	<b>153</b>	<b>30</b>	<b>26</b>	<b>47</b>	<b>4</b>	<b>4</b>	<b>1,411</b>
Harvest:													
Machine Harvest Fruit									275				275
Haul To Winery									98				98
<b>TOTAL HARVEST COSTS</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>373</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>373</b>
Assessment:													
Crop Assessments									20				20
<b>TOTAL ASSESSMENT COSTS</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>20</b>
Interest on operating capital @ 7.65%	1	3	3	4	5	7	8	8	11	0	0	0	51
<b>TOTAL OPERATING COSTS/ACRE</b>	<b>123</b>	<b>284</b>	<b>122</b>	<b>92</b>	<b>219</b>	<b>330</b>	<b>162</b>	<b>39</b>	<b>431</b>	<b>46</b>	<b>4</b>	<b>4</b>	<b>1,854</b>
OVERHEAD:													
Office Expense	10	10	10	10	10	10	10	10	10	10	10	10	125
Liability Insurance			4										4
Sanitation Fees	1	1	1	1	1	1	1	1	1	1			10
Manager Salary	29	29	29	29	29	29	29	29	29	29	29	29	351
Property Taxes				113								113	226
Property Insurance	25					25							50
Investment Repairs	23	23	23	23	23	23	23	23	23	23	23	23	279
<b>TOTAL CASH OVERHEAD COSTS</b>	<b>89</b>	<b>64</b>	<b>68</b>	<b>177</b>	<b>64</b>	<b>89</b>	<b>64</b>	<b>64</b>	<b>64</b>	<b>64</b>	<b>63</b>	<b>176</b>	<b>1,045</b>
<b>TOTAL CASH COSTS/ACRE</b>	<b>212</b>	<b>348</b>	<b>190</b>	<b>269</b>	<b>283</b>	<b>419</b>	<b>236</b>	<b>103</b>	<b>495</b>	<b>110</b>	<b>66</b>	<b>180</b>	<b>2,899</b>

UC COOPERATIVE EXTENSION  
**Table 6. RANGING ANALYSIS**  
 SAN JOAQUIN VALLEY NORTH (CRUSH DISTRICT 11) 2005

COSTS PER ACRE AT VARYING YIELD TO PRODUCE WINE GRAPES

	YIELD (ton/acre)							
	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00
<b>OPERATING COSTS:</b>								
Cultural Cost	1,411	1,411	1,411	1,411	1,411	1,411	1,411	1,411
Harvest Cost	342	350	358	365	372	380	388	396
Assessment Cost (based on \$450/ton)*	13	15	16	18	19	20	22	23
Interest on operating capital	50	50	51	51	51	51	51	51
<b>TOTAL OPERATING COSTS/ACRE</b>	<b>1,816</b>	<b>1,826</b>	<b>1,836</b>	<b>1,845</b>	<b>1,853</b>	<b>1,862</b>	<b>1,872</b>	<b>1,881</b>
Total Operating Costs/ton	404	365	334	307	285	266	250	235
<b>CASH OVERHEAD COSTS/ACRE</b>	<b>1,045</b>	<b>1,045</b>	<b>1,045</b>	<b>1,045</b>	<b>1,045</b>	<b>1,045</b>	<b>1,045</b>	<b>1,046</b>
<b>TOTAL CASH COSTS/ACRE</b>	<b>2,861</b>	<b>2,871</b>	<b>2,881</b>	<b>2,890</b>	<b>2,898</b>	<b>2,907</b>	<b>2,917</b>	<b>2,927</b>
Total Cash Costs/ton	636	574	524	482	446	415	389	366
<b>NON-CASH OVERHEAD COSTS/ACRE</b>	<b>2,129</b>	<b>2,129</b>	<b>2,129</b>	<b>2,129</b>	<b>2,129</b>	<b>2,129</b>	<b>2,129</b>	<b>2,130</b>
<b>TOTAL COSTS/ACRE</b>	<b>4,990</b>	<b>5,000</b>	<b>5,010</b>	<b>5,019</b>	<b>5,027</b>	<b>5,036</b>	<b>5,046</b>	<b>5,057</b>
Total Costs/ton	1,109	1,000	911	836	773	719	673	632

\*see assumptions for additional information

NET RETURNS PER ACRE ABOVE OPERATING COSTS

PRICE \$/ton	YIELD (ton/acre)							
	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00
350	-241	-76	89	255	422	588	753	919
400	-16	174	364	555	747	938	1,128	1,319
450	209	424	639	855	1,072	1,288	1,503	1,719
500	434	674	914	1,155	1,397	1,638	1,878	2,119
550	659	924	1,189	1,455	1,722	1,988	2,253	2,519
600	884	1,174	1,464	1,755	2,047	2,338	2,628	2,919
650	1,109	1,424	1,739	2,055	2,372	2,688	3,003	3,319
700	1,334	1,674	2,014	2,355	2,697	3,038	3,378	3,719

NET RETURNS PER ACRE ABOVE CASH COSTS

PRICE \$/ton	YIELD (ton/acre)							
	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00
350	-1,286	-1,121	-956	-790	-623	-457	-292	-127
400	-1,061	-871	-681	-490	-298	-107	83	273
450	-836	-621	-406	-190	27	243	458	673
500	-611	-371	-131	110	352	593	833	1,073
550	-386	-121	144	410	677	943	1,208	1,473
600	-161	129	419	710	1,002	1,293	1,583	1,873
650	64	379	694	1,010	1,327	1,643	1,958	2,273
700	289	629	969	1,310	1,652	1,993	2,333	2,673

NET RETURNS PER ACRE ABOVE TOTAL COSTS

PRICE \$/ton	YIELD (ton/acre)							
	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00
350	-3,415	-3,250	-3,085	-2,919	-2,752	-2,586	-2,421	-2,257
400	-3,190	-3,000	-2,810	-2,619	-2,427	-2,236	-2,046	-1,857
450	-2,965	-2,750	-2,535	-2,319	-2,102	-1,886	-1,671	-1,457
500	-2,740	-2,500	-2,260	-2,019	-1,777	-1,536	-1,296	-1,057
550	-2,515	-2,250	-1,985	-1,719	-1,452	-1,186	-921	-657
600	-2,290	-2,000	-1,710	-1,419	-1,127	-836	-546	-257
650	-2,065	-1,750	-1,435	-1,119	-802	-486	-171	143
700	-1,840	-1,500	-1,160	-819	-477	-136	204	543

UC COOPERATIVE EXTENSION  
**Table 7. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT,**  
 SAN JOAQUIN VALLEY NORTH (CRUSH DISTRICT 11) 2005

ANNUAL EQUIPMENT COSTS

Yr Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead			Total
					Insur- ance	Taxes		
05 30 HP 4WD Tractor	19,305	15	3,758	1,828	80	115		2,023
05 70 HP 4WD Tractor	45,000	12	11,251	4,704	194	281		5,179
05 ATV 4WD	6,700	5	3,003	1,058	33	49		1,140
05 Disc - Tandem 7'	8,500	8	1,919	1,176	36	52		1,264
05 Duster - 3 Pt	5,000	5	1,629	898	23	33		954
05 Mower - Flail 7'	9,600	20	500	824	35	51		909
05 Vineyard Sprayer 400 gal	20,000	5	6,515	3,594	91	133		3,818
05 Pickup Truck 1/2 T	26,000	7	9,863	3,485	124	179		3,788
05 Vine Trimmer	8,500	15	228	866	30	44		940
05 Weed Sprayer 200 gal	4,000	5	1,303	719	18	27		764
<b>TOTAL</b>	<b>152,605</b>		<b>39,969</b>	<b>19,151</b>	<b>664</b>	<b>963</b>		<b>20,778</b>
60% of New Cost *	91,563		23,981	11,490	399	578		12,467

ANNUAL INVESTMENT COSTS

Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead			Total
					Insur- ance	Taxes	Repairs	
Building 2,400 sqft	80,000	30		5,818	276	400	1,600	8,094
Fuel Tanks 2-500 gallon	3,500	25	1,295	250	17	24	70	361
Irrigation System (well, pump. 60 acres)	35,000	25		2,741	121	175	700	3,736
Land (200 acres)	3,000,000	25	3,000,000	180,300	0	30,000	0	210,300
Tools-Shop/Field	12,000	15	1,133	1,188	45	66	240	1,539
Vineyard Establishment	771,120	22		64,094	2,660	3,856	15,422	86,032
<b>TOTAL INVESTMENT</b>	<b>3,901,620</b>		<b>3,002,428</b>	<b>254,391</b>	<b>3,119</b>	<b>34,520</b>	<b>18,032</b>	<b>310,062</b>

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Liability Insurance	200	acre	3.67	734
Manager Salary (includes P/R overhead)	195	acre	351.28	68,500
Office Expense	195	acre	125.00	24,375
Sanitation Fees	195	acre	10.33	2,014

UC COOPERATIVE EXTENSION  
**Table 8. HOURLY EQUIPMENT COSTS**  
 SAN JOAQUIN VALLEY NORTH (CRUSH DISTRICT 11) 2005

Yr	Description	COSTS PER HOUR							Total Costs/Hr.
		Actual Hours Used	Cash Overhead			Operating			
			Capital Recovery	Insur- ance	Taxes	Repairs	Fuel & Lube	Total Oper.	
05	30 HP 4WD Tractor	592	1.85	0.08	0.12	0.83	3.30	4.13	6.18
05	70 HP 4WD Tractor	1,165	2.42	0.10	0.14	2.01	7.71	9.72	12.38
05	ATV 4WD	169	3.76	0.12	0.17	0.50	0.86	1.36	5.41
05	Disc - Tandem 7'	315	2.24	0.07	0.10	1.40	0.00	1.40	3.81
05	Duster - 3 Pt	276	1.95	0.05	0.07	0.73	0.00	0.73	2.80
05	Mower - Flail 7'	58	8.57	0.36	0.53	4.10	0.00	4.10	13.56
05	Vineyard Sprayer 400 gal	552	3.90	0.10	0.14	2.90	0.00	2.90	7.04
05	Pickup Truck 1/2 T	169	12.38	0.44	0.64	1.91	11.86	13.77	27.23
05	Vine Trimmer	134	3.87	0.13	0.19	3.38	0.00	3.38	7.57
05	Weed Sprayer 200 gal	263	1.64	0.04	0.06	0.58	0.00	0.58	2.32

UC COOPERATIVE EXTENSION  
**Table 9. OPERATIONS WITH EQUIPMENT**  
 SAN JOAQUIN VALLEY NORTH (CRUSH DISTRICT 11) 2005

Operation	Operation			Non-Machine Labor (hrs/acre)	Material	Broadcast Rate/acre	Unit
	Month	Tractor	Implement				
Cultural:							
Weed: Winter Strip (vine row)	Jan	30HP 4WD	Weed Sprayer		Goal	2.40	pint
					Surflan	3.20	pint
					Roundup	1.20	pint
Prune: Hand	Feb			30.00			
Prune: Shred Prunings	Mar	70HP 4WD	Mower-Flail				
Weed: Disc 4X	Mar	70HP 4WD	Disc 7'				
	Apr	70HP 4WD	Disc 7'				
	June	70HP 4WD	Disc 7'				
	Oct	70HP 4WD	Disc 7'				
Vine Management: Winter Tie	Mar			8.80	Tying Material		acre
Vine Management: Trunk Suckering	Apr			5.50			
Vine Management: Shoot Removal & Position	May			16.50			
Vine Management: Leaf Removal	June			16.50			
Vine Management: Trim Vines	June	70HP 4WD	Vine Trimmer				
	Sept	70HP 4WD	Vine Trimmer				
Disease: Mildew (dust) 5X	Apr	30HP 4WD	Duster		Dusting Sulfur	15.00	lb
	May	30HP 4WD	Duster		Dusting Sulfur	45.00	lb
	June	30HP 4WD	Duster		Dusting Sulfur	15.00	lb
Disease: Mildew . Insect: Leafhopper	June	70HP 4WD	Vineyard Sprayer		Rally	4.00	oz
					Provado	0.75	oz
Disease: Mildew. Insect: Mites	July	70HP 4WD	Vineyard Sprayer		Flint	2.00	oz
					Omite	7.00	lb
Irrigate	Apr			0.50	Water	1.50	acin
	May			0.50	Water	1.50	acin
	June			1.00	Water	3.00	acin
	July			1.00	Water	3.50	acin
	Aug			1.00	Water	3.50	acin
	Sept			0.50	Water	1.50	acin
	Oct			0.50	Water	1.50	acin
Fertilize: through drip	May				5-0-12	300.00	lb
	Oct				5-0-12	300.00	lb
Weed: Summer Strip Spray	June	30HP 4WD	Weed Sprayer		Roundup	1.20	pint
Harvest	Sept	Custom					
Haul	Sept	Custom					