GR-NC-08-1-R
Revised May 5, 2008

UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2008

SAMPLE COSTS TO ESTABLISH A VINEYARD AND PRODUCE WINEGRAPES

WHITE VARIETIES - SAUVIGNON BLANC

NORTH COAST – Lake County

Crush District 2

Glenn T. McGourty	UC Cooperative Extension Farm Advisor, Lake and Mendocino Counties
Karen M. Klonsky	UC Cooperative Extension Specialist, Department of Agricultural and Resource Economics, UC Davis
Richard L. De Moura	Research Associate, Department of Agricultural and Resource Economics, UC Davis

UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

SAMPLE COST TO ESTABLISH A VINEYARD AND PRODUCE WINEGRAPES

White Varieties - Sauvignon Blanc

North Coast - Lake County 2008

CONTENTS

INTRODUCTION

Sample costs to establish a vineyard and produce winegrapes (white varieties) in the North Coast – Lake County 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 will not apply to every situation. Sample costs for labor, materials, equipment and custom services are based on current figures. A blank column, "Your Costs", in Tables 2 and 3 is provided to enter your costs.

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

Sample Cost of Production Studies are available for many commodities. Current and many archived studies can be downloaded from the Agricultural and Resource Economics website at UC Davis http://coststudies.ucdavis.edu. These studies as well as archived studies not on the website can be requested through the department by calling (530) 752-1517.

ASSUMPTIONS

The assumptions refer to Tables 1 to 7 and pertain to sample costs to establish a vineyard and produce winegrapes – Sauvignon Blanc (a white variety) - in the North Coast, Lake County. The cultural practices described represent production operations and materials considered typical of a well-managed vineyard in the region. The costs, materials, and practices shown in this study will not apply to all farms. Timing of and types of establishment and production 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 practices and inputs used in this study are 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 vineyard is located on fairly level land in Lake County. The hypothetical farm is comprised of 40 contiguous acres, 35 of which are planted with white winegrapes. The other five acres are occupied by roads, irrigation systems, and farmstead. The vineyard is owned and operated by the grower.

Establishment Operating Inputs (Table 1)

The following establishment descriptions are typical practices for many vineyards in Lake County, but may not be appropriate to individual circumstances.

Site Preparation. Prior to land preparation, gypsum is applied by the grower. The land is subsoiled once by a custom operator, then disked and rolled by the grower, followed by three rippings each in a different direction to a depth of 2-3 feet by a custom operator. Afterwards the ground is disked three times by the grower. The ground is then leveled and smoothed in three passes (each in different direction) with a landplane. The field is then laid out and rows marked. The following spring (February), Roundup is applied for weed control prior to planting. Most operations that prepare the vineyard for planting are done in the year prior to planting, but costs are shown in the first year.

Vines. Dormant bench grafted Sauvignon Blanc (white variety) vines are planted during the spring on 6 foot x 8 foot spacing at 908 vines per acre. Vines will be trained during the first and second years and are expected to begin yielding harvestable fruit in three years.

Planting. Planting the vineyard starts by laying out and marking vine sites in early spring. Holes are dug, and the vines are planted in April. Vine protectors are placed over the plants shortly after planting. In the second year, 2% of the vines or 18 vines per acre are replaced after dying during the first season. The economic life of the planting is expected to be 25 years.

Trellis System. The vertical (VSP) trellis system is designed to support a bilateral, cordon-trained, and spur-pruned vineyard. The trellis is composed of end posts on each row, steel T post every third vine with light steel rods for the other two vines. Two 12-inch crossarms are set at 14 inches and 30 inches above the cordon wire which is 32 inches above ground. There are six wires – one light wire for drip, one wire for the cordon and four wires for the foliage (two sets of two). The trellis system is installed by a commercial trellis company and the costs are shown in the second year. The vine stakes are put in the first year; the wire end posts and cross arms in the second year. The trellis system is considered part of the vineyard since it will be removed at the time of vine removal and therefore is included in the vineyard establishment costs.

Vine Management (VM), Pruning, Training. In the first year, two to three weeks after planting, the vines are cut to two shoots and the vine protector put over the plant. In July, the vine protectors are removed, the vines are pruned to a single shoot and vine protectors put back over the vines. The second year begins with dormant pruning during the winter (January). Training begins in the spring and includes suckering, tying, and training the selected cordons and spurs as well as tucking shoots. Several training passes may be made, but in this study one pass is made in May or June. Suckering is the removal of unwanted shoots from the trunk and cordons. Beginning in the third year, the vines are pruned in January and the prunings are placed in alternate rows for shredding and are shredded during the first mowing (March). In February, the cordons are tied to the fruiting wire. In separate passes in May, the trunks and the cordons are suckered. Later in June, the shoots are tucked. Leaf removal begins in the fourth year in June and is done mechanically with a tractor and leaf removal machine.

Irrigation. During the first three years, water is applied weekly beginning early June and continuing through September. In the fourth and subsequent years, water is applied twice weekly from late June to early September. Pumped water plus labor constitute the irrigation cost. The cost is based on using 15 HP motor to pump from 75 feet deep over 35 acres. The drip lines are flushed at the beginning of the irrigation season (June) and once during the season (August). Depending on water quality, growers may flush less or as often as prior to every irrigation. Price per acre-foot of water will vary by grower in this region depending on quantity pumped, power cost, various well characteristics, and other irrigation factors. In this study water is calculated to cost $4.50 per acre-inch based on PG&E electrical costs. No assumption is made about effective rainfall. The amount of water applied to the vines varies and are shown in Table A.

Year	Number of Months	AcIn/Year
1-3	4	4.0
4+	2.5	5.5

Frost Protection. Frost protection begins in the third year. It is assumed that the vineyard will need frost protection for 12 nights during April, May and early June. The system runs for 8 hours per night and applies one acre inch. One hour of labor and ATV use per 35 acres (0.028 hrs/acre) is needed to check the system each time it is turned on.

Fertilization. Gypsum at 10 tons per acre is applied prior to ripping (land preparation). During the first through third year, nitrogen is injected into the drip irrigation system at each irrigation from June to mid August. One pound of N per acre weekly over 10 irrigations, totaling 10 pounds of N per acre per season. Beginning in the third year, gypsum is applied in the fall (November) once every three years and one-third of the cost is included each year. Beginning in the fourth year, nitrogen is applied through the irrigation system once per week and potassium as Potassium Thiosulfate (KTS) is applied in the other irrigation once per week. Both are applied from June to mid August.

Pest Management. The pesticides and rates mentioned in this cost study as well as other materials are listed in *UC Integrated Pest Management Guidelines, Grapes,* available at www.ipm.ucdavis.edu. Pesticides mentioned in the study are commonly used, but other materials are available.

*Weeds (Vineyard Floor***)**. Roundup is applied to the vine row prior to planting. During the first two years the middles are disked four times – May, June, July, August. In the second year, a mowing in March also shreds the prunings. Beginning in January of the second year, a mixture of Roundup, Goal, and Surflan are applied to the vine row. A spot spray with Roundup is applied to the vine row in July in the second and subsequent years.

Weeds (Cover Crop). In the fall (October) of the second year, the ground is disked twice, harrowed once and an annual clover cover crop drilled at 20 to 30 pounds per acre. From the third year on, the middles are mowed

three times: the March mowing is done on alternate rows to shred the prunings; mowings in June and July are done on every row.

Insect and Arthropod. Beginning in the third year, Stylet Oil is applied at budbreak in April to control mites and powdery mildew. Provado is applied in July to control leafhoppers.

Disease. Treatment for powdery mildew begins in the second year. Two applications of Thiolux are made in May, an application of Flint in June followed by Rally in June. The Thiolux is applied to alternate rows. In the third year, Stylet Oil for mildew and mites is applied in April (budbreak) and Rubigan spray for powdery mildew in July. Pristine for mildew is applied in late July beginning in the fourth year.

Vertebrate Pests. Gophers are controlled beginning in the first year after planting, In May, alternate middles are driven throughout the vineyard and around the edge to spot treat with gopher bait using a tractor and mechanical baiter.

Harvest. In the third year, due to the small crop, the grapes are hand harvested and in this study is $150 per ton in contract labor costs. The costs will vary depending on yield. The grower furnishes three tractors (two rented) and three trailers with bins (gondolas), a rented forklift and also three drivers to operate the tractors and forklift. Beginning in the fourth year, the grapes are mechanically harvested and the grower furnishes the supporting equipment. See Harvest in Production section.

Table B. Annual Yields for Sauvignon Blanc in Lake County (Crush District 2)

Year	3	4	5	6+
Tons Per Acre	1.5	3.0	5.0	7.0

Yields. Winegrapes begin bearing an economic crop in the third year after planting. Yield maturity is reached in the sixth year. The annual yields are measured in tons as shown in Table B.

Production Operating Inputs

(Tables 2 – 8)

Pruning/ Suckering/Canopy Management (CM). The vines are hand pruned in February. The prunings are placed in alternate row middles and shredded during the first mowing in March. In March, the cordons are tied to the fruiting wire. The trunks and cordons in separate passes are suckered in May. In late May the bottom wire is moved up and the shoots are tucked. Mechanical leaf removal is done once sometime from mid June to early July by the grower.

Irrigation. Water is pumped to the vineyard drip lines after running through a filtration station. The cost includes the water pumping cost plus irrigation labor (0.06 hours/acre) including checking the lines. Beginning the last week of June, the vines are irrigated twice weekly through the first week of September. One person using an ATV (ATV cost included under ATV) checks the lines at each irrigation. Time is also required to flush the lines at the beginning of the season and again during the middle of the irrigation season. A three man crew is used to flush the lines and based on grower data; it is assumed that it takes 0.40 man hours per acre. Some growers, depending on the water quality, will flush the lines several times during the season.

Frost Protection. It is assumed that the vineyard will need frost protection for 12 nights during April, May and early June. The system runs for 8 hours per night applying one-acre inch of water per night. The water is pumped into the reservoir and stored, then pumped into the overhead sprinklers using a diesel pump. One hour of labor and ATV use per 35 acres (0.028 hrs/acre) is needed to check the system each time it is turned on.

Fertilization/Soil Amendments. From late June to early September, nitrogen (N) as UN32 at 10 pounds per acre per season is applied through the drip irrigation at one pound of N per week applied in one of the twice weekly irrigations. Potassium as Potassium Thiosulfate (KTS) is applied in the other weekly irrigation. Labor costs for the fertilizers are assumed to be included in the irrigation labor. Gypsum at two tons per acre is broadcast applied in November once every three years. One third of the cost is included each year.

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. For information and pesticide use permits, contact the local county agricultural commissioner's office. **Pesticides mentioned in this study are used to calculate rates and costs. Although the pesticides mentioned are commonly used by growers, many other pesticides are available. Check with your PCA and/or the UC IPM website for current recommendations and/or your Lake County viticulture farm advisor.** Adjuvants are recommended for use with many pesticides for effective control, but the adjuvant and their costs are not included in this study. Pesticide costs may vary by location, brand, and grower volume. Pesticide costs in this study are taken from a single dealer and shown as full retail.

Pest Control Adviser (PCA). Written recommendations are required for many commercially applied pesticides and are written by licensed pest control advisers. In addition the PCA will monitor the field for agronomic problems including pests, diseases, and nutritional status. Growers may hire private PCAs (Crop Consultants) or receive the service as part of a service agreement with an agricultural chemical and fertilizer company. A private PCA/Crop Consultant is hired by the grower.

Weeds. Roundup, Goal, Surflan and Chateau in combination are applied to the vine row during the dormant period in January. The middles are mowed three times: alternate middles in March which shreds the prunings and all middles in May and June or July. Also in June or July, the vine rows are spot sprayed to remove weeds not controlled by previous herbicides applications. The vine rows are sprayed using the grower's ATV and weed sprayer.

Insect. Mites are controlled with a Stylet Oil spray (also for powdery mildew) in late April. Provado is applied in July to control leafhoppers. All materials are applied by the grower using an air-blast or vineyard sprayer.

Disease Powdery mildew is treated typically at 14 to 21 day intervals depending upon fungicide applied. Beginning in late April, Stylet Oil is applied followed with two applications of Thiolux (micronized sulfur) in May. The sulfur applications are made to alternate rows. Four applications each with a different fungicide and with a different mode of action are made – Flint in June, Rally in June, Rubigan in mid July, Pristine in late July. The insect and fungicide sprays are made by the grower using the 50 HP tractor and air blast sprayer. Eutypa occurs in vineyards that are over 10 years old and is assumed in this study. Using an ATV and trailer, the worker drives through the vineyard and cuts out diseased material, hauls it out of the vineyard and burns the prunings. Burning may not be permitted in the future and other forms of disposal will be sought.

Vertebrate Pests. Gophers are controlled by driving alternate middles throughout the vineyard and around the edge to spot treat with gopher bait using a mechanical baiter. Depending upon the gopher population, additional treatments may be necessary.

Harvest. The vines are mechanically harvested at night in September by a custom operator and the costs include the machine operator and a guide on the ground. Custom harvest charges vary depending upon row width and for this study, the cost is assumed to be $300 per acre. The grower furnishes three tractors – one owned and two rented - and three trailers and two drivers. The grower also rents two portable light stations, a

forklift and hires an operator, who loads and unloads the gondolas (2.5 ton) on and off the trailers and loads the truck for hauling to the crusher. Harvesting is done at night and assumes the harvester can pick 1.3 acres per hour or 10 acres per night taking approximately 4 days/nights to harvest the vineyard. Hauling to the crusher is also contracted for and paid by the grower. It is assumed that the grower is hauling to a winery outside of the county and the cost is $20 per ton.

Yields. Yield maturity is reached in the sixth year. An assumed average yield of 7 tons per acre over the remaining life of the vineyard is used to calculate yields/returns in the production years. The annual yields are measured in tons as shown in Table B.

Returns. Return prices per ton for winegrapes are determined by variety and percent sugar. The average 2001-2006 price based on the Grape Crush Report for Sauvignon Blanc was $891 per ton. Use of return prices for grapes is for calculating net returns to growers at different yields and price. An average price of $900 per ton for Sauvignon Blanc winegrapes is used in this study.

Assessment. The Lake County Wine Grape Commission (LCWGC) is a local entity performing marketing for growers. The current assessment rate is 1% of the gross value of the grapes and is collected by the wineries and paid to the commission.

Pickup/ATV. The study assumes business use mileage of 2,500 miles per year for the pickup. The ATV is used for baiting gophers and is included in those costs. Additional ATV time and use for general checking of the vineyard, and checking for diseases and the irrigation system are shown as a single operation.

Labor, Equipment, and Interest

Labor. Hourly wages for workers are $10.00 for machine operators and $8.00 per hour non-machine labor. Adding 33% for the employer's share of federal and state payroll taxes, workers compensation insurance for vine crops (0040) and other possible benefits gives the labor rates shown of $13.30 and $10.64 per hour for machine labor and non-machine labor, respectively. Workers' compensation costs will vary among growers, but for this study the cost is based upon the average industry final rate as of January 1, 2008 (personal email from California Department of Insurance, March 11, 2008, unreferenced). Labor for operations involving machinery are 20% higher than the operation time given in Table 2 to account for the extra labor involved in equipment set up, moving, maintenance, work breaks, and 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 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 $2.50 and $3.10 per gallon, respectively. Fuel costs are derived from American Automobile Association (AAA) and Energy Information Administration 2007 monthly data. The diesel fuel cost excludes federal and state excise taxes, but includes a 2.25% sales tax while gasoline includes all taxes including an 8.00% sales tax. Gasoline federal and state excise tax 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 and travel.

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 8.75% 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. The rate will vary depending upon various factors, but the rate in this study is considered a typical lending rate by a farm lending agency as of January 2008.

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.

Cash Overhead Costs

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.

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 0.728% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs $550 for the entire farm.

Crop Insurance. The level of protection for crop insurance was not identified, but the growers suggested a cost of $65 per acre.

Office Expense. Office and business expenses are estimated at $250 per producing acre. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, shop and office utilities, and miscellaneous administrative charges.

Sanitation Services. Sanitation services provide one portable toilet and cost the farm $775 annually. The cost includes one single toilet unit with washbasin, delivery and 5 months of weekly service.

Environmental Fees. Fees will vary by locality. Lake County is included in the Regional Quality Control Board, Region 5 watershed. For this study, the watershed fee includes an administrative fee of $65 per farm and per acre costs of $1.42 which includes some local fees.

Investment Repairs. Annual maintenance is calculated as two percent of the purchase price, except for vine replacement in the vineyard. The average vine replacement cost over the life of the vineyard is assumed to be 0.10% of the establishment cost.

Non-Cash Overhead Costs

Non-cash overhead is calculated as the capital recovery cost for equipment and other farm investments.

Capital Recovery Costs. Capital recovery cost is the annual depreciation and interest costs for a capital investment. It is the amount of money required each year to recover the difference between the purchase price and salvage value (unrecovered capital). It is equivalent to the annual payment on a loan for the investment with the down payment equal to the discounted salvage value. This is a more complex method of calculating ownership costs than straight-line depreciation and opportunity costs, but more accurately represents the annual

costs of ownership because it takes the time value of money into account (Boehlje and Eidman). The formula for the calculation of the annual capital recovery costs is ((Purchase Price – Salvage Value) x Capital Recovery Factor) + (Salvage Value x Interest Rate).

Salvage Value. Salvage value is an estimate of the remaining value of an investment at the end of its useful life. For farm machinery (tractors and implements) the remaining value is a percentage of the new cost of the investment (Boehlje and Eidman). The percent remaining value is calculated from equations developed by the American Society of Agricultural Engineers (ASAE) based on equipment type and years of life. The life in years is estimated by dividing the 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 the tables.

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

Interest Rate. The interest rate of 6.25% is used to calculate capital recovery. The rate will vary depending upon size of loan and other lending agency conditions, but is a suggested rate by a farm lending agency in January 2008.

Buildings. Buildings for shop and storage cover 1,500 square feet.

Frost Protection System. The frost protection system consists of a 10 acre-foot reservoir, a 75 hp diesel motor and pump, and overhead sprinklers. The reservoir is designed to hold enough water to protect the vineyard during the frost season. Water is pumped by the booster pump to the overhead sprinklers.

.

Irrigation Pumping System. It is assumed that a well existed on the property and the costs shown are for a new pump, motor, and filtration/injector station installed along with the drip irrigation system during planting. The well, 15 hp motor, pump, filtration station, fertilizer injector system, drip lines and the labor to install these components is included in the irrigation system cost. Water is pumped to the vineyard after running through a filtration station into the drip lines along the vine rows.

Gondolas. The grower owns thirty 2.5 ton gondolas that are loaded on the truck (10 per load) for hauling the grapes to the winery.

Land. Bare agricultural land available for vineyard establishment in Lake County based on grower estimates is $15,000 to $20,000 per acre. Land in this study is valued at $20,000 per acre or $22,857 per producing acre.

.

Shop/FieldTools. This includes shop tools and equipment, hand tools, and miscellaneous field tools including pruning equipment. The cost is estimated and not based on any collected data.

Fuel Tanks. Two 350-gallon fuel tank using gravity feed are on metal stands. The tanks are setup in a cement containment pad that meets federal, state, and county regulations.

Establishment Cost. An establishment cost is the sum of the costs for land preparation, trellis system, vines, planting, cash overhead and production expenses for growing the vines through the first year that grapes are harvested. The vineyard establishment cost is used to determine the capital recovery cost, during the production years. The Total Accumulated Net Cash Cost on Table 1 in the third year represents the establishment cost.

For this study the cost is $14,138 per acre or $494,829 for the 35-acre vineyard. The establishment cost is amortized over the remaining 22 years the vineyard is in production.

Equipment. 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 shown in Tables 5 and 6. 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

The authors thank the many individuals who furnished information for this study. Additional thanks go to the growers who gathered to provide their support and input: Lars Crail, Grower, Yoxagoi Land Management, Kelseyville; Larry Rogers, Grower, Lakeport.

REFERENCES

American Society of Agricultural Engineers. 1994. American Society of Agricultural Engineers Standards Yearbook. Russell H. Hahn and Evelyn E. Rosentreter (ed.) St. Joseph, Missouri. 41st edition.

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

California Chapter of the American Society of Farm Managers and Rural Appraisers. 2007. *Trends in Agricultural Land and Lease Values.* California Chapter of the American Society of Farm Managers and Rural Appraisers, Inc. Woodbridge, CA.

California State Automobile Association. *Gas Price Averages 2007.* AAA Press Room, San Francisco, CA. Internet accessed January 2008. http://www.csaa.com/portal/site/CSAA

California State Board of equalization. *Fuel Tax Division Tax Rates.* Internet accessed January 2008. http://www.boe.ca.gov/sptaxprog/spftdrates.htm

Doanes Editors. *Facts and Figures for Farmers.* 1977. Doane Publishing, St. Louis, MO. P 292.

Energy Information Administration. 2007. *Weekly Retail on Highway Diesel Prices.* Internet accessed January 2008. http://tonto.eix.doe.gov/oog/info/wohdp

Klonsky, Karen A., Rachel B. Elkins, and Pete Livingston. 1998. *Sample Costs to Establish a Vineyard and Produce Winegrapes, Lake County.* University of California Cooperative Extension, Department of Agricultural and Resource Economics. Davis, CA.

University of California Statewide Integrated Pest Management Program. *UC Pest Management Guidelines, Grapes*. 2006. University of California, Davis, CA. http://www.ipm.ucdavis.edu

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

UC COOPERATIVE EXTENSION

Table 1. COSTS PER ACRE TO ESTABLISH A WHITE WINEGRAPE (SAUVIGNON BLANC) VINEYARD

NORTH COAST – Lake County 2008

	Cost Per Acre				
Year:	1st	2nd	3rd	4th	5th
Tons Per Acre:			1.50	3.00	5.00
Planting Costs:					
Land Prep: Fertilize/Soil Amendment (Gypsum)	355				
Land Prep: Rip 3X (custom)	270				
Land Prep: Disk 3X	7				
Land Prep: Landplane (custom)	75				
Land Prep: Weed (Roundup)	12				
Land Prep: Survey & Layout (custom)	106				
Land Prep: Plant (custom)	908	18			
Land Prep: Vines @ 908/acre (2% replant in 2nd year)	2,724	54			
Install Trellis		4,500			
TOTAL PLANTING COSTS	4,458	4,572			
Cultural Costs:					
Prune/Train:	971	223			
Weed: Disk Middles	25	25			
Vertebrate: Gopher (bait)	11	11	11	11	11
Irrigate: Flush Lines 2X	3	3	3	3	3
Fertilize: N (UN32) injected through drip	7	7	7	7	7
Irrigate: (water & labor)	28	28	28	38	38
Weed: Vine Row Spot Spray (Roundup)	8	8	8	8	8
Prune: Dormant		54	373	373	373
Weed: Vine Row - Dormant (Goal, Surflan, Roundup. Yr 4+ Chateau added)		43	43	60	60
Weed: Mow &/or Shred Prunings		10	27	27	27
Disease: Powdery Mildew (Thiolux) Alternate Rows		35	38	38	38
Disease: Powdery Mildew (Flint)		43	52	52	52
Disease: Powdery Mildew (Rally)		10	45	45	45
Cover Crop: Plant		86			
Prune: Sucker Cordons/Sucker Trunks			181	511	511
Vine Management: Move Wire/Tuck Shoots			122	122	122
Vine Management: Tie cordon to fruit wire			85	85	85
Disease/Insect: @ budbreak. Mildew/ (oil) /Mites (oil)			32	32	32
Frost Protection			133	133	133
Disease: Powdery Mildew (Rubigan)			31	31	31
Insect: Leafhopper (Provado)			30	30	30
Fertilize/Soil Amendment: (gypsum) 1X/3 yr			25	25	25
Pest Control Adviser/Crop Consultant			30	30	30
Vine Management: Blow/Remove Leaves				29	29
Disease: Powdery Mildew (Pristine)				43	43
Fertilize: Potassium (KTS)				38	38
Pickup	23	23	23	23	23
ATV	16	16	16	16	16
TOTAL CULTURAL COSTS	1,093	625	1,346	1,813	1,813
Harvest Costs:					
Harvest			287	394	402
Haul to Crusher			30	60	100
TOTAL HARVEST COSTS			317	454	502
Assessments:					
Lake County Wine Grape Commission			14	27	45
TOTAL ASSESSMENT COSTS			14	27	45
Interest On Operating Capital @ 8.75%	391	365	58	75	75
TOTAL OPERATING COSTS/ACRE	5,941	5,562	1,735	2,368	2,435

UC COOPERATIVE EXTENSION

Table 1. CONTINUED

NORTH COAST – Lake County 2008

	Cost Per Acre				
Year:	1st	2nd	3rd	4th	5th
Tons Per Acre:			1.50	3.00	5.00
Cash Overhead Costs:					
Liability Insurance	16	16	16	16	16
Office Expense	250	250	250	250	250
Sanitation Fees	22	22	22	22	22
Watershed Fee	3	3	3	3	3
Crop Insurance				65	65
Property Taxes	275	277	286	288	288
Property Insurance	27	29	35	37	37
Investment Repairs	141	141	166	166	166
TOTAL CASH OVERHEAD COSTS	734	737	778	848	848
TOTAL CASH COSTS/ACRE	6,675	6,300	2,513	3,216	3,283
INCOME/ACRE FROM PRODUCTION			1,350	2,700	4,500
NET CASH COSTS/ACRE FOR THE YEAR	6,675	6,300	1,163	516	
PROFIT/ACRE ABOVE CASH COSTS					1,217
ACCUMULATED NET CASH COSTS/ACRE	6,675	12,975	**14,138**	14,654	12,921
Non-Cash Overhead (Capital Recovery):					
Buildings	153	153	153	153	153
Land	1,429	1,429	1,429	1,429	1,429
Drip Irrigation System	124	124	124	124	124
Frost Protection System	152	152	152	152	152
Fuel Tank	8	8	8	8	8
Reservoir	137	137	137	137	137
Shop/Field Tools	7	7	7	7	7
Gondolas (30)			177	177	177
Equipment	206	240	282	338	338
TOTAL INTEREST ON INVESTMENT	2,215	2,249	2,468	2,524	2,524
TOTAL COST/ACRE FOR THE YEAR	8,890	8,548	4,981	5,740	5,806
INCOME/ACRE FROM PRODUCTION			1,350	2,700	4,500
TOTAL NET COST/ACRE FOR THE YEAR	8,890	8,548	3,631	3,040	1,306
NET PROFIT/ACRE ABOVE TOTAL COST					
TOTAL ACCUMULATED NET COST/ACRE	8,890	17,439	21,070	24,110	25,416

UC COOPERATIVE EXTENSION

Table 2. COSTS PER ACRE TO PRODUCE WHITE WINEGRAPES (Sauvignon Blanc)

NORTH COAST - Lake County 2008

Operation	Operation Time (Hrs/A)	Cash and Labor Cost per acre					
		Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
Cultural:							
Weed: Winter Strip (Surflan, Goal, Roundup, Chateau)	0.40	6	1	53	0	60	
Prune: Dormant	0.00	0	0	0	373	373	
Weed: Mow Centers (shred prunings @ first mowing, alternate rows)	0.99	16	12	0	0	27	
CM: Tie cordons to fruit wire	8.00	85	0	0	0	85	
Disease/Insects: @ budbreak. Mildew/Mites (oil)	0.34	5	4	23	0	32	
Frost Protection: 12X	2.74	47	32	54	0	133	
Prune: Sucker Trunks	14.00	149	0	0	0	149	
Prune: Sucker Cordons	34.00	362	0	0	0	362	
CM: Move bottom wire/Tuck shoots	11.50	122	0	0	0	122	
Vertebrate: Gopher (bait)	0.24	4	2	6	0	11	
Disease: Mildew (Thiolux) applied alternate rows	0.69	11	8	19	0	38	
Disease: Mildew (Flint)	0.69	11	8	33	0	52	
Disease: Mildew (Rally)	0.69	11	8	26	0	45	
Irrigate: Flush drip lines	0.08	1	0	2	0	3	
Fertilize: N (UN32) applied 1X/week through drip	0.00	0	0	7	0	7	
Irrigate: (water & labor) 2X/week	1.20	13	0	25	0	38	
Fertilize: Potassium (KTS) applied 1X/week through drip	0.00	0	0	38	0	38	
Disease: Mildew (Rubigan)	0.69	11	8	12	0	31	
Insect: Leafhopper (Provado).	0.69	11	8	11	0	30	
Weed: Strip Spot Spray (Roundup)	0.30	5	1	2	0	8	
Disease: Eutypa (cut/burn)	2.00	53	6	0	0	60	
CM: Leaf Removal (mechanical)	1.00	16	13	0	0	29	
Disease: Mildew (Pristine)	0.69	11	8	24	0	43	
Fertilize: Soil amendment (gypsum) 1X/3 yr	0.07	1	1	23	0	25	
PCA/Crop Consultant	0.00	0	0	0	30	30	
Pickup: Business Use	0.85	14	9	0	0	23	
ATV Use	0.85	14	3	0	0	16	
TOTAL CULTURAL COSTS/ACRE	82.70	979	133	358	403	1,872	
Harvest							
Harvest: Pick (Mechanical)	2.31	33	5	0	356	394	
Haul to Processor (out of county)	0.00	0	0	0	140	140	
Assessment Fees	0.00	0	0	63	0	63	
TOTAL HARVEST COSTS/ACRE	2.31	33	5	63	496	597	
Interest on operating capital @ 8.75%						76	
TOTAL OPERATING COSTS/ACRE		1,011	138	421	899	2,545	
CASH OVERHEAD:							
Office Expense						250	
Liability Insurance						16	
Sanitation Fees						22	
Environmental Fees (watershed)						3	
Crop Insurance						65	
Property Taxes						359	
Property Insurance						89	
Investment Repairs						180	
TOTAL CASH OVERHEAD COSTS						984	
TOTAL CASH COSTS/ACRE						3,530	

UC COOPERATIVE EXTENSION

Table 2. CONTINUED

NORTH COAST - Lake County 2008

Operation	Operation Time (Hrs/A)	Cash and Labor Cost per acre					
		Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
NON-CASH OVERHEAD:		Per producing		-- Annual Cost --			
Investment		Acre		Capital Recovery			
Buildings		1,714		153		153	
Land		22,857		1,429		1,429	
Drip Irrigation System		1,543		124		124	
Frost Protection System		1,897		152		152	
Fuel Tank		100		8		8	
Reservoir		1,714		137		137	
Shop/Field Tools		57		7		7	
Vineyard Establishment Costs		14,138		1,200		1,200	
Gondolas (30)		1,286		177		177	
Equipment		3,039		340		340	
TOTAL NON-CASH OVERHEAD COSTS		48,346		3,726		3,726	
TOTAL COSTS/ACRE						7,256	

*CM = Canopy Management. FM = Fruit Management

UC COOPERATIVE EXTENSION

Table 3. COSTS AND RETURNS PER ACRE to PRODUCE WHITE WINEGRAPES (Sauvignon Blanc)

NORTH COAST - Lake County 2008

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Winegrapes (Sauvignon Blanc)	7.00	ton	900.00	6,300	
OPERATING COSTS					
Herbicide:					
Goal 2XL	1.00	pint	16.45	16	
Roundup Ultra Max	0.75	pint	7.80	6	
Surflan 4 AS	1.00	pint	14.52	15	
Chateau	2.25	oz	7.85	18	
Custom/Contract:					
Hand Prune ($0.30/vine + OH)	908.00	vine	0.41	373	
Harvest (mechanical)	1.00	acre	300.00	300	
Haul to Processor (out of county)	7.00	ton	20.00	140	
PCA/Crop Consultant	1.00	acre	30.00	30	
Rodenticide:					
Wilco Gopher Getter Ag Bait	1.00	lb	5.82	6	
Insecticide:					
Stylet Oil	1.00	gal	22.80	23	
Provado Solupak	0.25	oz	44.21	11	
Fungicide:					
Thiolux Jet	24.00	lb	0.80	19	
Flint	2.00	oz	16.50	33	
Rally 40WSP	5.00	oz	5.16	26	
Rubigan EC	4.00	floz	3.07	12	
Pristine	8.00	oz	2.97	24	
Fertilizer/Soil Amendments:					
UN 32	10.00	lb N	0.75	8	
Potassium Thiosulfate (KTS) (12.2 lbs/gallon)	183.00	lb	0.21	38	
Gypsum (2 ton @ 1/3 cost per year)	0.66	ton	35.00	23	
Water:					
Water - Frost Protection	12.00	acin	4.50	54	
Water -Flush Lines	0.50	acin	4.50	2	
Water - Pumping cost	5.50	acin	4.50	25	
Rent:					
Portable Lights w/generator (2 light setups)	0.22	day	100.00	22	
Forklift (4 days)	0.11	day	200.00	22	
Tractor 35HP #1 (4 days)	0.02	week	300.00	6	
Tractor 35HP #2 (4 days)	0.02	week	300.00	6	
Assessment:					
Lake County Wine Grape Growers (based on gross income)	0.01	gross	6,300.00	63	
Labor (machine)	18.52	hrs	13.30	246	
Labor (non-machine)	71.89	hrs	10.64	765	
Fuel - Gas	4.49	gal	3.10	14	
Fuel - Diesel	28.51	gal	2.50	71	
Lube				13	
Machinery repair				40	
Interest on operating capital @ 8.75%				76	
TOTAL OPERATING COSTS/ACRE				2,545	
NET RETURNS ABOVE OPERATING COSTS				3,755	
CASH OVERHEAD COSTS:					
Office Expense				250	
Liability Insurance				16	
Sanitation Fees				22	
Environmental Fees (watershed)				3	
Crop Insurance				65	
Property Taxes				359	
Property Insurance				89	
Investment Repairs				180	
TOTAL CASH OVERHEAD COSTS/ACRE				984	
TOTAL CASH COSTS/ACRE				3,530	

UC COOPERATIVE EXTENSION
Table 3. CONTINUED
NORTH COAST - Lake County 2008

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
NON-CASH OVERHEAD COSTS (Capital Recovery)					
Buildings				153	
Land				1,429	
Drip Irrigation System				124	
Frost Protection System				152	
Fuel Tank				8	
Reservoir				137	
Shop/Field Tools				7	
Vineyard Establishment Costs				1,200	
Gondolas (30)				177	
Equipment				340	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				3,726	
TOTAL COSTS/ACRE				7,256	
NET RETURNS ABOVE TOTAL COSTS				-956	

UC COOPERATIVE EXTENSION

Table 4. MONTHLY CASH COSTS PER ACRE to PRODUCE WHITE WINEGRAPES (Sauvignon Blanc)

NORTH COAST - Lake County 2008

Beginning JAN 08 Ending DEC 08	JAN 08	FEB 08	MAR 08	APR 08	MAY 08	JUN 08	JUL 08	AUG 08	SEP 08	OCT 08	NOV 08	DEC 08	TOTAL
Cultural:													
Weed: Winter Strip (Surflan, Goal, Roundup, Chateau)	60												60
Prune: Dormant		373											373
Weed: Mow Centers (shred prunings @ first mowing, alternate rows)			7		10	10							27
CM: Tie cordons to fruit wire			85										85
Disease/Insects: @ budbreak. Mildew/Mites (oil)				32									32
Frost Protection: 12X				56	56	22							133
Prune: Sucker Trunks					149								149
Prune: Sucker Cordons					362								362
CM: Move bottom wire/Tuck shoots					122								122
Vertebrate: Gopher (bait)					11								11
Disease: Mildew (Thiolux) applied alternate rows					38								38
Disease: Mildew (Flint)						52							52
Disease: Mildew (Rally)						45							45
Irrigate: Flush drip lines						2		2					3
Fertilize: N (UN32) applied 1X/week through drip						1	3	3	1				7
Irrigate: (water & labor) 2X/week						4	15	15	4				38
Fertilize: Potassium (KTS) applied 1X/week through drip						4	15	15	4				38
Disease: Mildew (Rubigan)							31						31
Insect: Leafhopper (Provado).							30						30
Weed: Strip Spot Spray (Roundup)							8						8
Disease: Eutypa (cut/burn)							60						60
CM: Leaf Removal (mechanical)							29						29
Disease: Mildew (Pristine)							43						43
Fertilize: Soil amendment (gypsum) 1X/3 yr											25		25
PCA/Crop Consultant	3	3	3	3	3	3	3	3	3	3	3		30
Pickup: Business Use	2	2	2	2	2	2	2	2	2	2	2	2	23
ATV Use	1	1	1	1	1	1	1	1	1	1	1	1	16
TOTAL CULTURAL COSTS	66	379	98	94	754	145	240	41	14	6	31	3	1,872
Harvest:													
Harvest: Pick (Mechanical)									394				394
Haul to Processor (out of county)									140				140
Assessment Fees										63			63
TOTAL HARVEST COSTS									534	63			597
Interest on operating capital @ 10.00%	0	3	4	5	10	11	13	13	17	-1	0	0	76
TOTAL OPERATING COSTS/ACRE	67	382	102	99	765	157	253	54	566	68	31	3	2,546

UC COOPERATIVE EXTENSION

Table 4. CONTINUED

NORTH COAST - Lake County 2008

Beginning JAN 08 Ending DEC 08	JAN 08	FEB 08	MAR 08	APR 08	MAY 08	JUN 08	JUL 08	AUG 08	SEP 08	OCT 08	NOV 08	DEC 08	TOTAL
CASH OVERHEAD:													
Office Expense	23	23	23	23	23	23	23	23	23	23	23		250
Liability Insurance									16				16
Sanitation Fees	2	2	2	2	2	2	2	2	2	2	2		22
Environmental Fees (watershed)										3			3
Crop Insurance						65							65
Property Taxes	359												359
Property Insurance	44						44						89
Investment Repairs	15	15	15	15	15	15	15	15	15	15	15	15	180
TOTAL CASH OVERHEAD COSTS	443	40	40	40	40	105	84	40	55	43	40	15	984
TOTAL CASH COSTS/ACRE	510	422	142	138	804	261	337	94	621	112	70	18	3,530

UC COOPERATIVE EXTENSION

Table 5. RANGING ANALYSIS (Prices vs Yields)

NORTH COAST - Lake County 2008

COSTS PER ACRE AT VARYING YIELD TO PRODUCE WHITE WINEGRAPES (Sauvignon Blanc)

	YIELD (tons/acre)						
	4.00	5.00	6.00	7.00	8.00	9.00	10.00
OPERATING COSTS:							
Cultural Cost	1,872	1,872	1,872	1,872	1,872	1,872	1,872
Harvest (pick)	381	386	390	394	398	403	407
Haul to Processor	80	100	120	140	160	180	200
Assessment	36	45	54	63	72	81	90
Interest on operating capital @ 8.75%	76	76	76	76	76	76	76
TOTAL OPERATING COSTS/ACRE	2,445	2,479	2,512	2,545	2,578	2,612	2,645
Total Operating Costs/ton	611	496	419	364	322	290	265
CASH OVERHEAD COSTS/ACRE	984	984	984	984	984	984	984
TOTAL CASH COSTS/ACRE	3,429	3,463	3,496	3,529	3,562	3,596	3,629
Total Cash Costs/ton	857	693	583	504	445	400	363
NON-CASH OVERHEAD COSTS/ACRE	3,726	3,726	3,726	3,726	3,726	3,726	3,726
TOTAL COSTS/ACRE	7,155	7,189	7,222	7,255	7,288	7,322	7,355
Total Costs/ton	1,789	1,438	1,204	1,036	911	814	736

NET RETURNS PER ACRE ABOVE OPERATING COSTS

PRICE	YIELD (tons/acre)						
$/ton	4.00	5.00	6.00	7.00	8.00	9.00	10.00
600	-45	521	1,088	1,655	2,222	2,788	3,355
700	355	1,021	1,688	2,355	3,022	3,688	4,355
800	755	1,521	2,288	3,055	3,822	4,588	5,355
900	1,155	2,021	2,888	3,755	4,622	5,488	6,355
1,000	1,555	2,521	3,488	4,455	5,422	6,388	7,355
1,100	1,955	3,021	4,088	5,155	6,222	7,288	8,355
1,200	2,355	3,521	4,688	5,855	7,022	8,188	9,355

NET RETURNS PER ACRE ABOVE CASH COSTS

PRICE	YIELD (tons/acre)						
$/ton	4.00	5.00	6.00	7.00	8.00	9.00	10.00
600	-1,029	-463	104	671	1,238	1,804	2,371
700	-629	37	704	1,371	2,038	2,704	3,371
800	-229	537	1,304	2,071	2,838	3,604	4,371
900	171	1,037	1,904	2,771	3,638	4,504	5,371
1,000	571	1,537	2,504	3,471	4,438	5,404	6,371
1,100	971	2,037	3,104	4,171	5,238	6,304	7,371
1,200	1,371	2,537	3,704	4,871	6,038	7,204	8,371

NET RETURNS PER ACRE ABOVE TOTAL COSTS

PRICE	YIELD (tons/acre)						
$/ton	4.00	5.00	6.00	7.00	8.00	9.00	10.00
600	-4,755	-4,189	-3,622	-3,055	-2,488	-1,922	-1,355
700	-4,355	-3,689	-3,022	-2,355	-1,688	-1,022	-355
800	-3,955	-3,189	-2,422	-1,655	-888	-122	645
900	-3,555	-2,689	-1,822	-955	-88	778	1,645
1,000	-3,155	-2,189	-1,222	-255	712	1,678	2,645
1,100	-2,755	-1,689	-622	445	1,512	2,578	3,645
1,200	-2,355	-1,189	-22	1,145	2,312	3,478	4,645

UC COOPERATIVE EXTENSION

Table 6. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, and BUSINESS OVERHEAD

NORTH COAST - Lake County 2008

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead Insur-ance	Cash Overhead Taxes	Total
08	35 HP 2WD Tractor #1	15,900	15	1,534	1,534	69	95	1,698
08	50 HP MFWD Tractor	27,200	15	2,623	2,623	118	162	2,904
08	ATV 4WD	8,000	5	1,279	1,279	42	58	1,379
08	Bin Trailer #1	2,000	20	175	175	8	11	193
08	Bin Trailer #2	2,000	20	175	175	8	11	193
08	Bin Trailer #3	2,000	20	175	175	8	11	193
08	Fertilizer Spreader	10,000	15	1,006	1,006	40	55	1,101
08	Leaf Blower/Remover	26,000	10	3,230	3,230	111	153	3,494
08	Mower Flail 3 pt 6ft	7,000	10	870	870	30	41	941
08	Vine Sprayer/Air Blast	22,000	20	1,927	1,927	84	116	2,127
08	Pickup Truck 1/2 T	28,000	7	3,805	3,805	141	193	4,138
08	Pump Diesel 75HP	20,000	15	2,012	2,012	80	110	2,201
08	Trailer for ATV	1,500	15	151	151	6	8	165
08	Weed Sprayer 100 gal (pull type)	3,000	5	545	545	14	20	579
08	Wilco Gopher Getter Baiter	2,700	10	335	335	12	16	363
	TOTAL	177,300		19,842	19,842	770	1,058	21,670
	60% of New Cost *	106,380		11,905	11,905	462	635	13,002

* 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	Cash Overhead Taxes	Cash Overhead Repairs	Total
Buildings: 1500 sqft	60,000	20		5,338	218	300	1,200	7,056
Drip Irrigation System	54,000	25		4,325	197	270	1,080	5,872
Vineyard Establishment	494,829	22		41,991	1,801	2,474	494	46,760
Frost Protection System	66,400	25		5,318	242	332	1,328	7,220
Fuel tank: 2-350 gal	3,500	25	150	278	13	18	70	379
Gondolas - 2.5 ton (30)	45,000	10		6,187	164	225	900	7,475
Land	800,000	25	800,000	50,000	0	8,000	0	58,000
Reservoir: 12 acft	60,000	25		4,806	0	300	1,200	6,306
Tools-Shop/Field	2,000	10	200	260	8	11	40	319
TOTAL INVESTMENT	1,585,729		800,350	118,502	2,643	11,930	6,312	139,387

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Crop Insurance	35	acre	65.00	2,275
Liability Insurance	35	acre	15.71	550
Office Expense	35	acre	250.00	8,750
Sanitation Fee	35	acre	22.14	775
Watershed Fee	40	acre	3.04	122

UC COOPERATIVE EXTENSION

Table 7. HOURLY EQUIPMENT COSTS

NORTH COAST - Lake County 2008

		COSTS PER HOUR						
			Cash Overhead		Operating			
Yr Description	Actual Hours Used	Capital Recovery	Insur-ance	Taxes	Repairs	Fuel & Lube	Total Oper.	Total Costs/Hr.
08 35 HP 2WD Tractor #1	42	22.08	1.00	1.37	0.68	4.94	5.62	30.07
08 50 HP MFWD Tractor	248	6.34	0.29	0.39	0.62	7.06	7.68	14.70
08 ATV 4WD	124	6.18	0.20	0.28	0.59	2.38	2.97	9.63
08 Bin Trailer #1	27	3.90	0.17	0.23	0.26	0.00	0.26	4.56
08 Bin Trailer #2	27	3.90	0.17	0.23	0.26	0.00	0.26	4.56
08 Bin Trailer #3	27	3.90	0.17	0.23	0.26	0.00	0.26	4.56
08 Fertilizer Spreader	3	246.38	9.77	13.42	3.44	0.00	3.44	273.01
08 Leaf Blower/Remover	35	55.37	1.91	2.62	4.49	0.00	4.49	64.39
08 Mower Flail 3 pt 6ft	35	15.12	0.52	0.72	3.33	0.00	3.33	19.69
08 Vine Sprayer/Air Blast	1,556	7.40	0.32	0.44	3.44	0.00	3.44	11.60
08 Pickup Truck 1/2 T	30	76.73	2.84	3.89	2.05	8.91	10.96	94.42
08 Pump Diesel 75HP	105	11.46	0.45	0.62	2.00	8.63	10.63	23.16
08 Trailer for ATV	70	1.29	0.05	0.07	0.18	0.00	0.18	1.59
08 Weed Sprayer 100 gal (pull type)	24	13.39	0.36	0.49	0.76	0.00	0.76	15.00
08 Wilco Gopher Getter Baiter	9	23.65	0.82	1.12	0.57	0.00	0.57	26.16

UC COOPERATIVE EXTENSION

Table 8. PRODUCTION YEAR OPERATIONS FOR WHITE WINEGRAPES (Sauvignon Blanc)

NORTH COAST - Lake County 2008

MONTH	OPERATION	TRACTOR	IMPLEMENT	LABOR HRS/acre	MATERIAL	RATE/AC	UNIT
Jan	Weed: Winter Strip Spray	ATV	Weed Sprayer		Goal	1.00	pint
					Roundup	0.50	pint
					Surflan	1.00	pint
					Chateau	2.25	oz
Feb	Prune: Dormant	Contract					
Mar	Weed: Mow Centers & Shred Prunings	50HP	Mower Flail				
Mar	Vine Mgmt: Tie cordons to fruit wire			8.00			
April	Disease/Insect: @ budbreak, Mildew/Mites	50HP	Air-blast Sprayer		Stytlet Oil	1.00	gal
April	Frost Protection: Sprinkle 5X		75HP Diesel Pump	0.20	Water	5.00	acin
May	Frost Protection: Sprinkle 5X		75HP Diesel Pump	0.20	Water	5.00	acin
May	Prune: Sucker Trunks			14.00			
May	Prune: Sucker Cordons			34.00			
May	Vine Mgmt: Move bottom wire & tuck shoots			11.50			
May	Vertebrate: Gopher	35 HP	Gopher Baiter		Bait	1.00	lb
May	Disease: Mildew (spray alternate rows)	50HP	Air-blast Sprayer		Thiolux	12.00	lb
May	Disease: Mildew (spray alternate rows)	50HP	Air-blast Sprayer		Thiolux	12.00	lb
June	Frost Protection: Sprinkle 5X		75HP Diesel Pump	0.20	Water	2.00	acin
June	Disease: Mildew	50HP	Air-blast Sprayer		Flint	2.00	oz
June	Disease: Mildew	50HP	Air-blast Sprayer		Rally	5.00	oz
June	Weed: Mow Centers	50HP	Mower Flail				
June	Irrigate: Flush Drip Lines			0.04	Water	0.25	acin
June	Irrigate: 2X			0.12	Water	0.55	acin
June	Fertilize: N 1X				UN32	1.00	lb N
June	Fertilize: K 1X				KTS	18.30	lb
July	Disease: Mildew	50HP	Air-blast Sprayer		Rubigan	4.00	floz
July	Insect: Leafhopper	50HP	Air-blast Sprayer		Provado	0.25	oz
July	Weed: Vine Row. Spot Spray	ATV	Weed Sprayer		Roundup	0.25	pint
July	Disease: Eutypa (cut & burn)	ATV	Trailer	2.00			
July	Vine Mgmt: Leaf Removal	50HP	Leaf Blower				
July	Irrigate: Flush Drip Lines			0.04	Water	0.25	acin
July	Irrigate: 8X			0.48	Water	2.20	acin
July	Fertilize: N 4X				UN32	4.00	lb N
July	Fertilize: K 4X				KTS	73.20	lb
July	Disease: Mildew	50HP	Air-blast Sprayer		Pristine	8.00	oz
Aug	Irrigate: 8X			0.48	Water	2.20	acin
Aug	Fertilize: N 4X				UN32	4.00	lb N
Aug	Fertilize: K 4X				KTS	73.20	lb
Sept	Irrigate: 2X			0.12	Water	0.55	acin
Sept	Fertilize: N 1X				UN32	1.00	lb N
Sept	Fertilize: K 1X				KTS	18.30	lb
Sept	Harvest (custom pick)	Custom					
		35HP	Gondola Trailer		Rent: Lights		
			Gondola Trailer		Rent: Tractor		
			Gondola Trailer		Rent: Tractor		
					Rent: Lights		
					Rent: Forklift		
Sept	Haul	Custom					
Oct	Fertilize/Soil Amendment 1X/3 Yrs	35HP	Spreader		Gypsum	0.66	ton