



Sample Costs to Establish and Produce Wine Grapes in the North Coast Counties

1982



Cooperative Extension
Division of Agricultural Sciences
UNIVERSITY OF CALIFORNIA

PUBLICATION 3086



Sample Costs to Establish and Produce Wine Grapes in the North Coast Counties 1982

Prepared by:

Keith W. Bowers, Farm Advisor, Napa County
Robert L. Sisson, Farm Advisor, Sonoma County
Bruce E. Bearden, Farm Advisor, Mendocino County
Amand N. Kasimatis, Extension Viticulturist, Davis
Karen M. Klonsky, Area Farm Management Specialist, Davis

This publication shows sample costs to establish a vineyard, to produce trellised wine grapes with sprinkler protection, and to produce older, head-trained wine grapes. The costs in this study are based on current dollars—no inflationary factors over the 3-year establishment period have been considered; nor have the 3-year costs been discounted to present value. The data were collected in Mendocino, Napa, and Sonoma counties for small-cluster varieties such as Cabernet Sauvignon, White Riesling, Pinot noir, and Chardonnay, and head-trained varieties such as Carignane, Zinfandel, and Petite Sirah.

Acreage and spacing. Costs have been calculated on the basis of a 40-acre parcel with vines planted at 8- by 12-foot spacings, giving a net of 413 vines per acre after allowing for avenues and turning space.

Labor costs. Labor costs have been calculated at \$7.35 for field crews and \$8.60 for skilled labor per hour, including fringe benefits.

Capital investment. Investments are based on current replacement costs. Some growers may reduce their investment by buying used equipment or maintaining older equipment. Investment costs are not shown in Table 4 for older, head-trained wine grapes because many of these vineyards are 35 to 50 years old.

Land investment. The land value of \$10,000 per acre used in this study represents a typical current market price for vineyard land in Mendocino, Napa, and Sonoma counties. Land prices actually range from \$5,000 per acre in Mendocino County to \$12,000 or more in Napa County.

Site conversion. Very little open land is available, so most vineyards are planted on old orchard or vineyard sites. The old trees or vines must be removed, the soil ripped, and the land rough-leveled and fumigated.

Yield. Yields of 4 tons per acre are above average for the area, but are below that attained in some vineyards. Such figures are typical of an attainable annual average yield for better vineyards planted with certified stock and cared for in accordance with the cultural practices recommended in the cost tables. The first crop year is assumed to occur during the fourth growing season, although some production may come a year earlier.

Fencing. Temporary fencing for protection from rabbits may be needed for the first 2 or 3 years after the vineyard is planted. In some locations, permanent fencing may be necessary for protection from deer and should be built when the vineyard is planted. Permanent fencing costs for deer and rabbit control will vary considerably with the situation. Growers have reported costs of \$5 to \$7 per foot of installed fence (including clearing), and costs of \$50 to \$70 per acre for annual overhead and maintenance.

Soil requirements. Grapes grow fairly well in many dif-

ferent soils. Deeper and more fertile soils usually produce the heaviest crops, but some varieties attain higher quality on soils of limited depth. A variety may be capable of bringing 5 or 6 tons per acre to maturity on a deep soil, but only 2 to 3 tons on a shallower one. Very heavy clays, very shallow soils, poorly drained soils, and soils with high concentrations of alkali salts, boron, and other toxic materials should be avoided.

Frost protection. All areas except those with excellent air drainage will require frost protection. Such protection can be provided by heaters, wind machines, or sprinklers. Costs have been calculated using overhead sprinkler protection. See UC's Division of Agricultural Sciences Leaflet 2743, *Frost Protection for North Coast Vineyards*.

Rootstocks and scion wood. Only certified rootings should be planted, and only bud wood or benchgrafts certified free of known virus disease by the Nursery and Seed Service of the California Department of Food and Agriculture should be used.

Management. The vineyard is assumed to be owner operated. Management costs of \$20 per acre per month for the establishment period, and \$13 per acre per month for production are used. No charges for pest control advisors or other additional consultants are included.

Interest. The interest in operating and overhead costs for vineyard establishment is calculated assuming that each year a loan is taken out to be paid back or refinanced at the end of the third year. Therefore, in the second year, interest is paid on the second year loan and also on the first year loan. Similarly, interest is paid in the third year on the first and second year loans. The first year of each loan is for 6 months only. The interest on investment is the average interest paid on loans for purchasing all new equipment. Interest on land is calculated as the average annual interest paid for a purchase price of \$10,000 per acre and a 40-year mortgage. For all other investments an interest rate of 14 percent per year on one-half the new cost of buildings and equipment is used to reflect likely returns from alternate uses of investment capital. The interest computed in this way is less than the cost of borrowing money for several years. It is an estimate of income foregone by tying up money in vineyard investment.

Depreciation. The straight-line depreciation method was used to depreciate investment. Equipment is depreciated over 10 years to 20 percent of its initial value. The buildings and overhead sprinkler system are completely depreciated over 20 years, and site conversion and vineyard investment over 30 years. Depreciation on equipment, buildings and the irrigation system can be correctly interpreted as the average capital payment on the investment.

Taxes. Land and vineyard improvement are assumed to be taxed at 1 percent of value.

TABLE 1. Total Pre-Plant Investment per Acre, 40 Acres of Wine Grapes

Investment	Initial Investment (cost per acre)	Annual cost per acre		
		Depreciation	Interest (14%)	Total
Land	\$10,000		\$1,055	\$1,055
Site conversion (includes tree or vine removal, ripping and fumigation)	1,500	\$ 50	105	155
Overhead sprinkler system for irrigation and frost control, 15 acre-foot reservoir	2,470*	124	173	297
Buildings	500	25	35	60
Equipment (new purchase price):				
Tractor—50 hp wheel	\$18,000			
Pickup	9,000			
Disk 8'	3,500			
Chopper 6'	2,800			
Fertilizer spreader 8'	800			
Duster	2,100			
Weed sprayer—150 gal capacity	1,000			
Harvesting equipment	7,500			
Miscellaneous**	10,200			
Total equipment	\$54,900	1,373	96	206
TOTAL PRE-PLANT INVESTMENT PER ACRE	\$15,843	\$ 309	\$ 1,464	\$ 1,773

*From UC Leaflet 2743, *Frost Protection for North Coast Vineyards*.

**Includes pruning equipment, small tools, shop equipment and other items necessary for the operation of a vineyard.

TABLE 2. Sample Costs to Establish a Trellised Vineyard of Small-Cluster Wine Grapes in the North Coast Counties—1982

	Hours of labor per acre			Cost per acre		
	1st yr	2nd yr	3rd yr	1st yr	2nd yr	3rd yr
Cultural costs						
Pre-plant tillage 2X—3 tractor hours	3			\$ 43		
Layout and mark	5			37		
Distribute and set stakes	13			96		
Stakes 7'—413 @ \$1.10 ea				454		
Rootstocks (certified)—413 @ 75¢ ea				310		
Trim rootstocks	8			59		
Plant vines	13			96		
Planting supervision—skilled labor	2			17		
Field budding*						
Bud and cover	16	4	2	186	\$ 60	\$ 25
Budwood (certified)—413 @ 8¢/bud				33	3	2
Uncover and prune rootstocks		8	1		59	7
Cut rubbers and tops, place collars		32	4		235	29
End posts (treated)—11 @ \$5.50 ea					61	
End posts, set		9			66	
String 2 wires + staple		5			37	
Wire—#13 high tensile—164 lbs @ 42¢/lb					69	
Train and prune		25	12		184	88
Mildew control—1½ tractor hours			2			23
Irrigation labor	1	1	1	7	7	7
Water + pumping power—½ acre-foot				22	22	22
Weed control	1	1	1	15	19	19
Repairs on irrigation system				22	22	22
Cultivate 4X—3 tractor hours	3	3	3	41	41	41
Frost protection—labor		1	1		9	9
—power for ½ acre foot					22	22
Misc. labor, materials, etc.				60	60	60
Interest on operating capital @ 16%				120	251	208
TOTAL CULTURAL COST	65	89	27	\$1,618	\$1,227	\$ 584
Cash Overhead						
Misc. cash 8% of cultural cost				129	98	47
Taxes on land (1%)				100	100	100
Management @ \$20/acre/month				240	240	240
Interest on overhead costs @ 16%				38	88	98
TOTAL OVERHEAD COST				507	526	485
PRE-PLANT INVESTMENT—depreciation and interest (Table 1)				1,773	1,773	1,773
TOTAL ANNUAL COST				\$3,898	\$3,526	\$2,842
TOTAL ACCUMULATED COST				\$3,898	\$7,424	\$10,266
Pre-plant Investment (Table 1)						
Land	<i>Per acre</i>					
Land	\$10,000					
Site conversion and buildings	2,000					
Overhead sprinkler system	2,470					
Equipment	1,370					
TOTAL	\$15,840					
TOTAL VINEYARD ESTABLISHMENT COST AND INVESTMENT				\$19,738	\$23,264	\$26,106

*If dormant bench grafted vines are used instead of field budding, the cost is about \$2.50 per vine (\$1033 per acre).

**TABLE 3. Sample Costs to Produce Small-Cluster, Trellised Wine Grapes*—
North Coast Counties—1982**

	Hours per acre	Cash and labor cost per acre				Total			
		Labor	Fuel & repairs	Materials Kind and quantity	Cost				
							Dollars		
Cultural Costs									
Pruning—413 vines/acre	30.0	\$221				\$ 221			
Brush disposal (choppers)	.5	4	4			8			
Tying canes	4.0	29				29			
Sulfuring 8X—skilled rate	2.4	21	11	Sulfur 100# @ 10¢/lb	\$ 10	42			
Pest management—3X				Application	45				
				Materials	60	105			
Fertilize	.5	4	3	Nitrogen 30# @ 31¢/lb	9	16			
Suckering, shoot removal	10.0	74				74			
Winter weed control	1.0	7	8	Materials	15	30			
Summer weed control	1.0	7	8	Materials	2	17			
Cultivate 4X	3.0	26	15			41			
Irrigation 2X	1.0	7	22	Pumping 6"	22	51			
Frost protection	1.0	9	22	Pumping 6"	22	53			
Misc. labor, supplies, etc.		17	10		23	50			
Interest on operating capital 16% for ½ year					58	58			
TOTAL CULTURAL COSTS		\$426	\$103		\$266	\$ 795			
Harvest Costs									
Picking—4 tons @ \$70/ton		280				280			
Supervision	4.0	34				34			
Move harvesting equipment	2.0	15				15			
Haul to winery—4 tons @ \$12/ton					48	48			
TOTAL HARVEST COSTS		\$329			\$ 48	\$ 377			
Cash Overhead									
Misc., office, etc. @ 8% of operating cost					93				
Taxes on land @ 1% of land value					100				
Management @ \$13/acre/month					156				
TOTAL CASH OVERHEAD					\$349	\$ 349			
TOTAL CASH COST @ 4 ton yield		\$755	\$103		\$663	\$1,521			
Annual cost									
Investment Cost		Per acre		Depreciation	Interest @ 14%				
Vineyard (Table 2)		\$10,266		\$342	\$ 719	\$1,061			
Land		10,000			1,055	1,055			
Overhead sprinkler system		2,470		124	173	297			
Buildings		500		25	35	60			
Equipment		1,370		110	96	206			
Site conversion		1,500		50	105	155			
TOTAL INVESTMENT COST		\$26,106		\$651	\$2,183	\$2,834			
TOTAL COST PER ACRE						\$4,355			
Cost per ton @ 4 ton yield						\$1,089			
CASH AND TOTAL COSTS PER TON AT VARYING YIELDS									
Yield tons	Picking cost per ton	Cash costs per acre			Total cash cost		Investment /acre	Total cost	
		Pick	Haul	Other	per acre	per ton		per acre	per ton
2	\$100	\$200	\$24	\$1,193	\$1,417	\$709	\$2,834	\$4,251	\$2,126
3	70	210	36	1,193	1,439	480	2,834	4,273	1,424
4	70	280	48	1,193	1,521	380	2,834	4,355	1,089
5	60	300	60	1,193	1,553	311	2,834	4,387	877
6	60	360	72	1,193	1,625	271	2,834	4,459	743

*Yield: 4 tons per acre.

TABLE 4. Sample Cash Costs* to Produce Older, Head-Trained Wine Grapes—North Coast Counties, 1982**

	Hours per acre	Cash and labor cost per acre				Total
		Labor	Fuel and repairs	Materials Kind and quantity	Cost	
Cultural Costs						
Pruning, average 600 vines	20.0	\$147				\$ 147
Brush disposal (choppers)	.5	4	\$ 4			8
Sulfur 4X	1.2	9	8	Sulfur 50# @ 10¢/lb	\$ 5	22
Pest management				Application	15	
				Materials	20	35
Fertilizer	.5	4	3	Nitrogen 30# @ 31¢/lb	9	16
Cultivate 4X—skilled labor	4.0	34	26			60
Misc. labor, supplies, etc.		17	10		23	50
Interest on operating capital 16% for ½ year					27	27
TOTAL CULTURAL COSTS		\$215	\$ 51		\$ 99	\$ 365
Harvest Costs						
Picking—4 tons @ \$60/ton		180				180
Supervision	4.0	34				34
Move harvesting equipment	2.0	15				15
Haul to winery—3 tons @ \$12/ton					36	36
TOTAL HARVEST COSTS		\$229			\$ 36	\$ 265
Cash Overhead						
Misc., office, etc. @ 8% of operating cost					\$ 48	
Taxes @ 1% of land value					100	
Management @ \$13/acre/month					156	
TOTAL CASH OVERHEAD						\$ 304
TOTAL CASH COST @ 3-ton yield						\$ 934

Cash Cost per Ton at Varying Yields

Yield tons	Picking cost per ton	Cash costs per acre			Total cash cost	
		Pick	Haul	Other	per acre	per ton
2	\$80	\$160	\$24	\$718	\$ 902	\$451
3	60	180	36	718	934	311
4	60	240	48	718	1006	252
5	50	250	60	718	1028	206
6	50	300	72	718	1090	182
7	50	350	84	718	1152	165
8	50	400	96	718	1214	152

*Investment costs are not included in this cost study because many of the vineyards are 35 to 50 years old.

**Yield: 3 tons per acre

COOPERATIVE EXTENSION

UNIVERSITY OF CALIFORNIA
Berkeley, California 94720

COOPERATIVE EXTENSION

UNIVERSITY OF CALIFORNIA

This information is provided by Cooperative Extension, an educational agency of the University of California and the United States Department of Agriculture. Support for Cooperative Extension is supplied by federal, state, and county governments. Cooperative Extension provides the people of California with the latest scientific information in agriculture and family consumer sciences. It also sponsors the 4-H Youth program. Cooperative Extension representatives, serving all counties in California, are known as farm, home, or youth advisors. Their offices usually are located in the county seat. They will be happy to provide you with information in their fields of work.

The University of California Cooperative Extension in compliance with the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, and the Rehabilitation Act of 1973 does not discriminate on the basis of race, creed, religion, color, national origin, sex, or mental or physical handicap in any of its programs or activities. Inquiries regarding this policy may be directed to: Affirmative Action Officer, Cooperative Extension, 317 University Hall, University of California, Berkeley, California 94720, (415) 642-9300.

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the United States Department of Agriculture. Jerome B. Subert, Director, Cooperative Extension, University of California.