

Table 7. Wine Grape, Establishment Year 5, \$/Acre Economic Costs and Returns

GROSS INCOME Description	Quantity	Unit	\$ / Unit	Total
Grapes	2.0	ton	650.00	<u>1300.00</u>
Total GROSS Income				1300.00
VARIABLE COST Description	Labor	Machinery	Materials	Total
Machine Shed	1.75	12.50	0.00	14.25
Other Buildings	0.70	0.00	0.00	0.70
Pickup	9.32	8.62	0.00	17.94
Prune	105.00	0.00	0.00	105.00
Pull Brush	45.50	0.00	0.00	45.50
Tie Canes	70.00	0.00	6.00	76.00
Training Ties	1 acre x 6.00 = 6.00			
Flail Canes	5.10	2.46	0.00	7.57
Rodent Control	7.00	0.00	0.00	7.00
Strip Spray	3.39	1.68	20.60	25.67
Herbicide	1 acre x 20.60 = 20.60			
Mow	16.94	8.18	0.00	25.12
Cultivate (3 times)	25.41	14.51	0.00	39.92
Spot Spray	12.19	0.84	5.00	18.03
Herbicide	0.5 acre x 10.00 = 5.00			
Spray (5-7 times)	16.94	8.18	5.00	30.12
Fungicide	5 appl x 15.00 = 75.00			
Plant Cover Crop	6.70	5.08	54.00	65.78
Planter Rental	1 acre x 4.00 = 4.00			
Seed	1 acre x 50.00 = 50.00			
TRAINING				
Sucker/Disbud	112.00	0.00	0.00	112.00
Move Catch Wire	21.00	0.00	0.00	21.00
Tuck Vines	42.00	0.00	0.00	42.00
Move Catch Wire	14.00	0.00	0.00	14.00
Tuck Vines	14.00	0.00	0.00	<u>14.00</u>
Total TRAINING				203.00
Hedging (2 times)	16.94	10.78	0.00	27.72
Bird Control	0.00	0.00	150.00	150.00
HARVEST				
Picking, Custom	0.00	0.00	200.00	200.00
Tractor & Loader	16.94	7.93	0.00	24.87
Load & Haul, Custom	0.00	0.00	60.00	60.00
Grape Tax	0.00	0.00	24.80	<u>24.80</u>
Total HARVEST				309.67
General Labor	49.00	0.00	0.00	49.00
Miscellaneous	0.00	0.00	25.00	25.00
Management	0.00	0.00	196.32	196.32
Operating Capital Interest	0.00	0.00	37.67	<u>37.67</u>
Total VARIABLE COST				1545.30
GROSS INCOME minus VARIABLE COST				-245.30

Table 7. Wine Grapes, Establishment Year 5, \$/Acre Economic Costs and Returns (continued)

<u>FIXED COST Description</u>	<u>Unit</u>	<u>Total</u>
CASH Cost		
Machine & Equipment Insurance	acre	18.55
Property Taxes & License	acre	16.63
Site Improvement Insurance	acre	<u>19.15</u>
Total CASH Cost		54.33
NON-CASH Cost		
Interest on Investment	acre	643.28
Land Interest Charge	acre	198.00
Machine & Equipment-Depreciation & Interest	acre	127.13
Site Improvement-Depreciation & Interest	acre	<u>306.85</u>
Total NON-CASH Cost		1275.26
Total FIXED Cost		1329.59
Total of ALL Cost		1374.89
NET PROJECTED RETURNS		-1574.89

on your capital, or value your labor and management at lower rates, you may achieve a long term economic profit from your vineyard. Also, the prices or yields you achieve may increase your returns. Throughout this study, we attempted to use conservative estimates of costs and include all typical operations. Your costs may be lower, again allowing you to achieve a long term profit. Finally, this analysis ignores any tax advantages associated with vineyard ownership.

One positive aspect of this analysis is that it appears wine grape returns will cover cash costs. The breakeven price for grapes to cover cash variable costs is \$479 per ton at a four ton yield. The state average price paid by wineries in 1987 was \$688 per ton, and recent prices have remained in the \$600 to \$700 per ton price range [2]. Thus, it appears that the vineyard will at least cover the cash costs of producing a crop from year to year.

Cash Flow Analysis

The enterprise budgets presented above indicate the economic costs and returns of establishing and producing wine grapes.

These costs included cash costs as well as non-cash costs. The cost of fixed assets were spread over their useful lives in the form of depreciation and interest.

In analyzing the feasibility of establishing a new vineyard, estimated cash flow requirements are also important for planning cash needs and borrowing. Most lenders require a projected cash flow statement to accompany loan applications.

A summary of the total cash flows required to establish 20 acres of wine grapes is shown in table 9. This cash flow projection summarizes the cash income and expenditures throughout the establishment period. Returns are received only in years 4 and 5, when one and two tons of grapes are harvested, respectively. Returns per acre are multiplied by 20 acres to estimate total returns.

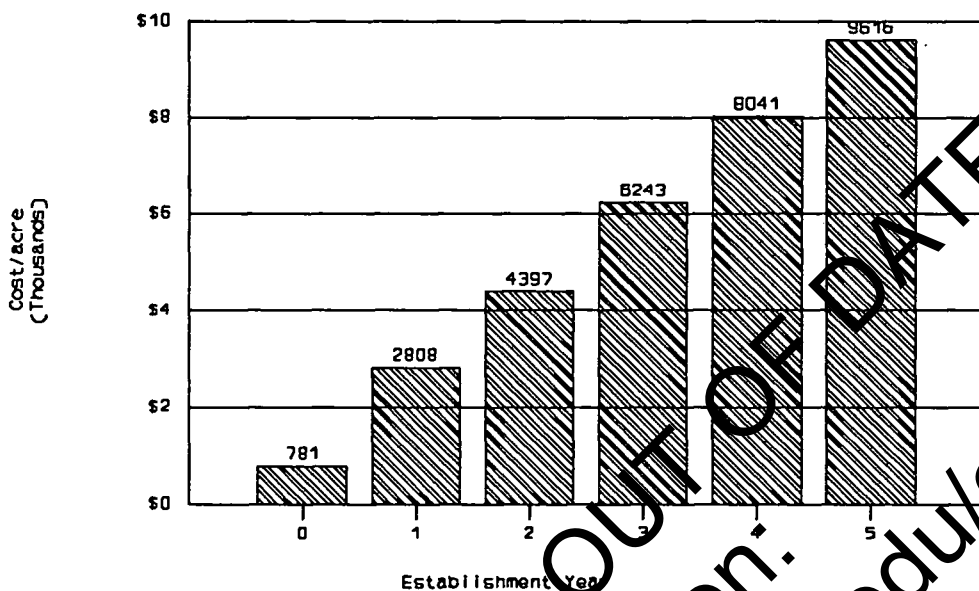


Figure 3. Oregon Wine Grapes Cumulative Establishment Costs

Operating costs are taken from the enterprise budgets in tables 3 through 8. We have assumed that all variable costs, including labor and management, are cash expenses. Your variable cash expense may be less than the values shown if you provide all or part of the labor and management required. Variable costs for the vineyard are calculated by multiplying the variable costs per acre for each year by 20 acres.

Cash fixed costs are also taken from the enterprise budgets in tables 3 through 8. These are the costs incurred for insurance, property taxes, and licenses. Cash fixed costs per acre are multiplied by 20 acres to calculate total cash fixed costs for the vineyard.

The remaining cash expenditures are used to pay for site improvements and purchase machinery and equipment. The majority of the site improvement expenditures occur in year 0, while the machinery and equipment

purchases are spread fairly evenly over the establishment period.

Annual cash flows are calculated by subtracting operating costs, site improvement expenditures, and machinery and equipment purchases from total returns in each year. The parentheses indicate that a cash deficit occurs in each year, and outside cash will have to be provided by the owner or through financing. The cumulative cash flow shows the total cash flow in each year, including all previous cash flows.

Table 9 shows that over the 6 year establishment period, approximately \$262,321 of cash will be used in establishing this 20 acre vineyard. Obviously, anyone considering establishment of a new vineyard will need access to a considerable amount of cash.

Summary

Establishing a vineyard requires a large investment of time and money. Based on a

Table 8. Wine Grape, Production Years, \$/Acre Economic Costs and Returns

<u>GROSS INCOME</u> Description	Quantity	Unit	\$ / Unit	Total
Grapes	4.0	ton	650.00	<u>2600.00</u>
Total GROSS Income				2600.00
<u>VARIABLE COST</u> Description	Labor	Machinery	Materials	Total
Machine Shed	1.75	12.50	0.00	14.25
Other Buildings	0.70	0.00	0.00	0.70
Pickup	9.32	8.62	0.00	17.94
Prune	168.00	0.00	0.00	168.00
Pull Brush	112.00	0.00	0.00	112.00
Tie Canes	70.00	0.00	6.00	76.00
Training Ties	1 acre x 6.00 = 6.00			
Flail Canes	5.10	2.46	0.00	7.56
Flail Mow (4 times)	15.31	7.30	0.00	22.61
Rodent Control	7.00	0.00	0.00	7.00
Strip Spray	3.39	1.68	3.00	8.07
Herbicide	1 acre x 3.00 = 3.00			
Mow	16.94	8.18	0.00	25.12
Spot Spray	12.19	0.84	5.00	18.03
Herbicide	0.5 acre x 10.00 = 5.00			
Spray (5-7 times)	16.94	4.00	75.00	100.34
Fungicide	5 appl x 15.00 = 75.00			
TRAINING				
Sucker/Disbud	112.00	0.00	0.00	112.00
Move Catch Wire	21.00	0.00	0.00	21.00
Tuck Vines	42.00	0.00	0.00	42.00
Move Catch Wire	14.00	0.00	0.00	14.00
Tuck Vines	14.00	0.00	0.00	<u>14.00</u>
Total TRAINING				203.00
Hedging (2 times)	25.11	16.15	0.00	41.56
Bird Control	0.00	0.00	150.00	150.00
HARVEST				
Picking, Custom	0.00	0.00	400.00	400.00
Tractor & Border	16.94	7.93	0.00	24.87
Load & Haul, Custom	0.00	0.00	120.00	120.00
Grape Tax	0.00	0.00	49.60	<u>49.60</u>
Total HARVEST				594.47
General Labor	49.00	0.00	0.00	49.00
Miscellaneous	0.00	0.00	25.00	25.00
Management	0.00	0.00	245.74	245.75
Operating Capital Interest	0.00	0.00	29.38	<u>29.38</u>
Total VARIABLE COST				1915.90
GROSS INCOME minus VARIABLE COST				684.10

Table 8. Wine Grape, Production Years, \$/Acre Economic Costs and Returns (continued)

<u>FIXED COST Description</u>	<u>Unit</u>	<u>Total</u>
CASH Cost		
Machine & Equipment Insurance	acre	18.50
Property Taxes & License	acre	16.63
Site Improvement Insurance	acre	19.15
Total CASH Cost		54.28
NON-CASH Cost		
Amortized Establishment Cost	acre	854.14
Land Interest Charge	acre	198.00
Machine & Equipment-Depreciation & Interest	acre	126.82
Site Improvement-Depreciation & Interest	acre	306.85
Total NON-CASH Cost		1385.81
Total FIXED Cost		1540.09
Total of ALL Cost		3455.99
NET PROJECTED RETURNS		-855.99
Break-Even Price, Total Variable Cost		\$ 478.97 per ton
Break-Even Price, Total Cost		\$ 863.99 per ton

number of assumptions, we estimate that economic establishment costs amount to almost \$10,000 per acre for a 20 acre vineyard. Over a quarter of a million dollars in cash will be required during a six year establishment period.

After the vineyard reaches full production, wine grape sales should cover variable costs of production. However, at a price of \$650 per ton for grapes, net projected returns over all economic costs are negative. The estimated break-even price to cover all costs is \$855 per ton. At grape prices below \$855 per ton, not all factors of production are being paid.

A major limitation of this study is the fact that taxes were ignored. All costs and returns are estimated on a before-tax basis. Anyone considering the establishment of a vineyard should check with a tax accountant to determine potential tax incentives or disincentives associated with a vineyard investment, and incorporate these factors into their own investment analysis.

Table 9. Wine Grape Establishment Cash Flow Analysis, 20 Acres

Item	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Total
RETURNS					13,000	26,000	39,000
OPERATING COSTS							
Variable Costs	7,909	31,248	16,923	17,853	25,685	30,906	130,524
Cash Fixed Costs	733	754	893	995	1,066	1,087	5,528
SITE IMPROVEMENTS							
Land	66,000						66,000
Machine Shed	4,600						4,600
Other Buildings	3,000						3,000
Road Development	2,640						2,640
Utilities	6,600						6,600
Well	4,000						4,000
Fencing	5,213						5,213
Trellis			24,000				24,000
Trellis Wire				10,000			10,000
Totes					700	700	1,400
MACHINERY & EQUIPMENT							
Tractor, 35 hp	15,000						15,000
Rotary Mower	600						600
Pickup	7,000						7,000
Sprayer		800					800
Tiller		2,000					2,000
Air-blast Sprayer				2,350			2,350
Spreader				1,000			1,000
Hedger				3,200		3,200	6,400
Fork Attachment					600		600
Bird Netting					4,667		4,667
Flail Mower					600		600
ANNUAL CASH FLOW	(123,295)	(34,302)	(41,817)	(32,198)	(23,517)	(6,693)	(262,321)
CUMULATIVE CASH FLOW	(123,295)	(158,097)	(199,914)	(232,111)	(255,629)	(262,321)	

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