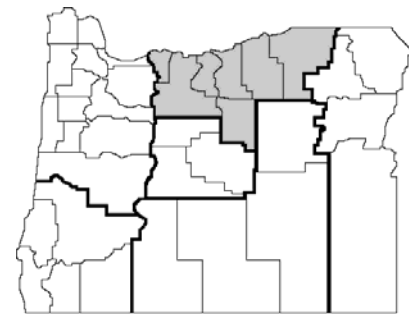


Enterprise Budget

Wine Grapes, North Central Region

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This enterprise budget estimates the typical per-acre costs associated with wine grape production in Hood River County. It should be used as a guide to estimate actual costs and is not representative of any particular farm. The major assumptions used in constructing this budget are discussed below. An attempt has been made to report typical cultural practices used in wine grape production; however, this does not represent the only production method. Assistance provided by area producers and agribusinesses is greatly appreciated.

Typical Farm

The typical farm in Hood River County, as used in this budget, consists of 70 total productive acres. Bearing acres include 30 acres of winter pears, 8 acres of fresh market Bartlett pears, 4 acres of canning market Bartlett pears, 8 acres of medium density pears, 5 acres of medium density apples, 5 acres of wine grapes, and approximately 15 percent, or 10 acres, of the orchard under establishment. It is assumed that this farm complies with Best Management Practices (BMP) established by the Hood River Grower Shipper Association.

Land and Irrigation

This budget is based on 5 producing acres of wine grapes, with 871 own-rooted vines. The vines are mature and therefore establishment costs are assumed to be fully amortized. Average production is 3 tons per acre at a gross price to the grower of \$1,500 per ton. The vineyard is owned and valued at \$6,000 per acre, with \$30 per acre property taxes. This vineyard has a drip irrigation system, valued at \$1,250 per acre.

Labor and Housing

General labor is hired at a rate of \$11.50 per hour and tractor drivers paid \$13 per hour, all of which include worker's compensation, unemployment insurance, and other labor overhead expenses. Harvest labor costs are custom hired at a cost of \$170 per ton. Housing for summer labor is valued at \$40,000 and has a productive life of 30 years. This unit houses 10 people. Foreman

housing is also provided year-round at no cost to the employee and is valued at \$600 per month. The foreman housing is treated as a non-cash opportunity cost to the owner. All labor and foreman housing charges are split equally across the 70 acres.

Capital

Interest on operating capital (8.5 percent) is treated as a cash expense. One-half of the cash expenses are borrowed for a 6 month period. Interest on intermediate (8.5 percent) and long term capital (8 percent) is treated as a non-cash opportunity cost to the owner.

Machinery and Equipment

The machinery and equipment used in the budget reflect the typical machinery complement of a 70-acre orchard in Hood River County. A detailed breakdown of machinery values is shown in Table 1. Estimated machinery costs are shown in Table 2. The machinery costs are estimated based on the total farm use of the machinery. Gasoline costs \$3.00 per gallon, and diesel costs \$3.30 per gallon. Table 3 shows the per acre labor, variable, and fixed costs for certain machinery operations in the orchard.

Operations

The cultural operations are listed approximately in the order in which they are performed. A 70-hp tractor is used for shredding vines, flailing, and pulling the air-blast sprayer. A 50-hp tractor is used to spread fertilizer, pull an older air-blast sprayer, apply gopher bait, and assist during harvest. The 35-hp tractor is used to spray weeds, assist in harvest, and as a general utility tractor. Herbicides are applied to 30 percent of each acre as strips between trees.

Break even Analysis

Tables 4 and 5 show the returns per acre for cash and total costs at various yields and prices. These returns do reflect the changes in harvesting costs with changes in yield. Refer to footnote below tables for interpretation of table contents.

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Table 1. Wine Grapes, 2007 \$/acre economic costs and returns.

GROSS INCOME		Quantity	Unit	\$/Unit	Total	Price/ton	Your Income	
Pinot Noir grapes		3.00	Tons	1,500.00	4,500.00	1,500.00		
Total gross income					4,500.00	1,500.00		
VARIABLE CASH COSTS		Description	Labor	Machinery	Materials	Total	Cost/ton	Your Costs
Prune	24.0	hours	\$276.00	\$0.00	\$0.00	\$276.00	\$92.00	
Pull brush	16.0	hours	184.00	0.00	0.00	184.00	61.33	
Tie canes	12.0	hours	138.00	0.00	4.00	142.00	47.33	
Vine replacement with grow tubes	2.5	hours	28.75	0.00	25.00	53.75	17.92	
Trellis maintenance	2.0	hours	23.00	0.00	50.00	73.00	24.33	
Shredding brush	1.0	x/acre	6.31	12.54	0.00	18.84	6.28	
Fertilizer - foliar applied	1.0	x/acre	0.00	0.00	62.50	62.50	20.83	
Herbicide strip maintenance	2.0	appl.	8.17	12.47	50.00	70.64	23.55	
Fungicides	7.0	appl.	75.07	181.81	281.25	538.13	179.38	
Vine training	15.0	hours	172.50	0.00	0.00	172.50	57.50	
Sucker removal	15.0	hours	172.50	0.00	0.00	172.50	57.50	
Cluster thinning	10.0	hours	115.00	0.00	0.00	115.00	38.33	
Leaf pulling	6.0	hours	69.00	0.00	0.00	69.00	23.00	
Hedging	4.0	hours	46.00	0.00	0.00	46.00	15.33	
Mowing vineyard floor	4.0	times	25.23	50.15	0.00	75.38	25.13	
Bird control & clipping net	20.0	hours	230.00	0.00	0.00	230.00	76.67	
Rodent control	1.0	appl.	5.36	8.22	20.00	33.58	11.19	
Frost protection	0.5	hours	5.75	35.37	0.00	41.12	13.71	
Irrigation	10.0	hours	115.00	12.50	0.00	127.50	42.50	
Picking equipment	1.0	x/acre	0.00	8.18	0.00	8.18	2.73	
Harvesting costs	3.0	tons	510.00	40.50	0.00	550.50	183.50	
Pickup, truck & ATV	1.0	x/acre	0.00	151.65	0.00	151.65	50.55	
Housing facilities	1.0	x/acre	0.00	0.00	15.14	15.14	5.05	
Miscellaneous and overhead	1.0	x/acre	0.00	0.00	75.00	75.00	25.00	
Interest: operating capital	6.0	mons	<u>0.00</u>	<u>0.00</u>	<u>70.17</u>	<u>70.17</u>	<u>23.39</u>	
Total variable costs			2,205.64	513.38	653.06	3,372.08	1,124.03	
FIXED CASH COSTS				Unit	Total	Cost/ton	Your Costs	
Pickup, truck & ATV insurance				acre	26.53	8.84		
Water assessment				acre	35.00	11.67		
Property insurance				acre	25.00	8.33		
Property taxes				acre	<u>30.00</u>	<u>10.00</u>		
Total fixed cash costs					116.53	38.84		
FIXED NON-CASH COSTS				Unit	Total	Cost/ton	Your Costs	
Machinery and equipment insurance, depreciation & interest				acre	800.89	266.96		
Pickup, truck & ATV - depreciation & interest				acre	74.95	24.98		
Foreman housing				acre	102.86	34.29		
Housing facilities				acre	41.90	13.97		
Land interest charge				acre	480.00	160.00		
Amortized establishment costs*				acre	<u>1,731.56</u>	<u>577.19</u>		
Total fixed non-cash costs					3,232.17	1,077.39		
Total fixed costs					3,348.70	1,116.23		
Total of all costs per acre					\$6,720.78	\$2,240.26		
Net projected returns					\$2,220.78	-\$740.26		

*Based on "Vineyard Economics: Establishing and Producing Wine Grapes in the Hood River Valley", EM 8878-E, Revised August, 2007.

Table 1. Machinery Cost Assumptions.

Machine	Size or description	Market value	Hours or miles of annual use	Expected life (years)	Salvage Value
Tractor	4 wheel dr 70hp, new	\$ 33,000	523	10	\$ 9,748
Tractor	2 wheel dr 50hp, old	18,000	179	20	2,310
Tractor	2 wheel dr 35 hp, old	7,500	163	20	962
Air-blast sprayer	400 gallon unit, PTO, new	17,500	156	10	3,095
Air-blast sprayer	400 gallon unit, PTO, older	5,000	104	10	884
Flail chopper	8' unit	6,000	138	7	1,531
Weed sprayer	100 gallon unit	2,000	38	15	192
Fertilizer spreader		2,300	12	20	120
Brush windrow		3,500	29	20	182
Gopher machine		1,200	13	20	63
Pickup	1/2 ton 4x4, new	22,000	12,000	10	8,319
Truck	2 ton, used	18,000	3,500	20	2,710
ATV	4 wheeler, new	5,500	3,000	5	2,465
Auger		1,700	35	20	89
Front-end loader & backforks		5,800	64	10	1,026
Bin trailer		5,000	64	10	884
Picking buckets for wine grapes		500	N/A	5	N/A
Chain & pruning saws	3 units each, 1-loppers	3,000	N/A	3	N/A
Irrigation system	Drip system, per acre	1,250	N/A	25	N/A
Wind machine	2 units, gasoline	34,000	35	25	962
Smudge Pots	3 units, per acre	30	15	10	5
Trellis system - wine grapes	per acre	5,000	N/A	25	N/A
Housing facilities	1 unit	40,000	N/A	30	0

Table 2. Machinery Cost Calculations.

Machine	Size or description	--- Variable costs ---		----- Fixed costs -----		Total cost
		Fuel & Lube	Repairs & Maint.	Depr. & Interest	Insurance	
----- Costs per hour -----						
Tractor	4 wheel dr 70hp, new	\$22.77	\$0.52	\$7.92	\$0.37	\$31.58
Tractor	2 wheel dr 50hp, old	18.98	0.45	\$9.22	0.51	29.16
Tractor	2 wheel dr 35 hp, old	18.98	0.17	4.21	0.23	23.59
Air-blast sprayer	400 gallon unit, PTO, new	0.00	8.20	14.84	0.40	23.44
Air-blast sprayer	400 gallon unit, PTO, older	0.00	2.07	6.36	0.17	8.61
Flail chopper	8' unit	0.00	2.55	6.95	0.16	9.66
Weed sprayer	100 gallon unit	0.00	0.69	5.60	0.17	6.47
Fertilizer spreader		0.00	0.94	17.77	0.61	19.32
Brush windrow		0.00	0.48	10.95	0.38	11.80
Gopher machine		0.00	0.50	8.83	0.30	9.63
----- Costs per mile -----						
Pickup	1/2 ton 4x4, new	\$0.29	\$0.05	\$0.22	\$0.07	\$0.63
Truck	2 ton, used	0.58	0.57	0.47	0.27	1.89
ATV	4 wheeler, new	0.83	0.02	0.32	0.01	1.18
----- Costs per acre -----						
Auger		\$0.00	\$0.29	\$4.47	\$0.00	\$4.76
Front-end loader & backforks		0.00	0.88	10.91	0.00	11.79
Bin trailer		0.00	0.76	9.41	0.00	10.16
Picking buckets for wine grapes		0.00	0.43	4.85	0.00	5.28
Chain & pruning saws	3 units each, 1-loppers	5.18	2.57	16.11	0.00	23.85
Irrigation system	Drip system, per acre	0.00	12.50	103.13	0.00	115.63
Wind machines	2 units, gasoline	25.88	6.28	40.11	0.00	72.26
Smudge Pots	3 units, per acre	3.21	0.00	0.00	0.00	3.22
Trellis system - wine grapes	per acre	0.00	50.00	412.50	0.00	462.50
Housing facilities	1 unit	0.00	43.21	41.90	0.00	85.11

Table 4. Estimated Cost of Each Operation with Power Unit for a 13' Between-Row Spacing.

Operation	Tractor	Miles per hour	Acres per hour	Labor cost per acre	-- Machine costs --		Total cost per acre
					Variable cost per acre	Fixed cost per acre	
Air-blast sprayer	4 wheel dr 70hp	2.00	1.58	\$8.25	\$19.98	\$14.93	\$43.16
Flail chopper	4 wheel dr 70hp	2.00	2.68	4.85	9.64	5.75	20.25
Weed sprayer	2 wheel dr 35hp	3.50	2.07	6.28	9.59	4.94	20.82
Fertilizer spreader	2 wheel dr 50hp	3.00	3.31	3.93	6.15	8.50	18.58
Brush windrow	2 wheel dr 50hp	2.00	1.34	9.70	14.86	15.72	40.29
Gopher machine	2 wheel dr 50hp	2.50	3.15	4.12	6.32	5.99	16.43

Table 4. Estimated Per Acre Returns Over Cash Costs at Varying Yields and Prices¹.

Price per Ton	----- Tons per Acre -----						
	1.5	2.0	2.5	3.0	3.5	4.0	4.5
\$ 600	(2,313)	(2,105)	(1,897)	(1,689)	(1,480)	(1,272)	(1,064)
\$ 900	(1,863)	(1,505)	(1,147)	(789)	(430)	(72)	286
\$ 1,200	(1,413)	(905)	(397)	111	620	1,128	1,636
\$ 1,500	(963)	(305)	353	1,011	1,670	2,328	2,986
\$ 1,800	(513)	295	1,103	1,911	2,720	3,528	4,336
\$ 2,100	(63)	895	1,853	2,811	3,770	4,728	5,686
\$ 2,400	387	1,495	2,603	3,711	4,820	5,928	7,036

Table 5. Estimated Per Acre Returns Over Total Economic Costs at Varying Yields and Prices².

Price per Ton	----- Tons per Acre -----						
	1.5	2.0	2.5	3.0	3.5	4.0	4.5
\$ 600	(5,546)	(5,337)	(5,129)	(4,921)	(4,713)	(4,504)	(4,296)
\$ 900	(5,096)	(4,737)	(4,379)	(4,021)	(3,663)	(3,304)	(2,946)
\$ 1,200	(4,646)	(4,137)	(3,629)	(3,121)	(2,613)	(2,104)	(1,596)
\$ 1,500	(4,196)	(3,537)	(2,879)	(2,221)	(1,563)	(904)	(246)
\$ 1,800	(3,746)	(2,937)	(2,129)	(1,321)	(513)	296	1,104
\$ 2,100	(3,296)	(2,337)	(1,379)	(421)	537	1,496	2,454
\$ 2,400	(2,846)	(1,737)	(629)	479	1,587	2,696	3,804

¹Table 4 estimates the returns over cash costs per acre based on varying yields and prices for a full producing vineyard. In this budget a grower should expect \$1,011, based on a yield of 3 tons of wine grapes at \$1,500 per ton. At this price, as yields increase the returns to a grower increase as well and conversely, returns decrease as yields decrease.

²Table 5 estimates the returns over total economic costs per acre based on varying yields and prices for a full producing vineyard. In this budget a grower should expect -\$2,221, based on a yield of 3 tons at \$1,500 per ton. For a grower to receive a positive per acre return, prices or yields for wine grapes must increase. Based on \$1,500 per ton a grower would need to harvest over 4.5 tons for a positive return.