

Establishment and Production Costs for Grapes in Ontario

2005 Economic Report



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Editors

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Acknowledgements

This report was prepared with the help of the following: Hugh Fraser, Agriculture Engineer, Neil Carter, Tender Fruit and Grape IPM Specialist, Leslie Huffman, Weed Management – Horticulture Program Lead, OMAFRA; John Barkovic, Regional Claims Manager, AGRICORP; Grape Growers of Ontario; the growers that participated in the survey; Carolyn Prieur, Client Service Representative, OMAFRA; and Lisa Mous, student at Nipissing University.

This report was reviewed by Dr. Helen Fisher, Research Scientist, Department of Plant Agriculture, University of Guelph, Vineland and Kevin Ker, KCMS Applied Research and Consulting Inc

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Published by the Ontario Ministry of Agriculture, Food and Rural Affairs

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1. Introduction

This report tries to reflect the management practices used by growers today. Soil condition, cultivar selection, personal grower management decisions and the unique meso-climates of Ontario result in many different grower practices in training systems, pest management programs and fertilizer rates.

The four grape cultivars in this document are the same as those used four years ago. Concord, Vidal, Chardonnay and Cabernet Franc reflect some of the most significant cultivars in Ontario. They represent Labrusca, French Hybrid and Vinifera types of grapes.

Objectives

The grape industry utilizes the cost of establishment and cost of production models extensively to determine the profitability of the industry and to help growers with their business decisions and planting plans. Growers can use the input costs as general guidelines to help identify strengths and weaknesses in their business.

Methods and procedures

The information used in this report was derived from previous economic reports, surveys with growers and private consultants, and data from researchers, extensions and agribusiness.

Input costs were organized into variable and measurable fixed costs. Variable costs include plants, seed, fertilizers, pesticides,

marketing charges, hired labour, tractor and machine costs and interest on operating capital.

Measurable fixed costs are interest on investment, depreciation and other overhead cost items such as a portion of utilities, equipment storage, insurance, accounting, farm vehicles and general maintenance.

Assumptions

The contribution margin was obtained by subtracting the total variable costs from the gross income. Contribution margin is the amount of funds that the crop contributes to cover fixed costs and provide returns for owner management and investment.

Hired Labour was charged at \$10.90 per hour, which includes benefits (Workers' Compensation, Employment Insurance and Canada Pension Plan). A blended base price of \$10.00 was used to reflect the workforce in the grape industry, which is made up of both local and offshore labour. Offshore labour includes an allowance for additional costs such as air flight, housing, local transportation.

Hired machine operator labour was charged at \$ 14.20 per hour (includes benefits). Machinery and equipment costs were based on a commercial farm size of 50 acres.

Machinery costs were calculated based on the purchase price for 2005, useful life, annual use and trade-in value.

Interest on investment was calculated at 3.0%, which was the average interest rate paid by chartered banks on Guaranteed Investment Certificates.

The interest rate applied to the operating capital was based on the average 5 year fixed lending rate of 5.5 %.

Interest on operating capital is compounded annually until the vineyard generates revenue to first pay down the accumulated interest and then the outstanding principal. Operating capital includes cost of materials, fuel, repairs, labour and other cash items but does not include farm overhead expenses.

Fuel costs were based on the size of each tractor, truck or self-propelled machine used in production. The following farm-gate fuel prices were used: gasoline 94.0 cents/litre and diesel 77.0 cents/litre. Fuel costs are net of all 2005 provincial and federal rebates.

Yields were given as both a low and high range to reflect the wide differences of commercial production and conditions for each farm.

Yields used were 25% of annual yield for year 3 and 50% for year 4 (high range).

The prices listed were the 2005 payments for each cultivar sold through the Ontario Grape Growers Marketing Board.

Chardonnay and Cabernet Franc vines were spaced at 9 x 4 feet and 1210 vines per acre. 1 acre = 9 rows with approximately 134 vines per row.

Vidal vines were spaced at 9 x 5 feet and 968 vines per acre. 1 acre = 9 rows with approximately 108 vines per row.

Labrusca vines were spaced at 10 x 6 feet and 728 vines per acre. 1 acre = 8 rows with approximately 91 vines per row.

The training system for Vinifera is cane pruned to a vertical shoot position system (i.e. Pendelbogen). The training system for Labrusca and French Hybrid is cane pruned to four-cane kniffin.

The establishment of the vineyard covers a 4.5 year period: a half-year for pre-plant preparation, one year for planting and three years for the vine to grow to full cropping potential. The life of the vineyard is assumed to be 25 years; 4 establishment and 21 full production years.

The establishment costs will need to be recovered over the productive life of the vineyard. An estimate of the annual cost to recover establishment costs is included in the Total Establishment Costs section for each variety. They are amortized over the 21 years of full production at a rate of interest of 3.0%.

Due to rounding, figures may not add to total shown.

Items not included in the 2005 Economic Report

Land costs and carrying charges were not included as part of the establishment or production costs because of the extreme variance in land prices.

Land ownership and rental prices vary considerably from farm to farm depending on road location, services, soil types, access to water, and potential for urban development or establishing a new winery. For this reason a space was provided to insert land rental cost in the variable cost section and land ownership in the fixed cost

section. Costs should be added into vineyard establishment and cost of production.

A management allowance was not included as a cost.

All labour costs were charged to the project whether the owner performs the task or whether it was hired out.

These assumptions reflect the current practices in the industry and do not

necessarily represent recommendations from the contributors. Newer plantings of these varieties may involve higher vine densities, alternative training systems and other innovative cultural practices.

The authors assume no liability or responsibility as a result of the reader relying or acting upon the information contained herein. Any use or misuse of the information is the sole responsibility of the reader.

2. Cabernet Franc

Preplant Year

Variable Costs	Cost per acre	
	Actual	Budget
	-dollars-	
Labour: Machine operator, 4.7 hrs		67
Custom Plowing		40
Fertilizer: 15-15-15, 41 kg		14
Lime (3 ton)		36
Cover Crop		10
Machine Costs: Repairs and maintenance		26
Fuel		41
Consulting Fees		42
Interest on operating capital		102
Land rental		
Land Preparation (leveling etc.)		700
Tile Drainage		2727
Total Variable Costs		3805
Fixed Costs		
Machine Costs: Depreciation		46
Interest on investment		15
Other overhead		93
Land ownership		
Measurable Fixed Costs		154
Total Measurable "Preplant Year" Costs		3959

Preplant Year: Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
Discing (2x)	1.3	18	19	19	57
Cultivating	0.7	10	11	9	30
Fertilizing (2x)	1.3	18	16	11	46
Sub Soiling	0.7	10	10	6	26
Sow Cover Crop	0.7	10	11	16	37
Total Machine Operator	4.7	67	67	61	195

* includes maintenance, fuel and repair

Planting Year

Variable Costs	Cost per acre	
	Actual	Budget
	-dollars-	
Labour: Hand, 28.0 hrs		305
Machine Operator, 15.2 hrs		216
Fertilizer (15-15-15) 41 kg		14
Pesticides		25
Grape vines, (\$2.50/vine)		3025
Custom Trellis: materials, labour		5162
Training: Stakes, material		726
Cover crop seed		10
Machine costs: Repairs and Maintenance		85
Fuel		120
Custom Planting		733
Irrigation		129
Consulting Fees		42
Interest on operating capital		792
Land rental		
Total Variable Costs		11384
Fixed Costs		
Machine Costs: Depreciation		129
Interest on investment		42
Other overhead		186
Land ownership		
Measurable Fixed Costs		357
Total Measurable "Planting Year" Costs		11741

Planting Year: Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
Hand Labour					
Weed Control: Hand Hoeing	8.0	87			87
Summer training, tying, trunk est	20.0	218			218
Total Hand Labour	28.0	305			305
Machine Operator					
Discing (3x)	2.1	30	30	25	85
Cultivating (2x)	1.3	18	18	14	50
Sow Cover Crop	0.7	10	12	16	38
Weed Control: Grape Hoeing	3.0	43	36	18	97
Spray Pesticide (2x)	0.9	13	28	37	78
Picking up vines & supplies	2.2	31	10	4	46
Fertilizing	0.7	10	9	9	29
Mowing (1x)	0.7	10	15	13	38
Hilling up	1.3	18	19	19	56
Vineyard Maintenance	2.3	33	28	15	76
Total Machine Operator	15.2	216	205	171	592

* includes maintenance, fuel and repair

Second Year

Variable costs	Cost per acre	
	Actual	Budget
	-dollars-	
Labour: Hand, 37.6 hr		410
Machine Operator, 21.3 hr		302
Fertilizer: Ammonium nitrate, 20 kg		7
Potash, 41 kg		13
15-15-15, 41 kg		14
Insecticides		90
Fungicides		112
Herbicides		18
Replacement vines, 2%		91
Cover crop seed		10
Machine Costs: Repairs and maintenance		108
Fuel		187
Custom Pruning - \$.20/vine		242
Custom Tying - \$.15/vine		182
Tying material		20
Irrigation		129
Consulting Fees		42
Interest on operating capital		944
Land rental		
Total Variable Costs		2921
Fixed Costs		
Machine Costs: Depreciation		163
Interest on investment		54
Other overhead		186
Land ownership		
Measurable Fixed Costs		403
Total Measurable "Second Year" Costs		3324

Second Year: Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
Hand Labour					
Weed Control: Hand Hoeing	2.6	28			28
Canopy Training	35.0	382			382
Total Hand Labour	37.6	410			410
Machine Operator					
Weed Control: Grape Hoeing	2.6	37	31	15	83
Spraying (1x)	1.0	14	14	9	37
Discing (2x)	1.3	18	20	20	59
Cultivation	0.7	10	11	10	31
Spray Pesticide (6x)	2.7	38	49	47	135
Fertilizing (2x)	1.3	18	16	13	48
Sow cover crop	0.7	10	12	16	38
Replacing vines	4.0	57	48	24	129
Mowing (3x)	2.1	30	31	21	82
Hilling up and removal	2.6	37	34	26	98
Vineyard Maintenance	2.3	33	28	15	75
Total Machine Operator	21.3	302	295	217	814

* includes maintenance, fuel and repair

Third Year

1.125 tonne (25% Yield)	Cost per acre	
Variable Costs	Actual	Budget
	-dollars-	
Labour: Hand, 38.0 hrs		414
Machine Operator, 25.1 hrs		356
Fertilizer: Ammonium nitrate, 35 kg		15
Muriate of Potash, 61 kg		21
Insecticides		137
Fungicides		171
Herbicides		36
Replacement vines, 2%		91
Cover crop seed		10
Machine Costs: Repairs and maintenance		108
Fuel		220
Custom Pruning - \$.30/vine		363
Custom Tying - \$.18/vine		218
Tying material		20
Irrigation		129
Bird Control		86
Marketing Board Fees		35
Crop Insurance		119
Consulting Fees		42
Interest on operating capital		1139
Land rental		
Total Variable Costs		3730
Fixed Costs		
Machine Costs: Depreciation		163
Interest on investment		54
Other overhead		186
Land ownership		
Measurable Fixed Costs		403
Total Measurable "Third Year" Costs		4133
Contribution Margin		
Gross Income (\$1700 per tonne)		1913
Total Variable Costs		3730
Contribution Margin (No Land Costs)		-1817

Third Year: Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
Hand Labour					
Canopy Management	24.0	262			262
Hand Harvest	8.0	87			87
Suckering	6.0	65			65
Total Hand Labour	38.0	414			414
Machine Operator					
Weed Control: Spraying	1.0	14	13	8	36
Discing (2x)	1.3	18	20	19	57
Cultivation	0.7	10	11	9	30
Spray Pesticide (9x)	4.1	58	64	52	174
Replacing vines	4.0	57	46	21	123
Fertilizing (2x)	1.3	18	16	12	46
Sow cover crop	0.7	10	11	16	37
Harvest pick up and delivery	5.0	71	57	25	153
Mowing (3x)	2.1	30	30	19	79
Hilling up and removal	2.6	37	33	24	94
Vineyard Maintenance	2.3	33	27	12	72
Total Machine Operator	25.1	356	328	217	901

* includes maintenance, fuel and repair

Fourth Year

2.25 tonne (50% Yield)	Cost per acre	
Variable Costs	Actual	Budget
	-dollars-	
Labour: Hand, 30.0 hrs		327
Machine Operator, 21.1 hrs		299
Fertilizer: Ammonium nitrate, 35 kg		13
Muriate of Potash, 61 kg		18
Insecticides		274
Fungicides		341
Herbicides		49
Replacement vines, 2%		91
Cover crop seed		10
Machine Costs: Repairs and maintenance		114
Fuel		185
Custom Pruning - \$.33/vine		399
Custom Tying - \$.18/vine		218
Tying material		20
Irrigation		129
Bird Control		86
Custom harvest/delivery		176
Marketing Board Fees		69
Crop Insurance		239
Consulting Fees		42
Interest on operating capital		1266
Land rental		
Total Variable Costs		4365
Fixed Costs		
Machine Costs: Depreciation		173
Interest on investment		57
Other overhead		186
Land ownership		
Measurable Fixed Costs		416
Total Measurable "Fourth Year" Costs		4781
Contribution Margin		
Gross Income (\$1700 per tonne)		3825
Total Variable Costs		4365
Contribution Margin (no land costs)		-540

Fourth Year: Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
Hand Labour					
Canopy Management	24.0	262			262
Suckering	6.0	65			65
Total Hand Labour	30.0	327			327
Machine Operator					
Canopy Management: Machine Hedging	1.0	14	18	19	51
Weed Control: Spraying	1.0	14	14	9	37
Discing (2x)	1.3	18	20	20	59
Cultivation	0.7	10	11	10	31
Spray Pesticide (9x)	4.1	58	66	56	180
Replacing vines	4.0	57	48	24	129
Fertilizing (2x)	1.3	18	16	13	48
Sow cover crop	0.7	10	12	16	38
Mowing (3x)	2.1	30	31	21	82
Hilling up and removal	2.6	37	34	26	98
Vineyard Maintenance	2.3	33	28	15	75
Total Machine Operator	21.1	299	299	230	828

* includes maintenance, fuel and repair

Total Establishment Cost

	Actual	Budget
Preplant Year		3959
Planting Year		11741
Second Year		3324
Third Year		3843
Fourth Year		4523
Total		27390

Excludes Board fees, harvest costs and does not include revenues for years 3 and 4. Does not include land costs

	Actual	Budget
Annual Cost to Recover Establishment Costs (amortized over remaining 21 years of vineyard life)		1440 per year

Mature Vineyard: Annual Cost

Variable Costs	Your Farm	Cost per acre	
		Yield 3.5 Tonne	Yield 4.5 Tonne
Labour: Hand, 30.0 hrs		327	327
Machine Operator 30.4 hrs		432	432
Fertilizer: Ammonium Nitrate, 52 kg		19	19
Muriate of Potash, 94kg		29	29
Insecticides		274	274
Fungicides		341	341
Herbicides		54	54
Replacement Vines 2%		91	91
Cover crop seed		10	10
Trellis maintenance		15	15
Machine Costs: Repairs & maintenance		116	116
Fuel		267	267
Custom pruning		399	399
Custom tying		218	218
Tying Material		20	20
Irrigation		129	129
Bird Control		86	86
Custom harvest/delivery		273	351
Marketing board fees		108	138
Crop Insurance		372	478
Consulting Fees (soil, leaf, spray)		42	42
Interest on operating capital		199	211
Land rental			
Total Variable Costs		3821	4047
Fixed Costs			
Machine Costs: Depreciation		176	176
Interest on investment		58	58
Other overhead		186	186
Land ownership			
Measurable Fixed Costs		420	420
Total Measurable Cost		4241	4467
Contribution Margin			
Gross Income (\$1700 per tonne)		5950	7650
Total Variable Costs		3821	4047
Contribution Margin (no land costs)		2129	3603

Mature Vineyard: Annual Cost Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
Hand Labour					
Canopy Mgmt/Positioning/Thinning	24.0	262			262
Suckering	6.0	65			65
Total Hand Labour	30.0	327			327
Machine Operator					
Canopy Management: Machine Hedging	1.5	21	23	19	63
Brush Removal/flail	1.3	18	15	6	39
Fertilizing (2x)	1.3	18	15	10	44
Discing (2x)	2.1	30	28	21	79
Cultivation	2.1	30	26	14	70
Weed Spraying	2.0	28	24	11	63
Pesticide Spraying (9x)	4.1	58	62	48	168
Replacing vines	4.0	57	44	17	118
Sow cover crop	0.7	10	11	15	36
Mowing (3.5x)	2.5	35	34	19	88
Hilling up and removal	2.6	37	32	22	90
Subsoiling/Aerating	1.3	18	16	8	43
Vineyard Maintenance	5.0	71	55	22	148
Total Machine Operator	30.4	432	383	234	1049

* includes maintenance, fuel and repair

Break Even and Profitability Worksheet at 3.5 tonne/acre yield

Year	Yield (%)	Revenue (\$)	Variable Costs	Fixed Costs	Total Costs	Net Cash Flow	Accum. Profit
Pre-plant	0%	0	3805	154	3959	-3959	-3959
Planting	0%	0	11384	357	11741	-11741	-15700
2	0%	0	2921	403	3325	-3325	-19025
3	25%	1913	3730	403	4133	-2220	-21245
4	50%	3825	4365	416	4781	-956	-22201
5	100%	5950	4946	420	5366	584	-21618
6	100%	5950	4891	420	5311	639	-20979
7	100%	5950	4833	420	5253	697	-20282
8	100%	5950	4771	420	5191	759	-19523
9	100%	5950	4707	420	5127	823	-18700
10	100%	5950	4638	420	5058	892	-17808
11	100%	5950	4566	420	4986	964	-16845
12	100%	5950	4490	420	4910	1040	-15805

Breakeven in Year 22 (Does not include land costs)

Break Even and Profitability Worksheet at 4.5 tonne/acre yield

Year	Yield (%)	Revenue (\$)	Variable Costs	Fixed Costs	Total Costs	Net Cash Flow	Accum. Profit
Pre-plant	0%	0	3805	154	3959	-3959	-3959
Planting	0%	0	11384	357	11741	-11741	-15700
2	0%	0	2921	403	3325	-3325	-19025
3	25%	1913	3730	403	4133	-2220	-21245
4	50%	3825	4365	416	4781	-956	-22201
5	100%	7650	5173	420	5593	2057	-20144
6	100%	7650	5037	420	5457	2193	-17951
7	100%	7650	4893	420	5313	2337	-15614
8	100%	7650	4741	420	5161	2489	-13125
9	100%	7650	4581	420	5001	2649	-10477
10	100%	7650	4412	420	4833	2817	-7659
11	100%	7650	4234	420	4654	2996	-4664
12	100%	7650	4047	420	4467	3183	-1480

Breakeven in Year 13 (Does not include land costs)

3. Chardonnay

Preplant Year

Variable Costs	Cost per acre	
	Actual	Budget
	-dollars-	
Labour: Machine operator, 4.7 hrs		67
Custom Plowing		40
Fertilizer: 15-15-15, 41 kg		14
Lime (3 ton)		36
Cover Crop		10
Machine Costs :Repairs and maintenance		26
Fuel		41
Consulting Fees		42
Interest on operating capital		102
Land rental		
Land Preparation (leveling etc.)		700
Tile Drainage		2727
Total Variable Costs		3805
Fixed Costs		
Machine Costs: Depreciation		46
Interest on investment		15
Other overhead		93
Land ownership		
Measurable Fixed Costs		154
Total Measurable "Preplant Year" Costs		3959

Preplant Year: Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
Discing (2x)	1.3	18	19	19	57
Cultivating	0.7	10	11	9	30
Fertilizing (2x)	1.3	18	16	11	46
Sub Soiling	0.7	10	10	6	26
Sow Cover Crop	0.7	10	11	16	37
Total Machine Operator	4.7	67	67	61	195

* includes maintenance, fuel and repair

Planting Year

Variable Costs	Cost per acre	
	Actual	Budget
	-dollars-	
Labour: Hand, 28.0 hrs		305
Machine Operator, 15.2 hrs		216
Fertilizer (15-15-15) 41 kg		14
Pesticides		25
Grape vines, (\$2.50/vine)		3025
Custom Trellis: Materials, labour		5162
Training: Stakes, material		726
Cover crop seed		10
Machine costs: Repairs and Maintenance		85
Fuel		120
Custom Planting		733
Irrigation		129
Consulting Fees		42
Interest on operating capital		792
Land rental		
Total Variable Costs		11384
Fixed Costs		
Machine Costs: Depreciation		129
Interest on investment		42
Other overhead		186
Land ownership		
Measurable Fixed Costs		357
Total Measurable "Planting Year" Costs		11741

Planting Year: Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
Hand Labour					
Weed Control: Hand Hoeing	8.0	87			87
Summer training, tying, trunk est	20.0	218			218
Total Hand Labour	28.0	305			305
Machine Operator					
Discing (3x)	2.1	30	30	25	85
Cultivating (2x)	1.3	18	18	14	50
Sow Cover Crop	0.7	10	12	16	38
Weed Control: Grape Hoeing	3.0	43	36	18	97
Spray Pesticide (2x)	0.9	13	28	37	78
Picking up vines & supplies	2.2	31	10	4	46
Fertilizing	0.7	10	9	9	29
Mowing (1x)	0.7	10	15	13	38
Hilling up	1.3	18	19	19	56
Vineyard Maintenance	2.3	33	28	15	76
Total Machine Operator	15.2	216	205	171	592

* includes maintenance, fuel and repair

Second Year

Variable Costs	Cost per acre	
	Actual	Budget
	-dollars-	
Labour: Hand, 37.6 hr		410
Machine Operator, 21.3 hr		302
Fertilizer: Ammonium nitrate, 20 kg		7
Potash, 41 kg		13
15-15-15, 41 kg		14
Insecticides		90
Fungicides		112
Herbicides		18
Replacement vines, 2%		91
Cover crop seed		10
Machine Costs: Repairs and maintenance		108
Fuel		187
Custom Pruning - \$.20/vine		242
Custom Tying - \$.15/vine		182
Tying material		20
Irrigation		129
Consulting Fees		42
Interest on operating capital		944
Land rental		
Total Variable Costs		2921
Fixed Costs		
Machine Costs: Depreciation		163
Interest on investment		54
Other overhead		186
Land ownership		
Measurable Fixed Costs		403
Total Measurable "Second Year" Costs		3324

Second Year Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
Hand Labour					
Weed Control: Hand Hoeing	2.6	28			28
Canopy Training	35.0	382			382
Total Hand Labour	37.6	410			410
Machine Operator					
Weed Control: Grape Hoeing	2.6	37	31	15	83
Spraying (1x)	1.0	14	14	9	37
Discing (2x)	1.3	18	20	20	59
Cultivation	0.7	10	11	10	31
Spray Pesticide (6x)	2.7	38	49	47	135
Fertilizing (2x)	1.3	18	16	13	48
Sow cover crop	0.7	10	12	16	38
Replacing vines	4.0	57	48	24	129
Mowing (3x)	2.1	30	31	21	82
Hilling up and removal	2.6	37	34	26	98
Vineyard Maintenance	2.3	33	28	15	75
Total Machine Operator	21.3	302	295	217	814

* includes maintenance, fuel and repair

Third Year

1.25 tonne (25% Yield)	Cost per acre	
Variable Costs	Actual	Budget
	-dollars-	
Labour: Hand, 38.0 hrs		414
Machine Operator, 25.1 hrs		356
Fertilizer: Ammonium nitrate, 35 kg		15
Muriate of Potash, 61 kg		21
Insecticides		137
Fungicides		171
Herbicides		36
Replacement vines, 2%		91
Cover crop seed		10
Machine Costs: Repairs and maintenance		108
Fuel		220
Custom Pruning - \$.30/vine		363
Custom Tying - \$.18/vine		218
Tying material		20
Irrigation		129
Bird Control		86
Marketing Board Fees		34
Crop Insurance		112
Consulting Fees		42
Interest on operating capital		1138
Land rental		
Total Variable Costs		3721
Fixed Costs		
Machine Costs: Depreciation		163
Interest on investment		54
Other overhead		186
Land ownership		
Measurable Fixed Costs		403
Total Measurable "Third Year" Costs		4124
Contribution Margin		
Gross Income (\$1450 per tonne)		1813
Total Variable Costs		3721
Contribution Margin (no land costs)		-1908

Third Year: Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
Hand Labour					
Canopy Management	24.0	262			262
Hand Harvest	8.0	87			87
Suckering	6.0	65			65
Total Hand Labour	38.0	414			414
Machine Operator					
Weed Control: Spraying	1.0	14	13	8	36
Discing (2x)	1.3	18	20	19	57
Cultivation	0.7	10	11	9	30
Spray Pesticide (9x)	4.1	58	64	52	174
Replacing vines	4.0	57	46	21	123
Fertilizing (2x)	1.3	18	16	12	46
Sow cover crop	0.7	10	11	16	37
Harvest pick up and delivery	5.0	71	57	25	153
Mowing (3x)	2.1	30	30	19	79
Hilling up and removal	2.6	37	33	24	94
Vineyard Maintenance	2.3	33	27	12	72
Total Machine Operator	25.1	356	328	217	901

* includes maintenance, fuel and repair

Fourth Year

2.5 tonne (50% Yield)	Cost per acre	
Variable Costs	Actual	Budget
	-dollars-	
Labour: Hand, 21.0 hrs		229
Machine Operator, 21.1 hrs		299
Fertilizer: Ammonium nitrate, 35 kg		13
Muriate of Potash, 61 kg		18
Insecticides		274
Fungicides		341
Herbicides		49
Replacement vines, 2%		91
Cover crop seed		10
Machine Costs: Repairs and maintenance		114
Fuel		185
Custom Pruning - \$.33/vine		399
Custom Tying - \$.18/vine		218
Tying material		20
Irrigation		129
Bird Control		86
Custom harvest/delivery		195
Marketing Board Fees		68
Crop Insurance		224
Consulting Fees		42
Interest on operating capital		1266
Land rental		
Total Variable Costs		4270
Fixed Costs		
Machine Costs: Depreciation		173
Interest on investment		57
Other overhead		186
Land ownership		
Measurable Fixed Costs		416
Total Measurable "Fourth Year" Costs		4686
Contribution Margin		
Gross Income (\$1450 per tonne)		3625
Total Variable Costs		4270
Contribution Margin (no land costs)		-645

Fourth Year: Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
Hand Labour					
Canopy Management	16.0	174			174
Suckering	5.0	55			55
Total Hand Labour	21.0	229			229
Machine Operator					
Canopy Management: Machine Hedging	1.0	14	18	19	51
Weed Control: Spraying	1.0	14	14	9	37
Discing (2x)	1.3	18	20	20	59
Cultivation	0.7	10	11	10	31
Spray Pesticide (9x)	4.1	58	66	56	180
Replacing vines	4.0	57	48	24	129
Fertilizing (2x)	1.3	18	16	13	48
Sow cover crop	0.7	10	12	16	38
Mowing (3x)	2.1	30	31	21	82
Hilling up and removal	2.6	37	34	26	98
Vineyard Maintenance	2.3	33	28	15	75
Total Machine Operator	21.1	299	299	230	828

* includes maintenance, fuel and repair

Total Establishment Cost

	Actual	Budget
Preplant Year		3959
Planting Year		11741
Second Year		3324
Third Year		3834
Fourth Year		4409
Total		27268

Excludes Board fees, harvest costs and does not include revenues for years 3 and 4. Does not include land costs

	Actual	Budget
Annual Cost to Recover Establishment Costs (amortized over remaining 21 years of vineyard life)		1453 per year

Mature Vineyard: Annual Costs

		Cost per acre	
Variable Costs	Your Farm	Yield 4 Tonne	Yield 5 Tonne
Labour: Hand, 30.0 hrs		327	327
Machine Operator 30.4 hrs		432	432
Fertilizer: Ammonium Nitrate, 52 kg		19	19
Muriate of Potash, 94kg		29	29
Insecticides		274	274
Fungicides		341	341
Herbicides		54	54
Replacement Vines 2%		91	91
Cover crop seed		10	10
Trellis maintenance		15	15
Machine Costs: Repairs & maintenance		117	117
Fuel		267	267
Custom pruning		399	399
Custom tying		218	218
Tying Material		20	20
Irrigation		129	129
Bird Control		86	86
Custom harvest/delivery		312	390
Marketing board fees		109	137
Crop Insurance		372	478
Consulting Fees (soil, leaf, spray)		42	42
Interest on operating capital		201	213
Land rental			
Total Variable Costs		3863	4088
Fixed Costs			
Machine Costs: Depreciation		176	176
Interest on investment		58	58
Other overhead		186	186
Land ownership			
Measurable Fixed Costs		420	420
Total Measurable Cost		4283	4507
Contribution Margin			
Gross Income (\$1450 per tonne)		5800	7250
Total Variable Costs		3863	4088
Contribution Margin (no land costs)		1937	3162

Mature Vineyard: Annual Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
Hand Labour					
Canopy Mgmt/Positioning/Thinning	24.0	262			262
Suckering	6.0	65			65
Total Hand Labour	30.0	327			327
Machine Operator					
Canopy Management: Machine Hedging	1.5	21	23	19	63
Brush Removal/flail	1.3	18	15	6	39
Fertilizing (2x)	1.3	18	15	10	44
Discing (2x)	2.1	30	28	21	79
Cultivation	2.1	30	26	14	70
Weed Spraying	2.0	28	24	11	63
Pesticide Spraying (9x)	4.1	58	62	48	168
Replacing vines	4.0	57	44	17	118
Sow cover crop	0.7	10	11	15	36
Mowing (3.5x)	2.5	35	34	19	88
Hilling up and removal	2.6	37	32	22	90
Subsoiling/Aerating	1.3	18	16	8	43
Vineyard Maintenance	5.0	71	55	22	148
Total Machine Operator	30.4	432	384	234	1049

* includes maintenance, fuel and repair

Break Even and Profitability Worksheet at 4 tonne/acre yield

Year	Yield (%)	Revenue (\$)	Variable Costs	Fixed Costs	Total Costs	Net Cash Flow	Accum. Profit
Pre-plant	0%	0	3805	154	3959	-3959	-3959
Planting	0%	0	11384	357	11741	-11741	-15700
2	0%	0	2921	403	3324	-3324	-19025
3	25%	1813	3721	403	4124	-2312	-21336
4	50%	3625	4270	416	4686	-1061	-22398
5	100%	5800	5000	420	5419	381	-22017
6	100%	5800	4956	420	5375	425	-21592
7	100%	5800	4909	420	5329	471	-21121
8	100%	5800	4860	420	5280	520	-20601
9	100%	5800	4808	420	5228	572	-20029
10	100%	5800	4754	420	5174	626	-19403
11	100%	5800	4696	420	5116	684	-18719
12	100%	5800	4636	420	5055	745	-17975

Breakeven in Year 25 (Does not include land costs)

Break Even and Profitability Worksheet at 5 tonne/acre yield

Year	Yield (%)	Revenue (\$)	Variable Costs	Fixed Costs	Total Costs	Net Cash Flow	Accum. Profit
Pre-plant	0%	0	3805	154	3959	-3959	-3959
Planting	0%	0	11384	357	11741	-11741	-15700
2	0%	0	2921	403	3324	-3324	-19025
3	25%	1813	3721	403	4124	-2312	-21336
4	50%	3625	4270	416	4686	-1061	-22398
5	100%	7250	5224	420	5644	1606	-20791
6	100%	7250	5113	420	5532	1718	-19074
7	100%	7250	4995	420	5415	1835	-17239
8	100%	7250	4871	420	5219	1959	-15279
9	100%	7250	4740	420	5160	2090	-13189
10	100%	7250	4602	420	5022	2228	-10961
11	100%	7250	4457	420	4876	2374	-8587
12	100%	7250	4303	420	4723	2527	-6060

Breakeven in Year 14 (Does not include land costs)

4. Vidal

Preplant Year

Variable Costs	Cost per acre	
	Actual	Budget
	-dollars-	
Labour: Machine operator, 4.7 hrs		67
Custom Plowing		40
Fertilizer: 15-15-15, 41 kg		14
Lime (3 ton)		36
Cover Crop		10
Machine Costs: Repairs and maintenance		26
Fuel		41
Consulting Fees		42
Interest on operating capital		96
Land rental		
Land Preparation (leveling etc.)		500
Tile Drainage		2727
Total Variable Costs		3599
Fixed Costs		
Machine Costs: Depreciation		46
Interest on investment		15
Other overhead		93
Land ownership		
Measurable Fixed Costs		154
Total Measurable "Preplant Year" Costs		3753

Preplant Year: Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
Discing (2x)	1.3	18	19	19	57
Cultivating	0.7	10	11	9	30
Fertilizing (2x)	1.3	18	16	11	46
Sub Soiling ...	0.7	10	10	6	26
Sow Cover Crop	0.7	10	11	16	37
Total Machine Operator	4.7	67	67	61	195

* includes maintenance, fuel and repair

Planting Year

Variable Costs	Cost per acre	
	Actual	Budget
	-dollars-	
Labour: Hand, 28.0 hrs		305
Machine Operator, 15.2 hrs		216
Fertilizer (15-15-15) 41 kg		14
Pesticides		25
Grape vines, (\$2.50/vine)		2420
Custom Trellis: Materials, labour		4504
Training: Stakes, material		580
Cover crop seed		10
Machine costs: Repairs and Maintenance		85
Fuel		120
Custom Planting		632
Irrigation		129
Consulting Fees		42
Interest on operating capital		697
Land rental		
Total Variable Costs		9779
Fixed Costs		
Machine Costs: Depreciation		129
Interest on investment		42
Other overhead		186
Land ownership		
Measurable Fixed Costs		357
Total Measurable "Planting Year" Costs		10136

Planting Year Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
Hand Labour					
Weed Control: Hand Hoeing	8.0	87			87
Summer training, tying, trunk est	20.0	218			218
Total Hand Labour	28.0	305			305
Machine Operator					
Discing (3x)	2.1	30	30	25	85
Cultivating (2x)	1.3	18	18	14	50
Sow Cover Crop	0.7	10	12	16	38
Weed Control: Grape Hoeing	3.0	43	36	18	97
Spray Pesticide (2x)	0.9	13	28	37	78
Picking up vines & supplies	2.2	31	10	4	46
Fertilizing	0.7	10	9	9	29
Mowing (1x)	0.7	10	15	13	38
Hilling up	1.3	18	19	19	56
Vineyard Maintenance	2.3	33	28	15	76
Total Machine Operator	15.2	216	205	171	592

* includes maintenance, fuel and repair

Second Year

Variable Costs	Cost per acre	
	Actual	Budget
	-dollars-	
Labour: Hand, 37.6 hr		410
Machine Operator, 21.3 hr		302
Fertilizer: Ammonium nitrate, 20 kg		7
Potash, 41 kg		15
15-15-15, 41 kg		14
Insecticides		90
Fungicides		93
Herbicides		18
Replacement vines, 2%		72
Cover crop seed		10
Machine Costs: Repairs and maintenance		108
Fuel		187
Custom Pruning - \$.20/vine		194
Custom Tying - \$.15/vine		145
Tying material		20
Irrigation		129
Consulting Fees		42
Interest on operating capital		838
Land rental		
Total Variable Costs		2694
Fixed Costs		
Machine Costs: Depreciation		163
Interest on investment		54
Other overhead		186
Land ownership		
Measurable Fixed Costs		403
Total Measurable "Second Year" Costs		3097

Second Year Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
Hand Labour					
Weed Control: Hand Hoeing	2.6	28			28
Canopy Training	35.0	382			382
Total Hand Labour	37.6	410			410
Machine Operator					
Weed Control: Grape Hoeing	2.6	37	31	15	83
Spraying (1x)	1.0	14	14	9	37
Discing (2x)	1.3	18	20	20	59
Cultivation	0.7	10	11	10	31
Spray Pesticide (6x)	2.7	38	49	47	135
Fertilizing (2x)	1.3	18	16	13	48
Sow cover crop	0.7	10	12	16	38
Replacing vines	4.0	57	48	24	129
Mowing (3x)	2.1	30	31	21	82
Hilling up and removal	2.6	37	34	26	98
Vineyard Maintenance	2.3	33	28	15	75
Total Machine Operator	21.3	302	295	217	814

* includes maintenance, fuel and repair

Third Year

1.75 tonne (25% Yield)	Cost per acre	
Variable Costs	Actual	Budget
	-dollars-	
Labour: Hand, 27.0 hrs		294
Machine Operator, 25.1 hrs		356
Fertilizer: Ammonium nitrate, 41 kg		15
Muriate of Potash, 61 kg		19
Insecticides		137
Fungicides		141
Herbicides		36
Replacement vines, 2%		72
Cover crop seed		10
Machine Costs: Repairs and maintenance		108
Fuel		220
Custom Pruning - \$.30/vine		290
Custom Tying - \$.18/vine		174
Tying material		20
Irrigation		129
Bird Control		0
Marketing Board Fees		26
Crop Insurance		43
Consulting Fees		42
Interest on operating capital		1001
Land rental		
Total Variable Costs		3133
Fixed Costs		
Machine Costs: Depreciation		163
Interest on investment		54
Other overhead		186
Land ownership		
Measurable Fixed Costs		403
Total Measurable "Third Year" Costs		3536
Contribution Margin		
Gross Income (\$555 per tonne)		971
Total Variable Costs		3133
Contribution Margin (no land costs)		-2162

Third Year Operating Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
Hand Labour					
Canopy Management	16.0	174			174
Hand Harvest	5.0	55			55
Suckering	6.0	65			65
Total Hand Labour	27.0	294			294
Machine Operator					
Weed Control: Spraying	1.0	14	13	8	36
Discing (2x)	1.3	18	20	19	57
Cultivation	0.7	10	11	9	30
Spray Pesticide (9x)	4.1	58	64	52	174
Replacing vines	4.0	57	46	21	123
Fertilizing (2x)	1.3	18	16	12	46
Sow cover crop	0.7	10	11	16	37
Harvest pick up and delivery	5.0	71	57	25	153
Mowing (3x)	2.1	30	30	19	79
Hilling up and removal	2.6	37	33	24	94
Vineyard Maintenance	2.3	33	27	12	72
Total Machine Operator	25.1	356	328	217	901

* includes maintenance, fuel and repair

Fourth Year

3.5 tonne (50% Yield)	Cost per acre	
Variable Costs	Actual	Budget
	-dollars-	
Labour: Hand, 21.0 hrs		229
Machine Operator, 21.1 hrs		299
Fertilizer: Ammonium nitrate, 61 kg		23
Muriate of Potash, 71 kg		22
Insecticides		274
Fungicides		282
Herbicides		49
Replacement vines, 2%		72
Cover crop seed		10
Machine Costs: Repairs and maintenance		114
Fuel		185
Custom Pruning - \$.33/vine		319
Custom Tying - \$.18/vine		174
Tying material		20
Irrigation		129
Bird Control		0
Custom harvest/delivery		273
Marketing Board Fees		53
Crop Insurance		87
Consulting Fees		42
Interest on operating capital		1149
Land rental.		
Total Variable Costs		3804
Fixed Costs		
Machine Costs: Depreciation		173
Interest on investment		57
Other overhead		186
Land ownership		
Measurable Fixed Costs		416
Total Measurable "Fourth Year" Costs		4221
Contribution Margin		
Gross Income (\$555 per tonne)		1943
Total Variable Costs		3804
Contribution Margin (no land costs)		-1862

Fourth Year: Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
Hand Labour					
Canopy Management	16.0	174			174
Suckering	5.0	55			55
Total Hand Labour	21.0	229			229
Machine Operator					
Canopy Management: Machine Hedging	1.0	14	18	19	51
Weed Control: Spraying	1.0	14	14	9	37
Discing (2x)	1.3	18	20	20	59
Cultivation	0.7	10	11	10	31
Spray Pesticide (9x)	4.1	58	66	56	180
Replacing vines	4.0	57	48	24	129
Fertilizing (2x)	1.3	18	16	13	48
Sow cover crop	0.7	10	12	16	38
Mowing (3x)	2.1	30	31	21	82
Hilling up and removal	2.6	37	34	26	98
Vineyard Maintenance	2.3	33	28	15	75
Total Machine Operator	21.1	299	299	230	828

* includes maintenance, fuel and repair

Total Establishment Cost

	Actual	Budget
Preplant Year		3753
Planting Year		10136
Second Year		3097
Third Year		3290
Fourth Year		3877
Total		24153

Excludes Board fees, harvest costs and does not include revenues for years 3 and 4. Does not include land costs

	Actual	Budget
Annual Cost to Recover Establishment Costs (amortized over remaining 21 years of vineyard life)		1416 per year

Mature Vineyard: Annual Costs

		Cost per acre	
Variable costs	Your Farm	Yield 5 Tonne	Yield 7 Tonne
Labour: Hand, 21.0 hrs		229	229
Machine Operator 30.4 hrs		432	432
Fertilizer: Ammonium Nitrate, 81 kg		29	29
Muriate of Potash, 94kg		28	28
Insecticides		274	274
Fungicides		282	282
Herbicides		54	54
Replacement Vines 2%		72	72
Cover crop seed		10	10
Trellis maintenance		15	15
Machine Costs: Repairs & maintenance		116	116
Fuel		267	267
Custom pruning		339	339
Custom tying		194	194
Tying Material		20	20
Irrigation		129	129
Bird Control		0	0
Custom harvest/delivery		390	546
Marketing board fees		75	105
Crop Insurance		124	173
Consulting Fees (soil, leaf, spray)		42	42
Interest on operating capital		172	185
Land rental			
Total Variable Costs		3293	3541
Fixed Costs			
Machine Costs: Depreciation		176	176
Interest on investment		58	58
Other overhead		186	186
Land ownership			
Measurable Fixed Costs		420	420
Total Measurable Cost		3713	3961
Contribution Margin			
Gross Income (\$555 per tonne)		2775	3885
Total Variable Costs		3293	3541
Contribution Margin (No Land Costs)		-518	344

Mature Vineyard: Annual Costs Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
Hand Labour					
Canopy Mgmt/Positioning/Thinning	16.0	174			174
Suckering	5.0	55			55
Total Hand Labour	21.0	229			229
Machine Operator					
Canopy Management: Machine Hedging	1.5	21	23	19	63
Brush Removal/flail	1.3	18	15	6	39
Fertilizing (2x)	1.3	18	15	10	44
Discing (2x)	2.1	30	28	21	79
Cultivation	2.1	30	26	14	70
Weed Spraying	2.0	28	24	11	63
Pesticide Spraying (9x)	4.1	58	62	48	168
Replacing vines	4.0	57	44	17	118
Sow cover crop	0.7	10	11	15	36
Mowing (3.5x)	2.5	35	34	19	88
Hilling up and removal	2.6	37	32	22	90
Subsoiling/Aerating	1.3	18	16	8	43
Vineyard Maintenance	5.0	71	55	22	148
Total Machine Operator	30.4	432	383	234	1049

* includes maintenance, fuel and repair

Break Even and Profitability Worksheet at 5 tonne/acre yield

Year	Yield (%)	Revenue (\$)	Variable Costs	Fixed Costs	Total Costs	Net Cash Flow	Accum. Profit
Pre-plant	0%	0	3599	154	3753	-3753	-3753
Planting	0%	0	9779	357	10136	-10136	-13890
2	0%	0	2694	403	3097	-3097	-16987
3	25%	971	3133	403	3536	-2565	-19552
4	50%	1943	3804	416	4221	-2278	-21830
5	100%	2775	4398	420	4818	-2043	-23873
6	100%	2775	4488	420	4907	-2132	-26005
7	100%	2775	4582	420	5002	-2227	-28232
8	100%	2775	4681	420	5101	-2326	-30558
9	100%	2775	4786	420	5206	-2431	-32989
10	100%	2775	4897	420	5316	-2541	-35530
11	100%	2775	5013	420	5433	-2658	-38188
12	100%	2775	5136	420	5556	-2781	-40969

There is no breakeven at either yield and cost of production. (Does not include land costs)

Break Even and Profitability Worksheet at 7 tonne/acre yield

Year	Yield (%)	Revenue (\$)	Variable Costs	Fixed Costs	Total Costs	Net Cash Flow	Accum. Profit
Pre-plant	0%	0	3599	154	3753	-3753	-3753
Planting	0%	0	9779	357	10136	-10136	-13890
2	0%	0	2694	403	3097	-3097	-16987
3	25%	971	3133	403	3536	-2565	-19552
4	50%	1943	3804	416	4221	-2278	-21830
5	100%	3885	4646	420	5066	-1181	-23011
6	100%	3885	4688	420	5108	-1223	-24234
7	100%	3885	4732	420	5152	-1267	-25501
8	100%	3885	4779	420	5199	-1314	-26814
9	100%	3885	4828	420	5248	-1363	-28177
10	100%	3885	4880	420	5300	-1415	-29592
11	100%	3885	4935	420	5354	-1469	-31061
12	100%	3885	4992	420	5412	-1527	-32589

There is no breakeven at either yield and cost of production. (Does not include land costs)

5. Concord

Preplant Year

Variable Costs	Cost per acre	
	Actual	Budget
	-dollars-	
Labour: Machine operator, 4.7 hrs		67
Custom Plowing		40
Fertilizer: 15-15-15, 41 kg		14
Lime (3 ton)		36
Cover Crop		10
Machine Costs: Repairs and maintenance		26
Fuel		41
Consulting Fees		0
Interest on operating capital		90
Land rental		
Land Preparation (levelling etc.)		300
Tile Drainage		2727
Total Variable Costs		3351
Fixed Costs		
Machine Costs: Depreciation		46
Interest on investment		15
Other overhead		93
Land ownership		
Measurable Fixed Costs		154
Total Measurable "Preplant Year" Costs		3505

Preplant Year Operation Costs

	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
Discing (2x)	1.3	18	19	19	57
Cultivating	0.7	10	11	9	30
Fertilizing (2x)	1.3	18	16	11	46
Sub Soiling	0.7	10	10	6	26
Sow Cover Crop	0.7	10	11	16	37
Total Machine Operator	4.7	67	67	61	195

* includes maintenance, fuel and repair

Planting Year

Variable Costs	Cost per acre	
	Actual	Budget
	-dollars-	
Labour: Hand, 23.0 hrs		251
Machine Operator, 15.2 hrs		216
Fertilizer (15-15-15) 41 kg		14
Pesticides		25
Grape vines, (\$1.40/vine)		1019
Custom Trellis: Materials, labour		3433
Training: Stakes, material		437
Cover crop seed		10
Machine costs: Repairs and Maintenance		85
Fuel		120
Custom Planting		506
Irrigation		0
Consulting Fees		0
Interest on operating capital		521
Land rental		
Total Variable Costs		6637
Fixed Costs		
Machine Costs: Depreciation		129
Interest on investment		42
Other overhead		186
Land ownership		
Measurable Fixed Costs		357
Total Measurable "Planting Year" Costs		6994

Planting Year Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
Hand Labour					
Weed Control: Hand Hoeing	8.0	87			87
Summer training, tying, trunk est	15.0	164			164
Total Hand Labour	23.0	251			251
Machine Operator					
Discing (3x)	2.1	30	30	25	85
Cultivating (2x)	1.3	18	18	14	50
Sow Cover Crop	0.7	10	12	16	38
Weed Control: Grape Hoeing	3.0	43	36	18	97
Spray Pesticide (2x)	0.9	13	28	37	78
Picking up vines & supplies	2.2	31	10	4	46
Fertilizing	0.7	10	9	9	29
Mowing (1x)	0.7	10	15	13	38
Hilling up	1.3	18	19	19	56
Vineyard Maintenance.	2.3	33	28	15	76
Total Machine Operator	15.2	216	205	171	592

* includes maintenance, fuel and repair

Second Year

Variable Costs	Cost per acre	
	Actual	Budget
	-dollars-	
Labour: Hand, 17.6 hr		192
Machine Operator, 17.5 hr		248
Fertilizer: Ammonium nitrate, 20 kg		7
Potash, 41 kg		15
15-15-15, 41 kg		14
Insecticides		17
Fungicides		37
Herbicides		18
Replacement vines, 2%		38
Cover crop seed		10
Machine Costs: Repairs and maintenance		108
Fuel		153
Custom Pruning - \$.20/vine		146
Custom Tying - \$.15/vine		109
Tying material		20
Irrigation		0
Consulting Fees.		0
Interest on operating capital		612
Land rental		
Total Variable Costs		1744
Fixed Costs		
Machine Costs: Depreciation		163
Interest on investment		54
Other overhead		186
Land ownership		
Measurable Fixed Costs		403
Total Measurable "Second Year" Costs		2147

Second Year Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
Hand Labour					
Weed Control: Hand Hoeing	2.6	28			28
Canopy Training	15.0	164			164
Total Hand Labour	17.6	192			192
Machine Operator					
Weed Control: Grape Hoeing	2.6	37	33	19	88
Spraying (1x)	1.0	14	14	10	39
Discing (2x)	1.3	18	21	22	61
Cultivation	0.7	10	12	11	32
Spray Pesticide (3x)	1.4	19	35	41	96
Fertilizing (2x)	1.3	18	17	14	50
Sow cover crop	0.7	10	12	17	39
Replacing vines	1.5	21	19	11	52
Mowing (3x)	2.1	30	33	24	86
Hilling up and removal	2.6	37	36	30	103
Vineyard Maintenance	2.3	33	29	17	80
Total Machine Operator	17.5	248	261	217	727

* includes maintenance, fuel and repair

Third Year

1.25 tonne (25% Yield)	Cost per acre	
Variable costs	Actual	Budget
	-dollars-	
Labour: Hand, 8.0 hrs		87
Machine Operator, 17.7 hrs		251
Fertilizer: Ammonium nitrate, 41 kg		15
Muriate of Potash, 61 kg		19
Insecticides		26
Fungicides		57
Herbicides		36
Replacement vines, 2%		38
Cover crop seed		10
Machine Costs: Repairs and maintenance		105
Fuel		155
Custom Pruning - \$.30/vine		218
Custom Tying - \$.18/vine		131
Tying material		20
Irrigation		0
Bird Control		0
Marketing Board Fees		13
Crop Insurance		16
Consulting Fees		0
Interest on operating capital		711
Land rental		
Total Variable Costs		1908
Fixed Costs		
Machine Costs: Depreciation		155
Interest on investment		51
Other overhead		186
Land ownership		
Measurable Fixed Costs		392
Total Measurable "Third Year" Costs		2300
Contribution Margin		
Gross Income (\$384 per tonne)		480
Total Variable Costs		1908
Contribution Margin (no land costs)		-1428

Third Year Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
Hand Labour					
Canopy Management	0.0	0			0
Hand Harvest	5.0	55			55
Suckering	3.0	33			33
Total Hand Labour	8.0	87			87
Machine Operator					
Weed Control: Spraying	1.0	14	14	10	39
Discing (2x)	1.3	18	21	22	61
Cultivation	0.7	10	12	11	32
Spray Pesticide (4x)	1.8	26	40	44	110
Replacing vines	1.5	21	19	11	52
Fertilizing (2x)	1.3	18	17	14	50
Sow cover crop	0.7	10	12	17	39
Harvest pick up and delivery	5.0	71	63	35	169
Mowing (3x)	2.1	30	33	24	86
Hilling up and removal	0.0	0	0	0	0
Vineyard Maintenance	2.3	33	29	17	79
Total Machine Operator	17.7	251	260	206	717

* includes maintenance, fuel and repair

Fourth Year

2.5 tonne (50% Yield)	Cost per acre	
Variable Costs	Actual	Budget
	-dollars-	
Labour: Hand, 3.0 hrs		33
Machine Operator, 13.7 hrs		195
Fertilizer: Ammonium nitrate, 61 kg		23
Muriate of Potash, 71 kg		22
Insecticides		52
Fungicides		113
Herbicides		49
Replacement vines, 2%		38
Cover crop seed		10
Machine Costs: Repairs and maintenance		111
Fuel		120
Custom Pruning - \$.33/vine		240
Custom Tying - \$.18/vine		131
Tying material		20
Irrigation		0
Bird Control		0
Custom harvest/delivery		195
Marketing Board Fees		26
Crop Insurance		32
Consulting Fees		0
Interest on operating capital		801
Land rental		
Total Variable Costs		2211
Fixed Costs		
Machine Costs: Depreciation		165
Interest on investment		54
Other overhead		186
Land ownership		
Measurable Fixed Costs		405
Total Measurable "Fourth Year" Costs		2616
Contribution Margin		
Gross Income (\$384 per tonne)		960
Total Variable Costs		2211
Contribution Margin (no land costs)		-1251

Fourth Year Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
Hand Labour					
Canopy Management	0.0	0			0
Suckering	3.0	33			33
Total Hand Labour	3.0	33			33
Machine Operator					
Canopy Management: Machine Hedging	1.0	14	20	22	56
Weed Control: Spraying	1.0	14	15	12	42
Discing (2x)	1.3	18	22	24	65
Cultivation	0.7	10	12	12	34
Spray Pesticide (4x)	1.8	26	42	48	115
Replacing vines	1.5	21	21	14	56
Fertilizing (2x)	1.3	18	19	17	54
Sow cover crop	0.7	10	13	19	42
Mowing (3x)	2.1	30	35	28	93
Hilling up and removal	0.0	0	0	0	0
Vineyard Maintenance	2.3	33	32	22	86
Total Machine Operator	13.7	195	231	219	645

* includes maintenance, fuel and repair

Total Establishment Cost

	Actual	Budget
Preplant Year		3505
Planting Year		6994
Second Year		2147
Third Year		2050
Fourth Year		2382
Total		17079

Excludes Board fees, harvest costs and does not include revenues for years 3 and 4. Does not include land costs

	Actual	Budget
Annual Cost to Recover Establishment Costs (amortized over remaining 21 years of vineyard life)		1046 per year

Mature Vineyard: Annual Costs

		Cost per acre	
Variable Costs	Your Farm	Yield 3.5 Tonne	Yield 5 Tonne
Labour: Hand, 3.0 hrs		33	33
Machine Operator 19.6 hrs		278	278
Fertilizer: Ammonium Nitrate, 81 kg		29	29
Muriate of Potash, 94kg		28	28
Insecticides		52	52
Fungicides		113	113
Herbicides		54	54
Replacement Vines 2%		38	38
Cover crop seed		10	10
Trellis maintenance		15	15
Machine Costs: Repairs & maintenance		105	105
Fuel		172	172
Custom pruning		255	255
Custom tying		146	152
Tying Material		20	20
Irrigation		0	0
Bird Control		0	0
Custom harvest/delivery		273	390
Marketing board fees		37	53
Crop Insurance		44	63
Consulting Fees (soil, leaf, spray)		0	0
Interest on operating capital		94	102
Land rental			
Total Variable Costs		1796	1962
Fixed Costs			
Machine Costs: Depreciation		156	156
Interest on investment		51	51
Other overhead		186	186
Land ownership			
Measurable Fixed Costs		393	393
Total Measurable Cost		2189	2355
Contribution Margin			
Gross Income (\$384 per tonne)		1344	1920
Total Variable Costs		1796	1962
Contribution Margin (no land costs)		-452	-42

Mature Vineyard: Annual Costs Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
Hand Labour					
Canopy Mgmt/Positioning/Thinning	0.0	0			0
Suckering	3.0	33			33
Total Hand Labour	3.0	33			33
Machine Operator					
Canopy Management: Machine Hedging...	0.0	0	0	0	0
Brush Removal/flail	1.3	18	16	9	44
Fertilizing (2x)	1.3	18	17	13	49
Discing (2x)	2.1	30	30	26	86
Cultivation	2.1	30	28	19	77
Weed Spraying	1.3	18	18	11	47
Pesticide Spraying (4x)	1.8	26	39	43	108
Replacing vines	1.5	21	18	10	50
Sow cover crop	0.7	10	12	17	39
Mowing (3.5x)	2.5	35	37	25	96
Hilling up and removal	0.0	0	0	0	0
Subsoiling/Aerating	0.0	0	0	0	0
Vineyard Maintenance	5.0	71	61	33	165
Total Machine Operator	19.6	278	277	207	761

* includes maintenance, fuel and repair

Break Even and Profitability Worksheet at 3.5 tonne/acre yield

Year	Yield (%)	Revenue (\$)	Variable Costs	Fixed Costs	Total Costs	Net Cash Flow	Accum. Profit
Pre-plant	0%	0	3351	154	3505	-3505	-3505
Planting	0%	0	6637	357	6994	-6994	-10499
2	0%	0	1744	403	2147	-2147	-12646
3	25%	480	1908	392	2300	-1820	-14466
4	50%	960	2211	405	2616	-1656	-16122
5	100%	1344	2588	393	2981	-1637	-17759
6	100%	1344	2657	393	3064	-1706	-19465
7	100%	1344	2729	393	3122	-1778	-21243
8	100%	1344	2805	393	3198	-1854	-23097
9	100%	1344	2885	393	3278	-1934	-25032
10	100%	1344	2970	393	3363	-2019	-27051
11	100%	1344	3060	393	3453	-2109	-29160
12	100%	1344	3154	393	3547	-2203	-31363

There is no breakeven at either yield and cost of production. (Does not include land costs)

Break Even and Profitability Worksheet at 5 tonne/acre yield

Year	Yield (%)	Revenue (\$)	Variable Costs	Fixed Costs	Total Costs	Net Cash Flow	Accum. Profit
Pre-plant	0%	0	3351	154	3505	-3505	-3505
Planting	0%	0	6637	357	6994	-6994	-10499
2	0%	0	1744	403	2147	-2147	-12646
3	25%	480	1908	392	2300	-1820	-14466
4	50%	960	2211	405	2616	-1656	-16122
5	100%	1920	2755	393	3148	-1228	-17350
6	100%	1920	2801	393	3194	-1274	-18624
7	100%	1920	2849	393	3242	-1322	-19946
8	100%	1920	2900	393	3293	-1373	-21319
9	100%	1920	2971	393	3347	-1427	-22746
10	100%	1920	3011	393	3404	-1484	-24230
11	100%	1920	3071	393	3464	-1544	-25774
12	100%	1920	3134	393	3527	-1607	-27381

There is no breakeven at either yield and cost of production. (Does not include land costs)