



# **Establishment & Production Costs for Grapes in Ontario 2023 Economic Report**

Ministry of Agriculture,  
Food and Rural Affairs

Ontario 



# **Establishment and Production Costs for Grapes in Ontario 2023 Economic Report**

## **Editors:**

John Molenhuis, Business Analysis and Cost of Production Specialist, OMAFRA  
Kathryn Carter, Fruit Crop Specialist (Tender Fruit and Grape), OMAFRA

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# 1. Introduction

This report tries to reflect the management practices used by growers today. Soil condition, cultivar selections, 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.

Three grape cultivars are summarized in this document; Vidal, Chardonnay and Cabernet Franc which reflect some of the most significant cultivars in Ontario. They represent French Hybrid and Vinifera varieties 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 make business decisions and planting plans. Growers can use the input costs as general guidelines to help identify strengths and weaknesses in their business. The information provided benefits new growers by providing them with information on the economic costs of planting and maintaining a vineyard.

## Methods and procedures

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

Growers were asked to provide information based on a typical year. All costs are based on the production of VQA quality wines.

Input costs are 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.

Production practices included in this report are based on traditional grape growing areas and will not include additional costs for burying vines etc.

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 is 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 is charged at \$19.65 per hour, which includes benefits (Workers' Compensation, Employment Insurance and Canada Pension Plan). A blended base price of \$19.65 is 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 is charged at \$ 26.40 per hour (includes benefits).

Machinery and equipment costs are based on a commercial farm size of 50 acres.

Machinery costs are calculated based on the purchase price for 2023, useful life, annual use and trade-in value.

Interest on investment is calculated at 4.0%, which is the average interest rate paid by chartered banks on Guaranteed Investment Certificates.

The interest rate applied to the operating capital is based on the prime lending rate of 6.7% plus 1.0% = 7.70%.

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 are based on the size of each tractor, truck or self-propelled machine used in production. The following farm-gate fuel prices are used: gasoline \$1.35 per litre and diesel \$1.35 per litre. Fuel costs are net of all 2023 provincial and federal rebates.

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



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

The prices listed are the 2023 minimum negotiated price for each cultivar sold through the Grape Growers of Ontario.

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

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

The training system for Vinifera grapes is a vertical shoot position system (i.e. Pendelbogen), while French Hybrid grapes are trained 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.

Crop Services includes several items such as petiole and soil sampling, pest monitoring, etc.

The establishment costs will need to be recovered over the productive life of the vineyard. An estimate of the annual costs 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 4.0%.

Land costs and carrying charges are 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 is 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 is not included as a cost.

Existing vines may need to be removed prior to planting a new vineyard. The cost to remove an existing vineyard is estimated to be \$5600 per acre, this cost is not included in the cost of production.

All labour costs are 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.

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

### **Changes for the 2023 Economic Report**

Minimum wage in Ontario increased from \$14.00 to \$15.50 per hour from 2019 to 2023.

A double row weed sprayer was included in the machinery investment inventory replacing the single row weed sprayer. This decreased the hours per acre to 0.35 hours per acre per weed spray application.

Gross revenue per tonne increased an average of 13% since 2019 for the wine grape varieties.

*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.*

# VINIFERA AND HYBRID GRAPES





## 2. Cabernet Franc

### Preplant Year

	Cost per acre (\$)	
	Actual	Budget
<b>Variable Costs</b>		
Labour: Machinery operator, 4.5 hrs		119
Cover crop		62
Machine costs :Repairs and maintenance		32
Fuel		122
Consulting fees		100
Land rental		
Land preparation (levelling etc.)		1669
Tile drainage (9 foot)		5088
Interest on operating capital		277
<b>Total Variable Costs</b>		<b>7468</b>
<b>Fixed Costs</b>		
Machine costs: Depreciation		68
Interest on investment		36
Other overhead		330
Land ownership		
<b>Measurable Fixed Costs</b>		<b>434</b>
<b>Total Measurable "Preplant Year" Costs</b>		<b>7902</b>

### Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
<b>Machine:</b>					
Discing, cultivating (3.5x)	2.8	74	96	80	250
Sub soiling	1.0	26	33	20	79
Sow cover crop	0.7	18	25	19	62
<b>Total Machinery Operator</b>	<b>4.5</b>	<b>119</b>	<b>154</b>	<b>118</b>	<b>391</b>

\*Includes maintenance, fuel and repair

## Planting Year

Variable Costs	Cost per acre (\$)	
	Actual	Budget
Labour: Hand, 29.0 hrs		570
Machine operator, 20.1 hrs		531
Fertilizer: Calcium ammonium nitrate 0 kg		0
Muriate of potash, 0 kg		0
Insecticides		0
Fungicides		19
Grape vines		8107
Custom trellis: Materials, labour		6200
Training: Stakes, material		1234
Cover crop seed		62
Machine costs: Repairs and maintenance		164
Fuel		526
Custom planting		859
Irrigation		436
Consulting fees		100
Interest on operating capital		2023
Land rental		
<b>Total Variable Costs</b>		<b>20830</b>
<b>Fixed Costs</b>		
Machine costs: Depreciation		336
Interest on investment		160
Other overhead		660
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1156</b>
<b>Total Measurable "Planting Year" Costs</b>		<b>21986</b>

## Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
<b>Hand</b>					
Weed control: Hand hoeing	14.0	275			275
Summer training, tying, trunk est	15.0	295			295
<b>Total Hand Labour</b>	<b>29.0</b>	<b>570</b>			<b>570</b>
<b>Machine</b>					
Weed control: Grape hoeing (3x)	6.0	158	206	160	524
Discing, cultivating (3.5x)	2.8	74	96	80	250
Pesticide spraying (4x)	1.3	34	66	70	170
Fertilizing (0x)	0.0	0	0	0	0
Sow cover crop	0.7	18	25	19	62
Mowing (4x)	2.8	74	95	67	236
Hilling up	1.5	40	51	40	131
Vineyard maintenance	3.0	79	100	67	246
Picking up vines & supplies	2.0	53	50	59	162
<b>Total Machinery Operator</b>	<b>20.1</b>	<b>531</b>	<b>690</b>	<b>561</b>	<b>1782</b>

\*Includes maintenance, fuel and repair

## Second Year

Variable Costs	Cost per acre (\$)	
	Actual	Budget
Labour: Hand, 30.0 hr		590
Machine operator, 24.7 hr		652
Fertilizer: Calcium ammonium nitrate, 0 kg		0
Muriate of potash, 0 kg		0
Insecticides		85
Fungicides		225
Herbicides		51
Replacement vines, 2%		162
Cover crop seed		31
Machine costs: Repairs and maintenance		218
Fuel		670
Custom pruning - \$.56/vine		678
Custom tying - \$.28/vine		339
Tying material		29
Irrigation		436
Consulting fees		100
Interest on operating capital		2507
Land rental		
<b>Total Variable Costs</b>		<b>6773</b>
<b>Fixed Costs</b>		
Machine costs: Depreciation		422
Interest on investment		205
Other overhead		660
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1287</b>
<b>Total Measurable "Second Year" Costs</b>		<b>8060</b>

## Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
<b>Hand</b>					
Weed Control: Hand hoeing	14.0	275			275
Summer training, tying, trunk est	16.0	314			314
<b>Total Hand Labour</b>	<b>30.0</b>	<b>590</b>			<b>590</b>
<b>Machine</b>					
Weed control: Grape hoeing (3x)	6.0	158	206	160	524
Spraying (2x)	1.4	18	25	18	61
Discing, cultivating (3.5x)	2.8	74	96	80	250
Pesticide spraying (9x)	2.6	79	148	158	385
Fertilizing (0x)	0.0	0	0	0	0
Sow cover crop	0.7	18	25	19	62
Mowing (5x)	3.5	92	119	83	295
Hilling up and removal	3.0	79	103	80	262
Vineyard maintenance	3.0	79	100	67	246
Replacing vines	2.0	53	67	44	164
<b>Total Machinery Operator</b>	<b>24.7</b>	<b>652</b>	<b>889</b>	<b>709</b>	<b>2250</b>

\*Includes maintenance, fuel and repair

## Third Year

1.25 tonne (25% Yield)	Cost per acre (\$)	
Variable Costs	Actual	Budget
Labour: Hand, 63.0 hrs		1238
Machine operator, 27.7 hrs		731
Fertilizer: Calcium ammonium nitrate, 12 kg		15
Muriate of potash, 40 kg		40
Insecticides		169
Fungicides		445
Herbicides		64
Replacement vines, 1%		81
Cover crop seed		31
Machine Costs: Repairs and maintenance		329
Fuel		779
Custom pruning - \$.56/vine		678
Custom tying - \$.28/vine		339
Tying material		29
Irrigation		436
Bird control		239
Board license, Grading and R&D fees (\$25.60 per tonne)		32
Crop insurance		121
Consulting fees (soil,leaf, spray)		100
Interest on operating capital		3154
Land rental		
<b>Total Variable Costs</b>		<b>9050</b>
<b>Fixed Costs</b>		
Machine costs: Depreciation		496
Interest on investment		247
Other overhead		660
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1402</b>
<b>Total Measurable "Third Year" Costs</b>		<b>10452</b>
<b>Contribution Margin</b>		
Gross Income (\$2128 per tonne)		2660
Total Variable Costs		9050
<b>Contribution Margin (no land costs)</b>		<b>-6390</b>



## Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
<b>Hand</b>					
Suckering	7.0	138			138
Shoot thin, positioning, tucking	20.0	393			393
Leaf removal	12.0	236			236
Bunch thinning	12.0	236			236
Other operations	2.0	39			39
Hand harvest	10.0	197			197
<b>Total Hand Labour</b>	<b>63.0</b>	<b>1238</b>			<b>1238</b>
<b>Machine</b>					
Weed control: Spraying (3x)	1.1	29	37	27	93
Discing, cultivating (3.5x)	2.8	74	96	80	250
Pesticide spraying (14x)	4.6	121	230	246	597
Fertilizing (2x)	1.0	26	36	33	95
Sow cover crop	0.7	18	25	19	62
Mowing (5x)	3.5	92	119	83	295
Hilling up and removal	3.0	79	103	80	262
Vineyard maintenance	3.0	79	100	67	246
Replacing vines	1.0	26	33	22	82
Hedging (2.5x)	2.0	53	98	83	233
Harvest pick up and delivery	5.0	132	231	102	465
<b>Total Machinery Operator</b>	<b>27.7</b>	<b>731</b>	<b>1108</b>	<b>842</b>	<b>2681</b>

\*Includes maintenance, fuel and repair

## Fourth Year

2.5 tonne (50% Yield)	Cost per acre (\$)	
Variable Costs	Actual	Budget
Labour: Hand, 60.0 hrs		1179
Machine operator, 22.7 hrs		599
Fertilizer: Calcium ammonium nitrate, 31 kg		38
Muriate of potash, 50 kg		50
Insecticides		256
Fungicides		674
Herbicides		64
Replacement vines, 1%		81
Cover crop seed		31
Machine costs: Repairs and maintenance		261
Fuel		616
Custom pruning - \$.56/vine		678
Custom tying - \$.28/vine		339
Tying material		29
Irrigation		436
Bird control		239
Custom harvest/delivery		300
Board license, Grading and R&D fees (\$25.60 per		64
Crop insurance		242
Consulting fees (soil, leaf, spray)		100
Interest on operating capital		3676
Land rental		
<b>Total Variable Costs</b>		<b>9952</b>
Fixed Costs		
Machine costs: Depreciation		438
Interest on investment		216
Other overhead		660
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1314</b>
<b>Total Measurable "Fourth Year" Costs</b>		<b>11266</b>
Contribution Margin		
Gross Income (\$2128 per tonne)		5320
Total Variable Costs		9952
<b>Contribution Margin (no land costs)</b>		<b>-4632</b>

## Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
<b>Hand</b>					
Suckering	9.0	177			177
Shoot thin, positioning, tucking	20.0	393			393
Leaf removal	12.0	236			236
Bunch thinning	15.0	295			295
Other operations	4.0	79			79
<b>Total Hand Labour</b>	<b>60.0</b>	<b>1179</b>			<b>1179</b>
<b>Machine</b>					
Weed control: Spraying (3x)	1.1	29	37	27	93
Discing, cultivating (3.5x)	2.8	74	96	80	250
Pesticide spraying (14x)	4.6	121	230	246	597
Fertilizing (2x)	1.0	26	36	33	95
Sow cover crop	0.7	18	25	19	62
Mowing (5x)	3.5	92	119	83	295
Hilling up and removal	3.0	79	103	80	262
Vineyard maintenance	3.0	79	100	67	246
Replacing vines	1.0	26	33	22	82
Hedging (2.5x)	2.0	53	98	83	233
<b>Total Machinery Operator</b>	<b>22.7</b>	<b>599</b>	<b>877</b>	<b>739</b>	<b>2215</b>

\*Includes maintenance, fuel and repair

## Total Establishment Cost

	Actual	Budget
Preplant year		7902
Planting year		21986
Second year		8060
Third year		9705
Fourth year		10874
<b>Total</b>		<b>58527</b>

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		3038 per year

(amortized over remaining 21 years of vineyard life)

## Mature Vineyard: Annual cost

	Your Farm	Cost per acre (\$)	
		Yield 3.5 Tonne	Yield 5 Tonne
<b>Variable Costs</b>			
Labour: Hand, 63 hrs		1238	1238
Machine operator 30.5 hrs		805	805
Fertilizer: Calcium ammonium nitrate, 37 kg		46	46
Muriate of potash, 60 kg		60	60
Insecticides		256	256
Fungicides		674	674
Herbicides		64	64
Replacement vines 1%		81	81
Cover crop seed		31	31
Wind machine		543	543
Machine costs: Repairs & maintenance		377	377
Fuel		828	828
Custom pruning \$.56/vine		678	678
Custom tying - \$.28/vine		339	339
Tying material		29	29
Irrigation		436	436
Bird control		239	239
Custom harvest/delivery		420	600
Board license, Grading and R&D fees (\$25.60 per tonne)		90	128
Crop insurance		339	485
Consulting fees (soil, leaf, spray)		100	100
Interest on operating capital		591	619
Land rental			
<b>Total Variable Costs</b>		<b>8263</b>	<b>8655</b>
<b>Fixed Costs</b>			
Machine costs: Depreciation		592	592
Interest on investment		285	285
Other overhead		660	660
Land ownership			
<b>Measurable Fixed Costs</b>		<b>1537</b>	<b>1537</b>
<b>Total Measurable Cost</b>		<b>9800</b>	<b>10192</b>
<b>Contribution Margin</b>			
Gross Income (\$2128 per tonne)		7448	10640
Total Variable Costs		8263	8655
<b>Contribution Margin (no land costs)</b>		<b>-815</b>	<b>1985</b>

## Mature Vineyard: Annual Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
<b>Hand</b>					
Suckering	9.0	177			177
Shoot thin, positioning, tucking	20.0	393			393
Leaf removal	13.0	255			255
Bunch thinning	17.0	334			334
Other operations	4.0	79			79
<b>Total Hand Labour</b>	<b>63.0</b>	<b>1238</b>			<b>1238</b>
<b>Machine</b>					
Weed control: Spraying (3x)	1.1	29	37	27	93
Discing, cultivating (3.5x)	2.8	74	96	80	250
Pesticide spraying (14x)	4.6	121	230	246	597
Fertilizing (2x)	1.0	26	36	33	95
Sow cover crop	0.7	18	25	19	62
Mowing (5x)	3.5	92	119	83	295
Hilling up and removal	3.0	79	103	80	262
Subsoiling/aerating	1.0	26	33	20	79
Vineyard maintenance	5.0	132	167	111	411
Replacing vines	1.0	26	33	22	82
Hedging (2.5x)	2.5	66	122	103	291
Pre-pruning	0.8	21	43	39	104
Leaf removal (3.0x)	2.0	53	108	92	253
Brush shredding/flail	1.5	40	53	35	127
<b>Total Machinery Operator</b>	<b>30.5</b>	<b>805</b>	<b>1205</b>	<b>990</b>	<b>3000</b>

\*Includes maintenance, fuel and repair

## Table 1. Break Even and Profitability Worksheet

### 3.5 tonne/acre yield

Year	Yield %	Revenue	Variable Costs	Fixed Costs	Total Costs	Net Cash Flow	Accum. Profit
Pre-plant	0%	0	7468	434	7902	-7902	-7902
Planting	0%	0	20831	1156	21986	-21986	-29888
2	0%	0	6773	1287	8060	-8060	-37949
3	25%	2660	9050	1402	10453	-7793	-45741
4	50%	5320	9952	1314	11266	-5946	-51687
5	100%	7448	11812	1537	13349	-5901	-57588
6	100%	7448	12148	1537	13685	-6237	-63824
7	100%	7448	12510	1537	14047	-6599	-70423
8	100%	7448	12900	1537	14436	-6988	-77411
9	100%	7448	13319	1537	14856	-7408	-84820
10	100%	7448	13772	1537	15308	-7860	-92680
11	100%	7448	14259	1537	15795	-8347	-101027
12	100%	7448	14783	1537	16320	-8872	-109899

There is no breakeven at the 3.5 tonne/acre yield level (does not include land costs).

### 5 tonne/acre yield

Year	Yield %	Revenue	Variable Costs	Fixed Costs	Total Costs	Net Cash Flow	Accum. Profit
Pre-plant	0%	0	7468	434	7902	-7902	-7902
Planting	0%	0	20831	1156	21986	-21986	-29888
2	0%	0	6773	1287	8060	-8060	-37949
3	25%	2660	9050	1402	10453	-7793	-45741
4	50%	5320	9952	1314	11266	-5946	-51687
5	100%	10640	12204	1537	13741	-3101	-54788
6	100%	10640	12324	1537	13861	-3221	-58009
7	100%	10640	12454	1537	13991	-3351	-61360
8	100%	10640	12594	1537	14131	-3491	-64850
9	100%	10640	12744	1537	14281	-3641	-68491
10	100%	10640	12906	1537	14443	-3803	-72294
11	100%	10640	13081	1537	14618	-3978	-76272
12	100%	10640	13269	1537	14806	-4166	-80438

There is no breakeven at 5.0 tonne/acre yield level (Does not include land costs)



## Table 2. Break Even Yield to Cover Variable Costs

Yield MT/ac	Revenue	Variable costs excluding harvest and operating interest costs	Harvest costs	Operating interest	Total Variable Costs	Contribution Margin
2.9	6,171	7,235	349	578	8,163	-1,992
3.0	6,384	7,235	361	579	8,176	-1,792
3.1	6,597	7,235	373	580	8,189	-1,592
3.2	6,810	7,235	385	581	8,202	-1,392
3.3	7,022	7,235	397	582	8,215	-1,193
3.4	7,235	7,235	410	583	8,228	-993
3.5	7,448	7,235	422	584	8,241	-793
3.6	7,661	7,235	434	585	8,254	-593
3.7	7,874	7,235	446	586	8,267	-393
3.8	8,086	7,235	458	587	8,280	-193
3.9	<b>8,299</b>	<b>7,235</b>	<b>470</b>	<b>588</b>	<b>8,293</b>	<b>6</b>
4.0	8,512	7,235	482	589	8,306	206
4.1	8,725	7,235	494	590	8,319	406
4.2	8,938	7,235	506	590	8,332	606

Breakeven yield to cover annual variable costs is 3.9 tonnes / acre.

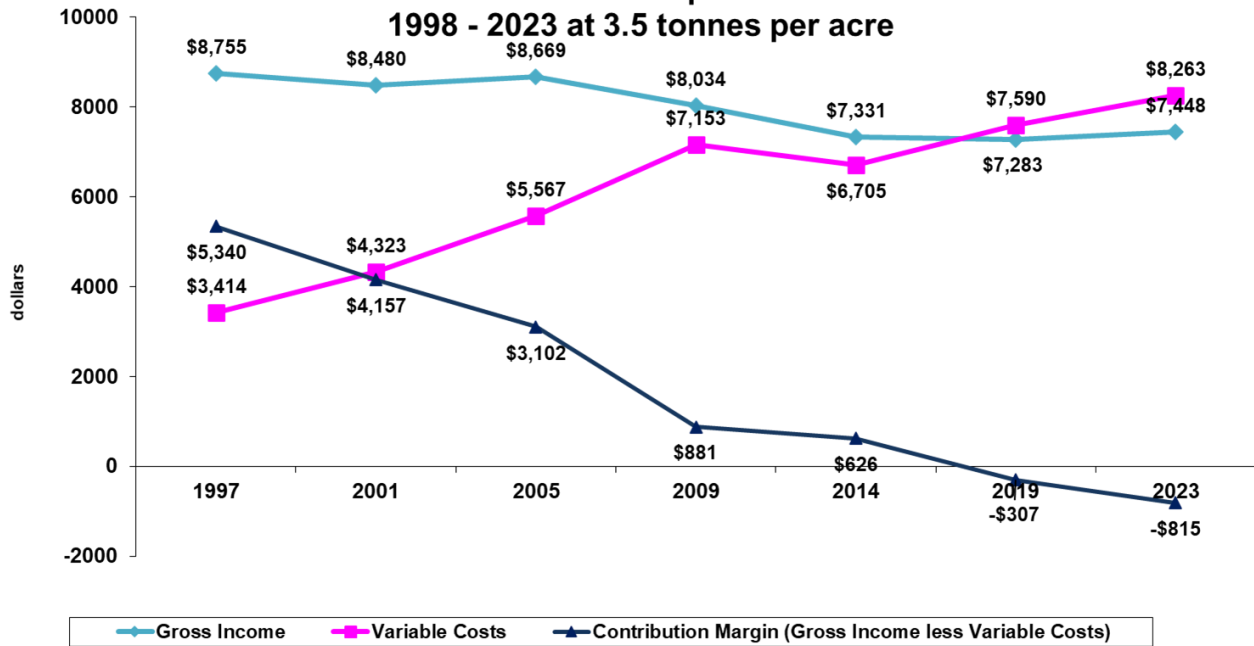
## Table 3. Break Even Yield to Cover Total Costs

Yield MT/ac	Revenue	Annual costs excl. harvest and operating interest costs	Harvesting costs	Operating interest	Annualized Est. Costs	Total Costs with Est. Costs	Net Cash Flow
5.0	10640	8,772	602	598	3038	13011	-2371
5.1	10853	8,772	614	599	3038	13024	-2171
5.2	11066	8,772	626	600	3038	13037	-1971
5.3	11278	8,772	638	601	3038	13050	-1771
5.4	11491	8,772	650	602	3038	13062	-1571
5.5	11704	8,772	662	603	3038	13075	-1371
5.6	11917	8,772	675	603	3038	13088	-1172
5.7	12130	8,772	687	604	3038	13101	-972
5.8	12342	8,772	699	605	3038	13114	-772
5.9	12555	8,772	711	606	3038	13127	-572
6.0	12768	8,772	723	607	3038	13140	-372
6.1	12981	8,772	735	608	3038	13153	-173
<b>6.2</b>	<b>13194</b>	<b>8,772</b>	<b>747</b>	<b>609</b>	<b>3038</b>	<b>13166</b>	<b>27</b>
6.3	13406	8,772	759	610	3038	13179	227

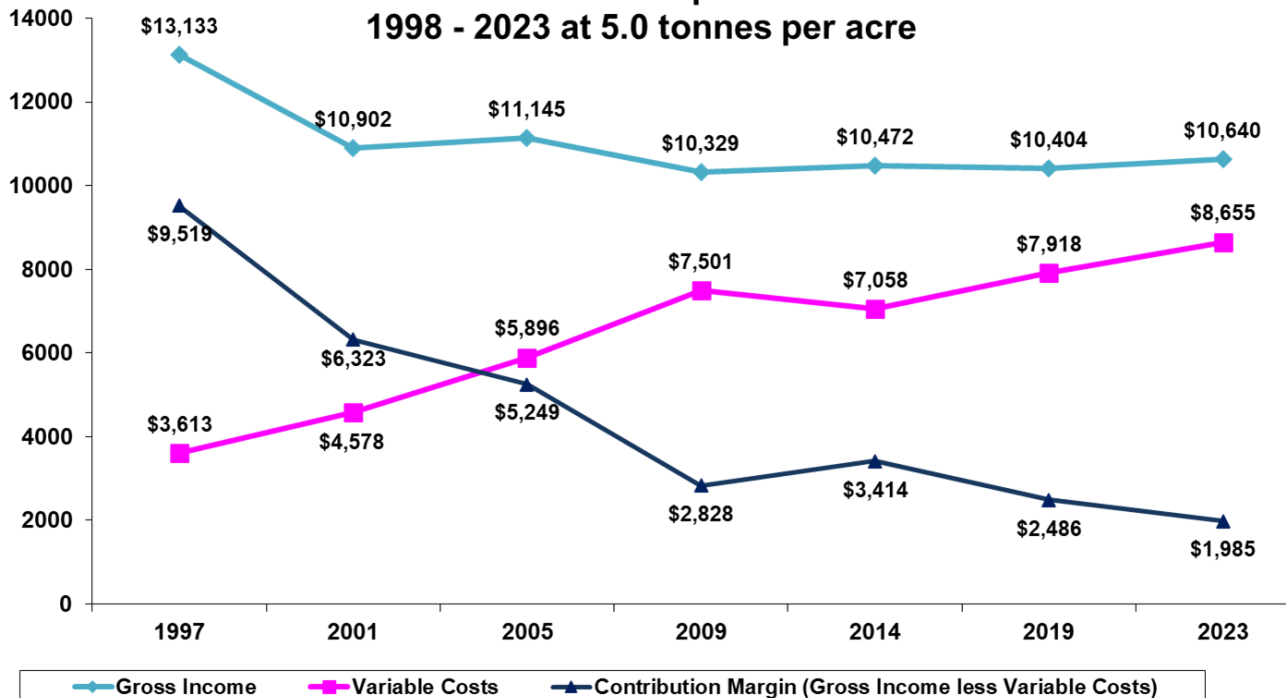
Breakeven yield to cover total annual costs is 6.2 tonnes / acre.

(Includes annualized establishment costs, does not include land costs)

**Graph 1. Cabernet Franc Cost of Production  
(Inflation adjusted = 2023 \$)  
1997 at 3.0 tonnes per acre and  
1998 - 2023 at 3.5 tonnes per acre**



**Graph 2. Cabernet Franc Cost of Production  
(Inflation adjusted = 2023 \$)  
1997 at 4.5 tonnes per acre and  
1998 - 2023 at 5.0 tonnes per acre**



# 3. Chardonnay

## Preplant Year

Variable Costs	Cost per acre (\$)	
	Actual	Budget
Labour: Machinery operator, 4.5 hrs		119
Cover crop		62
Machine costs: Repairs and maintenance		32
Fuel		122
Consulting fees		100
Land rental		
Land preparation (levelling etc.)		1669
Tile drainage (9 foot)		5088
Interest on operating capital		277
<b>Total Variable Costs</b>		<b>7468</b>
<b>Fixed Costs</b>		
Machine costs: Depreciation		68
Interest on investment		36
Other overhead		330
Land ownership		
<b>Measurable Fixed Costs</b>		<b>434</b>
<b>Total Measurable "Preplant Year" Costs</b>		<b>7902</b>

## Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
<b>Machine</b>					
Discing, cultivating (3.5x)	2.8	74	96	80	250
Sub soiling	1.0	26	33	20	79
Sow cover crop	0.7	18	25	19	62
<b>Total Machinery Operator</b>	<b>4.5</b>	<b>119</b>	<b>154</b>	<b>118</b>	<b>391</b>

\*Includes maintenance, fuel and repair

## Planting Year

Variable Costs	Cost per acre (\$)	
	Actual	Budget
Labour: Hand, 29.0 hrs		570
Machine operator, 20.1 hrs		531
Fertilizer: Calcium ammonium nitrate 0 kg		0
Muriate of potash, 0 kg		0
Insecticides		0
Fungicides		19
Grape vines		8107
Custom trellis: Materials, labour		6200
Training: Stakes, material		1234
Cover crop seed		62
Machine costs: Repairs and maintenance		173
Fuel		526
Custom planting		859
Irrigation		436
Consulting fees		100
Interest on operating capital		2024
Land rental		
<b>Total Variable Costs</b>		<b>20840</b>
<b>Fixed Costs</b>		
Machine costs: Depreciation		320
Interest on investment		151
Other overhead		660
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1131</b>
<b>Total Measurable "Planting Year" Costs</b>		<b>21972</b>

## Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
<b>Hand</b>					
Weed control: Hand hoeing	14.0	275			275
Summer training, tying, trunk est	15.0	295			295
<b>Total Hand Labour</b>	<b>29.0</b>	<b>570</b>			<b>570</b>
<b>Machine</b>					
Weed control: Grape hoeing (3x)	6.0	158	206	160	524
Discing, cultivating (3.5x)	2.8	74	96	80	250
Pesticide spraying (4x)	1.3	34	66	70	170
Fertilizing (0x)	0.0	0	0	0	0
Sow cover crop	0.7	18	25	19	62
Mowing (4x)	2.8	74	95	67	236
Hilling up	1.5	40	51	40	131
Vineyard maintenance	3.0	79	100	67	246
Picking up vines & supplies	2.0	53	59	30	142
<b>Total Machinery Operator</b>	<b>20.1</b>	<b>531</b>	<b>699</b>	<b>532</b>	<b>1762</b>

\*Includes maintenance, fuel and repair

## Second Year

Variable Costs	Cost per acre (\$)	
	Actual	Budget
Labour: Hand, 30.0 hr		590
Machine operator, 24.7 hr		652
Fertilizer: Calcium ammonium nitrate, 0 kg		0
Muriate of potash, 0 kg		0
Insecticides		85
Fungicides		225
Herbicides		51
Replacement vines, 2%		162
Cover crop seed		32
Machine costs: Repairs and maintenance		218
Fuel		670
Custom pruning - \$.56/vine		678
Custom tying - \$.28/vine		339
Tying material		29
Irrigation		436
Consulting fees		100
Interest on operating capital		2508
Land rental		
<b>Total Variable Costs</b>		<b>6775</b>
<b>Fixed Costs</b>		
Machine costs: Depreciation		422
Interest on investment		205
Other overhead		660
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1287</b>
<b>Total Measurable "Second Year" Costs</b>		<b>8062</b>



## Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
<b>Hand</b>					
Weed control: Hand hoeing	14.0	275			275
Summer training, tying, trunk est	16.0	314			314
<b>Total Hand Labour</b>	<b>30.0</b>	<b>590</b>			<b>590</b>
<b>Machine</b>					
Weed control: Grape hoeing (3x)	6.0	158	206	160	524
Spraying (2x)	0.7	18	25	18	61
Discing, cultivating (3.5x)	2.8	74	96	80	250
Pesticide spraying (9x)	3.0	79	148	158	385
Fertilizing (0x)	0.0	0	0	0	0
Sow cover crop	0.7	18	25	19	62
Mowing (5x)	3.5	92	119	83	295
Hilling up and removal	3.0	79	103	80	262
Vineyard maintenance	3.0	79	100	67	246
Replacing vines	2.0	53	67	44	164
<b>Total Machinery Operator</b>	<b>24.7</b>	<b>652</b>	<b>889</b>	<b>709</b>	<b>2250</b>

\*Includes maintenance, fuel and repair

## Third Year

1.5 tonne (25% Yield)	Cost per acre (\$)	
Variable Costs	Actual	Budget
Labour: Hand, 63.0 hrs		1238
Machine operator, 27.7 hrs		731
Fertilizer: Calcium ammonium nitrate, 12 kg		15
Muriate of potash, 40 kg		40
Insecticides		169
Fungicides		445
Herbicides		64
Replacement vines, 1%		81
Cover crop seed		32
Machine costs: Repairs and maintenance		329
Fuel		779
Custom pruning - \$.56/vine		678
Custom tying - \$.28/vine		339
Tying material		29
Irrigation		436
Bird control		123
Board license, Grading and R&D fees (\$23.10		35
Crop insurance		121
Consulting fees (soil, leaf, spray)		100
Interest on operating capital		3147
Land rental		
<b>Total Variable Costs</b>		<b>8930</b>
<b>Fixed Costs</b>		
Machine costs: Depreciation		496
Interest on investment		247
Other overhead		660
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1402</b>
<b>Total Measurable "Third Year" Costs</b>		<b>10332</b>
<b>Contribution Margin</b>		
Gross Income (\$1766 per tonne)		2649
Total Variable Costs		8930
Contribution Margin (no land costs)		-6281

## Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
<b>Hand</b>					
Suckering	7.0	138			138
Shoot thin, positioning, tucking	20.0	393			393
Leaf removal	12.0	236			236
Bunch thinning	12.0	236			236
Other operations	2.0	39			39
Hand harvest	10.0	197			197
<b>Total Hand Labour</b>	<b>63.0</b>	<b>1238</b>			<b>1238</b>
<b>Machine</b>					
Weed control: Spraying (3x)	1.1	29	37	27	93
Discing, cultivating (3.5x)	2.8	74	96	80	250
Pesticide spraying (14x)	4.6	121	230	246	597
Fertilizing (2x)	1.0	26	36	33	95
Sow cover crop	0.7	18	25	19	62
Mowing (5x)	3.5	92	119	83	295
Hilling up and removal	3.0	79	103	80	262
Vineyard maintenance	3.0	79	100	67	246
Replacing vines	1.0	26	33	22	82
Hedging (2.5x)	2.0	53	98	83	233
Harvest pick up and delivery	5.0	132	231	102	465
<b>Total Machinery Operator</b>	<b>27.7</b>	<b>731</b>	<b>1108</b>	<b>842</b>	<b>2681</b>

\*Includes maintenance, fuel and repair

## Fourth Year

3 tonne (50% Yield)	Cost per acre (\$)	
Variable Costs	Actual	Budget
Labour: Hand, 60.0 hrs		1179
Machine operator, 22.7 hrs		599
Fertilizer: Calcium ammonium nitrate, 31 kg		38
Muriate of potash, 50 kg		50
Insecticides		256
Fungicides		674
Herbicides		64
Replacement vines, 1%		81
Cover crop seed		32
Machine Costs: Repairs and maintenance		261
Fuel		616
Custom pruning - \$.56/vine		678
Custom tying - \$.28/vine		339
Tying material		29
Irrigation		436
Bird control		123
Custom harvest/delivery		360
Board license, Grading and R&D fees (\$23.10)		69
Crop insurance		241
Consulting fees (soil, leaf, spray)		100
Interest on operating capital		3664
Land rental		
<b>Total Variable Costs</b>		<b>9889</b>
<b>Fixed Costs</b>		
Machine costs: Depreciation		438
Interest on investment		216
Other overhead		660
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1314</b>
<b>Total Measurable "Fourth Year" Costs</b>		<b>11203</b>
<b>Contribution Margin</b>		
Gross Income (\$1766) per tonne)		5298
Total Variable Costs		9889
<b>Contribution Margin (no land costs)</b>		<b>-4591</b>

## Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
<b>Hand</b>					
Suckering	9.0	177			177
Shoot thin, positioning, tucking	20.0	393			393
Leaf removal	12.0	236			236
Bunch thinning	15.0	295			295
Other operations	4.0	79			79
<b>Total Hand Labour</b>	<b>60.0</b>	<b>1179</b>			<b>1179</b>
<b>Machine</b>					
Weed control: Spraying (3x)	1.1	29	37	27	93
Discing, cultivating (3.5x)	2.8	74	96	80	250
Pesticide spraying (14x)	4.6	121	230	246	597
Fertilizing (2x)	1.0	26	36	33	95
Sow cover crop	0.7	18	25	19	62
Mowing (5x)	3.5	92	119	83	295
Hilling up and removal	3.0	79	103	80	262
Vineyard maintenance	3.0	79	100	67	246
Replacing vines	1.0	26	33	22	82
Hedging (2.5x)	2.0	53	98	83	233
<b>Total Machinery Operator</b>	<b>22.7</b>	<b>599</b>	<b>877</b>	<b>739</b>	<b>2215</b>

\*Includes maintenance, fuel and repair

## Total Establishment Cost

	Actual	Budget
Preplant year		7902
Planting year		21972
Second year		8062
Third year		9582
Fourth year		10740
<b>Total</b>		<b>58258</b>

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		3029 per year

(amortized over remaining 21 years of vineyard life)

## Mature Vineyard: Annual Costs

	Your Farm	Cost per acre (\$)	
		Yield	Yield
		4 Tonne	6 Tonne
<b>Variable Costs</b>			
Labour: Hand, 63.0 hrs		1238	1238
Machine operator 30.5 hrs		805	805
Fertilizer: Calcium ammonium nitrate, 37 kg		46	46
Muriate of potash, 60 kg		60	60
Insecticides		256	256
Fungicides		674	674
Herbicides		64	64
Replacement vines 1%		81	81
Cover crop seed		32	32
Wind machine		543	543
Machine costs: Repairs & maintenance		377	377
Fuel		828	828
Custom pruning \$.56/vine		678	678
Custom tying - \$.28/vine		339	339
Tying material		29	29
Irrigation		436	436
Bird control		123	123
Custom harvest/delivery		480	720
Board license, Grading and R&D fees (\$23.10 per tonne)		92	139
Crop insurance		322	483
Consulting fees (soil, leaf, spray)		100	100
Interest on operating capital		585	620
Land rental			
<b>Total Variable Costs</b>		<b>8187</b>	<b>8670</b>
<b>Fixed Costs</b>			
Machine costs: Depreciation		592	592
Interest on investment		285	285
Other overhead		660	660
Land ownership			
<b>Measurable Fixed Costs</b>		<b>1537</b>	<b>1537</b>
<b>Total Measurable Cost</b>		<b>9724</b>	<b>10207</b>
<b>Contribution Margin</b>			
Gross Income (\$1766 per tonne)		7064	10596
Total Variable Costs		8187	8670
<b>Contribution Margin (no land costs)</b>		<b>-1123</b>	<b>1926</b>

## Mature Vineyard: Annual Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
<b>Hand</b>					
Suckering	9.0	177			177
Shoot thin, positioning, tucking	20.0	393			393
Leaf removal	13.0	255			255
Bunch thinning	17.0	334			334
Other operations	4.0	79			79
<b>Total Hand Labour</b>	<b>63.0</b>	<b>1238</b>			<b>1238</b>
<b>Machine</b>					
Weed control: Spraying (3x)	1.1	29	37	27	93
Discing, cultivating (3.5x)	2.8	74	96	80	250
Pesticide spraying (14x)	4.6	121	230	246	597
Fertilizing (2x)	1.0	26	36	33	95
Sow cover crop	0.7	18	25	19	62
Mowing (5x)	3.5	92	119	83	295
Hilling up and removal	3.0	79	103	80	262
Subsoiling/aerating	1.0	26	33	20	79
Vineyard maintenance	5.0	132	167	111	411
Replacing vines	1.0	26	33	22	82
Hedging (2.5x)	2.5	66	122	103	291
Pre pruning	0.8	21	43	39	104
Leaf removal (2.0x)	2.0	53	108	92	253
Brush shredding/flail	1.5	40	53	35	127
<b>Total Machinery Operator</b>	<b>30.5</b>	<b>805</b>	<b>1205</b>	<b>990</b>	<b>3000</b>

\*Includes maintenance, fuel and repair



## Table 4. Break Even and Profitability Worksheet

### 4 tonne/acre yield

Year	Yield %	Revenue	Variable Costs	Fixed Costs	Total Costs	Net Cash Flow	Accum. Profit
Pre-plant	0%	0	7468	434	7902	-7902	-7902
Planting	0%	0	20840	1131	21971	-21971	-29874
2	0%	0	6775	1287	8062	-8062	-37936
3	25%	2649	8930	1402	10332	-7683	-45619
4	50%	5298	9889	1314	11203	-5905	-51524
5	100%	7064	11726	1537	13263	-6199	-57722
6	100%	7064	12085	1537	13622	-6558	-64280
7	100%	7064	12472	1537	14008	-6944	-71224
8	100%	7064	12888	1537	14425	-7361	-78585
9	100%	7064	13336	1537	14873	-7809	-86394
10	100%	7064	13819	1537	15356	-8292	-94686
11	100%	7064	14340	1537	15876	-8812	-103499
12	100%	7064	14900	1537	16436	-9372	-112871

There is no breakeven at the 4 tonne/acre yield level (does not include land costs).

### 6 tonne/acre yield

Year	Yield %	Revenue	Variable Costs	Fixed Costs	Total Costs	Net Cash Flow	Accum. Profit
Pre-plant	0%	0	7468	434	7902	-7902	-7902
Planting	0%	0	20840	1131	21971	-21971	-29874
2	0%	0	6775	1287	8062	-8062	-37936
3	25%	2649	8930	1402	10332	-7683	-45619
4	50%	5298	9889	1314	11203	-5905	-51524
5	100%	10596	12208	1537	13745	-3149	-54673
6	100%	10596	12333	1537	13869	-3273	-57946
7	100%	10596	12466	1537	14003	-3407	-61353
8	100%	10596	12610	1537	14147	-3551	-64905
9	100%	10596	12765	1537	14302	-3706	-68611
10	100%	10596	12933	1537	14469	-3873	-72484
11	100%	10596	13112	1537	14649	-4053	-76537
12	100%	10596	13306	1537	14843	-4247	-80784

There is no breakeven at the 6 tonne/acre yield level (does not include land costs).

**Table 5. Break Even Yield to Cover Variable Costs**

Yield MT/ac	Revenue	Variable costs excluding harvest and operating interest costs	Harvesting costs	Operating interest	Total Variable Costs	Contribution Margin
3.6	6,358	7,110	428	574	8,112	-1,755
3.7	6,534	7,110	440	575	8,125	-1,591
3.8	6,711	7,110	452	576	8,138	-1,427
3.9	6,887	7,110	464	577	8,151	-1,263
4.0	7,064	7,110	476	578	8,164	-1,100
4.1	7,241	7,110	487	579	8,176	-936
4.2	7,417	7,110	499	580	8,189	-772
4.3	7,594	7,110	511	581	8,202	-608
4.4	7,770	7,110	523	582	8,215	-444
4.5	7,947	7,110	535	583	8,228	-281
4.6	8,124	7,110	547	583	8,240	-117
<b>4.7</b>	<b>8,300</b>	<b>7,110</b>	<b>559</b>	<b>584</b>	<b>8,253</b>	<b>47</b>
4.8	8,477	7,110	571	585	8,266	211
4.9	8,653	7,110	583	586	8,279	375

Breakeven yield to cover annual variable costs is 4.7 tonnes / acre.

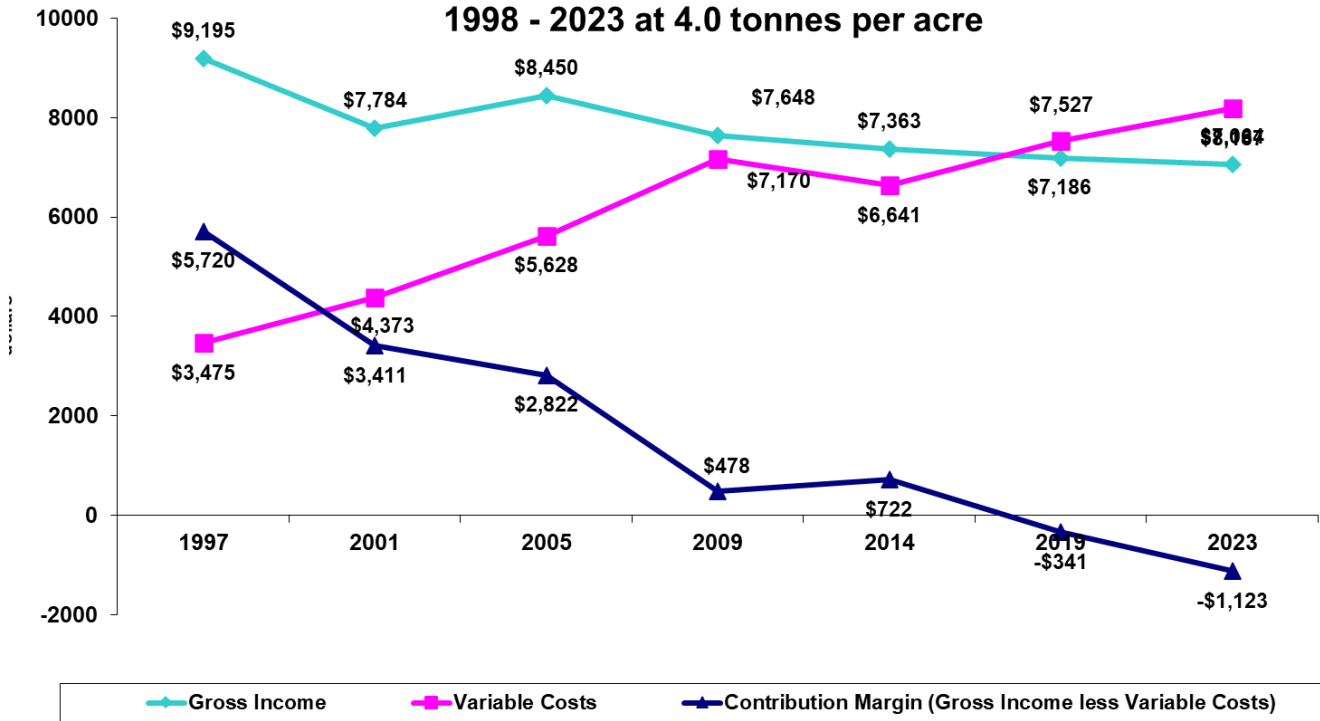
**Table 6. Break Even Yield to Cover Total Costs**

Yield MT/ac	Revenue	Annual costs excluding harvest and operating interest costs	Harvesting costs	Operating interest	Annualized Est. Costs	Total Costs with Est. Costs	Net Cash Flow
6.3	11126	8,647	749	599	3029	13024	-1898
6.4	11302	8,647	761	600	3029	13037	-1734
6.5	11479	8,647	773	601	3029	13049	-1570
6.6	11656	8,647	785	602	3029	13062	-1407
6.7	11832	8,647	797	603	3029	13075	-1243
6.8	12009	8,647	809	604	3029	13088	-1079
6.9	12185	8,647	820	604	3029	13101	-915
7.0	12362	8,647	832	605	3029	13113	-751
7.1	12539	8,647	844	606	3029	13126	-588
7.2	12715	8,647	856	607	3029	13139	-424
7.3	12892	8,647	868	608	3029	13152	-260
7.4	13068	8,647	880	609	3029	13165	-96
<b>7.5</b>	<b>13245</b>	<b>8,647</b>	<b>892</b>	<b>610</b>	<b>3029</b>	<b>13177</b>	<b>68</b>
7.6	13422	8,647	904	611	3029	13190	231

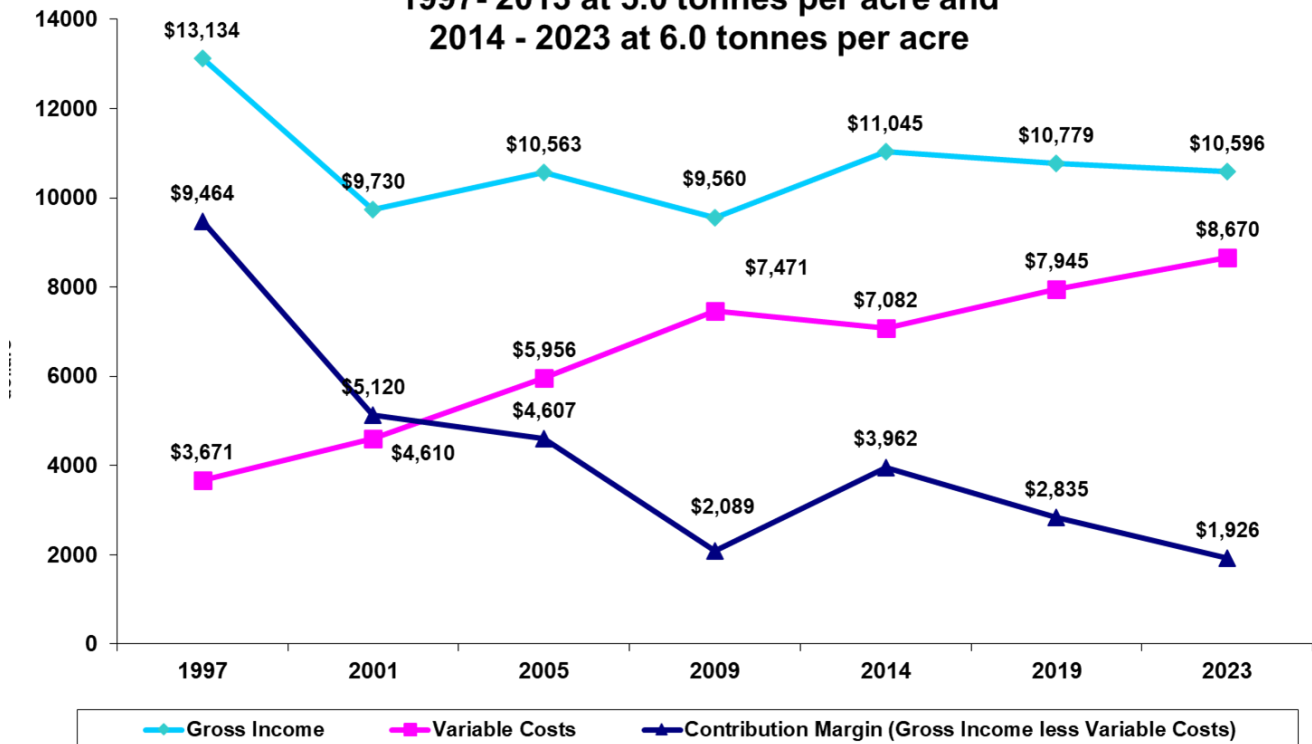
Breakeven yield to cover total annual costs is 7.5 tonnes / acre.

(Includes annualized establishment costs, does not include land costs)

**Graph 3. Chardonnay Cost of Production  
(Inflation adjusted = 2023 \$)  
1997 at 3.5 tonnes per acre and  
1998 - 2023 at 4.0 tonnes per acre**



**Graph 4. Chardonnay Cost of Production  
(Inflation adjusted = 2023 \$)  
1997- 2013 at 5.0 tonnes per acre and  
2014 - 2023 at 6.0 tonnes per acre**



# 4. Vidal

## Preplant Year

	Cost per acre (\$)	
	Actual	Budget
<b>Variable Costs</b>		
Labour: Machinery operator, 4.5 hrs		119
Cover crop		62
Machine costs: Repairs and maintenance		32
Fuel		122
Consulting fees		100
Land rental		
Land preparation (levelling etc.)		1669
Tile drainage (9 foot)		5088
Interest on operating capital		277
<b>Total Variable Costs</b>		<b>7468</b>
<b>Fixed Costs</b>		
Machine costs: Depreciation		68
Interest on investment		36
Other overhead		330
Land ownership		
<b>Measurable Fixed Costs</b>		<b>434</b>
<b>Total Measurable "Preplant Year" Costs</b>		<b>7902</b>

## Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
<b>Machine</b>					
Discing, cultivating (3.5x)	2.8	74	96	80	250
Sub soiling	1.0	26	33	20	79
Sow cover crop	0.7	18	25	19	62
<b>Total Machinery Operator</b>	<b>4.5</b>	<b>119</b>	<b>154</b>	<b>118</b>	<b>391</b>

\*Includes maintenance, fuel and repair

## Planting Year

Variable Costs	Cost per acre (\$)	
	Actual	Budget
Labour: Hand, 29.0 hrs		570
Machine operator, 18.6 hrs		491
Fertilizer: Calcium ammonium nitrate 0 kg		0
Muriate of potash, 0 kg		0
Insecticides		0
Fungicides		19
Grape vines		6486
Custom trellis: Materials, labour		6200
Training: Stakes, material		987
Cover crop seed		62
Machine costs: Repairs and maintenance		162
Fuel		486
Custom planting		736
Irrigation		436
Consulting fees		78
Interest on operating capital		1862
Land rental		
<b>Total Variable Costs</b>		<b>18574</b>
<b>Fixed Costs</b>		
Machine costs: Depreciation		296
Interest on investment		140
Other overhead		660
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1096</b>
<b>Total Measurable "Planting Year" Costs</b>		<b>19669</b>

## Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
<b>Hand</b>					
Weed control: Hand hoeing	14.0	275			275
Summer training, tying, trunk est	15.0	295			295
<b>Total Hand Labour</b>	<b>29.0</b>	<b>570</b>			<b>570</b>
<b>Machine</b>					
Weed control: Grape hoeing (3x)	6.0	158	206	160	524
Discing, cultivating (3.5x)	2.8	74	96	80	250
Pesticide spraying (4x)	1.3	34	66	70	170
Fertilizing (0x)	0.0	0	0	0	0
Sow cover crop	0.7	18	25	19	62
Mowing (4x)	2.8	74	95	67	236
Hilling up	0.0	0	0	0	0
Vineyard maintenance	3.0	79	100	67	246
Picking up vines & supplies	2.0	53	59	30	142
<b>Total Machinery Operator</b>	<b>18.6</b>	<b>491</b>	<b>648</b>	<b>492</b>	<b>1631</b>

\*Includes maintenance, fuel and repair

## Second Year

	Cost per acre (\$)	
	Actual	Budget
<b>Variable Costs</b>		
Labour: Hand, 29.0 hr		570
Machine operator, 22.7 hr		599
Fertilizer: Calcium ammonium nitrate, 25 kg		31
Muriate of potash, 20 kg		20
Insecticides		85
Fungicides		225
Herbicides		51
Replacement vines, 2%		130
Cover crop seed		31
Machine Costs: Repairs and maintenance		205
Fuel		616
Custom pruning - \$.58/vine		561
Custom tying - \$.32/vine		310
Tying material		58
Irrigation		436
Consulting fees		78
Interest on operating capital		2314
Land rental		
<b>Total Variable Costs</b>		<b>6321</b>
<b>Fixed Costs</b>		
Machine costs: Depreciation		391
Interest on investment		194
Other overhead		660
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1244</b>
<b>Total Measurable "Second Year" Costs</b>		<b>7565</b>

## Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
<b>Hand</b>					
Weed control: Hand hoeing	14.0	275			275
Summer training, tying, trunk est	15.0	295			295
<b>Total Hand Labour</b>	<b>29.0</b>	<b>570</b>			<b>570</b>
<b>Machine</b>					
Weed control: Grape hoeing (3x)	6.0	158	206	160	524
Spraying (2x)	0.7	18	25	18	61
Discing, cultivating (3.5x)	2.8	74	96	80	250
Pesticide spraying (9x)	3.0	79	148	158	385
Fertilizing (2x)	1.0	26	36	33	95
Sow cover crop	0.7	18	25	19	62
Mowing (5x)	3.5	92	119	83	295
Hilling up and removal	0.0	0	0	0	0
Vineyard maintenance	3.0	79	100	67	246
Replacing vines	2.0	53	67	44	164
<b>Total Machinery Operator</b>	<b>22.7</b>	<b>599</b>	<b>821</b>	<b>662</b>	<b>2083</b>

\*Includes maintenance, fuel and repair



## Third Year

2.4 tonne (25% Yield)	Cost per acre (\$)	
Variable Costs	Actual	Budget
Labour: Hand, 13.0 hrs		255
Machine operator, 19.7 hrs		520
Fertilizer: Calcium ammonium nitrate, 50 kg		61
Muriate of potash, 60 kg		60
Insecticides		169
Fungicides		445
Herbicides		96
Replacement vines, 1%		65
Cover crop seed		31
Machine costs: Repairs and maintenance		240
Fuel		535
Custom pruning - \$.58/vine		561
Custom tying - \$.32/vine		310
Tying material		58
Irrigation		436
Custom harvest/delivery		285
Bird control		123
Board license and R&D fees (\$14.25 per tonne)		34
Crop insurance		30
Consulting fees (soil, leaf, spray)		78
Interest on operating capital		2830
Land rental		
<b>Total Variable Costs</b>		<b>7222</b>
<b>Fixed Costs</b>		
Machine costs: Depreciation		390
Interest on investment		193
Other overhead		660
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1243</b>
<b>Total Measurable "Third Year" Costs</b>		<b>8465</b>
<b>Contribution Margin</b>		
Gross Income (\$740 per tonne)		1758
Total Variable Costs		7222
<b>Contribution Margin (no land costs)</b>		<b>-5464</b>

## Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
<b>Hand</b>					
Suckering	7.0	138			138
Shoot thin, positioning, tucking	4.0	79			79
Leaf removal	0.0	0			0
Bunch thinning	0.0	0			0
Other operations	2.0	39			39
Hand harvest	0.0	0			0
<b>Total Hand Labour</b>	<b>13.0</b>	<b>255</b>			<b>255</b>
<b>Machine</b>					
Weed control: Spraying (3x)	1.1	29	37	27	93
Discing, cultivating (3.5x)	2.8	74	96	80	250
Pesticide spraying (14x)	4.6	121	230	246	597
Fertilizing (2x)	1.0	26	36	33	95
Sow cover crop	0.7	18	25	19	62
Mowing (5x)	3.5	92	119	83	295
Hilling up and removal	0.0	0	0	0	0
Vineyard maintenance	3.0	79	100	67	246
Replacing vines	1.0	26	33	22	82
Hedging (2.5x)	2.0	53	98	83	233
<b>Total Machinery Operator</b>	<b>19.7</b>	<b>520</b>	<b>774</b>	<b>659</b>	<b>1953</b>

\*Includes maintenance, fuel and repair

## Fourth Year

4.75 tonne (50% Yield)	Cost per acre (\$)	
Variable Costs	Actual	Budget
Labour: Hand, 13.0 hrs		255
Machine operator, 19.7 hrs		520
Fertilizer: Calcium ammonium nitrate, 74 kg		91
Muriate of potash, 70 kg		70
Insecticides		256
Fungicides		674
Herbicides		64
Replacement vines, 1%		65
Cover crop seed		31
Machine costs: Repairs and maintenance		240
Fuel		535
Custom pruning - \$.58/vine		561
Custom tying - \$.32/vine		310
Tying material		58
Irrigation		436
Bird control		123
Custom harvest/delivery		570
Board license and R&D fees (\$14.25 per tonne)		68
Crop insurance		59
Consulting fees (soil, leaf, spray)		78
Interest on operating capital		3303
Land rental		
<b>Total Variable Costs</b>		<b>8367</b>
<b>Fixed Costs</b>		
Machine costs: Depreciation		290
Interest on investment		193
Other overhead		660
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1143</b>
<b>Total Measurable "Fourth Year" Costs</b>		<b>9510</b>
<b>Contribution Margin</b>		
Gross Income (\$740) per tonne)		3515
Total Variable Costs		8367
<b>Contribution Margin (no land costs)</b>		<b>-4852</b>

## Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
<b>Hand</b>					
Suckering	7.0	138			138
Shoot thin, positioning, tucking	4.0	79			79
Leaf removal	0.0	0			0
Bunch thinning	0.0	0			0
Other operations	2.0	39			39
<b>Total Hand Labour</b>	<b>13.0</b>	<b>255</b>			<b>255</b>
<b>Machine</b>					
Weed control: Spraying (3x)	1.1	29	37	27	93
Discing, cultivating (3.5x)	2.8	74	96	80	250
Pesticide spraying (14x)	4.6	121	230	246	597
Fertilizing (2x)	1.0	26	36	33	95
Sow cover crop	0.7	18	25	19	62
Mowing (5x)	3.5	92	119	83	295
Hilling up and removal	0.0	0	0	0	0
Vineyard maintenance	3.0	79	100	67	246
Replacing vines	1.0	26	33	22	82
Hedging (2.5x)	2.0	53	98	83	233
<b>Total Machinery Operator</b>	<b>19.7</b>	<b>520</b>	<b>774</b>	<b>659</b>	<b>1953</b>

\*Includes maintenance, fuel and repair

## Total Establishment Cost

	Actual	Budget
Preplant year		7902
Planting year		19669
Second year		7565
Third year		8121
Fourth year		8823
<b>Total</b>		<b>52081</b>

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		3103 per year

(amortized over remaining 21 years of vineyard life)

## Mature Vineyard: Annual Costs

	Your Farm	Cost per acre (\$)	
		Yield 7.5 Tonne	Yield 9.5 Tonne
<b>Variable Costs</b>			
Labour: Hand, 16.0 hrs		314	314
Machine operator 23.5 hrs		620	620
Fertilizer: Calcium ammonium nitrate, 99 kg		122	122
Muriate of potash, 80 kg		81	81
Insecticides		256	256
Fungicides		674	674
Herbicides		64	64
Replacement vines 1%		65	65
Cover crop seed		31	31
Wind machine		543	543
Machine costs: Repairs & maintenance		273	273
Fuel		641	641
Custom pruning \$.58/vine		561	561
Custom tying - \$.32/vine		310	310
Tying material		58	58
Irrigation		436	436
Bird control		123	123
Custom harvest/delivery		900	1140
Board License and R&D Fees (\$14.25 per tonne)		107	135
Crop insurance		92	117
Consulting fees (soil, leaf, spray)		78	78
Interest on operating capital		489	511
Land rental			
<b>Total Variable Costs</b>		<b>6837</b>	<b>7153</b>
<b>Fixed Costs</b>			
Machine costs: Depreciation		447	447
Interest on investment		219	219
Other overhead		660	660
Land ownership			
<b>Measurable Fixed Costs</b>		<b>1327</b>	<b>1327</b>
<b>Total Measurable Cost</b>		<b>8164</b>	<b>8480</b>
<b>Contribution Margin</b>			
Gross Income (\$740 per tonne)		5550	7030
Total Variable Costs		6837	7153
<b>Contribution Margin (no land costs)</b>		<b>-1287</b>	<b>-123</b>

## Mature Vineyard: Annual Operation Costs

Operation	Labour (hours)	Labour Costs	Machine Costs*	Fixed Costs	Total Costs
<b>Hand</b>					
Suckering	7.0	138			138
Shoot thin, positioning, tucking	5.0	98			98
Leaf removal	0.0	0			0
Bunch thinning	0.0	0			0
Other operations	4.0	79			79
<b>Total Hand Labour</b>	<b>16.0</b>	<b>314</b>			<b>314</b>
<b>Machine</b>					
Weed control: Spraying (3x)	1.1	28	37	27	92
Discing, cultivating (3.5x)	2.8	74	96	80	250
Pesticide spraying (14x)	4.6	120	230	246	596
Fertilizing (2x)	1.0	26	36	33	95
Sow cover crop	0.6	16	21	16	53
Mowing (5x)	3.5	92	119	83	295
Hilling up and removal	0.0	0	0	0	0
Subsoiling/aerating	1.0	26	33	20	79
Vineyard maintenance	4.0	106	134	89	328
Replacing vines	1.0	26	33	22	82
Hedging (2.5x)	2.5	66	122	103	291
Leaf removal (0x)	0.0	0	0	0	0
Brush shredding/flail	1.5	40	53	35	127
<b>Total Machinery Operator</b>	<b>23.5</b>	<b>620</b>	<b>914</b>	<b>754</b>	<b>2288</b>

\*Includes maintenance, fuel and repair

## Table 7. Break Even and Profitability Worksheet

### 7.5 tonne/acre yield

Year	Yield %	Revenue	Variable Costs	Fixed Costs	Total Costs	Net Cash Flow	Accum. Profit
Pre-plant	0%	0	7468	434	7902	-7902	-7902
Planting	0%	0	18574	1096	19669	-19669	-27572
2	0%	0	6320	1244	7565	-7565	-35136
3	25%	1758	7222	1243	8465	-6707	-41843
4	50%	3515	8366	1143	9509	-5994	-47837
5	100%	5550	10123	1327	11450	-5900	-53737
6	100%	5550	10475	1327	11802	-6252	-59989
7	100%	5550	10854	1327	12181	-6631	-66620
8	100%	5550	11263	1327	12590	-7040	-73660
9	100%	5550	11703	1327	13029	-7479	-81139
10	100%	5550	12176	1327	13503	-7953	-89092
11	100%	5550	12687	1327	14013	-8463	-97556
12	100%	5550	13236	1327	14563	-9013	-106569

There is no breakeven at the 7.5 tonne/acre yield level (does not include land costs).

### 9.5 tonne/acre yield

Year	Yield %	Revenue	Variable Costs	Fixed Costs	Total Costs	Net Cash Flow	Accum. Profit
Pre-plant	0%	0	7468	434	7902	-7902	-7902
Planting	0%	0	18574	1096	19669	-19669	-27572
2	0%	0	6320	1244	7565	-7565	-35136
3	25%	1758	7222	1243	8465	-6707	-41843
4	50%	3515	8366	1143	9509	-5994	-47837
5	100%	7030	10440	1327	11766	-4736	-52574
6	100%	7030	10702	1327	12029	-4999	-57573
7	100%	7030	10985	1327	12312	-5282	-62854
8	100%	7030	11289	1327	12616	-5586	-68441
9	100%	7030	11617	1327	12944	-5914	-74355
10	100%	7030	11971	1327	13297	-6267	-80622
11	100%	7030	12351	1327	13678	-6648	-87270
12	100%	7030	12761	1327	14088	-7058	-94328

There is no breakeven at the 9.5 tonne/acre yield level (does not include land costs).

**Table 8. Break Even Yield to Cover Variable Costs**

Yield MT/ac	Revenue	Variable costs excluding harvest and operating interest costs	Harvesting costs	Operating interest	Total Variable Costs	Contribution Margin
8.7	6,438	5,354	980	487	6,821	-383
8.8	6,512	5,354	992	488	6,833	-321
8.9	6,586	5,354	1,003	489	6,845	-259
9.0	6,660	5,354	1,014	489	6,857	-197
9.1	6,734	5,354	1,026	490	6,869	-135
9.2	6,808	5,354	1,037	491	6,882	-74
9.3	6,882	5,354	1,048	492	6,894	-12
<b>9.4</b>	<b>6,956</b>	<b>5,354</b>	<b>1,059</b>	<b>493</b>	<b>6,906</b>	<b>50</b>
9.5	7,030	5,354	1,071	494	6,918	112
9.6	7,104	5,354	1,082	495	6,930	174
9.7	7,178	5,354	1,093	495	6,942	236
9.8	7,252	5,354	1,104	496	6,954	298
9.9	7,326	5,354	1,116	497	6,967	359
10.0	7,400	5,354	1,127	498	6,979	421

Breakeven yield to cover annual variable costs is 9.4 tonnes / acre.

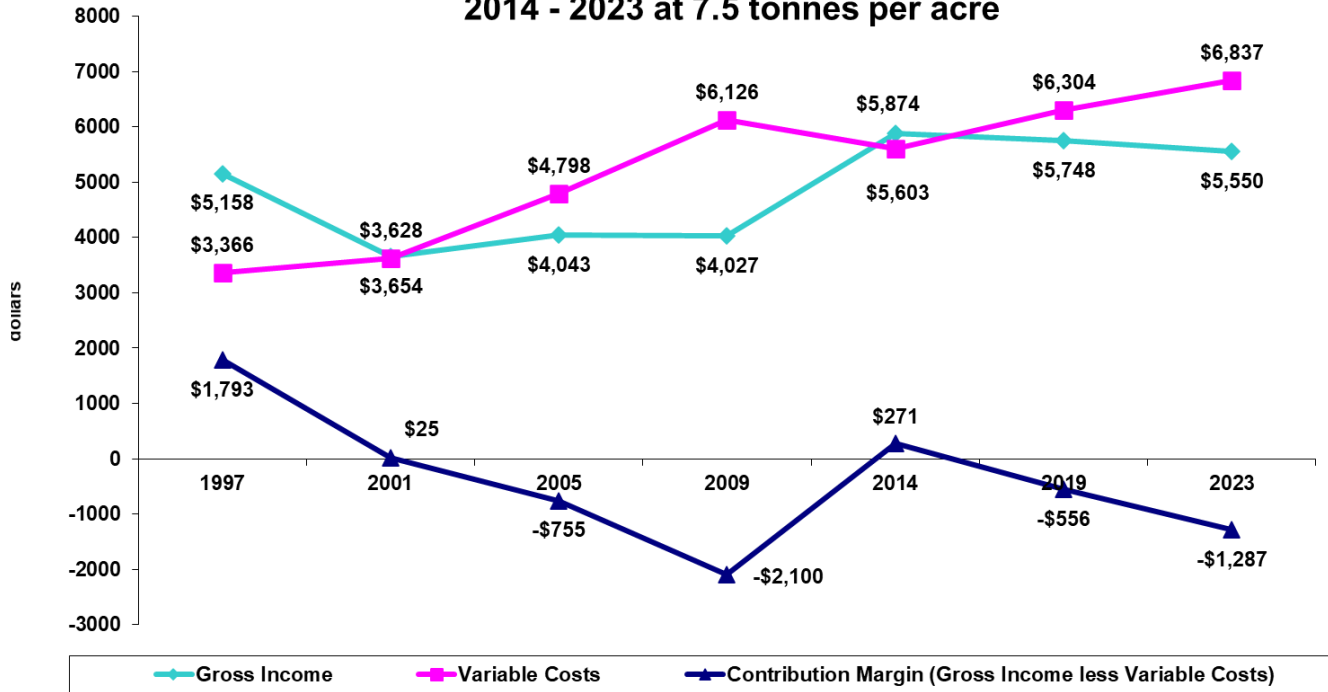
**Table 9. Break Even Yield to Cover Total Costs**

Yield MT/ac	Revenue	Annual costs excluding harvest and operating interest costs	Harvesting costs	Operating interest	Annualized Est. Costs	Total Costs with Est. Costs	Net Cash Flow
15.0	11100	6,680	1,691	541	3103	12016	-916
15.2	11248	6,680	1,713	543	3103	12040	-792
15.4	11396	6,680	1,736	545	3103	12064	-668
15.6	11544	6,680	1,758	547	3103	12089	-545
15.8	11692	6,680	1,781	548	3103	12113	-421
16.0	11840	6,680	1,803	550	3103	12137	-297
16.2	11988	6,680	1,826	552	3103	12161	-173
16.4	12136	6,680	1,848	554	3103	12186	-50
<b>16.6</b>	<b>12284</b>	<b>6,680</b>	<b>1,871</b>	<b>555</b>	<b>3103</b>	<b>12210</b>	<b>74</b>
16.8	12432	6,680	1,893	557	3103	12234	198
17.0	12580	6,680	1,916	559	3103	12258	322
17.2	12728	6,680	1,938	561	3103	12283	445
17.4	12876	6,680	1,961	562	3103	12307	569
17.6	13024	6,680	1,984	564	3103	12331	693

Breakeven yield to cover total annual costs is 16.6 tonnes / acre.  
(Includes annualized establishment costs, does not include land costs)



**Graph 5. Vidal Cost of Production  
(Inflation adjusted = 2023 \$)  
1997 - 2013 at 5.0 tonnes per acre and  
2014 - 2023 at 7.5 tonnes per acre**



**Graph 6. Vidal Cost of Production  
(Inflation adjusted = 2023 \$)  
1997 - 2013 at 7.0 tonnes per acre and  
2014 at 10.0 tonnes per acre and 2023 at 9.5 tonnes**

