

**Economic Benchmarking Project
Final Report**

Prepared for

**Hawke's Bay
Focus Vineyard Project**

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1.0 EXECUTIVE SUMMARY

The aim of this project was to create a series of benchmarks for the cost and profitability of growing Chardonnay, Sauvignon Blanc, Merlot and Cabernet Sauvignon in Hawke's Bay in the 2004/05 season. A survey was sent out to all vineyards in Hawke's Bay and the information from the returned surveys was entered into a database to calculate block profitability. Benchmarks were created by calculating the average, and upper and lower quartiles for each variety group. Cabernet Sauvignon was the most profitable variety, closely followed by Sauvignon Blanc. Merlot was the least profitable. Insufficient survey replies were received to investigate the differences between blocks of the same variety grown for different wine price points. Key drivers of profitability in top performing blocks were higher than average yields and lower labour costs. Conversely, key drivers of low profitability in poor performing blocks were low yields and high operating costs.

2.0 INTRODUCTION AND BACKGROUND

At the beginning of the Focus Vineyard programme in 2004, the Hawke's Bay project committee decided that the project would have three main research priorities: soil quality, agrichemical management, and vineyard economics.

Vineyard profitability will potentially come under increasing pressure in the future from downward pressure on grape prices and increased costs of production. If profitability is expected to come under pressure in the future, then it is important that vineyards are aware of the key drivers of profitability in their business, and can therefore use this information to make informed decisions.

A number of different wine styles are grown in Hawke's Bay so identifying the key differences in cost structure between blocks grown for 'standard', 'premium' and 'ultra-premium' wines to quantify the extent of the differences in inputs and profitability would also be beneficial.

At present, information available on the economics of grape growing in Hawke's Bay is limited. The Ministry of Agriculture and Forestry produces an annual 'Viticulture Monitoring' report for Hawke's Bay and Marlborough but this information is presented at the whole vineyard level, rather than at an individual block level. New Zealand Winegrowers also publish annual industry statistics, and whilst this contains data on prices and production, there is no information on vineyard operating costs.

So the Hawke's Bay Focus Vineyard Project commissioned Carla Emms of AgFirst Consultants Hawke's Bay Ltd, to conduct an economic benchmarking study with the aim of creating benchmarks for the cost and profitability of growing Chardonnay, Sauvignon Blanc, Merlot and Cabernet Sauvignon Blanc in Hawke's Bay.

3.0 METHOD

Survey forms were created in December 2004 with the assistance of Larry Morgan, Te Mata Estate. The forms were designed to collect data such as area, vine density, yield, brix, returns, labour inputs, machinery inputs and spray and chemical inputs, for individual vineyard blocks.

Data collected was for the 2004/05 season for the period from 1 July 2004 to 30 June 2005.

A vineyard 'block' was defined as 'an area of the same variety grown using the same management practices'.

The survey forms were sent to all vineyards in Hawke's Bay via the Hawke's Bay Grapegrowers' Association membership list in June 2005 and growers were asked to complete a separate form for each block of Chardonnay, Sauvignon Blanc, Merlot or Cabernet Sauvignon they wished to analyse. All individual block information submitted was kept confidential. In return for submitting the survey forms, each vineyard would receive a report benchmarking each block against the average, and upper and lower quartiles of the appropriate comparison group.

The number of completed forms returned was lower than expected. This meant that meaningful benchmarks for the different wine values (i.e. standard, premium, and ultra-premium) within a single variety could not be created. However enough replies were received to complete the main task of creating benchmarks for the cost and profitability of growing the four major varieties in Hawke's Bay during the 2004/05 season.

Data from each form was entered into a database, where each block was assigned a comparison group – in this case, according to the variety. This gave us four comparison groups: Chardonnay, Sauvignon Blanc, Merlot or Cabernet Sauvignon. For each comparison group, the database calculated the average, and upper and lower quartiles, based on profit per hectare figures, which each individual block was then benchmarked against.

As well as benchmarking each block against the average, upper and lower quartile, each block report broke the data down to per vine, per tonne and per hectare figures to allow comparisons to be made between the different sized blocks.

The reports were then printed for each individual block and sent out to the participating vineyards.

4.0 RESULTS AND DISCUSSION

The result of this project is a series of benchmarks for the cost and profitability of growing Chardonnay, Sauvignon Blanc, Merlot and Cabernet Sauvignon in Hawke's Bay in the 2004/05 season from the data collected in the vineyard survey.

These benchmarks are shown in Appendix 1. The key figures are presented in Table 1 and discussed below.

Table 1: Summary of key benchmarks by variety

	Cabernet Sauvignon	Sauvignon Blanc	Chardonnay	Merlot
Average				
Price (\$/tonne)	\$2,568	\$1,662	\$1,825	\$2,130
Yield (tonnes/ha)	6.6	10.2	7.4	5.3
Gross income (\$/ha)	\$16,449	\$16,075	\$13,442	\$10,626
Operating costs (\$/ha)	\$7,461	\$7,520	\$6,895	\$5,846
Profit (\$/ha)	\$8,988	\$8,555	\$6,547	\$4,780
Upper Quartile				
Price (\$/tonne)	\$2,800	\$1,750	\$2,075	\$2,225
Yield (tonnes/ha)	5.7	10.7	10.4	7.0
Gross income (\$/ha)	\$16,053	\$18,210	\$21,670	\$14,928
Operating costs (\$/ha)	\$4,509	\$3,975	\$5,792	\$4,474
Profit (\$/ha)	\$11,544	\$14,235	\$15,878	\$10,454
Lower Quartile				
Price (\$/tonne)	\$3,061	\$1,850	\$2,200	\$2,000
Yield (tonnes/ha)	6.0	9.0	2.5	4.3
Gross income (\$/ha)	\$18,444	\$14,850	\$5,439	\$7,584
Operating costs (\$/ha)	\$12,529	\$11,872	\$8,310	\$8,048
Profit (\$/ha)	\$5,915	\$2,978	-\$2,871	-\$464

In total, replies from 28 blocks were received. Only four survey replies were received for blocks of Cabernet Sauvignon, so care should be taken when interpreting the data from the Cabernet Sauvignon benchmark report as this represents a small sample size.

4.1 PROFITABILITY

Cabernet Sauvignon was the most profitable variety at \$8,988/ha, closely followed by Sauvignon Blanc at \$8,555/ha. However the sample size for the Cabernet Sauvignon group was relatively small compared to the other varieties surveyed.

The reason for the high profitability of Cabernet Sauvignon compared to the other varieties appeared to be price, with the highest price of \$2,568/tonne. On the other hand, the main driver of profitability in Sauvignon Blanc appeared to be yield, with the highest average yield of 10.2 tonnes/ha. Operating costs were similar for both varieties.

The least profitable variety was Merlot, and at an average profit of \$4,780/ha, was only around half as profitable as Cabernet Sauvignon or Sauvignon Blanc on a per hectare basis. This was due to a low average yield for Merlot of 5.3 tonnes/ha, despite a high average price of \$2,130/tonne.

The average profit for Chardonnay was \$6,547/ha, with an average price of \$1825/tonne and yield of 7.4 tonnes/ha. Figure 1 shows the relationship between income, costs and profit for each of the four varieties.

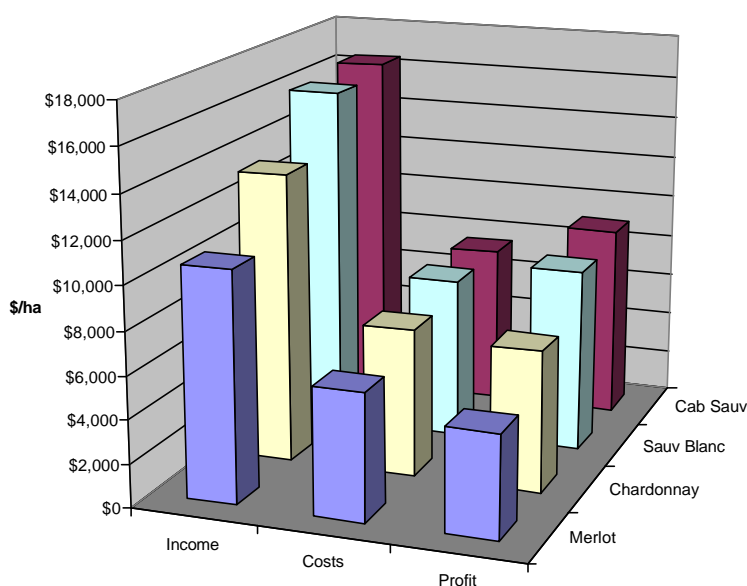


Figure 1: Income, cost and profit figures per hectare for each benchmark variety

4.2 RETURNS, YIELDS AND INCOME

Average returns varied from \$1,662/tonne for Sauvignon Blanc to \$2,568/tonne for Cabernet Sauvignon.

Yields varied from 5.3 tonnes/ha for Merlot to 10.2 tonnes/ha for Sauvignon Blanc.

As expected there was an inverse relationship between yield and price (see Figure 2) except for Cabernet Sauvignon, which resisted this trend with a higher price than expected at a yield level of 6.6 tonnes/ha (or a higher yield level than expected at a price of \$2,568/tonne).

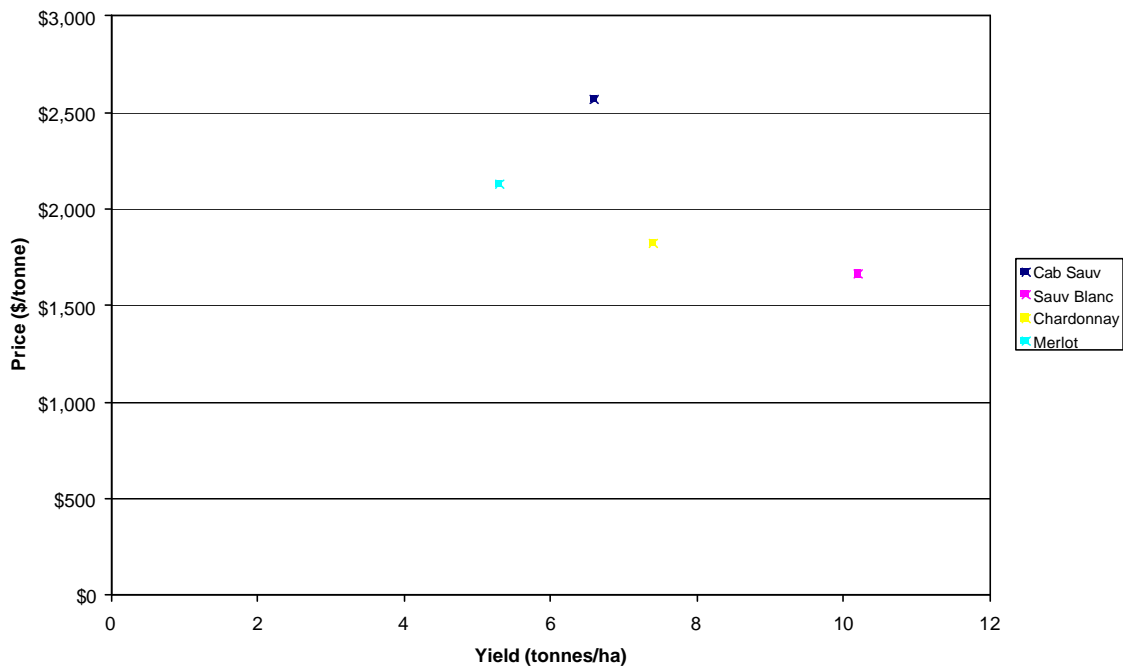


Figure 2: Relationship between average price and yields

4.3 VINE DENSITY AND BLOCK AREA

Vine density was varied. Merlot had the highest density at 2,676 vines/ha, followed by Cabernet Sauvignon at 2,093 vines/ha, Chardonnay at 2,085 vines/ha and Sauvignon Blanc at just 1,821 vines/ha. There was no relationship between vine density and profit.

Vine age varied from 3 years to 24 years. The average age of all blocks was 10 years. Merlot blocks were the youngest on average, with an average age of 5 years. This may explain in

part why the average yield (and hence profitability) for Merlot was so low. Sauvignon Blanc had the oldest vines on average, with an average age of 14.5 years.

Block area ranged from 0.5 ha to 15.0 ha. The average block size across all varieties was 4.5 ha. Interestingly there was a positive relationship between block size and profitability per hectare (see Figure 3) across all varieties. This may be a result of economies of scale occurring as block size increases.

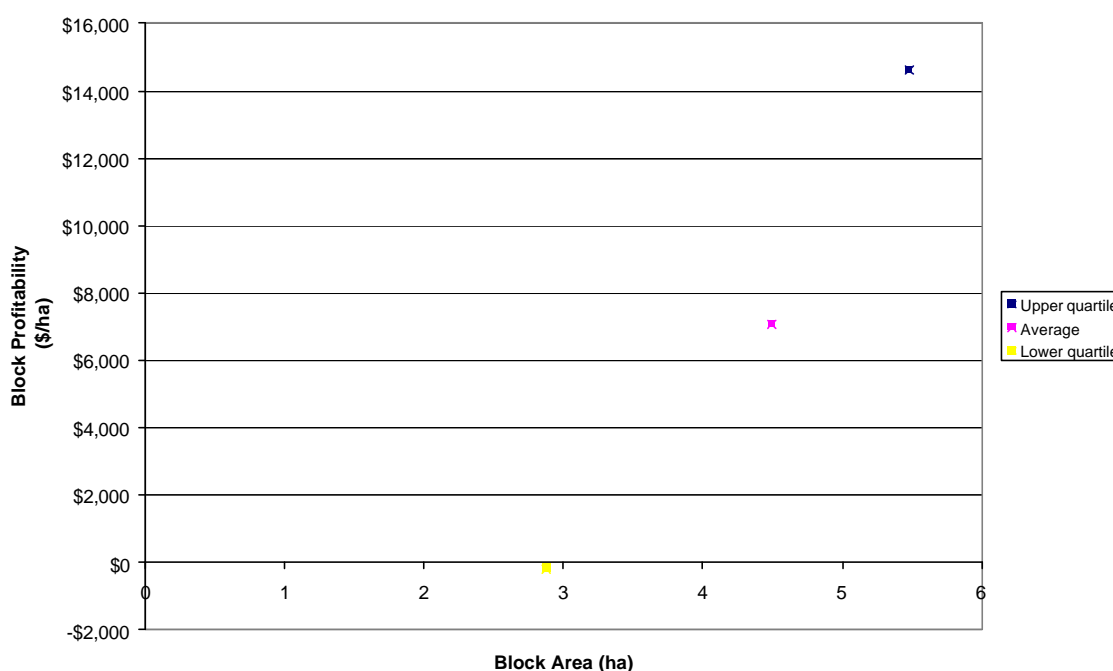


Figure 3: Relationship between block profitability and block size across all varieties

4.4 LABOUR COSTS

Total labour costs were similar across the four varieties: Merlot (\$4,094/ha), Chardonnay (\$4,099/ha), Cabernet Sauvignon (\$4,649/ha) and Sauvignon Blanc (\$4,746/ha).

Pruning was the most significant labour cost. Sauvignon Blanc had the highest pruning cost at \$1,636/ha (or \$0.90/vine). Chardonnay had the lowest pruning cost at \$1,276/ha (\$0.64/vine). On average across all the varieties, pruning represented around one third of total labour costs.

Bird control was the second most expensive labour cost for Sauvignon Blanc, representing 18% of total labour costs for this variety, and between 10% and 15% for the other varieties.

Wire lifting was a large cost for Cabernet Sauvignon blocks with an average cost of \$998/ha. This represented around 21% of total labour costs.

4.5 CONTRACT MACHINERY COSTS

To allow comparisons to be made between blocks, hand harvesting and machine harvesting costs were combined into one category. Harvesting costs were greatest for Merlot at \$889/ha, followed by Sauvignon Blanc at \$834/ha, Cabernet Sauvignon at \$769/ha, and Chardonnay at \$528/ha.

The category 'other contract machinery' included all other contract machinery excluding machine harvesting. This cost varied from \$133/ha for Merlot, to \$1,199/ha for Chardonnay. One contributing factor to the high contract machinery cost for Chardonnay was the inclusion of vineyard blocks with helicopter costs for frost control.

4.6 SPRAY AND CHEMICAL COSTS

Spray and chemical costs ranged from \$731/ha for Merlot to \$1,145/ha for Sauvignon Blanc. Costs for Chardonnay were \$1,070/ha and \$951/ha for Cabernet Sauvignon.

The average number of fungicide applications ranged from 14.4 for Merlot, to 16 for Sauvignon Blanc.

Average number of insecticide applications ranged from 0.8 for Chardonnay and Sauvignon Blanc to 1.2 for Merlot. Average number of herbicides applied ranged from 3.4 for Sauvignon Blanc to 3.8 for Chardonnay.

4.7 UPPER AND LOWER QUARTILE COMPARISONS

To identify the top (and bottom) performing blocks within a particular variety, the upper and lower quartiles were calculated for each group. The upper quartile is the average of the top 25% of blocks (ranked by profit/ha) of the same variety and lower quartile the bottom 25% of blocks. By comparing the upper quartile to the average, key drivers to top levels of profitability can be identified.

The following section takes a look at some of these comparisons.

The top 25% of Chardonnay blocks achieved an average profit of \$15,878 – almost two and a half times that achieved by the average. Key drivers for the profitability include high yield (10.4 tonnes/ha compared to 7.4 tonnes/ha for the average) and a slightly higher return (\$2,075/tonne compared to \$1,825/tonne for the average). Labour costs were similar. Contract machinery costs were minimal in the upper quartile group.

For Sauvignon Blanc, the top 25% of blocks achieved an average profit of \$14,235/ha (1.7 times that of the average). Yield and price were similar, so the key driver of profitability was the lower labour expense. The upper quartile group had approximately half the labour costs of the average group (\$2,351/ha compared to \$4,746/ha) and also lower contract machinery and spray/chemical costs.

This was a similar situation to the Cabernet Sauvignon. The top 25% of Cabernet Sauvignon blocks actually had lower gross income per hectare (due to slightly lower yields than the average), but managed to achieve a higher profit per hectare as labour costs per hectare were much lower.

For Merlot, the top 25% of growers achieved over double the profit compared to the average. This was due to a combination of higher yields (7 tonnes/ha compared to 5.3 tonnes/ha) and lower labour inputs (\$2,696/ha compared to \$4,094/ha).

Across almost all varieties, the key driver of poor profitability in the lower quartile groups was low yields. Across all varieties except Merlot, the lower quartile groups actually had the highest returns compared to both the average and upper quartile groups, but due to low yields, gross income was reduced.

Higher operating costs were also a key feature of the lower quartile groups across all varieties. For example, in Cabernet Sauvignon and Sauvignon Blanc, the lower quartile groups had operating costs of almost three times higher than those of the upper quartile groups.

Higher prices and higher operating costs, as seen in the lower quartile groups, are generally associated with premium and ultra-premium wine production. In this case, the data suggests that premium blocks may in fact be less profitable than standard blocks. This is one factor that should be investigated further in future benchmarking studies with a larger data set.

5.0 CONCLUSIONS

Cabernet Sauvignon was the most profitable variety at an average profit of \$8,988/ha, closely followed by Sauvignon Blanc at \$8,555/ha. The least profitable variety was Merlot, and at an average profit of \$4,780/ha, was only around half as profitable as Cabernet Sauvignon or Sauvignon Blanc on a per hectare basis. The average profit for Chardonnay was \$6,547/ha.

Average returns varied from \$1,662/tonne for Sauvignon Blanc to \$2,568/tonne for Cabernet Sauvignon. Yields varied from 5.3 tonnes/ha for Merlot to 10.2 tonnes/ha for Sauvignon Blanc.

As expected there was an inverse relationship between yield and price. Vine density was varied, as was vineyard age. Both showed no relationship to profitability.

Block area ranged from 0.5 ha to 15.0 ha. The average block size across all varieties was 4.5 ha. Interestingly there was a positive relationship between block size and profitability per hectare.

Average labour costs were similar across the four varieties: Merlot (\$4,094/ha), Chardonnay (\$4,099/ha), Cabernet Sauvignon (\$4,649/ha) and Sauvignon Blanc (\$4,746/ha). Pruning was the most significant labour cost, followed by bird control in most cases.

The key drivers of profitability in the top performing blocks (upper quartiles) appear to be higher than average yields and lower operating costs. Conversely, key drivers of poor profitability in the lower quartile blocks appeared to be lower than average yields and high operating costs.

High grape prices and low yields are generally associated with premium and ultra-premium wine production. These factors were observed in the lower quartile data sets across all varieties. so If this is the case, the data suggests that premium blocks may in fact be less profitable than standard blocks due to high operating costs and low yields outweighing the increase in price per tonne. This is one factor that should be investigated further in future benchmarking studies with a larger data set.

6.0 APPENDIX 1

The benchmark reports for Chardonnay, Sauvignon Blanc, Merlot and Cabernet Sauvignon are shown below.

Notes:

All figures are GST exclusive.

'Profit' is calculated by taking gross income less direct expenditure (labour, machine harvesting, other contract machinery and sprays/chemical costs).

The upper quartiles were calculated by taking the average of the top 25% of blocks in each variety (ranked by profit per hectare).

The lower quartiles were calculated by taking the average of the bottom 25% of blocks in each variety (ranked by profit per hectare).

HAWKES BAY CHARDONNAY 2004/05

	Average			Lower Quartile			Upper Quartile		
Vine Number	7,709			15,758			7,001		
Area (ha)	3.68			6.50			3.41		
Density (vines/ha)	2,085			2,424			2,064		
	kg/vine	tonnes/ha	Brix	kg/vine	tonnes/ha	Brix	kg/vine	tonnes/ha	Brix
Gross yield	3.65	7.4	22.2	1.02	2.5	25.2	5.03	10.4	22.1
Price per tonne	\$1,825			\$2,200			\$2,075		
	\$ per Vine	\$ per Tonne	\$ per Hectare	\$ per Vine	\$ per Tonne	\$ per Hectare	\$ per Vine	\$ per Tonne	\$ per Hectare
Income	\$6.57	\$1,824.74	\$13,442	\$2.24	\$2,200.00	\$5,439	\$10.45	\$2,075.00	\$21,670
Pruning	\$0.64	\$159.92	\$1,276	\$0.04	\$37.83	\$94	\$0.81	\$160.81	\$1,674
Debudding	\$0.05	\$17.50	\$105	\$0.03	\$30.80	\$76	\$0.04	\$7.31	\$76
Wire Lifting	\$0.16	\$55.05	\$351	\$0.04	\$37.34	\$92	\$0.08	\$15.81	\$163
Trimming	\$0.05	\$16.11	\$92	\$0.04	\$37.34	\$92	\$0.03	\$5.97	\$62
Leaf Plucking	\$0.09	\$22.39	\$189	\$0.02	\$23.15	\$57	\$0.22	\$44.44	\$457
Bunch Thinning	\$0.05	\$11.97	\$103	\$0.00	\$0.00	\$0	\$0.08	\$15.96	\$170
Mowing and Spraying	\$0.17	\$70.79	\$366	\$0.21	\$206.29	\$510	\$0.15	\$28.86	\$299
Bird Control	\$0.28	\$90.20	\$582	\$0.06	\$59.74	\$148	\$0.08	\$15.15	\$160
Repairs and Maintenance	\$0.08	\$26.86	\$162	\$0.04	\$41.07	\$102	\$0.04	\$8.10	\$83
Management and Admin	\$0.10	\$55.98	\$221	\$0.25	\$242.69	\$600	\$0.04	\$6.99	\$71
Other Labour	\$0.31	\$108.79	\$652	\$0.26	\$259.49	\$642	\$0.44	\$87.95	\$896
Machine Harvesting	\$0.26	\$72.49	\$528	\$0.06	\$58.99	\$146	\$0.28	\$56.58	\$592
Other Contract Machinery	\$0.51	\$378.11	\$1,199	\$1.90	\$1,866.83	\$4,615	\$0.01	\$2.75	\$29
Sprays and Chemicals	\$0.52	\$186.90	\$1,070	\$0.47	\$459.68	\$1,136	\$0.52	\$102.36	\$1,059
PROFIT	\$3.30	\$551.68	\$6,546	-\$1.18	-\$1,161.24	-\$2,871	\$7.63	\$1,515.96	\$15,879

HAWKES BAY SAUVIGNON BLANC 2004/05

	Average			Lower Quartile			Upper Quartile		
Vine Number	8,890			1,186			16,810		
Area (ha)	5.04			0.62			9.05		
Density (vines/ha)	1,821			1,931			1,870		
	Gross			Gross			Gross		
	kg/vine	tonnes/ha	Brix	kg/vine	tonnes/ha	Brix	kg/vine	tonnes/ha	Brix
Gross yield	5.72	10.2	21	4.77	9	21.3	5.73	10.7	21.3
Price per tonne	\$1,662			\$1,850			\$1,750		
	\$ per Vine	\$ per Tonne	\$ per Hectare	\$ per Vine	\$ per Tonne	\$ per Hectare	\$ per Vine	\$ per Tonne	\$ per Hectare
Income	\$8.89	\$1,662.12	\$16,075	\$7.82	\$1,850.00	\$14,850	\$9.74	\$1,750.00	\$18,210
Pruning	\$0.90	\$217.44	\$1,636	\$1.14	\$398.48	\$2,214	\$0.64	\$115.94	\$1,198
Debudding	\$0.09	\$29.26	\$171	\$0.20	\$75.59	\$384	\$0.03	\$6.41	\$65
Wire Lifting	\$0.31	\$46.21	\$551	\$0.59	\$86.96	\$1,101	\$0.08	\$13.69	\$145
Trimming	\$0.06	\$11.42	\$101	\$0.05	\$17.12	\$105	\$0.03	\$4.42	\$56
Leaf Plucking	\$0.16	\$38.88	\$266	\$0.12	\$64.71	\$244	\$0.02	\$2.21	\$28
Bunch Thinning	\$0.03	\$5.28	\$59	\$0.00	\$0.00	\$0	\$0.00	\$0.00	\$0
Mowing and Spraying	\$0.25	\$54.12	\$471	\$0.48	\$116.26	\$918	\$0.12	\$21.88	\$228
Bird Control	\$0.47	\$81.14	\$871	\$0.98	\$174.11	\$1,845	\$0.05	\$8.15	\$86
Repairs and Maintenance	\$0.07	\$12.69	\$134	\$0.11	\$21.65	\$216	\$0.04	\$7.04	\$77
Management and Admin	\$0.04	\$7.57	\$75	\$0.01	\$4.41	\$17	\$0.04	\$5.71	\$68
Other Labour	\$0.22	\$40.72	\$411	\$0.05	\$19.20	\$89	\$0.21	\$36.78	\$400
Machine Harvesting	\$0.44	\$108.86	\$834	\$0.67	\$213.63	\$1,289	\$0.40	\$70.62	\$741
Other Contract Machinery	\$0.44	\$59.49	\$796	\$1.09	\$142.65	\$2,034	\$0.04	\$9.50	\$83
Sprays and Chemicals	\$0.65	\$114.07	\$1,145	\$0.75	\$155.48	\$1,415	\$0.43	\$73.74	\$800
PROFIT	\$4.76	\$834.97	\$8,554	\$1.58	\$359.75	\$2,979	\$7.61	\$1,373.91	\$14,235

HAWKES BAY MERLOT 2004/05

	Average			Lower Quartile			Upper Quartile		
Vine Number	11,456			6,947			10,666		
Area (ha)	4.58			2.93			4.45		
Density (vines/ha)	2,676			2,999			2,336		
	Gross			Gross			Gross		
	kg/vine	tonnes/ha	Brix	kg/vine	tonnes/ha	Brix	kg/vine	tonnes/ha	Brix
Gross yield	2.21	5.3	22.4	1.87	4.3	21.8	2.98	7.0	22.6
Price per tonne	\$2,130			\$2,000			\$2,225		
	\$ per Vine	\$ per Tonne	\$ per Hectare	\$ per Vine	\$ per Tonne	\$ per Hectare	\$ per Vine	\$ per Tonne	\$ per Hectare
Income	\$4.46	\$2,130.00	\$10,626	\$3.08	\$2,000.00	\$7,584	\$6.57	\$2,225.00	\$14,928
Pruning	\$0.55	\$424.93	\$1,511	\$0.75	\$779.14	\$2,253	\$0.43	\$143.58	\$1,009
Debudding	\$0.10	\$92.78	\$285	\$0.17	\$201.55	\$545	\$0.05	\$15.79	\$112
Wire Lifting	\$0.14	\$56.57	\$297	\$0.29	\$115.19	\$607	\$0.03	\$11.64	\$83
Trimming	\$0.03	\$23.23	\$92	\$0.02	\$36.00	\$82	\$0.05	\$15.94	\$125
Leaf Plucking	\$0.09	\$84.35	\$263	\$0.08	\$132.00	\$300	\$0.07	\$23.87	\$155
Bunch Thinning	\$0.12	\$80.03	\$299	\$0.17	\$127.62	\$442	\$0.05	\$17.47	\$103
Mowing and Spraying	\$0.15	\$104.30	\$414	\$0.18	\$180.98	\$537	\$0.16	\$52.03	\$395
Bird Control	\$0.15	\$108.00	\$393	\$0.28	\$235.09	\$770	\$0.08	\$28.52	\$189
Repairs and Maintenance	\$0.08	\$32.75	\$184	\$0.13	\$54.91	\$287	\$0.06	\$20.56	\$149
Management and Admin	\$0.08	\$29.39	\$177	\$0.11	\$46.86	\$236	\$0.08	\$25.55	\$204
Other Labour	\$0.07	\$42.62	\$179	\$0.07	\$53.41	\$180	\$0.08	\$27.33	\$172
Machine Harvesting	\$0.34	\$220.37	\$889	\$0.34	\$301.60	\$948	\$0.33	\$112.66	\$770
Other Contract Machinery	\$0.06	\$26.85	\$133	\$0.09	\$28.45	\$180	\$0.01	\$5.02	\$30
Sprays and Chemicals	\$0.30	\$146.97	\$731	\$0.27	\$183.40	\$682	\$0.41	\$138.70	\$978
PROFIT	\$2.20	\$656.86	\$4,779	\$0.13	-\$476.20	-\$465	\$4.68	\$1,586.34	\$10,454

HAWKES BAY CABERNET SAUVIGNON 2004/05

	Average			Lower Quartile			Upper Quartile		
Vine Number	11,206			2,484			6,135		
Area (ha)	4.88			1.38			3.00		
Density (vines/ha)	2,093			1,800			2,045		
	Gross			Gross			Gross		
	kg/vine	tonnes/ha	Brix	kg/vine	tonnes/ha	Brix	kg/vine	tonnes/ha	Brix
Gross yield	3.15	6.6	22.0	3.35	6.0	23.5	2.80	5.7	22.0
Price per tonne	\$2,568			\$3,061			\$2,800		
	\$ per Vine	\$ per Tonne	\$ per Hectare	\$ per Vine	\$ per Tonne	\$ per Hectare	\$ per Vine	\$ per Tonne	\$ per Hectare
Income	\$8.07	\$2,568.33	\$16,449	\$10.25	\$3,061.00	\$18,444	\$7.85	\$2,800.00	\$16,053
Pruning	\$0.70	\$217.18	\$1,436	\$1.00	\$299.46	\$1,804	\$0.40	\$143.02	\$820
Debudding	\$0.06	\$19.09	\$116	\$0.13	\$40.17	\$242	\$0.04	\$13.95	\$80
Wire Lifting	\$0.55	\$164.60	\$998	\$1.53	\$458.21	\$2,761	\$0.06	\$23.02	\$132
Trimming	\$0.04	\$11.96	\$78	\$0.06	\$19.00	\$114	\$0.02	\$7.44	\$43
Leaf Plucking	\$0.15	\$49.92	\$347	\$0.00	\$0.00	\$0	\$0.20	\$71.16	\$408
Bunch Thinning	\$0.15	\$47.77	\$281	\$0.24	\$72.16	\$435	\$0.20	\$71.16	\$408
Mowing and Spraying	\$0.13	\$40.54	\$256	\$0.24	\$70.48	\$425	\$0.08	\$29.77	\$171
Bird Control	\$0.38	\$116.05	\$709	\$0.97	\$288.63	\$1,739	\$0.11	\$39.07	\$224
Repairs and Maintenance	\$0.08	\$24.67	\$156	\$0.18	\$54.48	\$328	\$0.02	\$7.44	\$43
Management and Admin	\$0.02	\$5.27	\$40	\$0.00	\$0.00	\$0	\$0.01	\$3.72	\$21
Other Labour	\$0.12	\$38.82	\$232	\$0.10	\$30.91	\$186	\$0.22	\$76.74	\$440
Machine Harvesting	\$0.36	\$115.89	\$769	\$0.31	\$92.00	\$554	\$0.37	\$132.33	\$759
Other Contract Machinery	\$0.60	\$179.31	\$1,092	\$1.70	\$508.24	\$3,062	\$0.03	\$10.35	\$59
Sprays and Chemicals	\$0.46	\$145.41	\$951	\$0.49	\$145.64	\$878	\$0.44	\$157.33	\$902
PROFIT	\$4.27	\$1,391.85	\$8,988	\$3.30	\$981.62	\$5,916	\$5.65	\$2,013.50	\$11,543