

**Economic Benchmarking Project
Final Report 2005/06**

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 2005/06 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. Merlot was the most profitable variety, closely followed by Sauvignon Blanc. Chardonnay was the least profitable. Insufficient survey replies were received for Cabernet Sauvignon to create a representative benchmark. The key driver of profitability in top performing blocks was a higher than average yield per hectare. Conversely, the key driver of low profitability in poor performing blocks was low yields per hectare. Operating costs across both high and low performing blocks were relatively constant.

2.0 INTRODUCTION AND BACKGROUND

The Hawke's Bay Focus Vineyard Project first conducted an economic benchmarking study in Hawke's Bay in the 2004/05 season for Sauvignon Blanc, Chardonnay, Merlot and Cabernet Sauvignon.

This study found that 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.

However, more importantly across all varieties, the 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.

So to test whether these key drivers of profitability held across more than one season, the study was conducted again for the 2005/06 season. Therefore 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 2005/06 season.

3.0 METHOD

Survey forms were created in October 2006 with the assistance of the Hawke's Bay Focus Vineyard committee. The forms were designed to collect data on area, vine density, yield, brix, returns, labour inputs, machinery inputs and spray and chemical inputs, for individual vineyard blocks. A slight change to the data collection form was made to capture the use of machinery owned by the vineyard to allow a fair comparison to those growers using contract machinery for particular vineyard tasks.

Data collected was for the 2005/06 season for the period from 1 July 2005 to 30 June 2006.

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 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, particularly for Cabernet Sauvignon. This meant that a representative benchmark for this variety could not be created in 2006. However enough replies were received to complete the main task of creating benchmarks for the cost and profitability of growing the other three major varieties in Hawke's Bay during the 2005/06 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 three comparison groups: Chardonnay, Sauvignon Blanc and Merlot. 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 and Merlot in Hawke's Bay in the 2005/06 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)	-	\$1,645	\$2,083	\$1,797
Yield (tones/ha)	-	10.2	5.9	9.1
Gross income (\$/ha)	-	\$16,813	\$12,772	\$15,834
Operating costs (\$/ha)	-	\$10,193	\$9,131	\$7,709
Profit (\$/ha)	-	\$6,620	\$3,641	\$8,125
Upper Quartile				
Price (\$/tonne)	-	\$1,700	\$3,243	\$1,454
Yield (tones/ha)	-	11.7	6.8	11.5
Gross income (\$/ha)	-	\$19,857	\$22,183	\$16,669
Operating costs (\$/ha)	-	\$11,746	\$10,056	\$6,649
Profit (\$/ha)	-	\$8,111	\$12,127	\$10,020
Lower Quartile				
Price (\$/tonne)	-	\$1,613	\$1,500	\$1,977
Yield (tones/ha)	-	9.5	4.3	7.6
Gross income (\$/ha)	-	\$15,284	\$6,501	\$15,044
Operating costs (\$/ha)	-	\$9,826	\$9,594	\$8,560
Profit (\$/ha)	-	\$5,458	-\$3,093	\$6,484

In total, data from 19 vineyards was received. Insufficient data was received for Cabernet Sauvignon, so we were unable to create representative benchmarks due to the small sample size.

4.1 PROFITABILITY

Merlot was the most profitable variety at \$8,125/ha, followed by Sauvignon Blanc at \$6,620/ha.

The reason for the high profitability of Merlot compared to the other varieties appeared to be low operating costs, at just \$7,709/ha compared to \$9,131/ha for Chardonnay and \$10,193 for Sauvignon Blanc. However high yield levels were also a contributing factor.

For Sauvignon Blanc, the main driver of profitability was yield per hectare, with the highest average yield of 10.2 tonnes/ha. Interestingly, this variety returned the lowest price per tonne for fruit and had the highest operating costs on a per hectare basis.

The least profitable variety was Chardonnay, and at an average profit of \$3,641/ha, was less than half as profitable as Merlot on a per hectare basis. This was despite having the highest average price of \$2,083/tonne. The key driver of poor profitability in this variety can be identified as yield – the average yield for Chardonnay was a mere 5.9 tonnes/ha.

Figure 1 shows the relationship between income, costs and profit for each of the three varieties in 2006.

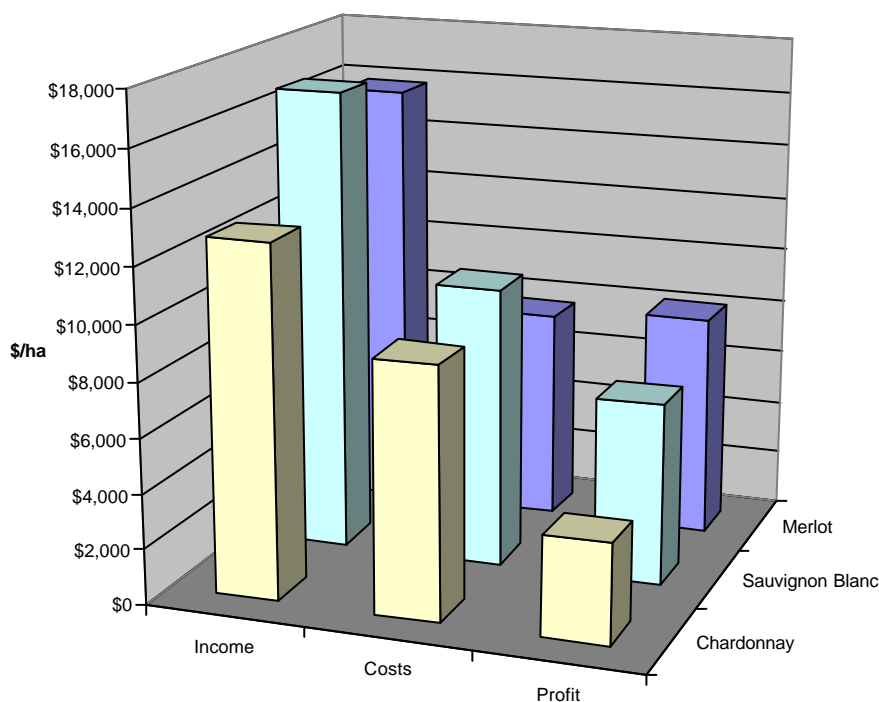


Figure 1: Income, cost and profit figures per hectare for each benchmark variety

4.2 RETURNS, YIELDS AND INCOME

Average returns varied from \$1,645/tonne for Sauvignon Blanc to \$2,083/tonne for Chardonnay.

Yields varied from 5.9 tonnes/ha for Chardonnay to 10.2 tonnes/ha for Sauvignon Blanc.

As expected there was an inverse relationship between yield and price (see Figure 2) as also observed in the 2004/05 study.

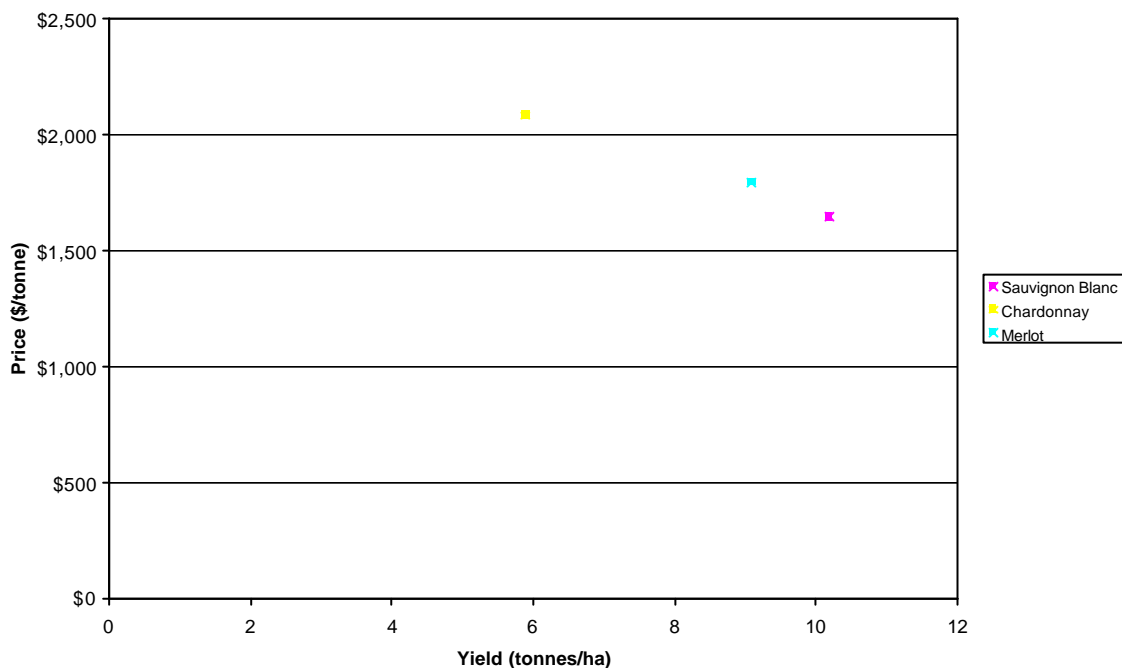


Figure 2: Relationship between average price and yields

4.3 VINE DENSITY AND BLOCK AREA

Vine density was similar across all varieties. Sauvignon Blanc had the highest density at 2,387 vines/ha, followed by Merlot at 2,384 vines/ha and Chardonnay at 2,352 vines/ha. There was no relationship between vine density and profit.

Block area ranged from 0.7 ha to 9.0 ha. The average block size across all varieties was 2.8 ha. The 2006 data showed no relationship between block size and profitability per hectare. This is in contrast to 2005 where there was a positive relationship between block size and profitability per hectare across all varieties.

4.4 LABOUR COSTS

Total labour costs were similar for Chardonnay and Sauvignon Blanc at \$4,814 and \$4,798 per hectare respectively. Merlot had an average labour cost per hectare of just \$3,876.

Pruning was again the most significant labour cost. Chardonnay had the highest pruning cost at \$2,280/ha (\$0.98/vine). Sauvignon Blanc had the lowest pruning cost at \$1,381/ha (\$0.66/vine). On average across all the varieties, pruning represented around 40% of total labour costs – up from 33% of total labour costs in 2005.

Bird control was the second largest labour cost across all varieties. In particular, for Sauvignon Blanc, bird control costs represented over 25% of total labour expenditure. Bird control costs for Chardonnay and Merlot were both around 15% of total labour expenditure.

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 similar for Chardonnay and Sauvignon Blanc at \$948 and \$936 per hectare respectively. Harvesting costs for Merlot were lower at \$845/ha.

The category ‘other contract machinery’ included all other contract machinery work such as trimming and leaf plucking, but excluding machine harvesting. This cost varied from \$159/ha for Chardonnay, to \$415/ha for Sauvignon Blanc.

The new category added in 2006 was ‘own machinery’ and was designed to capture the cost of using equipment owned or leased by the vineyards to fairly compare these properties against those using mainly contractors for machinery work such as trimming, plucking and spraying. Tractor hours were the main component of this category, which ranged from \$1,471/ha for Merlot to \$2,602 for Sauvignon Blanc.

4.6 SPRAY AND CHEMICAL COSTS

Spray and chemical costs were similar across all varieties from \$1,121/ha for Chardonnay, \$1,357/ha for Merlot, to \$1,442/ha for Sauvignon Blanc. On average, spray and chemical costs per hectare were higher than the previous year as reported in the 2004/05 study.

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 per hectare) 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 \$12,127 – over three times that achieved by the average of all Chardonnay blocks. Key drivers for the profitability included higher yields (6.8 tonnes/ha compared to 5.9 tonnes/ha for the average) and higher returns (\$3,243/tonne compared to \$2,083/tonne for the average). Labour costs were actually 18% higher for these upper quartile blocks, while machinery costs and expenditure on sprays and chemicals was similar between both groups.

For Sauvignon Blanc, the top 25% of blocks achieved an average profit of \$8,111/ha (1.2 times that of the average of all Sauvignon Blanc blocks). Again, yield was a key driver of profitability with the upper quartile blocks achieving yields that were 15% higher on a per hectare basis. However, the price received per tonne was only 3% higher for the upper quartile group. Like the Chardonnay though, the upper quartile growers actually had a higher total labour cost per hectare but expenditure on sprays and chemicals was 34% lower in the upper quartile group.

Similar to Sauvignon Blanc, the top 25% of Merlot blocks achieved 1.2 times that of the average for Merlot. And again, yield was a key driver of profitability with the top 25% of blocks producing 11.5 tonnes/ha, compared to the average at 9.1 tonnes/ha. Interestingly, the top 25% of Merlot blocks actually received a price per tonne which was 19% less than the average. Total labour costs for top performing Merlot blocks were 22% lower than the average, and spray/chemical costs were 12% lower.

When looking at the key drivers of low profitability we observe the same trend as seen in the 2004/05 study, where across all varieties, the key driver of poor profitability in the lower quartile groups was low yields.

However, unlike the 2005 study, higher operating costs were not always a key feature of the lower quartile groups. In fact, for Chardonnay and Sauvignon Blanc, the lower quartile groups actually had operating costs that were lower than those of the upper quartile groups.

5.0 CONCLUSIONS

Merlot was the most profitable variety at an average profit of \$8,125/ha, followed by Sauvignon Blanc at \$6,620/ha. The least profitable variety was Chardonnay, and at an average profit of \$3,641/ha, was less than half as profitable as Merlot on a per hectare basis.

Average returns varied from \$1,645/tonne for Sauvignon Blanc to \$2,083/tonne for Chardonnay. Yields varied from 5.9 tonnes/ha for Chardonnay to 10.2 tonnes/ha for Sauvignon Blanc.

As expected there was an inverse relationship between yield and price. Vine density was varied, as block area. Both showed no relationship to profitability, whereas the 2004/05 study found a positive relationship between block size and profitability per hectare.

Average labour costs were similar across the three varieties: Merlot (\$3,876/ha), Sauvignon Blanc (\$4,798/ha) and Chardonnay (\$4,814/ha). As in the 2004/05 study, pruning was again the most significant labour cost, followed by bird control.

The key driver of profitability in the top performing blocks (upper quartiles) was higher than average yields. Conversely, the key driver of poor profitability in the lower quartile blocks appeared to be lower than average yields, but not always in conjunction with high operating costs as observed in the 2004/05 study.

6.0 APPENDIX 1

The benchmark reports for Chardonnay, Sauvignon Blanc and Merlot 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, own machinery costs and spray/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).

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Copies of the previous 2004/05 study can be found at www.nzwine.com/focus

HAWKES BAY CHARDONNAY 2005/06

	Average			Lower Quartile			Upper Quartile		
Vine Number	4,779			3,807			3,727		
Area (ha)	2.08			1.51			1.54		
Density (vines/ha)	2,352			2,466			2,506		
	Gross			Gross			Gross		
	kg/vine	tonnes/ha	Brix	kg/vine	tonnes/ha	Brix	kg/vine	tonnes/ha	Brix
Gross yield	2.55	5.9	22.7	1.76	4.3	22.4	2.71	6.8	24.0
Price per tonne	\$2,083			\$1,500			\$3,243		
	\$ per Vine	\$ per Tonne	\$ per Hectare	\$ per Vine	\$ per Tonne	\$ per Hectare	\$ per Vine	\$ per Tonne	\$ per Hectare
Income	\$5.35	\$2,083.04	\$12,772	\$2.65	\$1,500.10	\$6,501	\$8.79	\$3,242.50	\$22,183
Pruning and Mulching	\$0.98	\$414.34	\$2,280	\$1.30	\$733.53	\$3,178	\$0.53	\$190.59	\$1,377
Debudding	\$0.07	\$28.89	\$158	\$0.07	\$39.18	\$167	\$0.08	\$29.58	\$191
Wire Lifting	\$0.13	\$53.21	\$299	\$0.09	\$48.91	\$210	\$0.24	\$91.70	\$554
Shoot Thinning	\$0.09	\$35.52	\$218	\$0.06	\$32.04	\$133	\$0.16	\$56.45	\$432
Trimming	\$0.03	\$10.52	\$66	\$0.01	\$5.73	\$26	\$0.05	\$19.03	\$122
Leaf Plucking	\$0.20	\$82.82	\$499	\$0.17	\$96.11	\$398	\$0.32	\$113.13	\$885
Bunch Thinning	\$0.06	\$21.40	\$170	\$0.00	\$0.00	\$0	\$0.20	\$68.49	\$549
Mowing and Spraying	\$0.13	\$50.17	\$295	\$0.10	\$54.96	\$236	\$0.14	\$52.51	\$358
Bird Control	\$0.31	\$126.50	\$739	\$0.26	\$146.95	\$629	\$0.44	\$160.45	\$1,124
Other Labour	\$0.04	\$17.31	\$90	\$0.05	\$30.48	\$131	\$0.03	\$12.77	\$81
Harvesting	\$0.41	\$166.98	\$948	\$0.34	\$191.63	\$829	\$0.57	\$215.19	\$1,374
Other Contract Machinery	\$0.07	\$31.83	\$159	\$0.11	\$61.92	\$266	\$0.02	\$8.93	\$51
Own Machinery	\$0.90	\$365.30	\$2,092	\$0.86	\$490.14	\$2,152	\$0.78	\$289.83	\$1,931
Sprays and Chemicals	\$0.47	\$199.02	\$1,121	\$0.51	\$288.99	\$1,239	\$0.40	\$142.71	\$1,028
PROFIT	\$1.46	\$479.24	\$3,641	-\$1.28	-\$720.47	-\$3,093	\$4.83	\$1,791.12	\$12,127

HAWKES BAY SAUVIGNON BLANC 2005/06

	Average			Lower Quartile			Upper Quartile		
Vine Number	3,154			2,222			3,606		
Area (ha)	1.52			0.69			1.95		
Density (vines/ha)	2,387			3,220			1,857		
	Gross			Gross			Gross		
	kg/vine	tonnes/ha	Brix	kg/vine	tonnes/ha	Brix	kg/vine	tonnes/ha	Brix
Gross yield	4.66	10.2	21.5	2.94	9.5	22.3	6.29	11.7	20.3
Price per tonne	\$1,645			\$1,613			\$1,700		
	\$ per Vine	\$ per Tonne	\$ per Hectare	\$ per Vine	\$ per Tonne	\$ per Hectare	\$ per Vine	\$ per Tonne	\$ per Hectare
Income	\$7.72	\$1,645.00	\$16,813	\$4.75	\$1,612.50	\$15,284	\$10.69	\$1,700.00	\$19,857
Pruning and Mulching	\$0.66	\$137.35	\$1,381	\$0.32	\$110.24	\$1,045	\$0.89	\$146.36	\$1,660
Debudding	\$0.07	\$12.72	\$131	\$0.02	\$5.50	\$52	\$0.13	\$22.83	\$246
Wire Lifting	\$0.48	\$74.74	\$919	\$0.05	\$16.51	\$157	\$1.08	\$154.35	\$2,004
Shoot Thinning	\$0.04	\$11.34	\$105	\$0.06	\$22.02	\$209	\$0.00	\$0.00	\$0
Trimming	\$0.02	\$4.70	\$50	\$0.02	\$5.50	\$52	\$0.03	\$3.31	\$47
Leaf Plucking	\$0.13	\$39.22	\$365	\$0.23	\$78.90	\$748	\$0.00	\$0.00	\$0
Bunch Thinning	\$0.00	\$0.00	\$0	\$0.00	\$0.00	\$0	\$0.00	\$0.00	\$0
Mowing and Spraying	\$0.23	\$47.22	\$504	\$0.13	\$44.04	\$417	\$0.38	\$57.73	\$703
Bird Control	\$0.56	\$117.52	\$1,246	\$0.39	\$132.11	\$1,252	\$0.90	\$139.08	\$1,667
Other Labour	\$0.03	\$10.37	\$97	\$0.07	\$22.94	\$217	\$0.01	\$1.18	\$11
Harvesting	\$0.43	\$89.69	\$936	\$0.25	\$85.78	\$813	\$0.60	\$90.34	\$1,112
Other Contract Machinery	\$0.19	\$43.88	\$415	\$0.13	\$44.34	\$420	\$0.21	\$39.04	\$389
Own Machinery	\$1.16	\$252.00	\$2,602	\$0.83	\$282.57	\$2,678	\$1.59	\$245.80	\$2,950
Sprays and Chemicals	\$0.62	\$149.36	\$1,442	\$0.55	\$186.24	\$1,765	\$0.51	\$84.69	\$956
PROFIT	\$3.10	\$654.89	\$6,620	\$1.70	\$575.80	\$5,458	\$4.36	\$715.30	\$8,111

HAWKES BAY MERLOT 2005/06

	Average			Lower Quartile			Upper Quartile		
Vine Number	11,694			11,895			9,322		
Area (ha)	5.09			5.54			3.73		
Density (vines/ha)	2,384			2,389			2,414		
	Gross			Gross			Gross		
	kg/vine	tonnes/ha	Brix	kg/vine	tonnes/ha	Brix	kg/vine	tonnes/ha	Brix
Gross yield	3.83	9.1	23.7	3.19	7.6	24.0	4.79	11.5	22.8
Price per tonne	\$1,797			\$1,977			\$1,454		
	\$ per Vine	\$ per Tonne	\$ per Hectare	\$ per Vine	\$ per Tonne	\$ per Hectare	\$ per Vine	\$ per Tonne	\$ per Hectare
Income	\$6.66	\$1,796.80	\$15,834	\$6.29	\$1,976.50	\$15,044	\$6.94	\$1,453.50	\$16,669
Pruning and Mulching	\$0.66	\$172.02	\$1,557	\$0.65	\$204.52	\$1,580	\$0.77	\$155.05	\$1,790
Debudding	\$0.06	\$16.23	\$132	\$0.06	\$17.92	\$136	\$0.03	\$6.50	\$75
Wire Lifting	\$0.19	\$55.24	\$404	\$0.36	\$109.69	\$756	\$0.05	\$10.46	\$121
Shoot Thinning	\$0.08	\$25.25	\$206	\$0.14	\$45.16	\$383	\$0.00	\$0.00	\$0
Trimming	\$0.02	\$3.92	\$45	\$0.00	\$0.00	\$0	\$0.05	\$9.79	\$113
Leaf Plucking	\$0.05	\$15.21	\$125	\$0.00	\$0.00	\$0	\$0.04	\$7.50	\$87
Bunch Thinning	\$0.12	\$36.17	\$299	\$0.21	\$68.37	\$547	\$0.05	\$8.68	\$102
Mowing and Spraying	\$0.17	\$45.43	\$396	\$0.19	\$58.33	\$432	\$0.18	\$36.31	\$417
Bird Control	\$0.27	\$79.97	\$633	\$0.38	\$117.81	\$883	\$0.11	\$21.79	\$253
Other Labour	\$0.03	\$9.60	\$79	\$0.04	\$11.42	\$94	\$0.01	\$2.60	\$30
Harvesting	\$0.34	\$93.76	\$814	\$0.35	\$109.92	\$845	\$0.32	\$66.20	\$759
Other Contract Machinery	\$0.08	\$24.51	\$189	\$0.15	\$47.22	\$368	\$0.00	\$0.00	\$0
Own Machinery	\$0.64	\$164.50	\$1,471	\$0.50	\$157.50	\$1,178	\$0.75	\$147.26	\$1,710
Sprays and Chemicals	\$0.57	\$157.37	\$1,357	\$0.56	\$175.98	\$1,357	\$0.50	\$103.99	\$1,193
PROFIT	\$3.38	\$897.62	\$8,125	\$2.70	\$852.67	\$6,484	\$4.08	\$877.37	\$10,020