



NEW ZEALAND WINE
PURE DISCOVERY

Variety Gross Margin Benchmarking

Gisborne | Hawke's Bay | Wairarapa |
Marlborough | Central Otago | 2017



Variety

Gross Margin Benchmarking

Gisborne | Hawke's Bay | Wairarapa | Marlborough
Central Otago 2017

In collaboration with

Ministry for Primary Industries
Manatū Ahu Matua



Gross Margin Definition:

The gross margin in this report provides an indication of grape variety profitability per producing hectare in specific New Zealand regions. It is calculated by subtracting operating costs [labour and other direct expenses] from gross revenue. The gross margin varies annually based on prevailing market and climatic conditions.

New Zealand Winegrowers and the Ministry for Primary Industries would like to express our thanks to contract and winery growers in May for their participation in our variety gross margin benchmarking programme.

Disclaimer

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Cover image courtesy of Greystone Wines

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Gisborne



Gisborne

Key Parameters and Financial Results

Year ended 30 June 2017	Chardonnay
Total production ¹ (t/ha)	14.5
Average return (\$/t)	1 285
Net cash income (\$/ha)	18 595
Vineyard working expenses (\$/ha)	6 920
Gross Margin (\$/ha)	11 675
Gross Margin (\$/t)	805

Background

The MPI viticulture monitoring programme was reviewed in 2013 and gross margins of dominant grape varieties in the main growing regions was trialled from 2015. The success of the trial has led to the continuation of the gross margin format in Marlborough, Gisborne, Hawke's Bay, Wairarapa and expansion into Otago in 2017. Just four vineyards provided data for a total

of 5 blocks representing 19 hectares. The majority of participants were winery growers, growing for premium or sparkling market.

The gross margin calculates the revenue less direct expenses for growing, harvesting and marketing the crop. It does not take account of overheads such as administration, debt servicing, tax, drawings or development and capital spending.

Key Points

Gisborne Chardonnay gross margin was \$11 675 per producing hectare, an increase of 14 percent from last year due to 14 percent higher yields in 2017.

This was \$9025 higher than the Hawke's Bay Chardonnay gross margin. This was because Gisborne growers generally harvested before the worst of the heavy rain whereas in Hawke's Bay, several blocks were left unharvested, or partially harvested

due to disease pressure caused by a persistently wet harvest.

Price per tonne of Chardonnay was \$1285, which is little changed from last year. This is \$525 per tonne lower than the Hawke's Bay survey blocks.

Early and mid-season conditions set the crop up for a "harvest of a lifetime". A warm and frost-free spring contributed to good flowering and fruit set. Conditions quickly

🔍 Key Points continued

moved to drought in the lead up to harvest, giving the best summer that growers could remember for many years.

From mid-February persistent shower events, caused by humid northerlies adversely impacted the second half of harvest. As one grower accurately described 'growers dodged a bullet but caught

shrapnel' as the unfavourable weather forced growers to harvest remaining crops early to beat disease spread, resulting in lower brix but reportedly excellent flavours.

Labour expenses were up on last year by \$680 per hectare, because extra fungicides and thinning of disease infected bunches were required

Gisborne Weather Data

Month	Growing degree days ¹ (GDD)			Rainfall (mm)		
	2016 ²	2017	Long Term Average	2016	2017	Long Term Average
June	18	46	39	82	78	105
July	32	30	26	120	63	131
August	42	25	40	183	105	78
September	147	87	75	41	117	72
October	168	147	127	94	96	70
November	207	211	173	26	12	63
December	320	247	254	107	41	57
January	317	297	297	50	4	59
February	260	279	264	65	109	68
March	155	268	241	113	166	93
April	163	184	162	36	234	97
May	56	79	92	86	145	96
Total	1885	1621	1790	903	1170	989

¹ GDD – growing degree days. GDDs are a temperature index, calculated by taking the average of the daily high and low temperatures compared with a baseline (10oC). They help predict the date that a flower will bloom or a crop reach maturity.

² Year refers to year of harvest.

Source Niwa (Gisborne Aws).

Chardonnay Gross Margin

The Gisborne Chardonnay gross margin was \$11 675 per producing hectare, or \$805 per tonne. This was an increase of 14 percent over last year, mostly due to higher yields in 2017. An increase in yields was also reported in the 2017 vintage survey¹, showing an overall regional increase of 12 percent. Higher average yield reporting in 2017 was assisted by the inclusion of a sparkling block in the model. Wineries usually allow higher yield caps for sparkling, typically around 12.5 tonnes per hectare for varietal Chardonnay.

The Gisborne Chardonnay gross margin was \$9025 higher than the Hawke's Bay Chardonnay gross margin. Hawke's Bay yields were impacted severely by disease pressure, and in some cases left unharvested.

The price per tonne for Chardonnay was \$1285, which is little changed from last year. This was \$525 per tonne lower than the Hawke's Bay survey blocks. This reflects a long observed historical difference between these two regions. Historically, Gisborne grows higher yields for value wines, however growers in the region feel their price does not accurately reflect the high-quality grapes they grow.

Early and mid-season conditions were ideal for a good quality crop in 2017. However persistent showers 1-2 weeks after harvesting had begun led to some

blocks being harvested early at a lower brix. Nevertheless, wineries report that flavours were excellent due to the early to mid-season conditions advancing phenolic maturity. While some growers reported their payments were reduced due to harvesting at lower brix, overall prices were similar to 2016.

Labour costs were up on last year by \$680 per hectare. This was due in part to wet weather causing disease, leading to extra fungicides and thinning of bunches close to harvest. Growers also report using machine harvesters or blowers after flowering to blow or shake out the trash from bunches, and reduce yield. This was an added expense but is being viewed positively given the reduction in disease incidence in what became a high-pressure year. Expenses for Gisborne Chardonnay are generally less in Hawke's Bay and were \$2 550 less per hectare in 2017. The difference between the two regions is predominantly lower labour input in Gisborne.

Gisborne is typically dry-farmed meaning no permanent irrigation. This is due to a higher annual rainfall than Hawke's Bay and fertile soils with a high clay content, providing high water holding capacity. Winemakers believe these soils contribute to the soft, full bodied Chardonnays that Gisborne is renowned for.

Industry Issues and Developments

The Gisborne Chardonnay gross margin has been higher than that in Hawke's Bay for the past two years. This is because Gisborne has higher yield caps as Gisborne Chardonnay is usually targeting the value to mid-range wine market. Also

Gisborne avoided the more severe weather conditions experienced in Hawke's Bay.

Gisborne employs a mostly local workforce and doesn't benefit from the international employment scheme used in Hawke's

¹ New Zealand Winegrowers Vintage survey 2017.

Industry Issues and Developments continued

Bay and Marlborough. The industry does experience challenges encouraging and retaining skilled staff.

Following harvest 2017, there are reports of some grapes being removed in Gisborne. This is due to some plantings being old and un-productive, or growers being unable to secure a contract with a winery.

Gisborne land is fertile and the climate suited to a range of crops. As a result, there are very few specialist grape growers in Gisborne as growing a range of crops diversifies growers' risks. There is a trend to

some growers removing grapes in favour of other crops like pipfruit that are currently providing higher returns.

Some industry participants think that Gisborne is overshadowed by other winegrowing regions due to demographics, location and a lack of large corporate wineries that could push Gisborne wines internationally. Conversely, there is a noted increase in consumer awareness of Gisborne Chardonnay, which the industry hopes will lead to an increase in demand for Gisborne grapes.

Vineyard Gross Margin Benchmarking

Gisborne 2017 Chardonnay

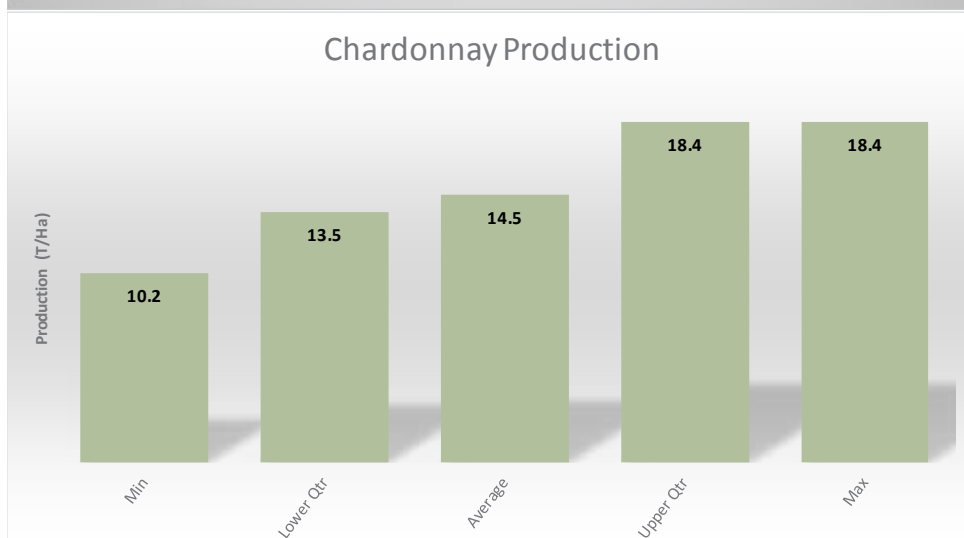
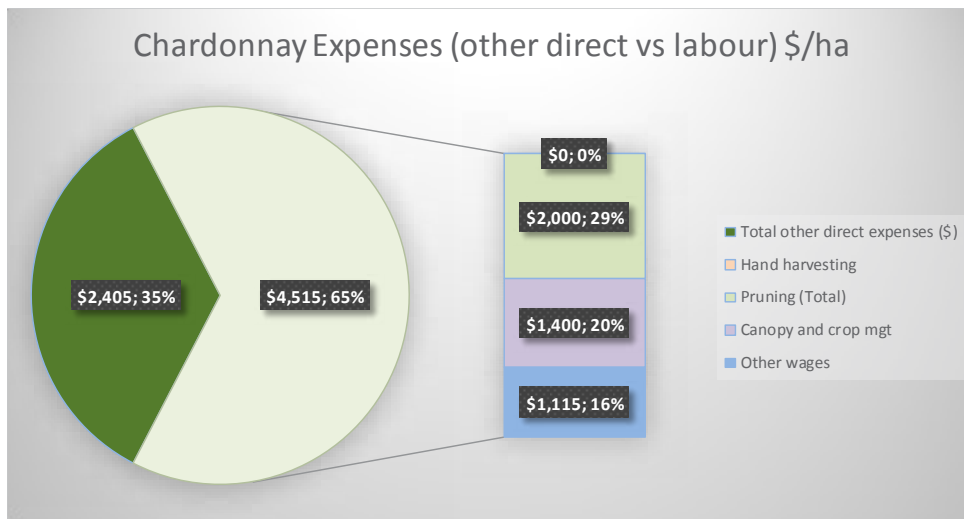
Adjusted for unpaid labour				\$ per producing Ha		Quartile by Gross Margin ¹		Hawkes Bay
	Average			2016				
	per Ha	per vine	per row metre	per Ha	Upper	Lower		per Ha
Unpaid FTE - number	0.3			0.2				0.5
Unpaid FTE - hours/ha	37			15				59
Vines/ha	1 761			1 724	1 998	2 042		2 145
Row metres/ha	3 663			3 639				3 850
Yield (Tonnes)	14.5	8.2kg	3.9kg	12.7	18.4	13.5		6.7
Income \$/tonne	1 285			1 290	1 500	1 120		1 810
Income (\$)	18 595	10.56	5.08	16 375	27 645	15 170		12 120
Labour expenses (\$)								
Hand harvesting	0	0.00	0.00	55	0	0		90
Pruning (Total)	2 000	1.14	0.55	1 695	1 858	2 095		2 040
Canopy and crop mgt	1 400	0.79	0.38	1 400	1 300	1 533		2 060
Other wages	1 115	0.63	0.30	685	908	1 116		2 790
Total labour expenses	4 515	2.56	1.23	3 835	4 065	4 745		6 980
Other direct expenses (\$)								
Weed and pest control	906	0.51	0.25	1 268	850	1 519		664
Fertiliser and lime	257	0.15	0.07	139	200	198		81
Electricity	28	0.02	0.01	13	0	55		84
Vehicle	37	0.02	0.01	73	25	77		152
Fuel	106	0.06	0.03	105	153	293		211
Repairs & maintenance	397	0.23	0.11	193	300	342		580
General	1	0.00	0.00	1	0	0		34
Machine harvesting	673	0.38	0.18	727	260	837		681
Total other direct expenses (\$)	2 405	1.37	0.66	2 520	1 785	3 325		2 490
Total direct expenses (\$)	6 920	3.93	1.89	6 355	5 850	8 070		9 470
Gross Margin (\$/ha)	11 675	6.63	3.19	10 020	21 795	7 100		2 650
Gross Margin (\$/t)	805			790	1 185	525		395
Number in model	5			12	5	5		9

¹ Quartile analysis shows the average figures where the gross margin is in the lower or upper quartile, ie. an indication of the features or higher and lower performance

Harvest Averages

	per Ha	per tonne	per vine	per row metre	per row km	No.
Chardonnay						
Machine	\$673	\$47	\$0.10	\$0.18	\$184	5

Note: The gross margin includes both hand and machine harvesting. The Harvest Average data shows the cost of either machine or hand harvesting when only one harvest method was used.



Regional Comparison

	Gisborne	Hawkes Bay
per Ha		
Yield (Tonnes)	14.5	6.7
Income \$/tonne	1 285	1 810
Income (\$)	\$18,595	\$12,120
Total labour expenses	\$4,515	\$8,345
Total direct expenses	\$6,920	\$9,470
Gross Margin	\$11,675	\$2,650
Number	5	9

Hawke's Bay



Hawke's Bay

Key Parameters and Financial Results

Year ended 30 June 2017	Sauvignon Blanc	Chardonnay	Merlot
Total production¹ (t/ha)	13.0	6.7	8.4
Average return (\$/t)	1 215	1 810	1 750
Net cash income (\$/ha)	15 810	12 120	14 650
Vineyard working expenses (\$/ha)	8 570	9 470	7 830
Gross Margin (\$/ha)	7 240	2 650	6 820
Gross Margin (\$/t)	555	395	815

¹ Figures may not add to totals due to rounding

Background

The MPI viticulture monitoring programme was reviewed in 2013 and gross margins of dominant grape varieties in the main growing regions was trialled from 2015. The success of the trial has led to the continuation of the gross margin format in Marlborough, Gisborne, Hawke's Bay, the Wairarapa and expansion into Otago in 2017. Fourteen vineyards provided data for a total of 22 blocks representing 61 hectares.

There was a mix of winery and contract growers, with the majority of the blocks being grown for the value grape market.

The gross margin calculates the revenue less direct expenses for growing, harvesting and marketing the crop. It does not take account of overheads such as administration, debt servicing, tax, drawings or development and capital spending.

Key Points

Sauvignon Blanc had the best gross margin of the three varieties, achieving \$7240 per hectare, closely followed by Merlot achieving \$6820 per hectare. Chardonnay had the lowest gross margin, which was a product of low yields because of crops being partially picked or not harvested at all.

Most blocks for all three varieties were identified as "value" blocks. This is important to understand when interpreting the gross margins as the results are

therefore weighted towards grapes being produced for a lower price point wine.

All gross margins were down on last year. Sauvignon Blanc and Merlot produced gross margins that were approximately half of what was achieved in 2016. This was a result of yield and price being negatively affected by a wet harvest.

Weather conditions mid-season were fantastic, with a hot, dry December/January period with only 19mm of rainfall, compared

🔍 Key Points continued

to 91mm for the same period in the long-term average. This was the saviour for some grapes, in most cases advancing phenolic maturity. However, the exceptional start to the season was spoiled by frequent rain

events, reducing brix development and increasing disease.

Over the harvest period of February to April, 418mm of rain fell, compared to the long-term average of 171mm in the same period.

Hawke's Bay Weather Data

Month	Growing degree days ¹ (GDD)			Rainfall (mm)		
	2016 ²	2017	Long Term Average	2016	2017	Long Term Average
June	26	37	19	28	60	68
July	12	18	12	37	51	95
August	27	16	23	33	146	60
September	20	65	47	162	70	58
October	100	110	83	14	26	38
November	119	160	120	59	20	25
December	177	195	192	20	15	48
January	272	256	245	73	4	43
February	283	228	209	7	176	45
March	224	201	198	68	98	51
April	133	131	124	11	144	75
May	124	28	59	16	69	64
Total	1517	1445	1331	512	879	670

¹ GDD – growing degree days. GDDs are a temperature index, calculated by taking the average of the daily high and low temperatures compared with a baseline (10°C). They help predict the date that a flower will bloom or a crop reach maturity.

² Year refers to year of harvest. Source NIWA (Whakatū).

Disease ran rampant through vineyards, especially blocks that carried heavy loads. Labour “canopy and crop management” costs were increased by thinning off bunches for rot close to harvest for all varieties.

Chemical costs were down on last year for all three varieties. This was potentially due to a good flowering period and a hot and dry early season which meant that in some cases the frequency of sprays decreased. Growers, however, reported extra spraying

around harvest to combat disease, however this was more evident in “other wages” as a labour cost.

Relationships between growers and wineries were tested in 2017. Low brix and accumulation of disease impacted decision making around harvest dates and payments per tonne. Contract growers report that they were penalised when brix didn't meet the contractual target.

Sauvignon Blanc Gross Margin

The Hawke's Bay Sauvignon Blanc gross margin was \$7240 per producing hectare, equal to \$555 per tonne. This is \$7975 less than the Marlborough Sauvignon Blanc gross margin.

Of the three Hawke's Bay varieties surveyed, the gross margin for Sauvignon Blanc was the highest, only \$420 more per hectare than Merlot but \$4590 more per hectare than Chardonnay.

Sauvignon Blanc yields were down on 2016 by 1.2 tonnes per hectare, representing an 8 percent difference. This is less than the vintage survey which indicates a decrease of 24 percent from 2016 to 2017². This was due to late season disease pressure that in-turn led to growers thinning out rots. This gross margin contained one block that remained unharvested, and one block partially harvested.

The price was down on 2016 by \$245 per tonne. This was due to low brix and

a decrease in demand for Hawke's Bay Sauvignon Blanc, compared to the last two years.

Sauvignon Blanc canopy and crop management and other wages labour cost were up on last year, similar to Merlot but still significantly less than Chardonnay. Sauvignon Blanc generally has higher pruning costs due to having more canes laid per vine. A significant factor influencing the increased labour cost this year was bunches being thinned close to harvest to reduce rot and to increase brix. Hawke's Bay costs are generally less than Marlborough and likely due to a lower return per tonne, generally less inputs due to high fertility soils and significantly less R&M costs.

All blocks in the model were machine harvested. Contract machine harvesting is generally \$220 per kilometre of row; however, the average cost was brought down by a block that owned its own machinery.

² New Zealand Winegrowers Vintage survey 2017

Vineyard Gross Margin Benchmarking

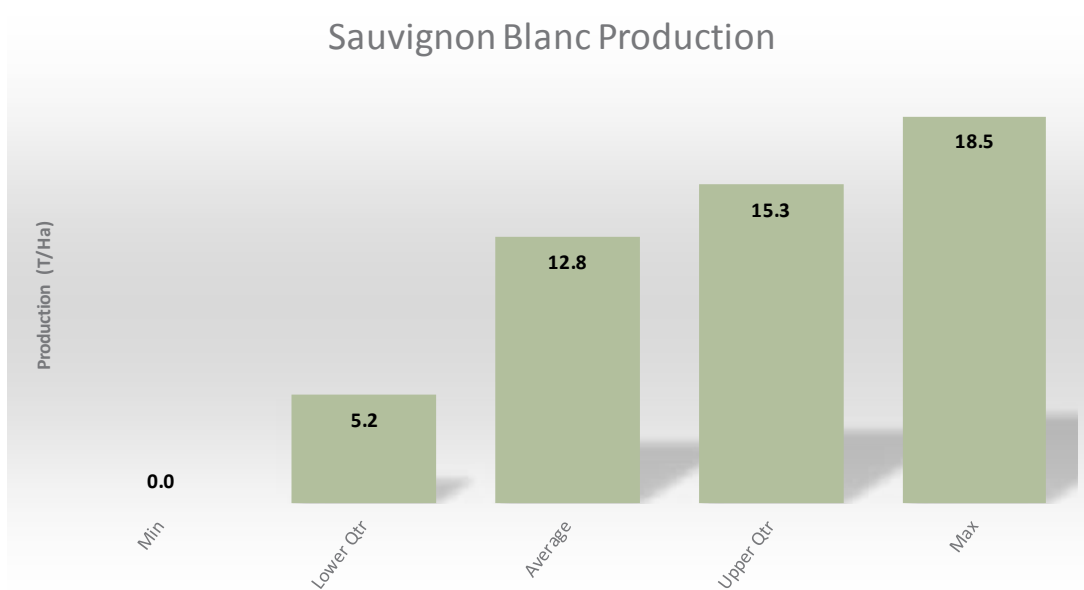
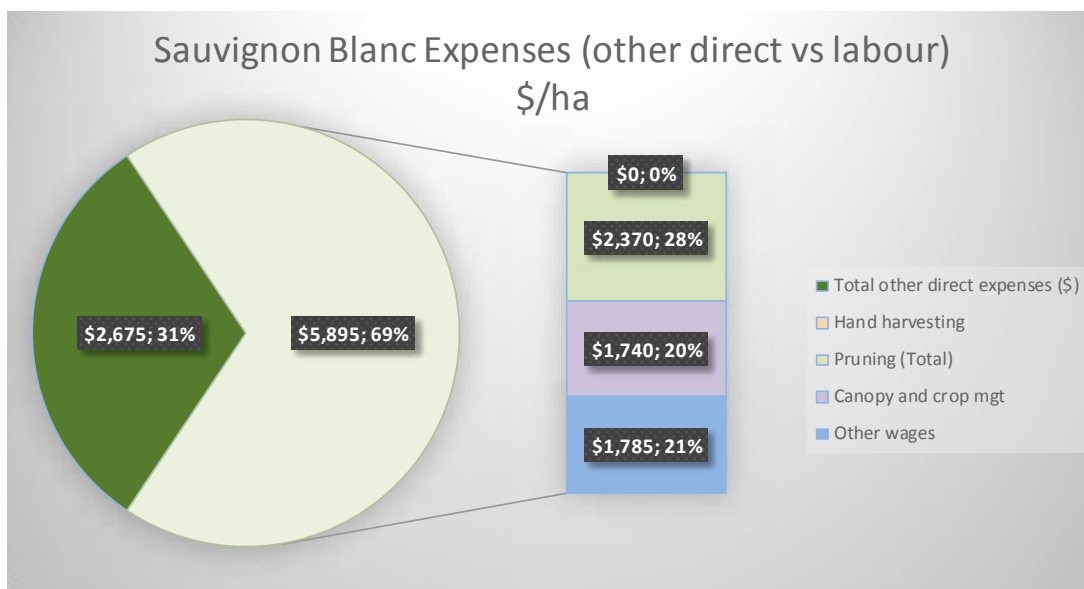
Hawke's Bay 2017 Sauvignon Blanc

Adjusted for unpaid labour				\$ per producing Ha			
	Average			2016 per Ha	Quartile by Gross Margin ¹		Marlborough
	per Ha	per vine	per row metre		Upper	Lower	per Ha
Unpaid FTE - number	0.4			0.2			0.4
Unpaid FTE - hours/ha	42			20			26
Vines/ha	2 084			2 116	1 869	2 002	2 091
Row metres/ha	3 997			4 146			3 778
Yield (Tonnes)	13.0	6.4kg	3.3kg	14.2	15.3	5.2	14.4
Income \$/tonne	1 215			1 460	1 085	1 500	1 735
Income (\$)	15 810	7.73	3.96	20 770	16 515	7 770	25 025
Labour expenses (\$)							
Hand harvesting	0	0.00	0.00	215	0	0	15
Pruning (Total)	2 370	1.16	0.59	2 290	2 147	2 678	2 475
Canopy and crop mgt	1 740	0.85	0.44	1 315	1 437	3 650	1 830
Other wages	1 785	0.87	0.45	740	703	5 748	1 450
Total labour expenses	5 895	2.88	1.47	4 560	4 285	12 075	5 770
Other direct expenses (\$)							
Weed and pest control	544	0.27	0.14	637	404	833	1 149
Fertiliser and lime	33	0.02	0.01	125	3	208	401
Electricity	161	0.08	0.04	149	116	188	289
Vehicle	175	0.09	0.04	175	222	83	233
Fuel	261	0.13	0.07	528	158	167	226
Repairs & maintenance	435	0.21	0.11	429	278	417	825
General	255	0.12	0.06	5	471	0	201
Machine harvesting	810	0.40	0.20	707	857	888	717
Total other direct expenses (\$)	2 675	1.31	0.67	2 755	2 510	2 785	4 040
Total direct expenses (\$)	8 570	4.19	2.14	7 315	6 795	14 860	9 810
Gross Margin (\$/ha)	7 240	3.54	1.81	13 455	9 720	-7 090	15 215
Gross Margin (\$/t)	555			945	635	-1 370	1 055
Number in model	8			12	8	8	49

¹ Quartile analysis shows average figures where the gross margin is in the lower or upper quartile, ie. an indication of the features of higher and lower performance

Harvest Averages						
	per Ha	per tonne	per vine	per row metre	per row km	No.
Sauvignon Blanc						
Machine	\$795	\$62	\$0.04	\$0.20	\$203	8

Note: The gross margin includes both hand and machine harvesting. The Harvest Average data shows the cost of either machine or hand harvesting when only one harvest method was used.



Regional Comparison		
	Hawkes Bay	Marlborough
per Ha		
Yield (Tonnes)	13.0	14.4
Income \$/tonne	1 215	1 735
Income (\$)	\$15,810	\$25,025
Total labour expenses	\$5,895	\$5,770
Total direct expenses	\$8,570	\$9,810
Gross Margin	\$7,240	\$15,215
Number	8	49

Chardonnay Gross Margin

The Hawke's Bay 2017 Chardonnay gross margin was \$2650 per producing hectare, equivalent to \$395 per tonne. This was significantly lower than the Gisborne gross margin for Chardonnay which produced \$11 675 per producing hectare.

Of the three Hawke's Bay varieties, Chardonnay had the lowest gross margin. This was largely due three blocks being only partially harvested, due to rain events putting pressure on contractual brix requirements and disease. This led to the model returning 6.7 tonnes per hectare, compared to 8.7 in 2016. This represents a 23 percent difference which is higher than the vintage survey, which shows Chardonnay yields decreasing by 9 percent. Blocks that were not impacted by disease showed an average yield of approximately 7.8 tonnes per hectare, and higher gross margins. The upper quartile also indicates that some growers had reasonable margins.

The average price paid per tonne in 2017 was \$1810, down on last year by \$105. Price was negatively impacted by inclement weather, especially persistent rain events, preventing vines reached desired brix levels. Many grape contracts include brix agreements and growers reported payments were reduced as brix levels were not met. The price per tonne is generally higher than Gisborne Chardonnay due to wineries placing a lower yield cap to produce higher quality wines from Hawke's Bay grapes.

Chardonnay had the highest expenses of all three varieties in Hawke's Bay, and \$2550 per hectare more than in Gisborne. This difference is due mainly to higher labour costs. Hawke's Bay Chardonnay typically requires more canopy and crop management to produce a high-quality crop, however increases in labour costs this year were exacerbated through bunch thinning required close to harvest to drop rotten bunches where disease was prevalent through the block.

Vineyard Gross Margin Benchmarking

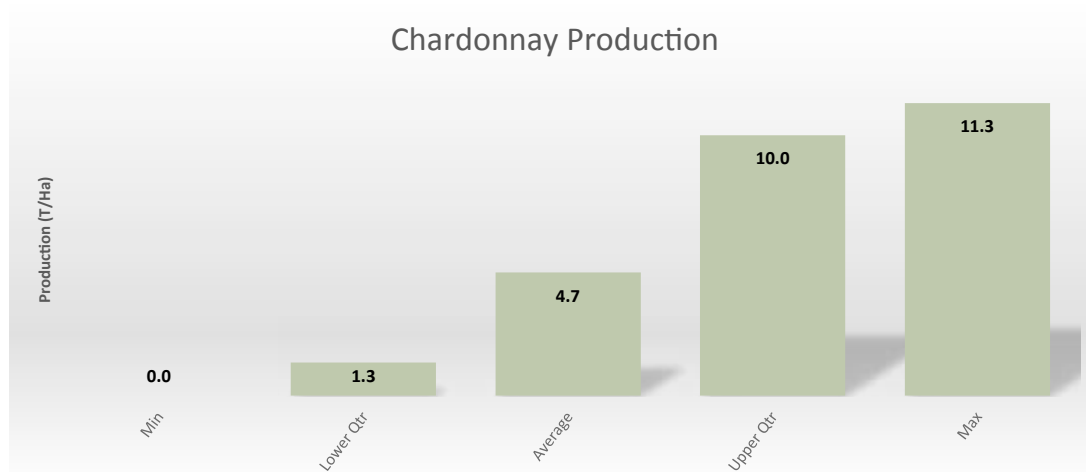
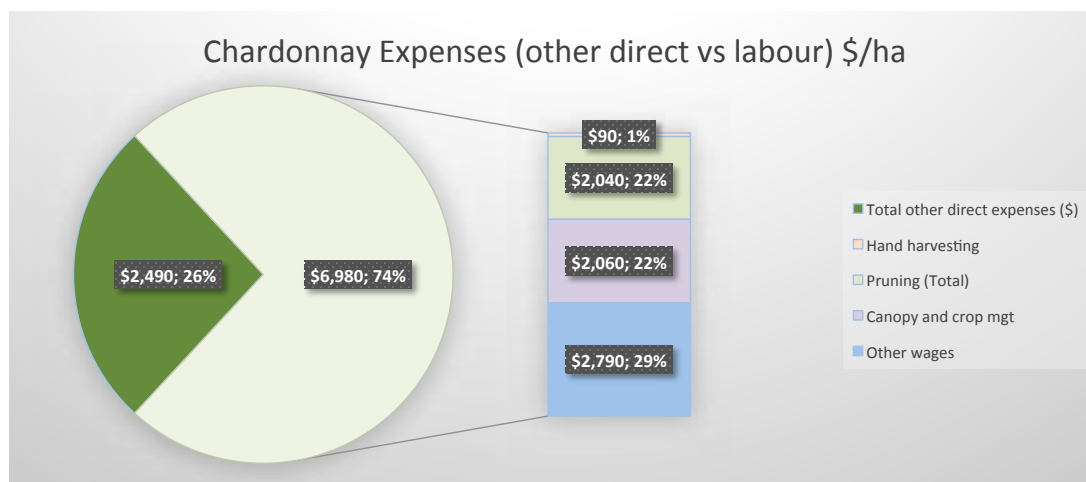
Hawke's Bay 2017 Chardonnay

Adjusted for unpaid labour				\$ per producing Ha		Quartile by Gross Margin ¹		Gisborne
	Average			2016 per Ha		Upper	Lower	per Ha
	per Ha	per vine	per row metre					
Unpaid FTE - number	0.8			0.2				0.3
Unpaid FTE - hours/ha	83			39				37
Vines/ha	3 029			2 438		2 271	2 073	1 761
Row metres/ha	5 437			4 230				3 663
Yield (Tonnes)	6.7	3.1kg	1.2kg	8.7		10.0	1.3	14.5
Income \$/tonne	1 810			1 915		1 705	2 210	1 285
Income (\$)	12 120	5.65	2.23	16 740		16 930	2 675	18 595
Labour expenses (\$)								
Hand harvesting	90	0.04	0.02	205		0	369	0
Pruning (Total)	2 040	0.95	0.38	2 225		1 490	2 188	2 000
Canopy and crop mgt	2 060	0.96	0.38	2 135		738	1 857	1 400
Other wages	2 790	1.30	0.51	1 115		709	2 735	1 115
Total labour expenses	6 980	3.25	1.28	5 680		2 935	7 150	4 515
Other direct expenses (\$)								
Weed and pest control	664	0.31	0.12	803		589	611	906
Fertiliser and lime	81	0.04	0.01	125		47	118	257
Electricity	84	0.04	0.02	189		194	78	28
Vehicle	152	0.07	0.03	203		282	302	37
Fuel	211	0.10	0.04	341		262	250	106
Repairs & maintenance	580	0.27	0.11	609		349	327	397
General	34	0.02	0.01	2		0	21	1
Machine harvesting	681	0.32	0.13	799		846	617	673
Total other direct expenses (\$)	2 490	1.16	0.46	3 070		2 570	2 325	2 405
Total direct expenses (\$)	9 470	4.41	1.74	8 750		5 505	9 475	6 920
Gross Margin (\$/ha)	2 650	1.24	0.49	7 990		11 425	-6 800	11 675
Gross Margin (\$/t)	395			915		1 140	-5 325	805
Number in model	9			12		9	9	5

¹ Quartile analysis shows the average figures where the gross margin is in the lower or upper quartile, ie. an indication of the features of higher and lower performance

Harvest Averages						
	per Ha	per tonne	per vine	per row metre	per row km	No.
Chardonnay						
Machine (\$)	507	105	0.03	0.13	132	8
Hand (\$)	1 319	453	0.31	0.32	316	1

Note: The gross margin includes both hand and machine harvesting. The Harvest Average data shows the cost of either machine or hand harvesting when only one harvest method was used.



Regional Comparison		
	Hawkes Bay	Gisborne
per Ha		
Yield (Tonnes)	6.7	14.5
Income \$/tonne	1 810	1 285
Income (\$/ha)	12 120	18 595
Total labour expenses	6 980	4 515
Total direct expenses	9 470	6 920
Gross Margin (\$/ha)	2 650	11 675
Number	9	5

Merlot Gross Margin

The Hawke's Bay 2017 Merlot gross margin was \$6820 per producing hectare, equivalent to \$815 per tonne. This was a decrease of 32 percent compared to 2016.

The lower gross margin was a result of lower yield and price. Average yield was 8.4 tonnes per hectare, down from 9.4 tonnes in 2016. Yields were impacted by bunch thinning undertaken close to harvest to drop rotten bunches.

Average price paid per tonne in 2017 was \$1750, down on last year by \$195. Price was negatively impacted by persistent rain events during harvest which reduced brix levels and therefore contractual payments. Demand for full bodied reds, such as Merlot, from both a contract grower and a winery perspective is reported to be decreasing. Wineries continue to grow

and supply their own grapes in this area, as they can afford more inputs to produce high quality grapes for their high tier wine labels but the market for low price-point reds is believed to be static.

Total expenses were down by \$410 per hectare compared to last year, due mainly to other direct expenses being lower. Expenses that were lower in 2017 compared to 2016 were electricity because late season irrigation was not required, and fuel because few frosts occurred. Labour costs, conversely, were higher, with an increase in bunch thinning close to harvest to drop diseased bunches.

The majority of Merlot in New Zealand is grown in Hawke's Bay, therefore no regional comparison can be made.

Vineyard Gross Margin Benchmarking

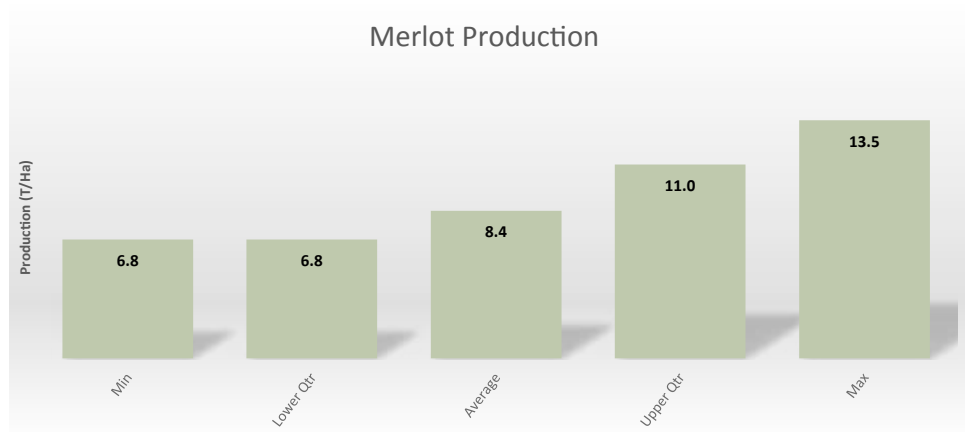
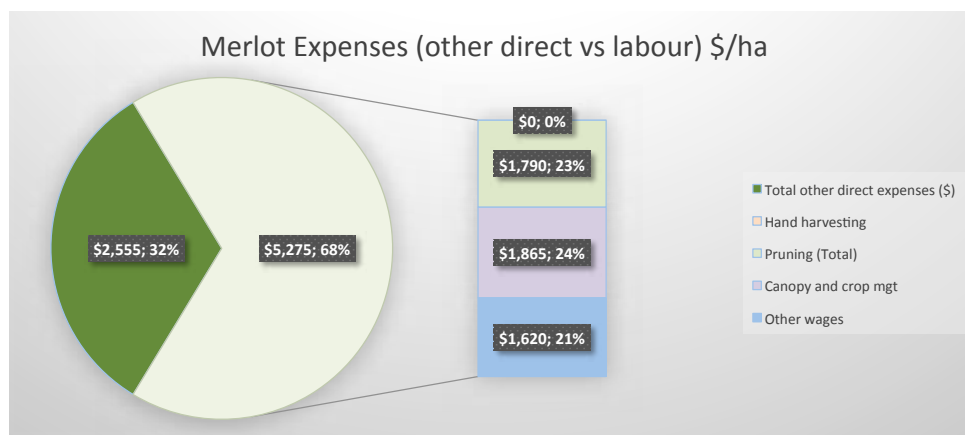
Hawke's Bay 2017 Merlot

Adjusted for unpaid labour				\$ per producing Ha	Quartile by Gross Margin ¹	
	Average					
	per Ha	per vine	per row metre	2016 per Ha	Upper	Lower
Unpaid FTE - number	0.2			0.1		
Unpaid FTE - hours/ha	35			9		
Vines/ha	2 417			2 733	2 711	2 315
Row metres/ha	4 193			4 753		
Yield (Tonnes)	8.4	3.5kg	2.0kg	9.4	11.0	6.8
Income \$/tonne	1 750			1 945	1 800	2 050
Income (\$)	14 650	6.06	3.49	18 330	19 795	13 855
Labour expenses (\$)						
Hand harvesting	0	0.00	0.00	415	0	0
Pruning (Total)	1 790	0.74	0.43	1 925	1 387	1 840
Canopy and crop mgt	1 865	0.77	0.44	1 660	993	2 586
Other wages	1 620	0.67	0.39	1 105	163	1 916
Total labour expenses	5 275	2.18	1.26	5 100	2 545	6 340
Other direct expenses (\$)						
Weed and pest control	676	0.28	0.16	857	659	1 080
Fertiliser and lime	108	0.04	0.03	145	24	426
Electricity	129	0.05	0.03	252	283	228
Vehicle	107	0.04	0.03	224	128	132
Fuel	193	0.08	0.05	333	162	184
Repairs & maintenance	656	0.27	0.16	587	319	520
General	70	0.03	0.02	2	0	112
Machine harvesting	615	0.25	0.15	741	890	1 049
Total other direct expenses (\$)	2 555	1.06	0.61	3 140	2 465	3 730
Total direct expenses (\$)	7 830	3.24	1.87	8 240	5 010	10 070
Gross Margin (\$/ha)	6 820	2.82	1.63	10 090	14 785	3 785
Gross Margin (\$/t)	815			1 070	1 345	560
Number in model	5			11	5	5

¹ Quartile analysis shows the average figures where the gross margin is in the lower or upper quartile, ie. an indication of the features of higher and lower performance

Harvest Averages						
	per Ha	per tonne	per vine	per row metre	per row km	No.
Merlot						
Machine (\$)	615	73	0.03	0.15	147	5

Note: The gross margin includes both hand and machine harvesting. The Harvest Average data shows the cost of either machine or hand harvesting when only one harvest method was used.



Regional Comparison	
	Hawkes Bay
per Ha	
Yield (Tonnes)	8.4
Income \$/tonne	1 750
Income (\$/ha)	14 650
Total labour expenses	5 275
Total direct expenses	7 830
Gross Margin (\$/ha)	6 820
Number	5

Industry Issues and Developments

Gross margins were significantly lower for all varieties than in 2017 as a wet harvest meant increased disease pressure and challenges meeting contractual brix requirements. Not surprisingly, relationships between some wineries and contract growers are tense. Many wineries concentrate on growing their own grapes for high price-point wines while sourcing grapes for value wines from contract growers.

The pressure and lack of profitability in growing grapes has led to the removal or sale of some vineyards in the region. It is thought that this will generally lead to consolidation of the industry, and as the more “marginal” blocks get removed, overall regional quality will improve.

Lack of profitability in the industry is caused by static grape prices, which growers report haven’t increased for many years in some varieties. In addition, supermarkets, and therefore the consumer, place pressure on wineries to produce low price-point wines, which creates downward pressure on grape prices.

The Rose wine style is an area of growth for Hawke’s Bay. It is flexible in terms of varieties, therefore absorbing some of the Merlot, and other red varietal, supply.

Powdery Mildew continues to be a focus, with growers tightening spray intervals and working to better understand the challenge that this disease creates if left unattended.

Water use was an issue in December and January which had below average rainfall. In many areas, bores were close to running dry and water use was restricted. If the season had continued this way there would have been increased pressure on water supply.

The reputation of the New Zealand wine industry is constantly threatened by issues including residues in wine, compliance, water use, environment and ethical production. Growers are concerned about the reputational risk that can be occur through poor practice or exaggeration by the media.

This survey allows growers to bring such matters to the surface and allow local industry and New Zealand Winegrowers to develop practical actions to mitigate.

Wairarapa



Wairarapa

Key Parameters and Financial Results

Year ended 30 June 2017	Pinot Noir
Total production ¹ (t/ha)	4.1
Average return (\$/t)	3 940
Net cash income (\$/ha)	16 140
Vineyard working expenses (\$/ha)	12 535
Gross Margin (\$/ha)	3 605
Gross Margin (\$/t)	880

¹ Figures may not add to totals due to rounding.

Background

The MPI viticulture monitoring programme was reviewed in 2013 and gross margins of dominant grape varieties in the main growing regions was trialled from 2015. The success of the trial has led to the continuation of the gross margin format in Marlborough, Gisborne, Hawke's Bay, the Wairarapa and expansion into Otago in 2017.

Seven vineyards provided data for a total of 15 blocks representing 28 hectares.

The majority of participants were winery growers, with 13 of the blocks being grown for premium or super premium grapes.

The gross margin calculates the revenue less direct expenses for growing and harvesting the crop. It does not take account of overheads such as administration, debt servicing, tax, drawings or development and capital spending.

Key Points

Wairarapa Pinot Noir achieved a gross margin of \$3605 per hectare, which was \$785 less than last year due to a significant drop in yield.

The gross margin was \$1270 higher than Otago Pinot Noir gross margin in 2017 with the main difference being a higher labour cost per hectare in Otago.

Price per tonne for Wairarapa Pinot Noir was \$3940. This higher average price reflects the survey group being weighted towards winery grower' premium to super

premium grapes. Contract growers reported that prices between \$3000 and \$3500 were typical.

Growers reported that vine canopies were bigger this year and required more labour input. This was due mainly to lack of frosts and high rainfall in September and November.

Growers report good weather during the flowering period, however the November rain impacted on some of the earlier Dijon clones.

Wairarapa Weather Data

Month	Growing degree days ¹ (GDD)			Rainfall (mm)		
	2016 ²	2017	Long Term Average	2016	2017	Long Term Average
June	6	29	17	62	65	80
July	18	12	12	48	73	78
August	14	3	19	52	73	75
September	60	47	42	20	120	59
October	98	84	69	11	53	71
November	159	125	121	11	158	53
December	264	165	197	35	37	51
January	285	218	241	13	42	41
February	214	196	218	8	97	41
March	133	176	188	46	70	50
April	123	104	104	70	174	75
May	31	28	45	40	70	77
Total	1405	1187	1273	416	1032	681

¹ GDD – growing degree days. GDDs are a temperature index, calculated by taking the average of the daily high and low temperatures compared with a baseline (10oC). They help predict the date that a flower will bloom or a crop reach maturity.

² Year refers to year of harvest. Source Niwa (Martinborough Ews).

Growing degree days were slightly below average during the ripening period. Late season rainfall from February to April impacted on some blocks, with growers reporting grapes harvested at lower brix and some crop loss due to Botrytis rot. Crop loss was not as severe as in other regions given that typical Wairarapa

canopies do not carry a heavy crop load, so air movement through the canopy was good which helped contain disease spread.

Winemakers are stating that the 2017 conditions have resulted in a lighter style pretty and elegant Pinot Noir, maintaining the high quality that the region is renowned for.

Pinot Noir Gross Margin

The Wairarapa Pinot Noir gross margin was \$3605 per producing hectare, equivalent to \$880 per tonne. This is 18 percent lower than the 2016 gross margin. Wairarapa achieved a higher gross margin than Otago by \$1270 per hectare. Marlborough had the highest gross margin of the three regions for Pinot Noir at \$11 615. However as Wairarapa and Otago grow Pinot Noir for similar high price point markets, Wairarapa will only be compared to Otago in this report.

Seasonal conditions were generally favourable for growing in 2017 and lack of frosts provided a good platform for budburst and flowering. Yields were down by 1.3 tonnes per hectare on 2016. However, 2016 was an exceptional year for yields and 4.1 tonnes per hectare is considered reasonable compared to the long-term average of 3.5 tonnes per hectare³.

Yield ranged from 2.6 to 6.3 tonnes per hectare. The average yield of 4.1 tonnes per hectare was similar to the 4.0 tonnes per hectare recorded in Otago.

Average price of \$3940 received was \$320 per tonne higher than in 2016. However,

this reflected the high proportion of winery growers in the survey, who can elect to increase inputs to produce higher quality grapes, therefore valuing their grapes higher. Contract growers typically reported a market price between \$3000 and \$3500.

Wairarapa labour expenses for pruning each vine were significantly less than that reported in 2016⁴, but more than pruning costs in Otago in 2017. Growers have indicated that \$0.85 per vine spent in 2017 is more typical than the \$1.26 per vine reported in 2016. Pruning style in Wairarapa is predominantly 2 cane Vertical Shoot Positioning (VSP) style, whereas Otago used 50:50 VSP and spur pruning. They have lower density plantings, resulting in a lower cost both per vine and per hectare. Other wages were higher in the Wairarapa in 2017 than 2016 due to the extra spray rounds needed to reduce disease.

All but one of the 15 blocks were hand harvested. Using just blocks that were 100 percent hand harvested the cost of \$335 per tonne was slightly up on last year's \$321 per tonne, lower than Otago's \$539 per tonne and higher than the \$273 per tonne recorded in Marlborough.

³ Estimated using New Zealand Winegrowers Vintage survey 2017 and Vineyard Register Report 2016-2019.

⁴ 2016 model pruning costs were largely influenced by one large block paying much higher rates last year.

Vineyard Gross Margin Benchmarking

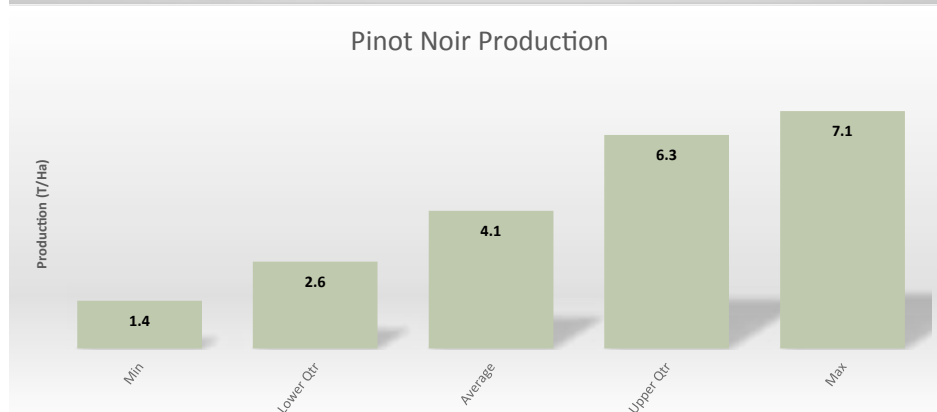
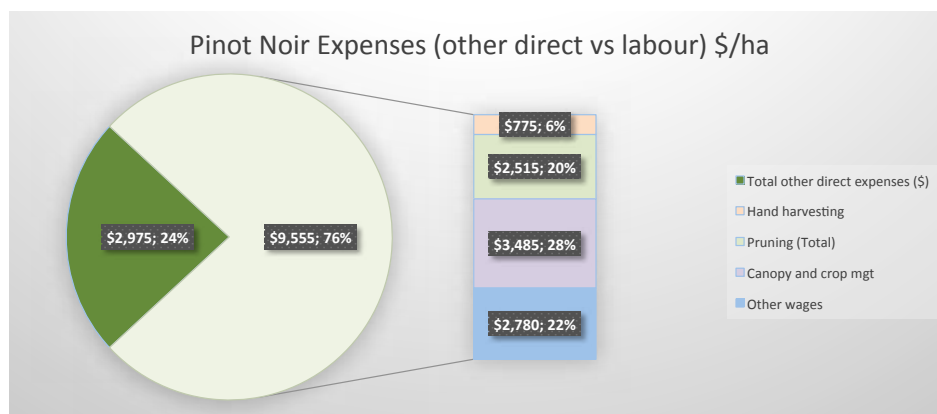
Wairarapa 2017 Pinot Noir

Adjusted for unpaid labour				\$ per producing Ha		Quartile by Gross Margin ¹		Otago
	Average			2016		Upper	Lower	per Ha
	per Ha	per vine	per row metre	per Ha				
Unpaid FTE - number	0.6			0.2				0.2
Unpaid FTE - hours/ha	168			63				18
Vines/ha	2 969			2 893	2 595	3 472		2 667
Row metres/ha	4 510			4 292				4 143
Yield (Tonnes)	4.1	1.4kg	0.9kg	5.4	6.3	2.6		4.0
Income \$/tonne	3 940			3 620	3 160	3 875		3 985
Income (\$)	16 140	5.44	3.58	19 440	18 940	9 640		16 105
Labour expenses (\$)								
Hand harvesting	775	0.26	0.17	1 550	294	917		2 055
Pruning (Total)	2 515	0.85	0.56	3 640	2 607	3 267		1 640
Canopy and crop mgt	3 485	1.17	0.77	5 560	4 986	2 871		3 745
Other wages	2 780	0.94	0.62	1 905	1 186	3 289		3 025
Total labour expenses	9 560	3.22	2.12	12 650	9 070	10 345		10 465
Other direct expenses (\$)								
Weed and pest control	522	0.18	0.12	541	542	656		627
Fertiliser and lime	244	0.08	0.05	202	168	255		418
Electricity	170	0.06	0.04	165	155	248		252
Vehicle	270	0.09	0.06	231	258	243		349
Fuel	281	0.09	0.06	340	307	222		281
Repairs & maintenance	912	0.31	0.20	590	1 327	367		459
General	125	0.04	0.03	235	124	31		875
Machine harvesting	453	0.15	0.10	97	878	0		46
Total other direct expenses (\$)	2 975	1.00	0.66	2 400	3 760	2 020		3 305
Total direct expenses (\$)	12 535	4.22	2.78	15 050	12 830	12 365		13 770
Gross Margin (\$/ha)	3 605	1.21	0.80	4 390	6 110	-2 725		2 335
Gross Margin (\$/t)	880			815	965	-1 055		580
Number in model	15			15	15	15		17

¹ Quartile analysis shows the average figures where the gross margin is in the lower or upper quartile, ie. an indication of the features of higher and lower performance

Harvest Averages						
	per Ha	per tonne	per vine	per row metre	per row km	No.
Pinot Noir						
Machine (\$)	1 308	185	0.16	0.29	287	1
Hand (\$)	1 072	335	0.10	0.23	230	13

Note: The gross margin includes both hand and machine harvesting. The Harvest Average data shows the cost of either machine or hand harvesting when only one harvest method was used.



Regional Comparison			
per Ha	Wairarapa	Otago	Marlborough
Yield (Tonnes)	4.1	4.0	6.9
Income \$/tonne	3 940	3 985	3 230
Income (\$/ha)	16 140	16 105	22 190
Total labour expenses	9 560	10 465	7 475
Total direct expenses	12 535	13 770	10 575
Gross Margin (\$/ha)	3 605	2 335	11 615
Number	15	17	36

Industry Issues and Developments

The Wairarapa wine industry relies heavily on strong branding and a good reputation built around many years of creating high-quality Pinot Noir wines. The region's wines are high price-point and low volume, therefore the local industry is not seeking to compete in the same high-volume lower price-point market as other regions. Growers report that some replanting and new development is happening, albeit in small amounts.

Wineries, in contrast with contract growers, own 82 percent of the vineyards in Wairarapa. This was reflected in the survey with most blocks responding being winery owned. Vineyards are also small, unique parcels, with all blocks being less than 10ha.

The low gross margin and lack of growth in the local market makes investment in the region challenging, especially when compared with the higher Marlborough gross margin. Market growth is mainly through other regions purchasing Martinborough Pinot Noir. However growers report that was less evident this year as they had to actively look for markets, compared to 2016 when they were being approached.

Perceived demand for Wairarapa Pinot Noir, and other varieties, is down this year. This is a result of the reduction in quality due to the wet harvest and market perception of its impact on the 2017 wines. Stock carryover from high yields in 2016 was also cited as a factor.

There is difficulty improving profitability when high inputs are required to produce high quality grapes and price is constrained. When paying contract growers more per tonne, the wineries also demand more canopy management inputs, such as dropping shoulders and reducing yield.

There is difficulty in sourcing skilled labour locally due to the large distance between vineyards and townships with sufficient size to supply staff.

There is a shift towards organic production, not always related directly to marketing opportunities. Growers have stated that organic production brings different quality aspects to the wine and increases land sustainability.

Powdery mildew, virus, trunk disease and old vines continues to be an issue for the region in terms of yield and profitability.

Marlborough



Marlborough

Key Parameters and Financial Results

Year ended 30 June 2017	Sauvignon Blanc	Pinot Noir
Total production¹ (t/ha)	14.4	6.9
Average return (\$/t)	1 735	3 230
Net cash income (\$/ha)	25 025	22 190
Vineyard working expenses (\$/ha)	9 810	10 575
Gross Margin (\$/ha)	15 215	11 615
Gross Margin (\$/t)	1 055	1 690

¹ Figures may not add to totals due to rounding.

Background

The MPI viticulture monitoring programme was reviewed in 2013 and gross margins of dominant grape varieties in the main growing regions was trialled from 2015. The success of the trial has led to the continuation of the gross margin format in Marlborough, Gisborne, Hawke's Bay, Wairarapa and expansion into Otago in 2017.

The gross margin calculates the revenue

minus direct expenses for growing, harvesting and marketing the crop. It does not take account of overheads such as administration, debt-servicing, tax, drawings or development and capital spending.

This is the third year of gross margin benchmarking in Marlborough with 35 growers providing data for a total of 49 Sauvignon Blanc and 36 Pinot Noir blocks.

Key points

The Marlborough Sauvignon Blanc gross margin was \$15 215 per hectare while Pinot Noir achieved a gross margin of \$11 615 per hectare.

Average yields for Marlborough Sauvignon Blanc were down by 9 percent while Pinot Noir was 19 percent lower than in 2016.

Weather conditions in Marlborough were less than favourable throughout key parts of the season. The region received regular rain events with 433 mm for the period October to April compared with 186 mm in the previous year. Low sunshine hours

in March and the first two weeks of April 2017 slowed down ripening. Sauvignon Blanc harvesting was compressed after two large rain events in early April led to fruit being harvested as quickly as possible and on condition rather than to brix and acid targets.

The average Sauvignon Blanc price was \$1735 per tonne, similar to the Marlborough Model Vineyard. Pinot Noir price for the gross margin group averaged \$3230 per tonne, \$190 higher than the Marlborough Whole Vineyard Model.

Sauvignon Blanc Gross Margin

The Marlborough Sauvignon Blanc gross margin was \$15 215 per producing hectare, equal to \$1055 per tonne. This is 110 percent higher than the Hawke's Bay gross margin of \$7 240 per producing hectare.

After a delayed budbreak, early season rainfall reduced irrigation requirements. Conditions at flowering in the second half of December were dry and temperatures near average leading to good fruitset in Sauvignon Blanc. However, a windy January, low sunshine hours in March and April and an extremely wet start to April provided significant challenges in the later part of the season.

Overall Marlborough produced 5 percent less Sauvignon Blanc in 2017 than in 2016⁵.

Yields ranged from 6.0 to 24.0 tonnes per hectare, reflecting the varying growing conditions in Marlborough's sub regions from Awatere to Wairau and their adjoining valleys.

The average yield 14.4 tonnes per hectare was 11 percent higher than yields recorded in Hawke's Bay.

Prices varied from \$1320 to \$2310 per tonne, with an average price of \$1735, similar to the Marlborough Model Vineyard and 43 percent higher than Hawke's Bay.

Total direct expenses for Sauvignon Blanc were \$9 810 per hectare, \$1295 per hectare higher than Hawke's Bay and \$765 lower than for Marlborough Pinot Noir.

Increased spraying and crop moderation increased labour expenses for Marlborough Sauvignon Blanc in 2017.

Marlborough expenses were higher than for Hawke's Bay Sauvignon Blanc, for several direct spending categories. The higher yield and price received by Marlborough growers justifies higher spending and is also encouraged by Marlborough's drier, less-fertile growing conditions.

Marlborough spending to grow Sauvignon Blanc is less than for Pinot Noir, mainly because of labour activities required for growing. There is little hand-harvesting for Sauvignon Blanc and less labour input for canopy and crop-management activities.

Pruning style was predominately 3-cane Vertical Shoot Positioned (VSP), averaging 3.1 canes per vine, with pruning costs of \$2475 per hectare or \$1.18 per vine. This is very similar to the Hawke's Bay average of \$1.16 per vine where pruning was a mix of 2, 3 and 4 cane VSP, and averaging 3.3 canes per vine.

⁵ New Zealand Winegrowers Vintage survey 2017

Vineyard Gross Margin Benchmarking

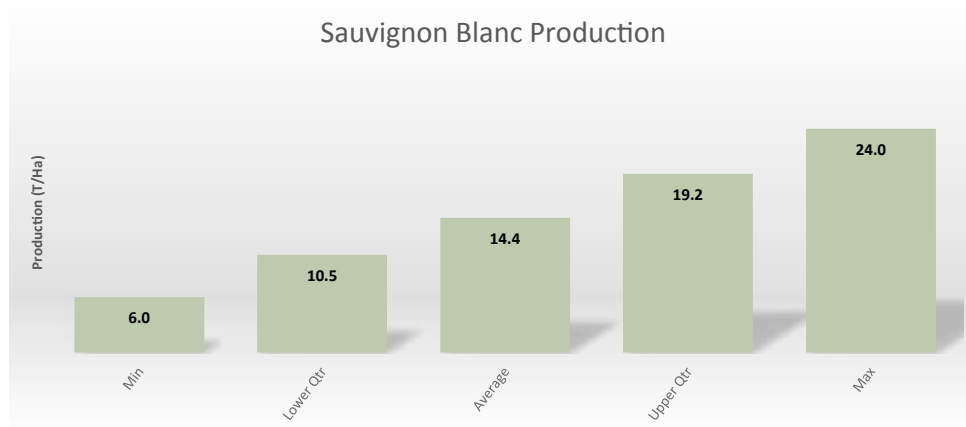
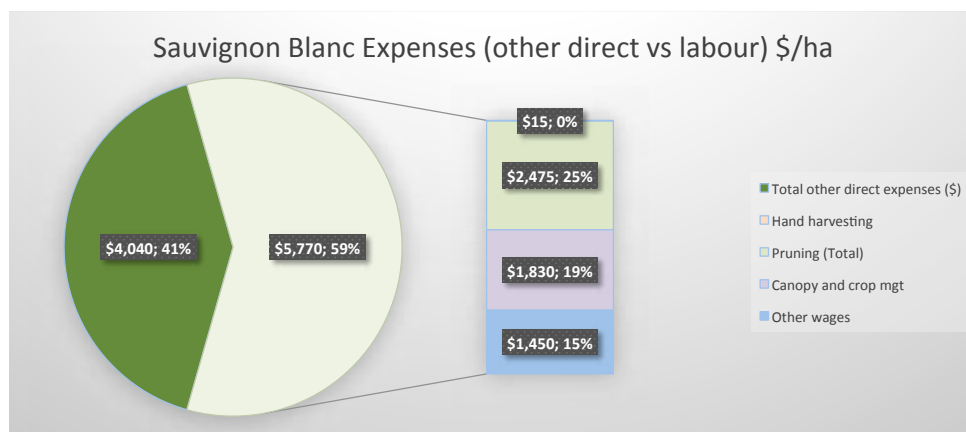
Marlborough 2017 Sauvignon Blanc

Adjusted for unpaid labour				\$ per producing Ha		Quartile by Gross Margin ¹		Hawkes Bay
	Average			2016				
	per Ha	per vine	per row metre	per Ha	Upper	Lower		per Ha
Unpaid FTE - number	0.4			0.2				0.4
Unpaid FTE - hours/ha	26			18				42
Vines/ha	2 091			2 190	2 103	2 079		2 044
Row metres/ha	3 778			3 911				3 921
Yield (Tonnes)	14.4	6.9kg	3.8kg	15.9	19.2	10.5		13.0
Income \$/tonne	1 735			1 805	1 790	1 720		1 215
Income (\$)	25 025	11.97	6.62	28 780	34 045	17 650		15 810
Labour expenses (\$)								
Hand harvesting	15	0.01	0.00	5	0	46		0
Pruning (Total)	2 475	1.18	0.66	2 345	2 538	2 214		2 370
Canopy and crop mgt	1 830	0.88	0.48	1 205	1 400	2 690		1 740
Other wages	1 450	0.69	0.38	1 680	1 098	1 597		1 790
Total labour expenses	5 770	2.76	1.53	5 230	5 035	6 545		5 895
Other direct expenses (\$)								
Weed and pest control	1 149	0.55	0.30	877	1 256	1 117		544
Fertiliser and lime	401	0.19	0.11	315	439	427		33
Electricity	289	0.14	0.08	270	172	429		161
Vehicle	233	0.11	0.06	67	124	274		175
Fuel	226	0.11	0.06	149	206	202		261
Repairs & maintenance	825	0.39	0.22	993	614	1 018		435
General	201	0.10	0.05	106	312	24		255
Machine harvesting	717	0.34	0.19	768	767	711		810
Total other direct expenses (\$)	4 040	1.93	1.07	3 545	3 890	4 200		2 675
Total direct expenses (\$)	9 810	4.69	2.60	8 775	8 925	10 745		8 570
Gross Margin (\$/ha)	15 215	7.28	4.03	20 005	25 120	6 905		7 240
Gross Margin (\$/t)	1 055			1 255	1 310	660		555
Number in model	49			51	49	49		8

¹ Quartile analysis shows the average figures where the gross margin is in the lower or upper quartile, ie. an indication of the features of higher and lower performance

Harvest Averages						
Sauvignon Blanc	per Ha	per tonne	per vine	per row metre	per row km	No.
Machine (\$)	716	49	0.01	0.19	190	47
Hand (\$)	2 105	320	0.86	0.52	524	1

Note: The gross margin includes both hand and machine harvesting. The Harvest Average data shows the cost of either machine or hand harvesting when only one harvest method was used.



Regional Comparison		
	Marlborough	Hawkes Bay
per Ha		
Yield (Tonnes)	14.4	13.0
Income \$/tonne	1 735	1 215
Income (\$/ha)	25 025	15 810
Total labour expenses	5 770	5 895
Total direct expenses	9 810	8 570
Gross Margin (\$/ha)	15 215	7 240
Number	36	1

Pinot Noir Gross Margin

The Marlborough Pinot Noir gross margin was \$11 615 per producing hectare, equal to \$1690 per tonne. This is significantly higher than the Central Otago Pinot Noir gross margin of \$2335 per producing hectare.

After a delayed budbreak, early season rainfall reduced irrigation requirements. Flowering in the first half of December was punctuated by rain and cool temperatures leading to sporadic and unusually low fruitset in Pinot Noir. A windy January and low sunshine hours in March and April slowed growth and ripening, but with moderate crop load most Pinot Noir was harvested before the worst of the rain in April.

Overall Marlborough produced 17 percent less Pinot Noir in 2017 than in 2016⁶.

Yields ranged, from 1.5 to 12.6 tonnes per hectare and prices from \$1920 to \$4435 per tonne, reflecting the wide range of markets that Marlborough growers are producing for.

The average yield of 6.9 tonnes per hectare is 73 percent higher than the average yield recorded in Central Otago.

Average price received was \$3230 per tonne, similar to that recorded in 2016 but \$755 per tonne lower than the Central Otago survey blocks.

Total direct expenses for Pinot Noir in 2017 were \$10 575 per hectare, less than Marlborough Pinot Noir in 2016 reflecting generally lower crop management costs due to the lower fruit set.

Marlborough labour expenses per hectare were significantly lower than Central Otago. While pruning in Marlborough was higher due to cane pruning rather than spur pruning as in Central Otago, overall labour was less due to lower canopy and crop management costs. This largely reflects the higher price point Central Otago growers are producing Pinot Noir for.

Pruning style was predominately 2-cane Vertical Shoot Positioned (VSP) with pruning costs \$2520 per hectare or \$1.02 per vine compared with the Central Otago average of \$0.61 per vine where pruning was a mix of 1 or 2-cane VSP and spur pruning.

⁶ New Zealand Winegrowers Vintage survey 2017

Vineyard Gross Margin Benchmarking

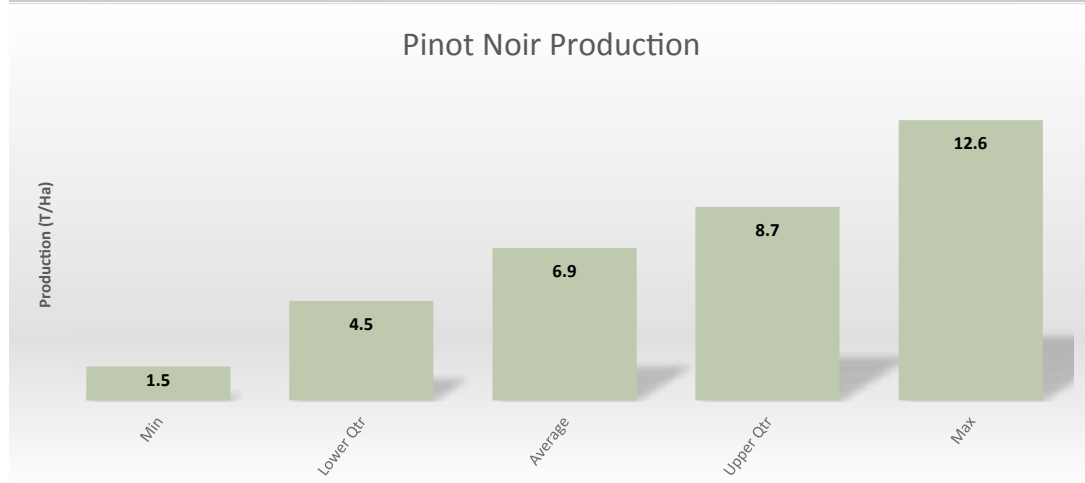
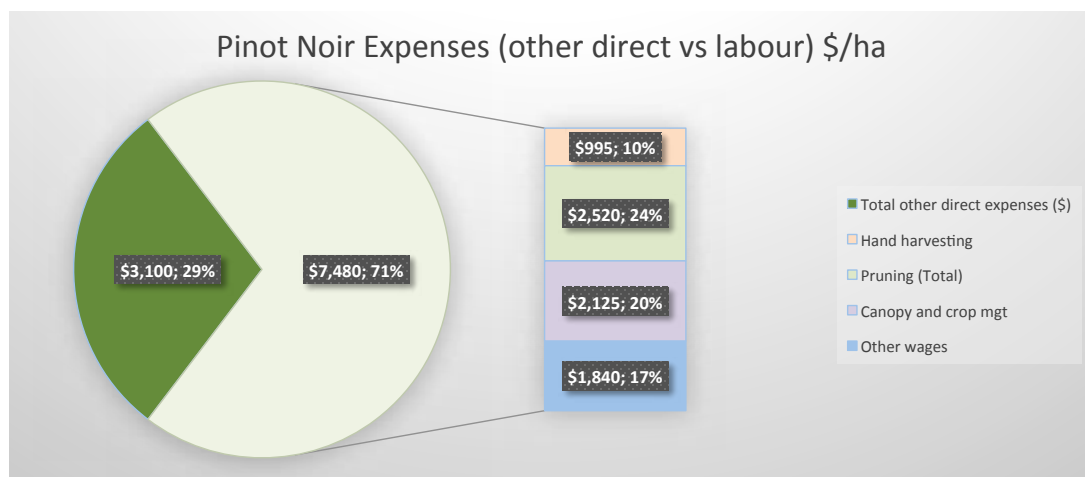
Marlborough 2017 Pinot Noir

Adjusted for unpaid labour		\$ per producing Ha				Quartile by Gross Margin ¹		Otago
	Average			2016				
	per Ha	per vine	per row metre	per Ha	Upper	Lower		per Ha
Unpaid FTE - number	0.5			0.1				0.2
Unpaid FTE - hours/ha	30			22				18
Vines/ha	2 470			2 437	2 105	2 417		2 667
Row metres/ha	4 039			4 126				4 143
Yield (Tonnes)	6.9	2.8kg	1.7kg	8.5	8.7	4.5		4.0
Income \$/tonne	3 230			3 175	2 910	3 180		3 985
Income (\$)	22 190	8.98	5.49	26 885	24 325	13 340		16 105
Labour expenses (\$)								
Hand harvesting	995	0.40	0.25	1 290	145	956		2 055
Pruning (Total)	2 520	1.02	0.62	2 095	2 401	2 710		1 640
Canopy and crop mgt	2 125	0.86	0.53	2 235	1 779	1 807		3 745
Other wages	1 840	0.74	0.46	2 855	1 765	2 258		3 025
Total labour expenses	7 475	3.03	1.85	8 475	6 090	7 730		10 465
Other direct expenses (\$)								
Weed and pest control	839	0.34	0.21	864	1 170	856		627
Fertiliser and lime	329	0.13	0.08	347	272	366		418
Electricity	300	0.12	0.07	401	211	536		252
Vehicle	131	0.05	0.03	87	99	286		349
Fuel	268	0.11	0.07	239	231	442		281
Repairs & maintenance	954	0.39	0.24	886	535	1 523		459
General	29	0.01	0.01	72	21	59		875
Machine harvesting	249	0.10	0.06	360	465	204		46
Total other direct expenses (\$)	3 100	1.26	0.77	3 255	3 005	4 270		3 305
Total direct expenses (\$)	10 575	4.28	2.62	11 730	9 095	12 000		13 770
Gross Margin (\$/ha)	11 615	4.70	2.88	15 155	15 230	1 340		2 335
Gross Margin (\$/t)	1 690			1 790	1 745	300		580
Number in model	36			31	36	36		17

¹ Quartile analysis shows the average figures where the gross margin is in the lower or upper quartile, ie. an indication of the features of higher and lower performance

Harvest Averages						
	per Ha	per tonne	per vine	per row metre	per row km	No.
Pinot Noir						
Machine (\$)	621	77	0.05	0.16	160	12
Hand (\$)	1 662	273	0.06	0.40	401	24

Note: The gross margin includes both hand and machine harvesting. The Harvest Average data shows the cost of either machine or hand harvesting when only one harvest method was used.



Regional Comparison			
	Marlborough	Otago	Wairarapa
per Ha			
Yield (Tonnes)	6.9	4.0	4.1
Income \$/tonne	3 230	3 985	3 940
Income (\$/ha)	22 190	16 105	16 140
Total labour expenses	7 475	10 465	9 560
Total direct expenses	10 575	13 770	12 535
Gross Margin (\$/ha)	11 615	2 335	3 605
Number	36	17	15

Central Otago



Central Otago

Key Parameters and Financial Result

Year ended 30 June 2017	Pinot Noir
Total production¹ (t/ha)	4.0
Average return (\$/t)	3 985
Net cash income (\$/ha)	16 105
Vineyard working expenses (\$/ha)	13 770
Gross Margin (\$/ha)	2 335
Gross Margin (\$/t)	580

¹ Figures may not add to totals due to rounding.

Background

The MPI viticulture monitoring programme was reviewed in 2013 and gross margins of dominant grape varieties in the main growing regions was trialled from 2015. The success of the trial has led to the continuation of the gross margin format in Marlborough, Gisborne, Hawke's Bay, Wairarapa and expansion into Otago in 2017. Eleven vineyards provided data for a total of 17 blocks representing 198 hectares.

The majority of participants are winery growers, growing for premium or super premium market.

The gross margin calculates the revenue less direct expenses for growing, harvesting and marketing the crop. It does not take account of overheads such as administration, debt servicing, tax, drawings or development and capital spending.

Key Points

Central Otago Pinot Noir achieved a gross margin in 2017 of \$2335 per hectare, which was respectively \$9280 and \$1270 lower than the Pinot Noir gross margins in Marlborough and the Wairarapa. This result was due to lower yields per hectare and higher costs of production, primarily labour, in Central Otago.

Average yields for Central Otago Pinot Noir were down by 10 percent compared to 2016⁷, but still considered near average.

Average price reported by this grower group was \$3985 per tonne, \$500 higher than the 2016 industry average price.

⁷ New Zealand Winegrowers Vintage survey 2017

Central Otago Weather Data

Month	Growing degree days ¹ (GDD)			Rainfall (mm)		
	2016 ²	2017	Long Term Average	2016	2017	Long Term Average
June	8	1	2	61	9	33
July	0	2	2	7	40	25
August	1	1	4	10	13	19
September	15	36	28	13	13	24
October	86	67	60	29	53	37
November	116	121	125	26	42	29
December	214	205	208	15	27	31
January	245	179	242	18	62	41
February	310	211	226	43	8	39
March	175	159	167	16	20	23
April	63	67	63	17	31	24
May	46	0	13	57	24	47
Total	1278	1050	1139	313	342	374

¹ GDD (growing degree days) are a temperature index, calculated by taking the average of the daily high and low temperatures compared with a baseline (10oC). They help predict the date that a flower will bloom or a crop reach maturity.

² Year refers to year of harvest.

Source NIWA (Cromwell).

Slightly higher than average rainfall in October and November helped Spring growth but did not adversely affect flowering. January was cool and wet and growth, in particular berry size slowed. As a result yields, although adequate, never reached the high levels of 2016.

Pinot Noir Gross Margin

The Central Otago Pinot Noir gross margin was \$2335 per producing hectare, equivalent to \$580 per tonne. This is 35 percent lower than the Wairarapa Pinot Noir gross margin of \$3605 and \$9280 lower than the Marlborough Pinot Noir gross margin of \$11 615 per producing hectare.

While slightly later than usual, seasonal conditions were generally favourable for growing in 2017. Central Otago produced 9 percent less Pinot Noir in 2017 compared to 2016⁸.

The gross margin shows an average yield of 4.0 tonnes per hectare, near the 4.2 tonnes per hectare regional average calculated using New Zealand Winegrowers Vintage survey 2017 and New Zealand Winegrowers Vineyard Register Report 2016-2019.

There was a range of yields, from 2.6 to 7.3 tonnes per hectare and prices from \$3380 to \$4625 per tonne, reflecting the high-end market most Central Otago growers are producing for.

Average price received for the survey blocks, at \$3985, was higher than the 2016 New Zealand Winegrowers reported contract price of \$3486. In general contract growers were reporting similar prices to 2016 and the difference is due to the predominance of winery growers in this survey producing premium and super premium fruit and placing a greater value on it.

The Central Otago average Pinot Noir price was \$755 per tonne higher than the Marlborough survey blocks but similar to the Wairarapa survey blocks. This price does not appear to adequately compensate for the higher growing costs and highlights the reliance on added value for the Central Otago winery grower.

Central Otago labour expenses of \$10 465 per hectare were significantly higher than comparable expenses in Marlborough (\$7475) and the Wairarapa (\$9560).

Pruning costs were lower at \$1640 per hectare or \$0.61 per vine, compared to the Marlborough average of \$1.02 per vine and the Wairarapa average of \$0.85 per vine. This is largely due to a greater amount of spur pruning in Central Otago compared to either of the other two regions.

Only one of the 17 blocks in this survey was machine harvested, and this was only part of the block. The hand harvest cost of \$539 per tonne was significant higher than in Marlborough. This was largely due to lower yields as Central Otago's hand-harvesting cost per metre of row was \$0.53 compared to the Marlborough average of \$0.40 per metre.

Central Otago's other direct expenditure is also slightly higher than Wairarapa. Growers in Central Otago, in particular, are spending more on fertiliser, chemicals, electricity and vehicles.

⁸ New Zealand Winegrowers Vintage survey 2017

Vineyard Gross Margin Benchmarking

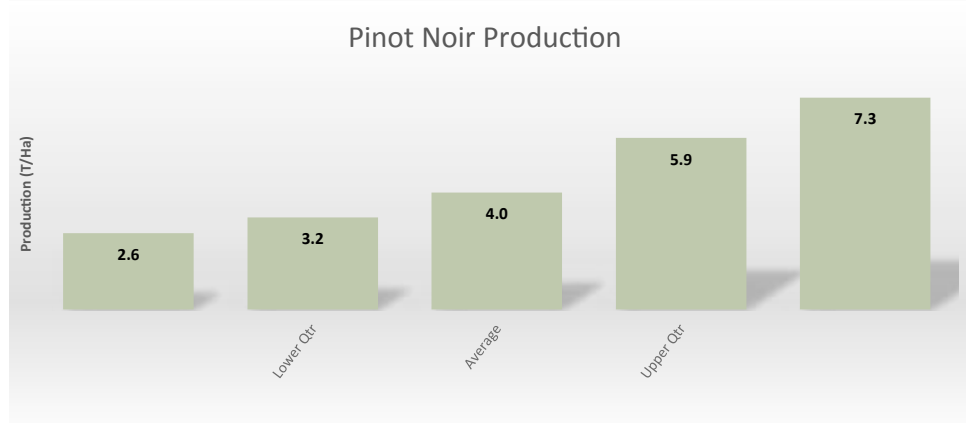
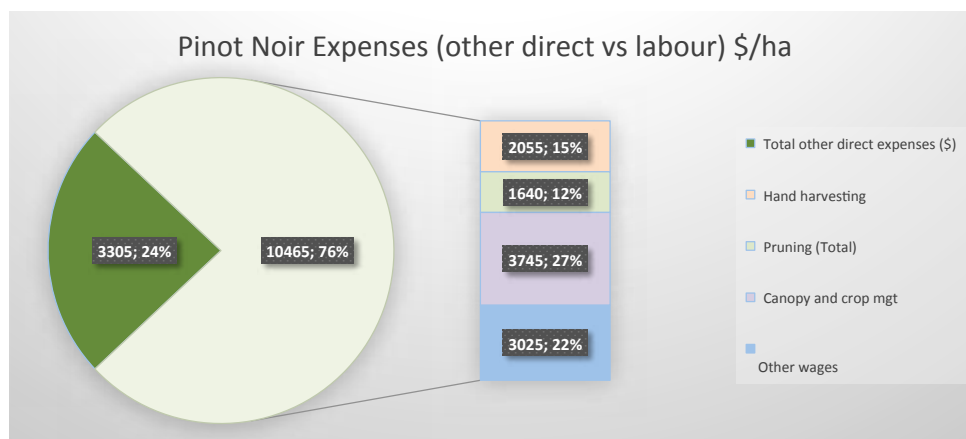
Central Otago 2017 Pinot Noir

Adjusted for unpaid labour	\$ per producing Ha			Quartile by Gross		Wairarapa
	Average			Margin ¹		
	per Ha	per vine	per row metre	Upper	Lower	
Unpaid FTE - number	0.2					0.6
Unpaid FTE - hours/ha	18					168
Vines/ha	2 667			2 822	2 501	2 969
Row metres/ha	4 143					4 510
Yield (Tonnes)	4.0	1.5kg	1.0kg	5.9	3.2	4.1
Income \$/tonne	3 985			4 020	4 305	3 940
Income (\$)	16 105	6.04	3.89	23 170	12 740	16 140
Labour expenses (\$)						
Hand harvesting	2 055	0.77	0.50	2 400	1 595	775
Pruning (Total)	1 640	0.61	0.40	1 161	999	2 515
Canopy and crop mgt	3 745	1.40	0.90	3 775	3 831	3 485
Other wages	3 025	1.13	0.73	3 555	5 459	2 780
Total labour expenses	10 465	3.92	2.53	10 890	11 885	9 560
Other direct expenses (\$)						
Weed and pest control	627	0.23	0.15	473	564	522
Fertiliser and lime	418	0.16	0.10	325	994	244
Electricity	252	0.09	0.06	462	417	170
Vehicle	349	0.13	0.08	711	348	270
Fuel	281	0.11	0.07	723	157	281
Repairs & maintenance	459	0.17	0.11	431	683	912
General	875	0.33	0.21	2 681	1 193	125
Machine harvesting	46	0.02	0.01	0	0	453
Total other direct expenses (\$)	3 305	1.24	0.80	5 805	4 355	2 975
Total direct expenses (\$)	13 770	5.16	3.32	16 695	16 240	12 535
Gross Margin (\$/ha)	2 335	0.88	0.56	6 475	-3 500	3 605
Gross Margin (\$/t)	580			1 090	-1 100	880
Number in model	17			17	17	15

¹ Quartile analysis shows the average figures where the gross margin is in the lower or upper quartile, ie. an indication of the features or higher and lower performance

Harvest Averages						
	per Ha	per tonne	per vine	per row metre	per row km	No.
Pinot Noir						
Hand (\$)	2 207	539	0.02	0.53	533	16

Note: The gross margin includes both hand and machine harvesting. The Harvest Average data shows the cost of either machine or hand harvesting when only one harvest method was used.



Regional Comparison			
	Otago	Wairarapa	Marlborough
per Ha			
Yield (Tonnes)	4.0	4.1	6.9
Income \$/tonne	3 985	3 940	3 230
Income (\$/ha)	16 105	16 140	22 190
Total labour expenses	10 465	9 560	7 475
Total direct expenses	13 770	12 535	10 575
Gross Margin (\$/ha)	2 335	3 605	11 615
Number	17	15	36

Industry Issues and Developments

Central Otago is a well-established wine growing region that has built a strong reputation for high quality Pinot Noir wine. Winery growers reported that this reputation, combined with strong distribution channels, is an extremely important building block for their success. It is this reputation that has consistently allowed Pinot Noir grape prices to be the highest in New Zealand.

Almost 73 percent of vineyards in Central Otago are less than 10 hectares⁹ and approximately 75 percent are winery-owned vineyards. In the survey group six of the 11 vineyards are smaller than 10 hectares and eight are winery rather than contract owned.

The lower gross margin, especially when viewed from a contract grower point of view, makes attracting new investment to the region challenging. Contract growers aim to contain their costs well below the averages reported in this gross margin model, to remain financially viable. Central Otago growers seek to produce their own wine to capture the added value in the bottle and build on the superb reputation the region has for producing world class Pinot Noir.

⁹ New Zealand Winegrowers Vintage survey 2017.