



NEW ZEALAND WINE
PURE DISCOVERY

Variety Gross Margin Benchmarking

Gisborne | Hawke's Bay | Wairarapa |
Marlborough | Central Otago | **2018**



Variety

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Gisborne | Hawke's Bay | Wairarapa | Marlborough
Central Otago | **2018**

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 June and July for their participation in our variety gross margin benchmarking programme.

Disclaimer

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Cover image courtesy of Vinoptima

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Introduction

Vineyard Financial Benchmarking includes both Whole Vineyard and Regional Variety Gross Margin Benchmarking. This report includes the results of the 2018 gross margin benchmarking programme. The MPI viticulture monitoring programme was reviewed in 2013 and the decision to develop gross margins of dominant grape varieties in the main growing regions was trialled for the 2015 season. The success of the trial led to the continuation of the gross margin format and the expansion of the programme in Otago in 2017.

In 2018 the gross margin programme was available in Gisborne, Hawke's Bay, Wairarapa, Marlborough and Central Otago.

An excellent response rate was received in Marlborough and Central Otago and a reasonable response in Gisborne. Accordingly, gross margins have been constructed for each of these regions. However, the response rate from Hawke's Bay and Wairarapa was not sufficient to allow meaningful gross margins to be developed. As such commentary only reports have been developed for Hawke's Bay and Gisborne that discuss the key trends and issues reported by growers in these two regions.



Gisborne

GISBORNE

Key Parameters and Financial Results

Year ended 30 June 2018	Chardonnay
Production¹ (t/ha)	12.8
Average return (\$/t)	1 190
Grape income (\$/ha)	15 205
Vineyard direct expenses (\$/ha)	10 215
Gross Margin (\$/ha)	4 990
Gross Margin (\$/t)	390

¹ Figures may not add to totals due to rounding

Background

The MPI viticulture monitoring programme was reviewed in 2013 and the decision to develop gross margins of dominant grape varieties in Hawke's Bay was trialled for the 2015 season. The success of the trial has led to the expansion of the programme in Marlborough, Gisborne, Wairarapa and Otago.

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.

Key Points

The Gisborne Chardonnay gross margin was \$4,990 per producing hectare or \$390 per tonne.

There was a shift this year in benchmarking participants, with more corporate vineyards entering data. This shift in participants means that comparing data between harvest 2018 and harvest 2017 is constrained.

Poor flowering and therefore fruit set in some areas, as well as some rot thinning at harvest lead to lower yields

Disease pressure, both Powdery Mildew pre-verasion and Botrytis and sour rot at harvest, continue to be an ongoing battle for Gisborne growers. Growers are positive that they are "winning the battle" against Powdery Mildew and continue to use the

disease models and apply tighter spray intervals. This increased spraying means generally higher chemical and labour costs, which growers consider to be ongoing and not seasonal.

Some grapes were harvested early due to high rainfall in February increasing disease

pressure. However, higher than average temperatures over December (267 GDD) and January (368 GDD) meant these grapes still had “fantastic” flavours and low acids even when brix didn’t meet desirable targets.

Gisborne Weather Data

Month	Growing degree days ¹ (GDD)			Rainfall (mm)		
	2017 ²	2018	Long Term Average	2017	2018	Long Term Average
June	46	29	39	78	84	105
July	30	15	26	63	167	131
August	25	60	40	105	53	78
September	87	93	75	117	125	72
October	147	134	127	96	19	70
November	211	162	173	12	34	63
December	247	267	254	41	41	57
January	297	368	297	4	64	59
February	279	314	264	109	98	68
March	268	164	241	166	85	93
April	184	117	162	234	75	97
May	79	41	92	145	89	96
Total	1445	1764	1331	512	934	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 (Gisborne Awa).

Chardonnay Gross Margin

The Gisborne Chardonnay gross margin was \$4,990 per producing hectare or \$390 per tonne. This is down 57% or \$6,685 per hectare compared to 2017. However, as the participants of the programme this year were larger corporates, comparison against harvest 2017, which was majority smaller growers, is constrained.

Cold weather over spring led to poor flowering and fruitset resulting in lower yields for some growers such as Hexton Chardonnay which produced 4.43 kg/vine compared to 6.22 kg/vine in 2017 (Vine facts, 2018).

Lower than average rainfall from October to December, less than 50 mm per month, and higher than average temperature over January set up the grapes with good flavour development so they were able to be harvested earlier when 98mm of rain through February fell.

The significant rain through February created disease issues, which lead to grower's rot-thinning, which contributed to the overall decrease in average yield below the past two seasons. Lower yields played a significant part in the lower gross margin, as price remained steady around \$1,200 per tonne. Sparkling producers averaged \$1,000 per tonne and 17.4 tonnes per hectare and table wine averaged \$1,500 per tonne and 8.7 tonnes per hectare. This highlights

the different markets that Chardonnay is grown for. Gisborne Chardonnay is historically lower priced than Hawke's Bay Chardonnay, however Gisborne wineries generally allow a higher yield cap for their growers.

Comparing vineyard expenses between years is difficult as the survey this year included majority larger corporate wineries compared to smaller growers in 2017. However, it does highlight the difference between the two operations, with winery growers generally having the capacity for more spending on Repairs and Maintenance, higher chemical costs and higher labour inputs. Labour expenses make up 65% of total expenses, which is the same proportion as in 2017, although overall costs were higher.

Other direct expenses make up 35% of total expenses. Weed and pest control is the most significant of these costs. Growers in the region are getting on top of their powdery mildew pressure by decreasing the interval between spraying, resulting in more spray rounds and resulting in significant increases in chemical and labour costs. Spray intervals are now typically 7-10 days for Powdery Mildew compared to 15 days which was the norm in the past.

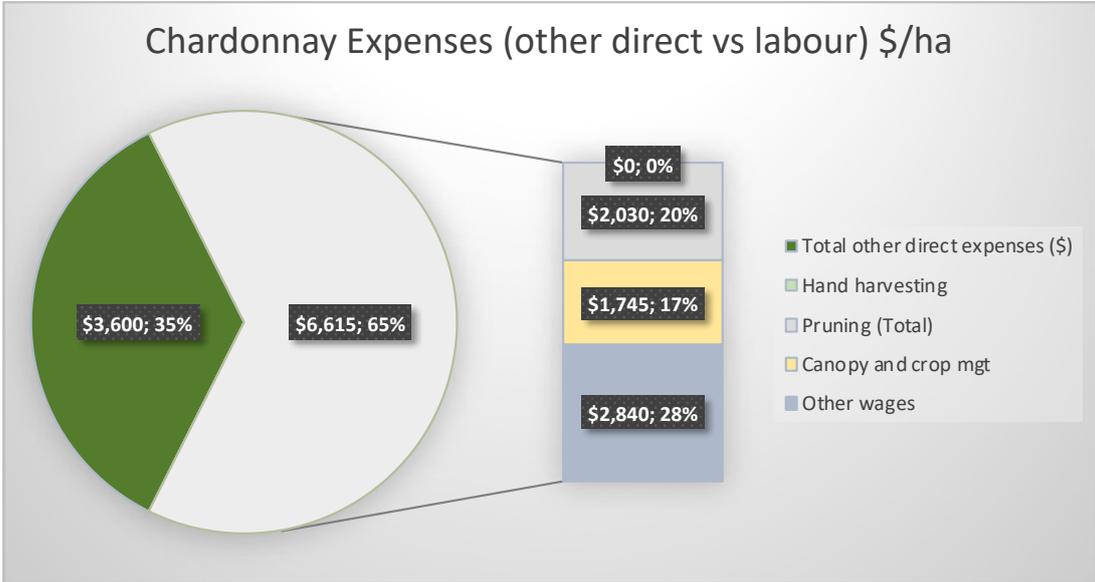
Vineyard Gross Margin Benchmarking

Gisborne 2018 Chardonnay

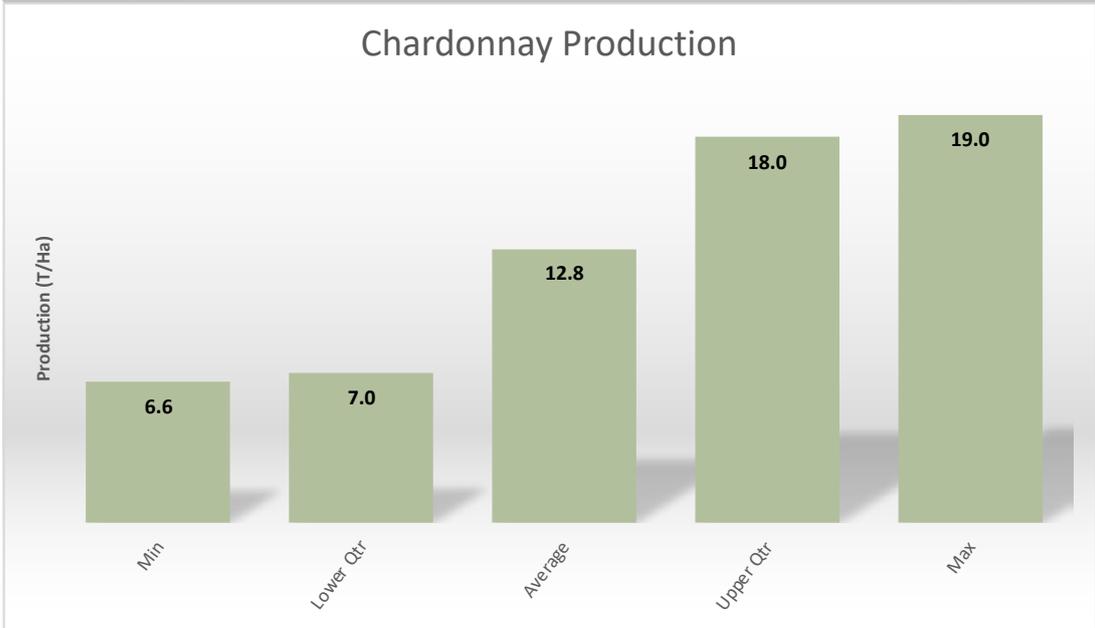
	Adjusted for unpaid labour				\$ per producing Ha	
	Average			2017 per Ha	Quartile by Gross Margin ¹	
	per Ha	per vine	per row metre		Upper	Lower
Unpaid FTE - number	0.1			0.3		
Unpaid FTE - hours/ha	11			37		
Vines/ha	1 886			1 761	1 891	1 852
Row metres/ha	3 664			3 663		
Yield (Tonnes)	12.8	6.8kg	3.5kg	14.5	13.6	6.6
Income \$/tonne	1 190			1 285	1 170	1 450
Income (\$)	15 205	8.06	4.15	18 595	15 910	9 525
Labour expenses (\$)						
Hand harvesting	0	0.00	0.00	0	0	0
Pruning (Total)	2 030	1.08	0.55	2 000	2 072	1 685
Canopy and crop mgt	1 745	0.93	0.48	1 400	1 823	1 117
Other wages	2 840	1.51	0.78	1 115	2 785	3 289
Total labour expenses	6 615	3.51	1.81	4 515	6 680	6 090
Other direct expenses (\$)						
Weed and pest control	1 351	0.72	0.37	906	1 312	1 661
Fertiliser and lime	233	0.12	0.06	257	218	354
Electricity	35	0.02	0.01	28	32	55
Vehicle	58	0.03	0.02	37	55	81
Fuel	279	0.15	0.08	106	260	426
Repairs & maintenance	792	0.42	0.22	397	749	1 120
General	22	0.01	0.01	1	19	49
Machine harvesting	829	0.44	0.23	673	763	1 350
Total other direct expenses (\$)	3 600	1.91	0.98	2 405	3 405	5 095
Total direct expenses (\$)	10 215	5.42	2.79	6 920	10 085	11 185
Gross Margin (\$/ha)	4 990	2.65	1.36	11 675	5 825	-1 660
Gross Margin (\$/t)	390			805	430	- 255
Number in model	8			5	8	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

Chardonnay Expenses (other direct vs labour) \$/ha



Chardonnay Production



Industry Trends and Issues

Cool weather over spring led to poor flowering in some areas, resulting in lower yields, which partially explains the lower gross margin for Gisborne Chardonnay this year. Lower yields in Gisborne is frustrating as higher yield caps than Hawke's Bay aids Gisborne Chardonnay profitability as shown by the 2017 gross margin. Overall Gisborne had a 20% decrease in total production between 2018 and 2017 (NZ Wine Vintage survey, 2018) however the majority of this is due to approximately 100ha being taken out of wine grape production, as reported by the NZ Wine Vineyard Register report.

Powdery mildew control in Gisborne is impressive. Growers are confident they are "getting on top of" pressure, by tightening spray intervals and understanding that high powdery mildew pressure is the "new normal". Most growers are spraying to a 7-10 day interval compared to the 15 day interval previously used for powdery mildew control.

February rainfall of 98mm was above average, creating an anxious start to harvest for many. However, with high temperatures leading up to harvest, as shown by the higher than average GDD in January, growers were able to get their grapes off early as they had good flavour development, even when brix wasn't "there" yet. While there was some rot thinning pre-harvest, Harvest 2018 had surprisingly good outcomes considering the weather challenges they faced.

The larger vertically integrated entities remain positive and are looking to expand, with some planting and replanting occurring. These entities have secure contracts and strong export markets and have the capacity to scale their operations to make the most of profitable years, and smooth out the tougher years.

Conversely, returns for contract growers continue to be disappointing. As a result, many smaller growers are either selling their land or replacing their grapes with kiwifruit or apples which currently offer greater returns. For these growers it is increasingly difficult to make a profit on a smaller block of land when costs such as wages and chemicals are increasing, and price per tonne remains static.

Sourcing skilled labour for seasonal jobs is challenging due to the range of crops grown in Gisborne, and growers believe this is only going to get worse. With kiwifruit, apples and citrus being significant industries in Gisborne, timing of seasonal labour requirements can overlap, making the labour supply limited for certain lower paying jobs such as pruning in vineyards.



Hawke's Bay

HAWKE'S BAY

Background

The MPI viticulture monitoring programme was reviewed in 2013 and the decision to develop gross margins of dominant grape varieties in Hawke's Bay was trialled for the 2015 season. The programme has since been expanded to Marlborough, Gisborne, Wairarapa and Otago.

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.

Low participation rates from Hawke's Bay growers this season resulted in a data set that was too small to allow for useful Gross Margin Benchmarking analysis. Instead, a survey of key growers in the region was executed to gather the industry trends and issues in 2017/18.

Hawke's Bay Weather Data

Month	Growing degree days ¹ (GDD)			Rainfall (mm)		
	2017 ²	2018	Long Term Average	2017	2018	Long Term Average
June	37	3	19	60	46	68
July	18	7	12	51	86	95
August	16	27	23	146	51	60
September	65	72	47	70	12	58
October	110	96	83	26	66	38
November	160	161	120	20	5	25
December	195	235	192	15	36	48
January	256	343	245	4	25	43
February	228	275	209	176	61	45
March	201	236	198	98	87	51
April	131	119	124	144	88	75
May	28	82	59	69	45	64
Total	1445	1656	1331	879	608	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).

Industry Trends and Issues

No gross margin analysis was completed for Hawke's Bay varieties in 2018. Low participation rates mean that the data is not strong enough to represent a regional average. Growers indicate that they don't often split their costs by variety and don't have the time to work those out to participate in the benchmarking.

Overall, there was an increase of 22% in tonnes produced from Hawke's Bay in 2018 compared to 2017 (Vintage Survey, 2018). This increase was largely Merlot (as explained below) and Sauvignon Blanc. 2017 was a difficult year with a lot of blocks left unharvested due to rain.

Harvest 2018 has been described by growers as a season of two halves. Good early and mid-season conditions generally contributed to good flowering and fruit set. Yields were average for most varieties, however Merlot, especially located on the Gimblett Gravels, had yields that were up, 4.84 kg/vine compared to 2.2 kg/vine in 2017. Regionally, bud burst timing and flowering differed between sub-regions. Gimblett Gravels, which is warmer by 94 GDDs compared to Lawn Road, had bud burst approximately two weeks earlier than the last three seasons (Vine Facts, 2018), whereas Lawn Road timing was similar to the last season.

Conditions over December and January experienced higher than average GDDs (578 vs 407), and lower than average rainfall with only 61mm of rain falling compared to the average of 91mm. This conducive weather however, was short lived, with higher than average rainfall through February and March of 148mm compared to an average of 96mm for the

same period. This rainfall caused serious disease pressure with bunches showing Botrytis and Slip Skin infections.

According to Vine Facts, 2018, there were 11 Botrytis infection periods from veraison to 31st March 2018, compared to 9 in 2017 and 5 in 2015. This disease pressure at harvest caused a chain reaction for some growers. Depending on canopy and crop management up to harvest, some blocks had to: rot thin to achieve winery quality parameters; harvest earlier which impacted brix which usually incurs penalties; be left unharvested as brix and or quality did not meet winery specification. All the above resulted in increased costs for growers.

Hawke's Bay contract growers continue to feel depressed over low returns per tonne of grapes, with price not shifting from season to season. This low return is a result of downward pressure and therefore the consumer who prefers low price-point wines. Hawke's Bay Wine Growers association are looking to develop a stronger Hawke's Bay brand, which will hopefully assist with the demand for Hawke's Bay wines, as proven by the success of Marlborough Sauvignon Blanc. However, having a diverse range of high quality cultivars grown in Hawke's Bay makes the focus of a Hawke's Bay wine story difficult.

Labour continues to be a significant cost for vineyards, with increased spraying for Powdery Mildew control, additional rot thinning walks, and minimum wage increasing. Sourcing skilled labour is a challenge, with the RSE scheme and backpackers providing mixed results, particularly in terms of quality work.



Wairarapa

WAIRARAPA

Background

The MPI viticulture monitoring programme was reviewed in 2013 and the decision to develop gross margins of dominant grape varieties in Hawke's Bay was trialled for the 2015 season. The programme has since been expanded to Marlborough, Gisborne, Wairarapa and Otago.

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.

Low participation from Wairarapa growers rates this season resulted in a data set that was too small to allow for useful Gross Margin Benchmarking analysis. Instead, a survey of key growers in the region was executed to gather the industry trends and issues in 2017/18.

Wairarapa Weather Data

Month	Growing degree days ¹ (GDD)			Rainfall (mm)		
	2017 ²	2018	Long Term Average	2017	2018	Long Term Average
June	29	3	17	65	29	80
July	12	3	12	73	157	78
August	3	31	19	73	85	75
September	47	44	42	120	54	59
October	84	93	69	53	36	71
November	125	136	121	158	6	53
December	165	254	197	37	29	51
January	218	343	241	42	85	41
February	196	250	218	97	124	41
March	176	205	188	70	54	50
April	104	99	104	174	58	75
May	28	57	45	70	95	77
Total	1187	1518	1273	1032	812	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 (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 (Martinborough AWS).

Industry Trends and Issues

No gross margin analysis was completed for Wairarapa Pinot Noir 2018. Low participation rates mean that the data is not strong enough to represent a regional average. Growers indicated that they don't often split their costs by task and/or variety and don't have the time to work those out to participate in the benchmarking.

Price per tonne of Pinot Noir according to the Grape Price Data by New Zealand Wine was \$3,486 in 2017 which appears steady on the previous years report at \$3,440. Yield was up by 32%, with blocks harvesting on average 4 tonnes per hectare, which is up from last year and slightly above the long-term average of 3.5 tonnes per hectare, calculated using New Zealand Winegrowers Vintage survey 2017 and New Zealand Winegrowers Vineyard Register Report 2016-2019.

The start to the season for Wairarapa Pinot Noir was good. Mild weather and a frost-free spring resulted in a good flowering and fruit set period which explains the favourable yields reached this year. Rainfall from October to December was lower than average, with 71mm of rain compared to an average of 175mm for the same period. Temperatures on average were warmer, with GDDs 24 percent higher than average from October through to March. Conversely, this warmer weather caused a Mealy Bug outbreak which growers noted seeing from November.

Powdery Mildew continues to be an issue although it was kept under reasonable control this year as a tight spray program and brilliant pre-Christmas weather kept infection at bay. Pressure from "lifestyle" properties is an issue for commercial

operations as infection on these properties is often poorly managed and can create hotspot sources of inoculum.

2018 was a lot warmer than the previous season, with seasonal growing degree days of 1518 compared to 1187 for 2016/17. February rainfall of 124mm, 83mm more than average, coupled with warm weather caused high humidity, and therefore an increase in harvest disease pressure. Along with botrytis, sour rot infections occurred on many vineyards in the district, which growers note hasn't occurred in Wairarapa for a number of years. As a result, rot thinning was an added expense this season.

The warm weather leading up to harvest meant grapes were generally able to be harvested early, after rot thinning where appropriate. Flavours were assessed as well developed even if brix hadn't met its target yet. As a result, the quality of the fruit harvested was high and winemakers feel positive about 2018 Pinot Noir.

Labour is a serious issue facing Wairarapa wine growers. Skilled labour is harder to come by and growers believe less backpackers are frequenting the region. A similar issue faces permanent staff as accommodation (both long and short term) is scarce and therefore harder for people to move to the region.



Marlborough

MARLBOROUGH

Key Parameters and Financial Results

Year ended 30 June 2018	Sauvignon Blanc	Pinot Noir
Total production¹ (t/ha)	14.1	6.7
Average return (\$/t)	\$1,820	\$3,250
Net cash income (\$/ha)	\$25,620	\$21,765
Vineyard working expenses (\$/ha)	\$9,530	\$13,145
Gross Margin (\$/ha)	\$16,090	\$8,620
Gross Margin (\$/t)	\$1,145	\$1,285

¹ Figures may not add to totals due to rounding.

Background

The MPI viticulture monitoring programme was reviewed in 2013 and the decision to develop gross margins of dominant grape varieties in Hawke's Bay was trialled for the 2015 season. The success of the trial has led to the expansion of the programme in Marlborough, Gisborne, Wairarapa and Otago. In 2018, a poor response rate in Hawke's Bay and Wairarapa led to commentary only reports for those two regions.

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 fourth year of gross margin benchmarking in Marlborough with 52 growers providing data for a total of 52 Sauvignon Blanc and 23 Pinot Noir blocks.

Key Points

Marlborough Sauvignon Blanc gross margin was \$16,090 per hectare while Pinot Noir achieved a gross margin of \$8,620 per hectare.

Average yields for Marlborough Sauvignon Blanc were down by just 2 percent for the survey group. Pinot Noir was down 3 percent compared to the 2017 yields reported by the gross margin survey growers.

There was a warm and dry start to the season, with ideal flowering conditions delivering excellent fruit set. Later, 315 mm of rain occurred between January and March which was 260 percent of the long-term average for the period. Record rainfall

occurred in February of 181 mm; 108 mm of which was delivered by ex-tropical cyclone Gita over three days. Regular rainfall and warm temperatures created high disease pressure conditions and excessive vegetative growth which delayed ripening. Rain events close to, and during harvest, caused some quality issues with botrytis, and concentrated the intake.

Average Sauvignon Blanc price reported by this gross margin grower group was \$1,820 per tonne, similar to the Marlborough Model Vineyard survey group. Pinot Noir income for the gross margin group averaged \$3,250 per tonne, similar to 2017 prices.

Marlborough Weather Data

Month	Growing degree days ¹ (GDD)			Rainfall (mm)		
	2017 ²	2018	Long Term Average	2017	2018	Long Term Average
June	32	6	19	77	18	69
July	7	4	9	34	62	62
August	8	39	19	39	66	56
September	61	64	57	26	50	47
October	125	121	104	59	32	64
November	167	154	145	86	16	45
December	207	270	216	20	22	46
January	265	333	253	27	80	45
February	224	244	225	62	181	40
March	196	219	197	47	54	36
April	120	115	111	131	52	55
May	28	63	59	57	85	56
Total	1409	1627	1396	590	701	551

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 (Blenheim).

Sauvignon Blanc Gross Margin

The Marlborough Sauvignon Blanc gross margin was \$16,090 per producing hectare, equal to \$1,145 per tonne. This is up \$875 per hectare, 6 percent, on the 2017 gross margin.

Budbreak occurred at a similar time to previous years but the dry warm conditions, in particular four days at the start of December over 30°C, advanced Sauvignon Blanc flowering by around 7 days compared to 2017. December growing degree days of 270 and just 22mm of rainfall ensured an ideal flowering and excellent berry numbers. From January to the end of March 2018, there were regular and significant rain events totalling 315mm, 260 percent of the LTA of 121mm for the same period. This increased berry size but also increased disease pressure impacting on yields in some vineyards.

Overall Marlborough produced 2 percent more Sauvignon Blanc in 2018 than in 2017¹. Vineyard producing area was also up 3 percent in 2018.

The average yield in the gross margin survey group of 14.1 tonnes per hectare was similar to the Whole vineyard survey group of 14.0 tonnes per hectare.

There was a range of yields from 6.7 to 21.2 tonnes per hectare, reflecting the varying climatic conditions in Marlborough sub regions from Awatere to Wairau and their adjoining valleys.

Prices varied from \$1,130 to \$3,000 per tonne, with an average price of \$1,820, similar to the Marlborough Model Vineyard survey group. The range in price reflects

one vineyard with significant quality issues and one that is paid per hectare and produced low tonnage. Removing these two as outliers, prices range from \$1,450 to \$2,400 per tonne.

Total direct expenses for Sauvignon Blanc were \$9,530 per hectare. While labour expenses were up, overall expenses for this group was down \$280 per hectare due to lower electricity (irrigation), fuel and repairs and maintenance. Sauvignon Blanc direct expenses were \$3,615 per tonne lower than for Marlborough Pinot Noir.

Increased trimming, mowing and for some growers spraying and crop moderation, increased labour expenses for Marlborough Sauvignon Blanc in 2018.

Marlborough spending to grow Sauvignon Blanc is less than for Pinot Noir, mainly because of lower 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 and 4-cane Vertical Shoot Positioned (VSP), averaging 3.6 canes per vine, with pruning costs \$2,435 per hectare or \$1.15 per vine.

Marlborough Sauvignon Blanc continues to be the most profitable combination of variety and region in the gross margin benchmarking programme.

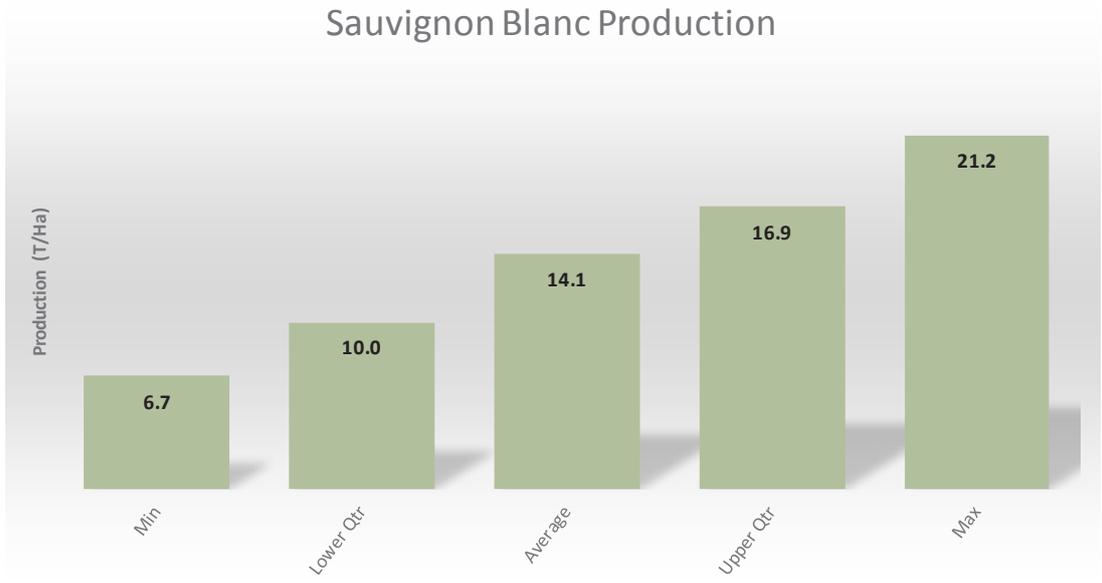
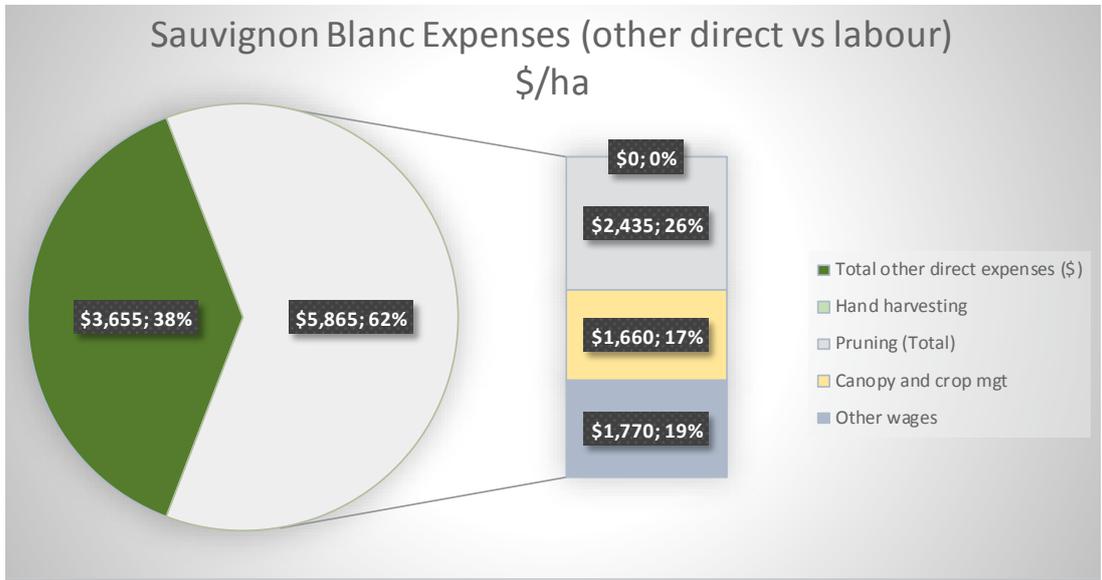
¹ New Zealand Winegrowers Vintage survey 2018

Vineyard Gross Margin Benchmarking

Marlborough 2018 Sauvignon Blanc

	Average			2017 per Ha	Quartile by Gross Margin ¹	
	per Ha	per vine	per row metre		Upper	Lower
<i>Adjusted for unpaid labour</i>						
	\$ per producing Ha					
Unpaid FTE - number	0.4			0.4		
Unpaid FTE - hours/ha	21			26		
Vines/ha	2 126			2 091	2 127	2 002
Row metres/ha	3 846			3 778		
Yield (Tonnes)	14.1	6.6kg	3.7kg	14.4	14.1	9.5
Income \$/tonne	1 820			1 735	1 825	1 135
Income (\$)	25 620	12.05	6.66	25 025	25 735	10 710
Labour expenses (\$)						
Hand harvesting	0	0.00	0.00	15	2	0
Pruning (Total)	2 435	1.15	0.63	2 475	2 437	2 481
Canopy and crop mgt	1 660	0.78	0.43	1 830	1 652	2 481
Other wages	1 770	0.83	0.46	1 450	1 766	2 633
Total labour expenses	5 875	2.76	1.53	5 770	5 855	7 595
Other direct expenses (\$)						
Weed and pest control	1 161	0.55	0.30	1 149	1 157	1 669
Fertiliser and lime	339	0.16	0.09	401	341	0
Electricity	164	0.08	0.04	289	163	213
Vehicle	95	0.04	0.02	233	95	22
Fuel	185	0.09	0.05	226	184	287
Repairs & maintenance	788	0.37	0.20	825	789	565
General	184	0.09	0.05	201	184	170
Machine harvesting	742	0.35	0.19	717	742	813
Total other direct expenses (\$)	3 655	1.72	0.95	4 040	3 655	3 740
Total direct expenses (\$)	9 530	4.48	2.48	9 810	9 510	11 335
Gross Margin (\$/ha)	16 090	7.57	4.18	15 215	16 225	- 625
Gross Margin (\$/t)	1 145			1 055	1 150	- 65
Number in model	52			49	52	52

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



Pinot Noir Gross Margin

The Marlborough Pinot Noir gross margin was \$8,620 per producing hectare, equal to \$1,285 per tonne. This is 19 percent lower than the Central Otago Pinot Noir gross margin of \$10,645 per producing hectare.

Budbreak was similar to long term average on Wairau Plains vineyards and slightly earlier than average on Awatere vineyards. Warm, dry conditions through spring and early summer ensured good flowering and fruitset. High rainfall from January to harvest increased berry size and led to some high bunch weights. Unfortunately, the rainfall also contributed to higher incidence of botrytis in places. Where this occurred, crop thinning and selective harvesting ensured fruit quality submitted to the wineries was maintained.

Overall Marlborough produced 17 percent more Pinot Noir in 2018 than in 2017².

The average yield of 6.7 tonnes per hectare in the gross margin survey group is 8 percent lower than in the Central Otago gross margin survey group for 2018.

There was a range of yields, from 4.1 to 8.8 tonnes per hectare and prices from \$2,200 to \$4,575 per tonne, reflecting predominately Pinot Noir for table wine. Pinot Noir for sparkling wine and particularly Rose has been increasing in recent years but only one block in this survey group was identified as for sparkling wine.

Average price received for the survey blocks was \$3,250 per tonne, similar to the 2017 price and \$600 per tonne lower than for the Central Otago survey blocks.

Total direct expenses for Pinot Noir were \$13,145 per hectare, up \$2,570 on the 2017 survey. This is partly due to fewer sparkling blocks in the survey but also increased crop thinning, selective hand harvesting and as for Sauvignon Blanc increased trimming and mowing.

Marlborough labour expenses per hectare were lower than Central Otago. While pruning in Marlborough was higher due to cane pruning rather than spur pruning as in Central Otago; labour in Central Otago was \$3,675 per hectare higher due to much greater 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 \$2,640 per hectare or \$0.99 per vine compared to the Central Otago average of \$0.73 per vine where pruning was a mix of 1 or 2 cane VSP and spur pruning.

² New Zealand Winegrowers Vintage survey 2018

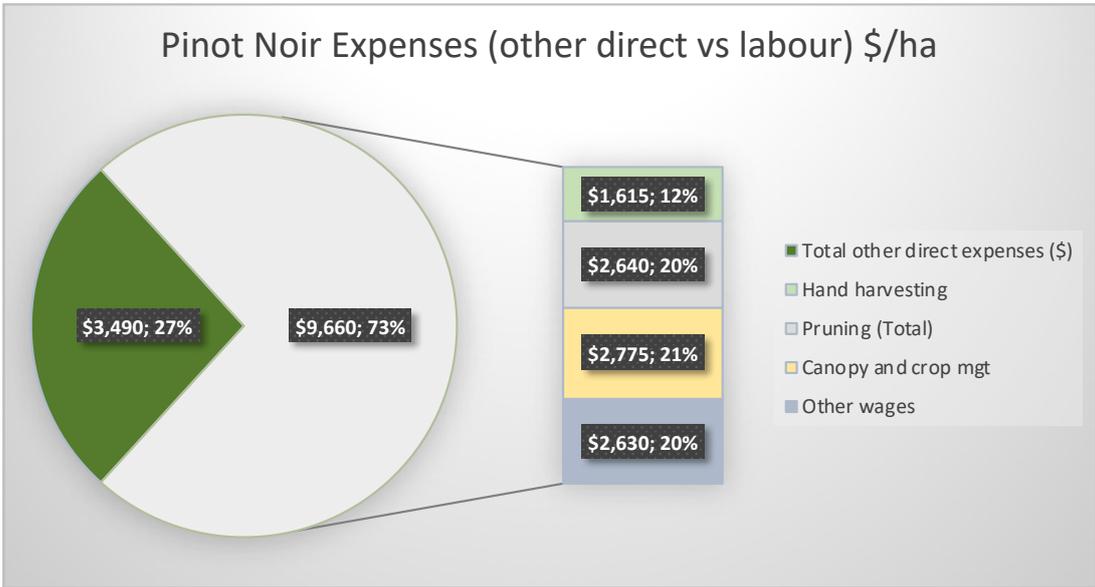
Vineyard Gross Margin Benchmarking

Marlborough 2018 Pinot Noir

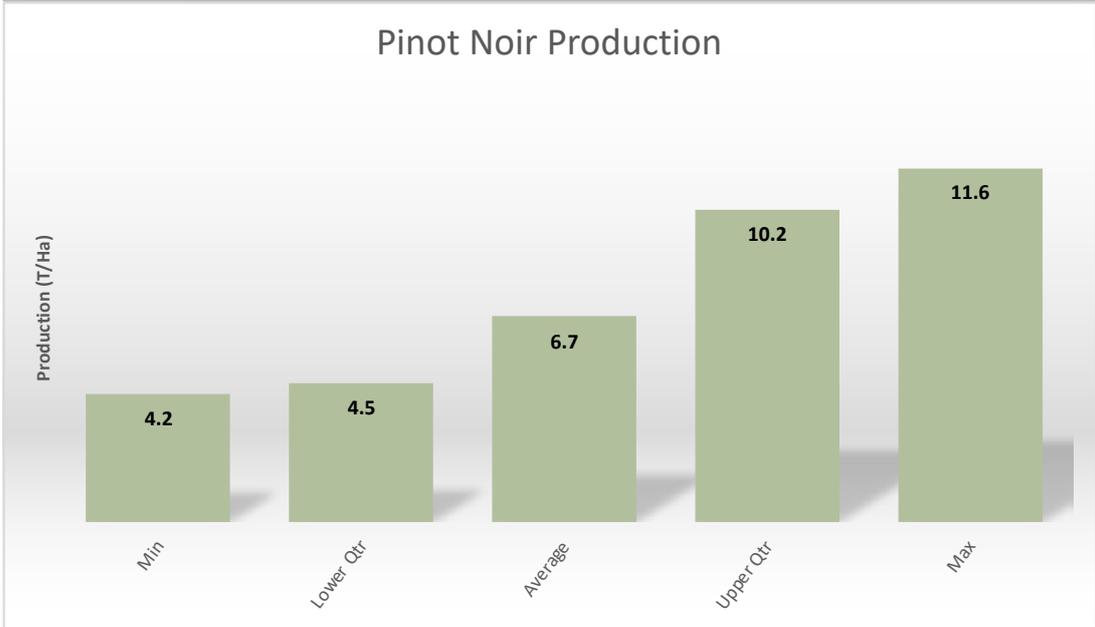
	Adjusted for unpaid labour				\$ per producing Ha	
	Average			2017	Quartile by Gross Margin ¹	
	per Ha	per vine	per row metre	per Ha	Upper	Lower
Unpaid FTE - number	0.4			0.5		
Unpaid FTE - hours/ha	17			30		
Vines/ha	2 653			2 470	2 573	2 354
Row metres/ha	3 905			4 039		
Yield (Tonnes)	6.7	2.5kg	1.7kg	6.9	10.2	4.5
Income \$/tonne	3 250			3 230	3 010	3 545
Income (\$)	21 765	8.20	5.57	22 190	30 615	16 045
Labour expenses (\$)						
Hand harvesting	1 615	0.61	0.41	995	1 338	2 408
Pruning (Total)	2 640	0.99	0.68	2 520	2 628	2 573
Canopy and crop mgt	2 775	1.05	0.71	2 125	1 791	3 632
Other wages	2 630	0.99	0.67	1 840	1 115	3 642
Total labour expenses	9 655	3.64	2.47	7 475	6 870	12 255
Other direct expenses (\$)						
Weed and pest control	1 162	0.44	0.30	839	1 196	1 101
Fertiliser and lime	399	0.15	0.10	329	371	517
Electricity	213	0.08	0.05	300	227	224
Vehicle	96	0.04	0.02	131	78	89
Fuel	189	0.07	0.05	268	163	133
Repairs & maintenance	886	0.33	0.23	954	969	800
General	98	0.04	0.03	29	17	47
Machine harvesting	450	0.17	0.12	249	373	387
Total other direct expenses (\$)	3 490	1.32	0.89	3 100	3 390	3 300
Total direct expenses (\$)	13 145	4.95	3.37	10 575	10 260	15 555
Gross Margin (\$/ha)	8 620	3.25	2.21	11 615	20 355	490
Gross Margin (\$/t)	1 285			1 690	2 000	110
Number in model	23			36	23	23

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

Pinot Noir Expenses (other direct vs labour) \$/ha



Pinot Noir Production





Central Otago

CENTRAL OTAGO

Key Parameters and Financial Results

Year ended 30 June 2018	Pinot Noir
Production¹ (t/ha)	7.3
Average return (\$/t)	\$3,845
Grape income (\$/ha)	\$28,075
Vineyard direct expenses (\$/ha)	\$17,430
Gross Margin (\$/ha)	\$10,645
Gross Margin (\$/t)	\$1,460

¹ Figures may not add to totals due to rounding

Background

The MPI viticulture monitoring programme was reviewed in 2013 and the decision to develop gross margins of dominant grape varieties in the main growing regions was trialled for the 2015 season. The success of the trial has led to the continuation of the gross margin format and has also seen the expansion of the programme in Otago in 2017.

Thirty-five vineyards provided data for a total of 35 blocks representing 334 hectares. The majority of participants were

winery growers, growing for the 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 of \$10,645 per hectare, a significant increase of \$8,365 compared to 2017. This was due to higher production as a result of an exceptional growing season.

Average yields for the survey group were 7.3 tonnes per hectare, up by 79 percent compared to 2017.

Average price reported by this grower group was \$3,845, which is \$200 higher than the 2017 industry average price³.

Central Otago Weather Data

Month	Growing degree days ¹ (GDD)			Rainfall (mm)		
	2017 ²	2018	Long Term Average	2017	2018	Long Term Average
June	1	0	2	9	22	30
July	2	0	1	40	28	25
August	1	12	5	13	16	19
September	36	43	29	13	18	24
October	67	122	65	53	6	34
November	121	221	133	42	36	30
December	205	286	214	27	9	29
January	179	375	253	62	47	42
February	211	173	222	8	97	44
March	159	161	167	20	49	26
April	67	54	62	31	64	27
May	0	10	13	24	33	46
Total	1050	1457	1166	342	425	376

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 (Cromwell).

³ New Zealand Winegrowers Average Grape Prices 2017 Final

Pinot Noir Gross Margin

The Central Otago Pinot Noir gross margin was \$10,645 per producing hectare, equal to \$1,460 per tonne. This is \$8,365 up on the 2017 survey group and \$2,025 higher than the Marlborough Pinot Noir gross margin of \$8,620 per producing hectare.

The 2017/18 growing season in Central Otago has been described by many as exceptional. Growing degree days for October to January were 51% higher than the long-term average. This led to an early flowering and combined with very low rainfall 9mm December ensured ideal pollination and fruitset conditions throughout the region.

Summer rainfall, 47mm January and 97mm February ensured vines had some moisture to increase berry size and aided ripening. The February rainfall, in particular, also increased the Botrytis risk but with the majority of the regions crop hand-harvested, this caused minimal problems for growers.

Given these ideal growing conditions Central Otago produced 42 percent more Pinot Noir in 2018 compared to 2017⁴.

The gross margin shows an average yield of 7.3 tonnes per hectare, well above 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 3.8 to 10.5 tonnes per hectare and prices from \$2,900 to \$4,500 per tonne, reflecting the high-end market most Central Otago growers are producing for.

Average price received for the survey blocks, at \$3,845, was slightly higher than the 2017 New Zealand Winegrowers reported contract price of \$3,643. In general, contract growers were reporting similar prices to 2017 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 \$595 per tonne higher than the Marlborough survey blocks.

Central Otago labour expenses, \$13,330 per hectare, were significantly higher than Marlborough's \$9,655 per hectare. Smaller vineyard size, so less spreading of management wages and a higher amount of canopy and crop management are the main reasons for this.

Pruning costs, however, were lower at \$2,105 per hectare or \$0.73 per vine, compared to the Marlborough average of \$0.99 per vine. This is largely due to a greater amount of spur pruning in Central Otago.

Three of the 35 blocks in this survey were machine harvested, with a further two having part of the block machine harvested. Hand harvesting is more expensive than machine harvesting, adding around \$750 per hectare to Central Otago's average growing cost.

⁴ New Zealand Winegrowers Vintage survey 2018

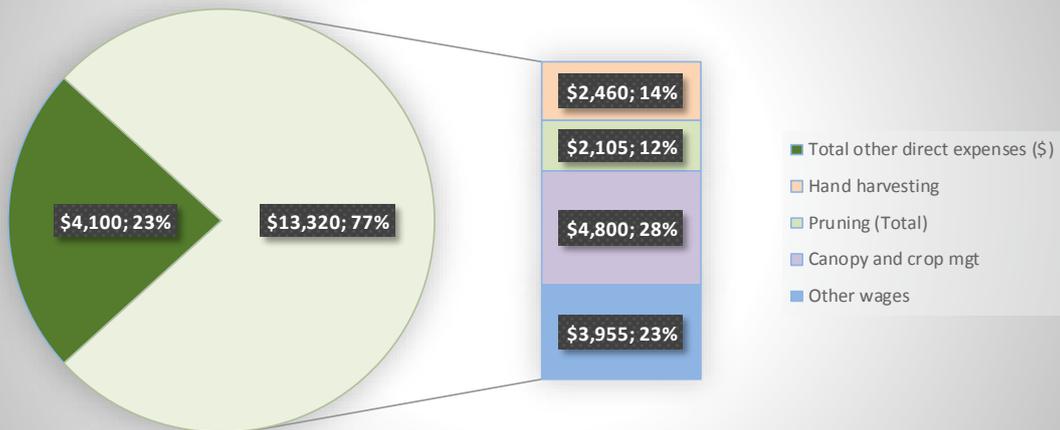
Vineyard Gross Margin Benchmarking

Central Otago 2018 Pinot Noir

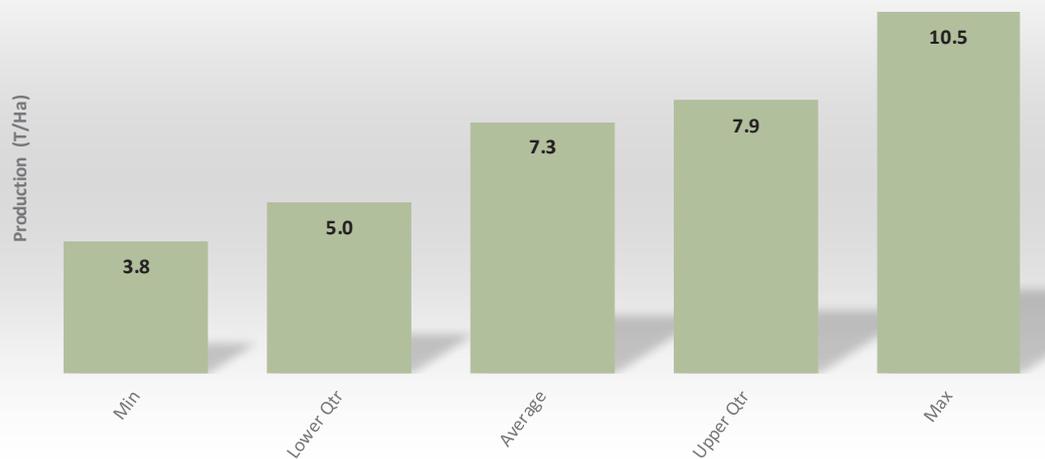
	Average				Quartile by Gross Margin ¹	
	per Ha	per vine	per row metre	2017 per Ha	Upper	Lower
<i>Adjusted for unpaid labour</i>						
					\$ per producing Ha	
Unpaid FTE - number	0.1			0.2		
Unpaid FTE - hours/ha	9			18		
Vines/ha	2 867			2 667	3 067	2 589
Row metres/ha	4 103			4 143		
Yield (Tonnes)	7.3	2.5kg	1.8kg	4.1	7.9	5.0
Income \$/tonne	3 845			3 970	4 090	4 280
Income (\$)	28 075	9.79	6.84	16 225	32 425	21 310
Labour expenses (\$)						
Hand harvesting	2 460	0.86	0.60	2 055	1 850	2 810
Pruning (Total)	2 105	0.73	0.51	1 775	2 327	1 728
Canopy and crop mgt	4 800	1.67	1.17	3 700	4 547	5 801
Other wages	3 955	1.38	0.96	3 000	4 541	5 133
Total labour expenses	13 330	4.65	3.25	10 535	13 265	15 475
Other direct expenses (\$)						
Weed and pest control	607	0.21	0.15	656	463	915
Fertiliser and lime	376	0.13	0.09	393	106	570
Electricity	255	0.09	0.06	253	217	271
Vehicle	448	0.16	0.11	348	314	638
Fuel	357	0.12	0.09	281	333	428
Repairs & maintenance	941	0.33	0.23	462	774	1 508
General	769	0.27	0.19	972	531	1 098
Machine harvesting	347	0.12	0.08	46	657	86
Total other direct expenses (\$)	4 100	1.43	1.00	3 410	3 395	5 515
Total direct expenses (\$)	17 430	6.08	4.25	13 945	16 660	20 990
Gross Margin (\$/ha)	10 645	3.71	2.59	2 280	15 765	320
Gross Margin (\$/t)	1 460			560	1 990	65
Number in model	35			17	35	35

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

Pinot Noir Expenses (other direct vs labour) \$/ha



Pinot Noir Production



Industry Issues and Developments

The 2017/18 season has been described as one of the most extreme, providing superb growing conditions that may not be repeated for some time. The excellent fruitset and high early season heat followed by moderate temperatures during ripening have led to some exceptional yields, excellent fruit quality with nice flavours and winemakers are looking forward to some good quality wines.

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, are extremely important building blocks for their success. It is this reputation that has consistently allowed Pinot Noir grape prices to be the highest in New Zealand. Wineries also reported that they are experiencing good growth in demand from local and international markets.

There is strong demand for horticultural land in Central Otago with much interest from growers seeking to develop cherry or apple orchards. While some vineyard development is also occurring, this is at relatively low levels. The increased demand for other horticultural crops is one factor contributing to competition for resources such as water, accommodation and particularly labour.

Several growers reported labour is an ongoing concern and are finding suitable workers hard to find. A seasonal labour shortage was declared by the Ministry of Social Development on 12th December 2017, the first time it was declared so early in the season, but such declarations are becoming increasingly common in Central Otago.