

# ECONOMIC SURVEY

## 2019-20



DairyNZ 



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# Introduction

The 2019-20 DairyNZ Economic Survey is the fifteenth annual survey of New Zealand dairy farmers using dairy farm business data from DairyBase®.

The Economic Survey of Factory Supply Dairy Farmers was first published in 1963-64 by the New Zealand Dairy Board. In 1988-89 the survey was undertaken by Livestock Improvement Corporation (LIC) and then Dexcel in 1999-2000, when the name was changed to Economic Survey of New Zealand Dairy Farmers. From 2005-06 DairyNZ published the survey under the new title DairyNZ Economic Survey.

DairyNZ is the industry good organisation, representing New Zealand's dairy farmers. Funded by a levy on milksolids and together with government investment, our purpose is to deliver a better future for New Zealand dairy farmers and help them successfully navigate through change. We aim to do this by leading innovation in world-class dairy farming and by working always in the best interests of New Zealand's dairy farmers. DairyBase® is owned and managed by DairyNZ on behalf of the dairy farmers of New Zealand.

For information on benchmarking and joining DairyBase® contact:

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This publication is a reference compilation of dairy farmers' key financial data. DairyNZ have endeavoured to ensure that the information in this publication is accurate, but does not accept liability for any error or omission. No persons involved in data collection, processing, analysis or editing will be held accountable. Data in this document can be used for other purposes provided it is correctly referenced. The correct reference for all data contained in this document is: DairyNZ Economic Survey 2019-20.

This year the Economic Survey has been built as an online and interactive publication, with direct download of summary data where possible as Microsoft Excel files. A pdf and book version are available as a companion.

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## Executive Summary

Milk payout received by farmers in 2019-20 increased by 63 cents to \$7.05 per kilogram milksolids (MS). Milk production per cow and per hectare increased. Operating expenses per kilogram milksolids increased compared to the 2018-19 season, while operating profit per hectare increased to \$2,750. Operating return on dairy assets increased to 5.1 percent. Total return on assets increased by 0.9 percent points to 1.4%. Equity decreased with reductions in capital values.

## Owner-operator Summary

Operating profit of \$2,750 per hectare in 2019-20 was up 28 percent on the previous season. The milk payout received of \$7.05 per kilogram of milksolids was up 63 cents (+9.8%) on the price received in 2018-19. Both milksolids per cow (+3.5%) and milksolids per hectare (+4.3%) increased in 2019-20. Livestock income in 2019-20 increased to \$0.49 per kg milksolids. Gross farm revenue of \$7.62 per kilogram milksolids in 2019-20 was up 64 cents. Farm working expenses (FWE) of \$4.41 per kilogram milksolids was 16 cents higher compared with last season. Operating expenses increased 21 cents to \$5.31 per kilogram milksolids, more than the record high of \$5.17 in 2013-14.

The cash available for living and growth (discretionary cash) in 2018-19 was \$299,837 per farm, the highest level in ten years. Following a large capital expenditure, changes in debt and drawings, a cash surplus of \$57,909 was recorded. The operating return on dairy assets increased to 5.1 percent in 2018-19 and the total return on assets was 1.4 percent. Total return on equity was -1.1 percent. Equity levels decreased 2.1 percent (-\$85,307), with the positive growth in equity from profit more than offset by the decrease in asset values and small increase in liabilities. Total liabilities as a percentage of total assets (debt to assets ratio) decreased to 51 percent at the end of the season. Closing term liabilities per kilogram milksolids decreased to \$23.25.

## Owner-operator Summary Table

	2018-19	2019-20
<b>PHYSICAL KPIS:</b>		
Effective hectares	146.0	142.1
Peak cows milked	424	415
Stocking rate (cows/ha)	2.9	2.9
Kg milksolids sold	167,189	169,761
Milksolids sold per hectare	1,145	1,194
Milksolids sold per cow	395	409
<b>PRICES:</b>		
<b>PAYOUT RECEIVED: \$/kg MS sold</b>	<b>6.42</b>	<b>7.05</b>
<b>CASHFLOW:</b>		
Cash operating surplus	446,701	537,460
Discretionary Cash	208,906	318,872
Cash available for living and growth	213,109	299,837
<b>Cash surplus/deficit</b>	<b>-14,958</b>	<b>57,909</b>
<b>PROFITABILITY PER HA:</b>		
Dairy gross farm revenue per ha	7,991	9,097
Dairy operating expenses per ha	5,837	6,347
<b>Dairy operating profit per ha</b>	<b>2,154</b>	<b>2,750</b>
<b>Business profit before tax per all effective hectares</b>	<b>1,077</b>	<b>1,681</b>
<b>PROFITABILITY PER KG MILKSOLIDS:</b>		
Dairy gross farm revenue per kg milksolids	6.98	7.62
Farm working expenses per kg milksolids	4.25	4.41
Dairy operating expenses per kg milksolids	5.10	5.31
<b>Dairy operating profit per kg milksolids</b>	<b>1.88</b>	<b>2.30</b>
<b>RETURNS:</b>		
Operating return on dairy assets %	4.0%	5.1%
<b>Total return on assets %</b>	<b>0.5%</b>	<b>1.4%</b>
<b>Total return on equity %</b>	<b>-3.4%</b>	<b>-1.1%</b>
<b>WEALTH CREATION:</b>		
<b>Growth in equity</b>	<b>-363,884</b>	<b>-85,307</b>
Growth in equity from profit	63,675	159,527
Growth in equity from capital	-427,560	-244,765
<b>Growth in equity %</b>	<b>-8.7%</b>	<b>-2.1%</b>
<b>RISK:</b>		
Closing debt to asset %	53.4%	51.0%
Closing term liabilities per kg MS	24.92	23.25

## 50:50 Sharemilkers Summary

Operating profit per hectare for 50:50 sharemilkers (herd owning sharemilkers) recorded an increase (+35%) to \$1,050 per hectare in 2019-20. Higher milk payouts received (+28 cents per kilogram milksolids) were partially offset by a decrease in kilogram milksolids produced per cow and a decrease in total effective hectares as compared to last season. Operating expenses per kilogram milksolids increased 13 cents to \$3.13. The average cash available for living and growth increased to \$161,640 per farm. With increased capital expenditure, drawings and debt, a cash surplus of \$41,334 was recorded in 2019-20. Operating return on dairy assets was at 16.8 percent for sharemilkers, while total return on assets was measured at 9.3 percent. The level of debt to assets decreased to 47.9 percent at close, while term liabilities of \$3.19 per kilogram milksolids was similar to the previous season.

## 50:50 Sharemilkers Summary Table

	2018-19	2019-20
<b>PHYSICAL KPIS:</b>		
Effective hectares	151.3	144.1
Peak cows milked	452	431
Stocking rate (cows/ha)	3.0	3.0
Kg milksolids sold	184,909	175,656
Milksolids sold per hectare	1,222	1,219
Milksolids sold per cow	410	408
<b>PRICES:</b>		
<b>PAYOUT RECEIVED: \$/kg MS sold</b>	<b>3.17</b>	<b>3.45</b>
<b>CASHFLOW:</b>		
Cash operating surplus	213,273	230,372
Discretionary Cash	148,021	171,895
Cash available for living and growth	134,715	161,640
<b>Cash surplus/deficit</b>	<b>-12,622</b>	<b>41,334</b>
<b>PROFITABILITY PER HA:</b>		
Dairy gross farm revenue per ha	4,447	4,864
Dairy operating expenses per ha	3,673	3,815
<b>Dairy operating profit per ha</b>	<b>775</b>	<b>1,050</b>
<b>Business profit before tax per all effective hectares</b>	<b>951</b>	<b>1,260</b>
<b>PROFITABILITY PER KG MILKSOLIDS:</b>		
Dairy gross farm revenue per kg milksolids	3.64	3.99
Farm working expenses per kg milksolids	2.44	2.50
Dairy operating expenses per kg milksolids	3.00	3.13
<b>Dairy operating profit per kg milksolids</b>	<b>0.63</b>	<b>0.86</b>
<b>RETURNS:</b>		
Operating return on dairy assets %	12.4%	16.8%
<b>Total return on assets %</b>	<b>18.0%</b>	<b>9.3%</b>
<b>Total return on equity %</b>	<b>36.7%</b>	<b>16.9%</b>
<b>WEALTH CREATION:</b>		
<b>Growth in equity</b>	<b>34,397</b>	<b>97,394</b>
Growth in equity from profit	70,311	112,985
Growth in equity from capital	-35,914	-15,536
<b>Growth in equity %</b>	<b>7.4%</b>	<b>15.8%</b>
<b>RISK:</b>		
Closing debt to asset %	61.6%	47.9%
Closing term liabilities per kg MS	3.78	3.19



# 1 Background

The 2019-20 DairyNZ Economic Survey summarises a sample of dairy farm data from the DairyBase® database. DairyBase® is available to all levy paying New Zealand dairy farmers. Annual surveys prior to 2005-06 were undertaken by Livestock Improvement Corporation (LIC) and Dexcel using a random sampling procedure stratified by region and herd size. In contrast, participation in DairyBase® is voluntary and at this stage contains farms with above average milk production levels. For this publication, groups of farms were selected that closely match the average regional herd size, hectares and milksolids production as published in the New Zealand Dairy Statistics 2019-20.

The purpose of DairyBase® is to improve the financial understanding and performance of dairy farmers using a benchmarking approach and is designed to link the physical and financial performance of farms. DairyBase® contains financial data from annual farm accounts, as well as physical data supplied by the farmer and estimated current market values of fixed assets. The DairyBase® support centre, accredited accountants and other rural professionals enter the data on behalf of their clients and the data is validated within DairyBase®. Farmers wishing to benchmark their farm performance have access to a wide range of statistics in DairyBase®, including (where numbers permit) regional, district, herd size and production system data.

## 2 Survey Description

### 2.1 Survey Methodology

Groups of farms that closely match the average regional herd size, hectares and milksolids production, as described in New Zealand Dairy Statistics 2019-20 were selected for this publication. The initial pool of herds included 876 owner-operator and 289 50:50 sharemilker (herd owning sharemilker) herds, validated and committed to the DairyBase® database for the 2019-20 financial year. This excluded:

- multiple herds operating under one business identity, and
- herds with less than 100 cows.

Businesses were then excluded for the following reasons:

- businesses with a significant change in land area during the year, and
- extreme outlier data, and/or
- key financial data required for the data sample were missing.

The aim of the sample selection process was to align the regional and national average herd sizes, hectares and milksolids production for each of these two ownership structures while retaining a reasonable number of farm businesses in each region. These regional and national averages are available in New Zealand Dairy Statistics 2019-20 publication.

The final number of herds included in this survey comprised 326 owner-operator and 124 50:50 sharemilker herds. Of the owner-operator herds, 226 (69.33%) were North Island herds and 100 (30.67%) were from the South Island. Of the sharemilker herds, 89 (71.77%) were from the North Island and 35 (28.23%) were South Island herds.

### 2.2 Ownership Structure Definitions

An owner-operator receives 100% of the milk revenue and either owns, or leases, both the herd and the land. In contrast, a 50:50 sharemilker owns the herd but not the milking land, and receives 50% of the milk revenue. Although the definition of sharemilkers used in this survey is 50:50, in practice they may receive between 40 percent and 60 percent of the milk revenue. Herds with variable order sharemilkers, and farm owners with sharemilking arrangements, were not included in this survey.

### 2.3 Sample Unit

The data used in this survey reflects the total dairying enterprise of each business. Where businesses have multiple ownership types, such as partnerships and trusts, the accounts of all entities are consolidated and entered as one.

### 2.4 Survey Weights

National averages in this report have been weighted by the regional proportion of herds reported in the New Zealand Dairy Statistics 2019-20. Simply averaging the regional data shown in this document will not produce the same result as that shown for New Zealand. Herd size is defined as the peak number of cows milked at any time during the year. Total herds are used as the weight for owner operators, because owner operators represent the whole business unit. The national average for 50:50 sharemilkers is weighted by the regional proportions of sharemilkers.

## 2.5. HERD SIZE DISTRIBUTIONS

Table 2.1: Regional Distribution of Herds: Dairy Statistics

Region	Total herds	% of total herds	Owner-operator herds	% of Owner-operator herds	50:50 Sharemilker herds	% of 50:50 Sharemilker herds
Northland	918	8.5%	582	9.6%	221	7.0%
Waikato	3,644	33.6%	1,859	30.6%	1,154	36.7%
Bay of Plenty	567	5.2%	317	5.2%	147	4.7%
Taranaki	1,568	14.4%	863	14.2%	511	16.2%
Lower North Island	994	9.2%	630	10.4%	223	7.1%
West Coast-Tasman	363	3.3%	263	4.3%	71	2.3%
Marlborough-Canterbury	1,410	13.0%	862	14.2%	362	11.5%
Otago-Southland	1,394	12.8%	706	11.6%	459	14.6%

## 2.5 Herd Size Distributions

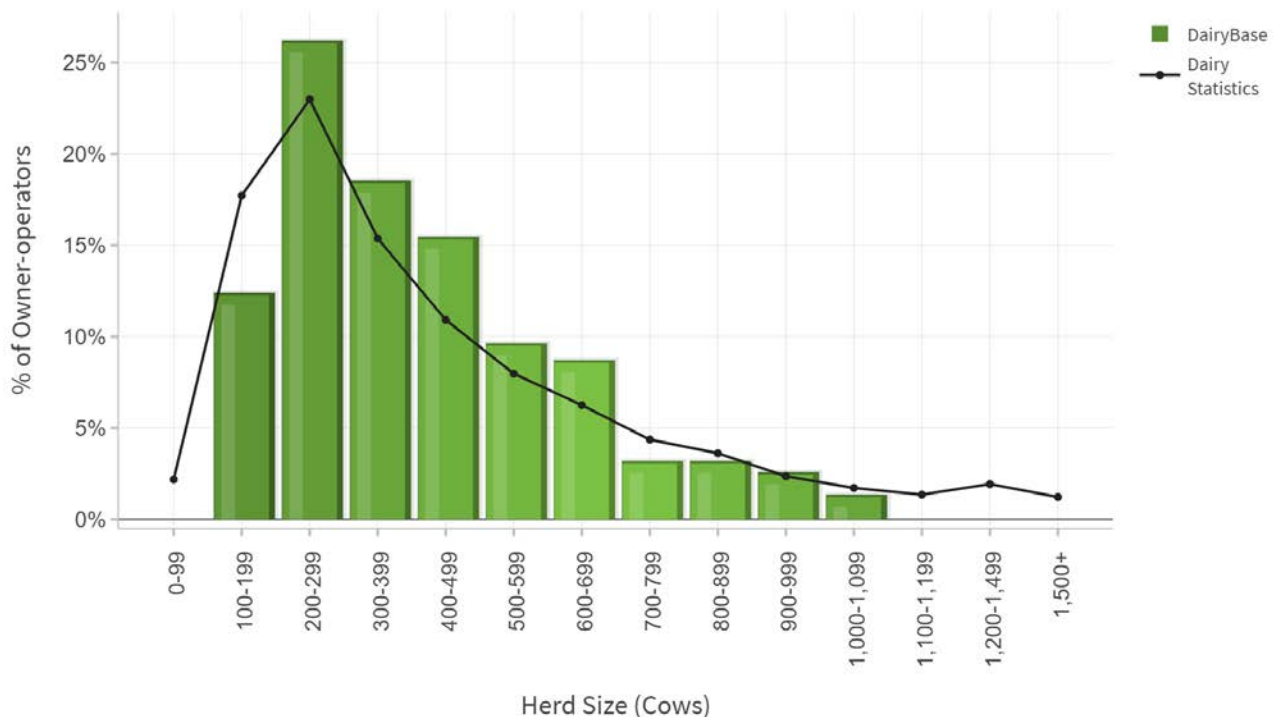
The average DairyNZ Economic Survey owner-operator herd of 415 cows was eighteen less than the New Zealand Dairy Statistics 2019-20 national average herd size of 433 cows.

A comparison of the owner-operator herd distribution between the DairyNZ Economic Survey and the New Zealand Dairy Statistics 2019-20 shows the DairyNZ survey:

- excludes herds under 100 cows;
- is over represented by herds between 200 and 700 cows; and
- is under represented by herds between 100 and 200 cows, and between 700 and 1200+ cows.

Refer to Figure 2.1.

Figure 2.1: New Zealand Owner-operator Herd Size Distributions 2019-20



The DairyNZ Economic Survey national average herd size for 50:50 sharemilkers of 431 cows is larger than the 420 cows recorded in the New Zealand Dairy Statistics 2019-20.

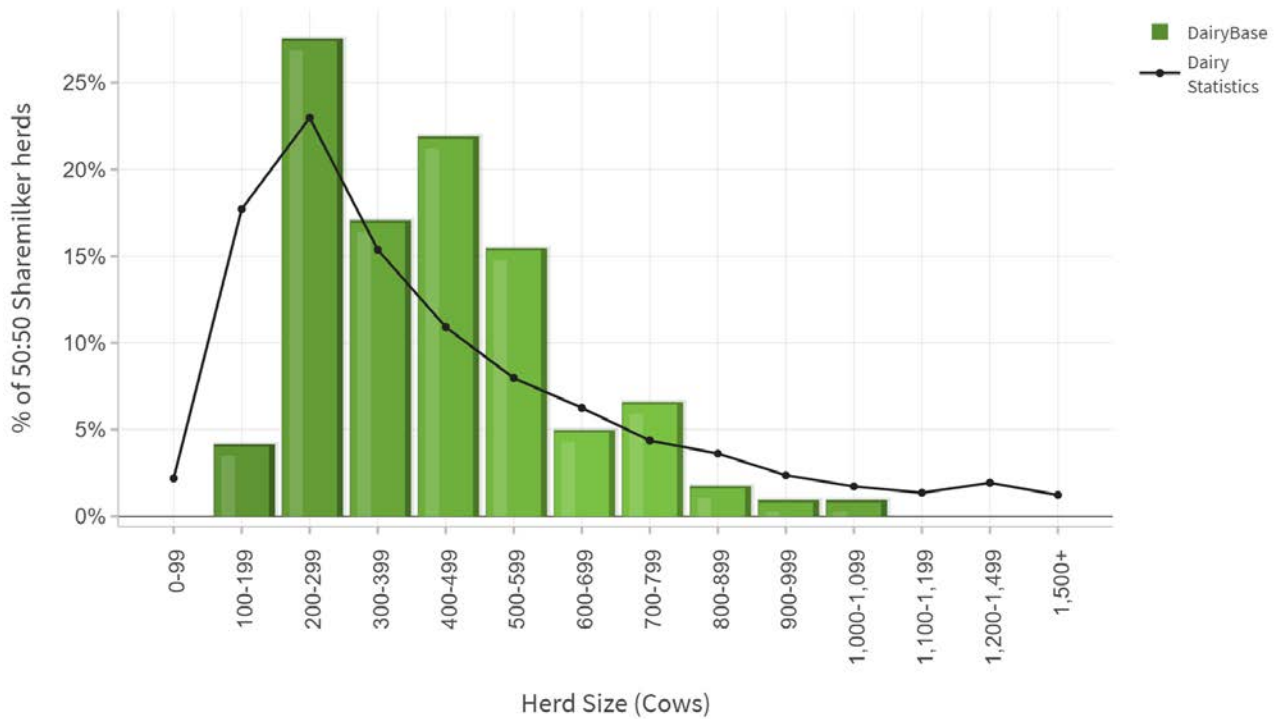
As compared with the New Zealand Dairy Statistics 2019-20, for 50:50 sharemilkers, the DairyNZ Economic Survey:

## 2.5. HERD SIZE DISTRIBUTIONS

- excludes herds under 100 cows;
- is over represented by herds between 200 and 300 cows, between 400 and 600 cows, and between 700 and 800 cows;
- is under-represented by herds between 100 and 200 cows, and between 600 and 700 cows, and 800+ cows.

Refer to Figure 2.2.

Figure 2.2: New Zealand 50:50 Sharemilker Herd Size Distributions 2019-20



## 2.6 Survey Regions

This survey uses geographic regions and districts as defined by the 73 Territorial Local Authorities. These districts are amalgamated into eight regions, five in the North Island and three in the South Island.

### 1 Northland

1. Far North
2. Whangarei
3. Kaipara
4. Rodney
5. North Shore City
6. Waitakere City
7. Auckland City

### 2 Waikato

8. Manukau City
9. Papakura
10. Franklin
11. Waikato
12. Hamilton City
13. Waipa
14. Otorohanga
15. Waitomo
16. Thames/Coromandel
17. Hauraki
18. Matamata/Piako
19. South Waikato
20. Taupo
21. Ruapehu

### 3 Bay of Plenty

22. Western Bay of Plenty
23. Tauranga
24. Rotorua
25. Kawerau
26. Whakatane
27. Opotiki
28. Gisborne
29. Wairoa

### 4 Taranaki

30. New Plymouth
31. Stratford
32. South Taranaki

### 5 Lower North Island

33. Wanganui
34. Rangitikei
35. Hastings
36. Napier City
37. Central Hawke's Bay
38. Tararua
39. Manawatu
40. Palmerston North City
41. Horowhenua
42. Kapiti Coast
43. Porirua City
44. Upper Hutt City
45. Lower Hutt City
46. Wellington City
47. Masterton
48. Carterton
49. South Wairarapa

### 6 West Coast-Tasman

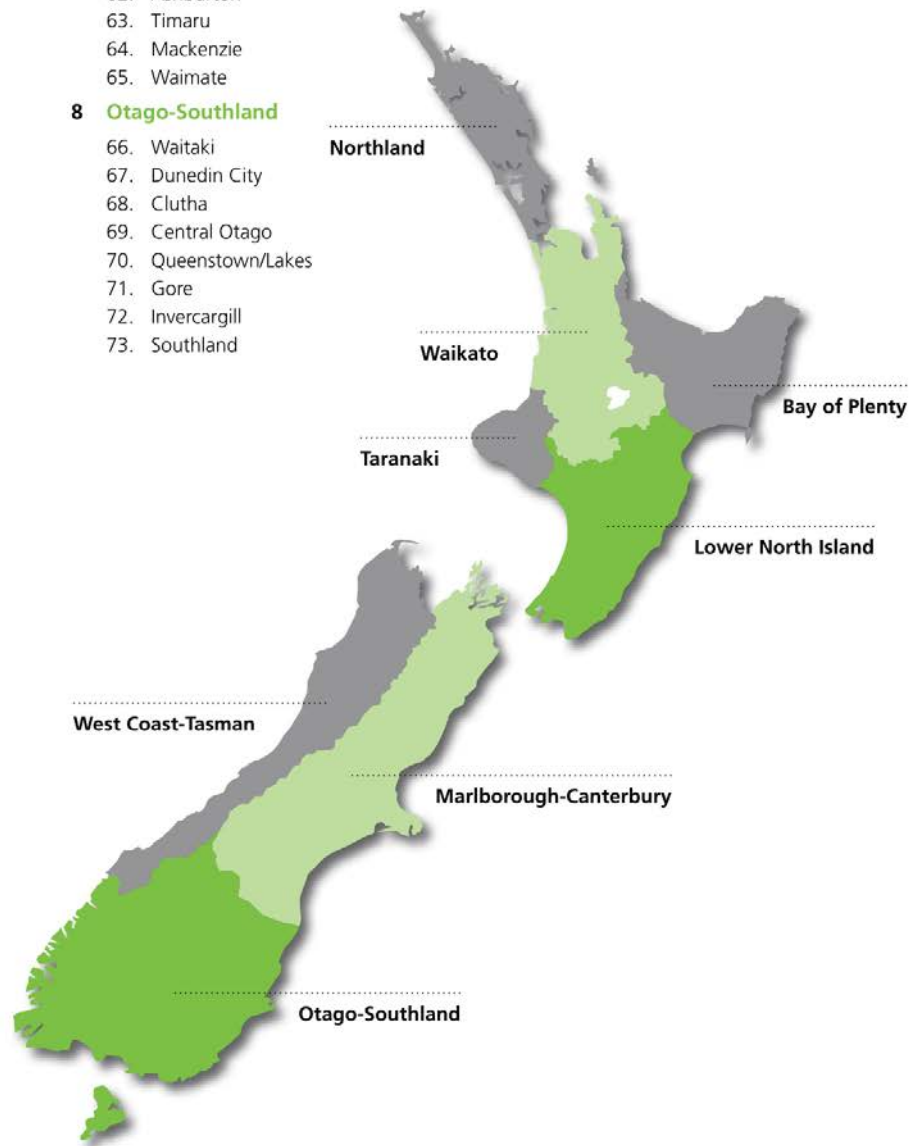
51. Tasman
52. Buller
53. Grey
54. Westland

### 7 Marlborough-Canterbury

50. Nelson City
55. Marlborough
56. Kaikoura
57. Hurunui
58. Waimakariri
59. Christchurch City
60. Banks Peninsula
61. Selwyn
62. Ashburton
63. Timaru
64. Mackenzie
65. Waimate

### 8 Otago-Southland

66. Waitaki
67. Dunedin City
68. Clutha
69. Central Otago
70. Queenstown/Lakes
71. Gore
72. Invercargill
73. Southland



### 2.7 Production Systems

Farms are categorised into one of five production systems based on the timing, purpose and amount of imported feed use, both purchased as supplements and grazing off for dry cows. Young stock grazing policies are excluded when categorising herds into the five production systems described below.

System 1: All grass, self-contained, all adult stock on the dairy platform

- No feed is imported. No supplement fed unless harvested off the effective milking area and dry cows are not grazed off the effective milking area. Approximately five percent of owner-operator herds.

System 2: Feed imported, either supplement or grazing off, fed to dry cows

- 90-99% of total feed is home grown feed. Variation in percentage as most cows are wintered off in high rainfall areas or cold climates. Approximately 23 percent of owner-operator herds.

System 3: Feed imported to extend lactation and for dry cows

- 80-89% of total feed is home grown feed. Approximately 46 percent of owner-operator herds.

System 4: Feed imported and used at both ends of lactation and for dry cows

- 70-79% of total feed is home grown feed. Approximately 23 percent of owner-operator herds.

System 5: Imported feed used all year

- 50-69% of total feed is home grown feed, though could be less than 50% in some cases. Approximately three percent of owner-operator herds.

This publication makes reference to low, medium and high input systems. These are defined as:

- Low: system 1 and system 2,
- Medium: system 3,
- High: system 4 and system 5.

### 2.8 Operating Profit Adjustments

Non-cash adjustments for resources used but not accounted for by cash income or expenditure are made when calculating the operating profit. A summary of these adjustments is shown below. For more detail refer to the DairyBase® Operating Profit Adjustments document. The value of change in dairy livestock numbers is calculated and added to net dairy cash income to form gross farm revenue. Note: this is the value due to change in livestock numbers. The reason for this adjustment is that the revenue from net dairy cash income can be affected by decisions to change the herd size due to adverse events. For example, in drought years more stock are sold and therefore revenue through net livestock sales will be considerably higher. Similarly, in years following a drought livestock will be purchased to increase numbers to a more normal level. The adjustment offsets these changes with a value for change in livestock on hand.

- The value of change in dairy livestock is calculated as follows: closing livestock numbers less opening livestock numbers, valued at closing herd scheme values (Inland Revenue).
- Labour adjustment – comprising two components: unpaid management based on the size of the herd and time worked, and unpaid labour valued at a market hourly rate.
- Feed inventory adjustment – closing supplementary feed on hand less opening supplementary feed on hand, valued at a standard 34 cents per kilogram dry matter in 2019-20.
- Owned support block adjustment – valued on an assessed regional market lease rate per hectare.
- Depreciation – as recorded in the annual set of accounts.

### 2.9 Asset Values

DairyBase® calculates market values for land and buildings by using the most recent rateable valuations for each farm and adjusting these to 1 June 2019 and 1 June 2020 market values using sales data supplied by Quotable Value and REINZ plus discussions with regional real estate agents and valuers. Opening and closing livestock values for each year are calculated using the Inland Revenue herd value scheme NAMV (National Average Market Values) for the appropriate age group of animals.

Plant, machinery and vehicle values are recorded at book value.

Off-farm assets and investments are shown as market values.

### 2.10 GST

The financial data is GST exclusive as these transactions are neutral to the farm operation.

### 2.11 Statistical Methodology

Multiple methodologies are used in the Economic Farm Survey to generate statistics. Tables and graphs that use time series data are generated using an *average of sums* methodology. The *average of sums* involves summing all values together. While per farm values will be equivalent to the arithmetic mean, figures that are divided by the number of cows, hectares, and milksolids will report the average value divided by the average denominator. The *average of sums* approach ensures that table entries add up to totals / sub-totals. However, a consequence of this methodology is that the averages reported are not equivalent to the arithmetic mean and can be biased depending on the data distribution. This bias can be severe in small samples, such as those used to produce the regional and production system tables.

To circumvent some of the issues associated with this issue, we now report the *median* of the data in the tables and graphs that are most at risk of showing such bias. The median is the number that divides the data into two equal halves, such that half of the data is below and half the data is above this value. It is a robust and unbiased representation of the centre of the data. In the affected tables, entries will no longer add up to totals and sub-totals, but provide a more accurate and representative value for the data. For example, in Table 7.1 below, we can see that by adding milk sales (net of dairy levy), net livestock sales (sales - purchases) and other dairy cash income that they do not add up to net dairy cash income, in contrast to the equivalent table presented in last year's version of the Economic Farm Survey.

The median is used in a number of different figures and tables:

- In Figure 3.1, we use the median deviation from the 30-year median rainfall. We do this because the arithmetic average is not robust to severe weather events that may misrepresent the true average rainfall a region receives in a season.
- In Tables 7.1, 7.2, 10.1 and 10.2, we report the median values for the table entries. Issues applying the *average of sums* methodology on these tables were identified in 2020 and the Economics Team decided that accurate representation of these values were more important than ensuring the values added up in the table.

### 3 Physical Analysis

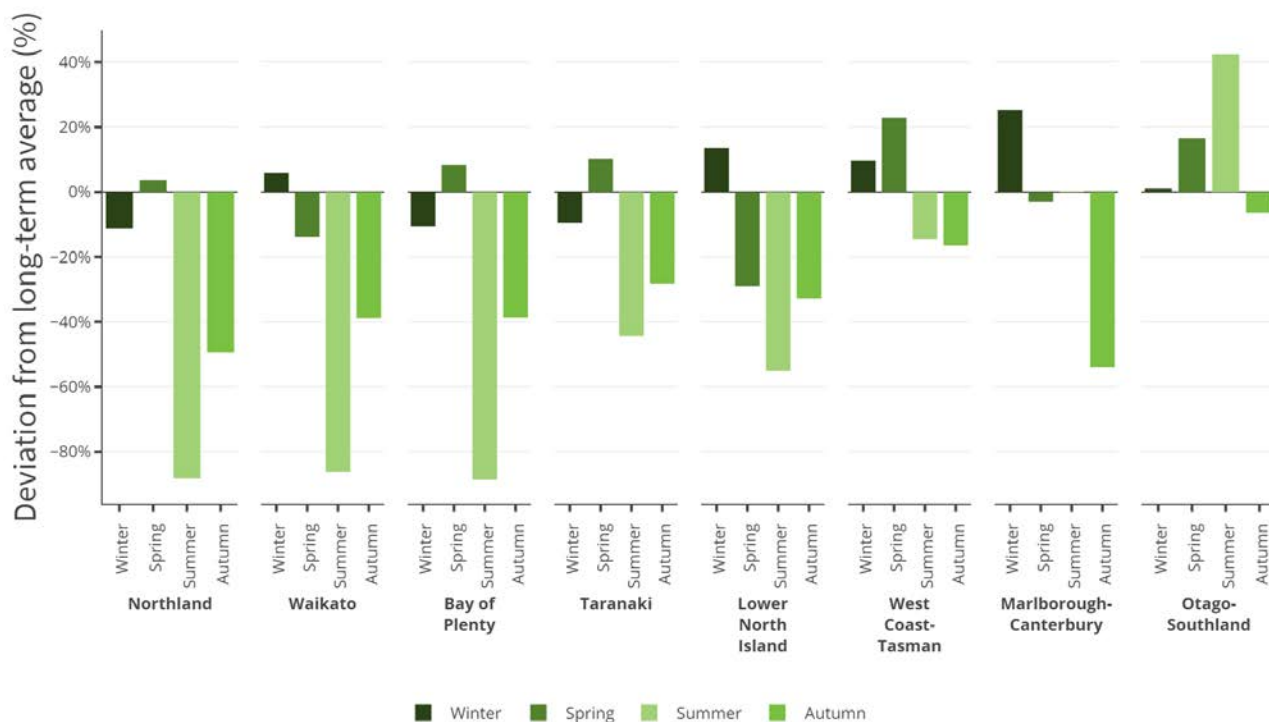
#### 3.1 Introduction

The DairyNZ Economic Survey reports the trends in financial performance of dairy farms but not all the trends in physical performance. While not presented, there are key physical indicators of milk production such as days in milk, cow condition, reproductive performance, soil fertility, and fertiliser use data available from DairyBase®. It is the combination of the physical performance of the farm reflected through milksolids production, the cost of production and milk prices that drives the financial results.

#### 3.2 Rainfall Summary

NIWA supplies daily climate data for various points across New Zealand with their Virtual Climate Station Network. These data are collated into district-level averages for each month, weighted for areas where more farms are located. Within each region, median rainfall for the October to December (spring), January to March (summer), April to June (autumn) and July to September (winter) periods was calculated. The variation in the median regional rainfall from thirty-year-weighted median is shown in Figure 3.1. See section 2.11 for an explanation of the median methodology used here. Overall, New Zealand experienced a drier year than the thirty-year weighted median, Otago-Southland had a wetter than normal year. In contrast, all other regions experienced drier than normal conditions, with Northland, Waikato and Bay of Plenty experiencing approximately 88 percent less rainfall than the thirty-year weighted median through the summer.

Figure 3.1: Variation in rainfall



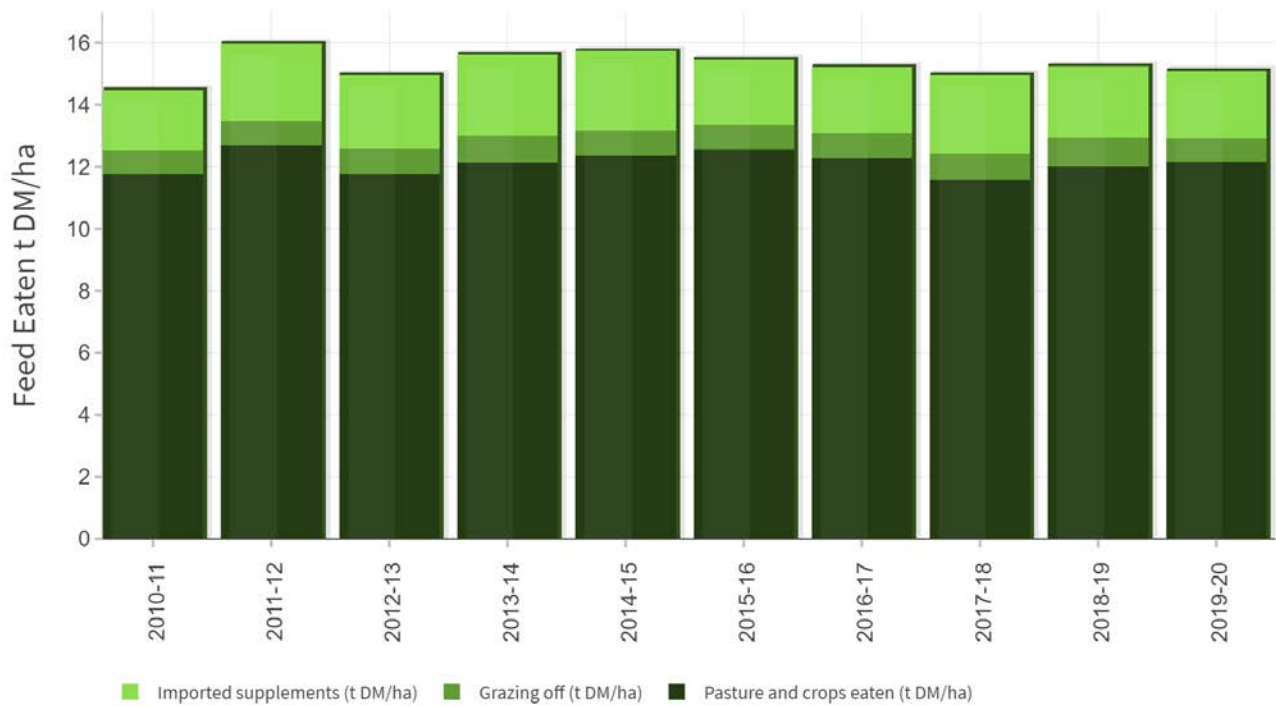


### 3.3 Feed Use

Pasture and crop eaten, grazing off farm, and imported feed were estimated from DairyBase data. Pasture eaten has been relatively constant for the last decade while grazing off farm has tended to increase slowly. Imported supplements have shown more variation from year to year as farmers adjust behaviour on-farm in response to volatility in milk prices and seasonal conditions (Figure 3.2).

Increases in milk production have occurred from increased feed levels, particularly palm kernel extract (PKE), maize silage and in recent years fodder beet. In 2019-20, grazing off accounted for approximately 6 percent of total feed eaten, imported supplement (15%) and pasture and crops (81%) are the primary feed components in the diet of dairy cows. The ratio of the feed components is unchanged from the 2018-19 season.

Figure 3.2: Trends in feed use



### 3.4 Partial Productivity

Milk production on the average Economic Survey dairy farm increased 3.7 percent (kg MS per cow) in 2019-20 to 409 kilograms milksolids. Milksolids sold per hectare increased by 4.3 percent to 1,194 kg MS per ha. Figure 3.3 and 3.4 show that milk production per cow and per hectare both increased from last season.

Figure 3.3: Milksolids production per cow

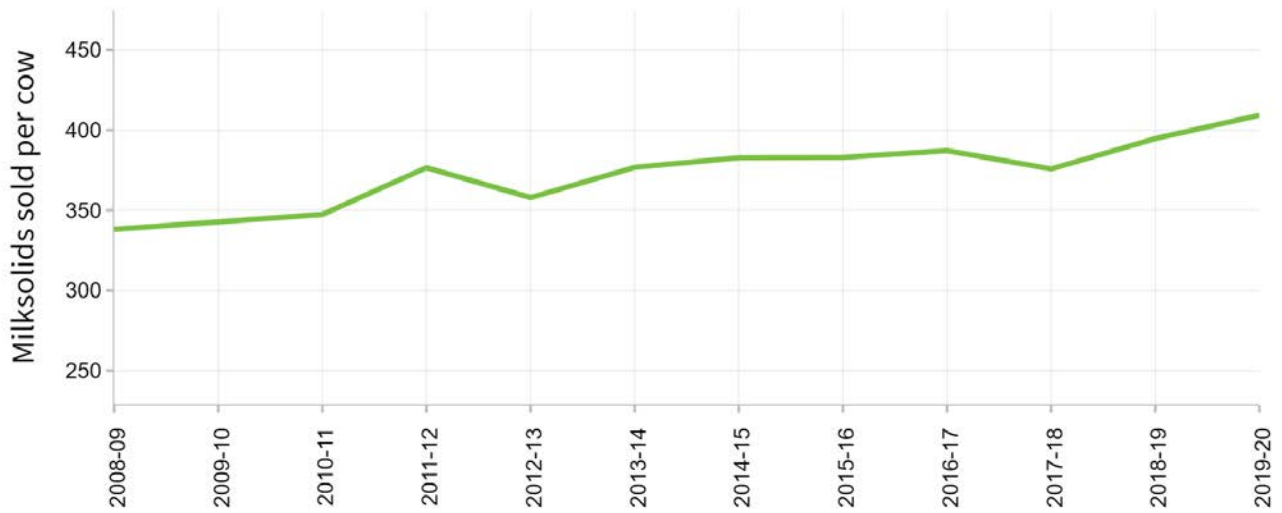
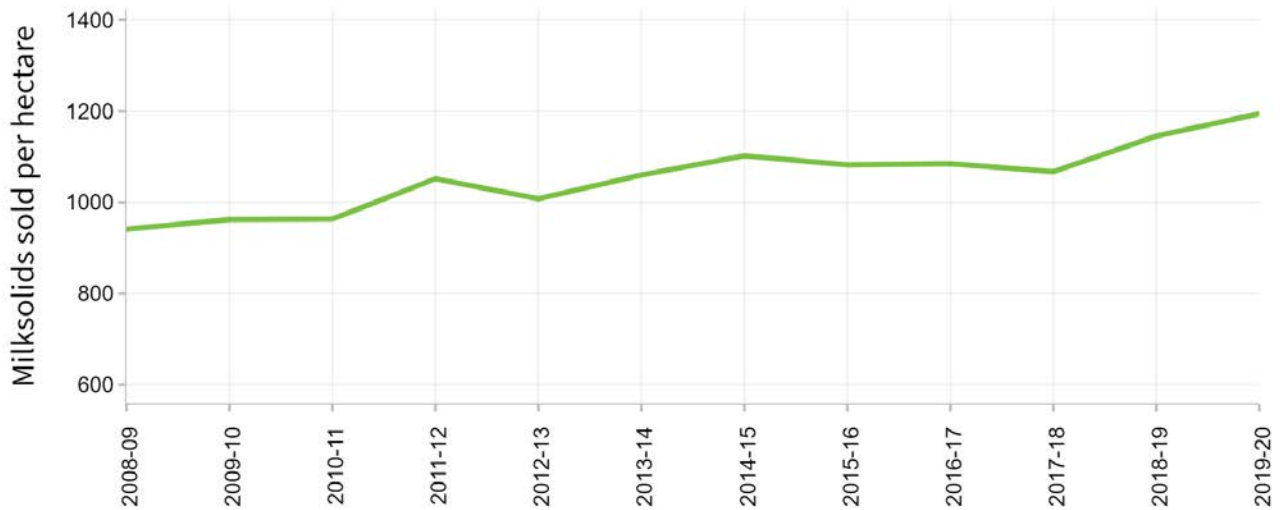


Figure 3.4: Milksolids production per hectare



### 3.4. PARTIAL PRODUCTIVITY

Since 1990 the number of peak cows milked per full time equivalent (FTE) labour unit has increased from 83 to 147, a rate of about 2.5 additional cows per year. The increased use of technology, large South Island dairy herds and labour-saving techniques have driven this trend. In 2019-20, the number of cows per FTE increased slightly to 147 from the previous season, refer to Figure 3.5.

Figure 3.5: Cows per FTE



### 3.5 Profit from Productivity

Productivity improvements over time are essential to sustain or grow business profits and therefore to compete successfully with alternative uses for resources. DairyNZ has developed a measure for productivity based on operating profits. Operating profit from productivity (PFP) is defined as the difference between actual operating profit and the operating profit that would have occurred with no productivity changes since a base year (i.e. in the absence of milksolids production increases and with operating expenses per kilogram milksolids increasing annually at the rate of dairy farm input price inflation), see Figure 3.6. In essence, PFP is a measure of cost-efficient milksolids production increases since the base year valued at the end of year operating profit margin per kilogram milksolids. It excludes the cost of capital, although depreciation and changes in hectares are accounted for. The three main contributory components of PFP are milksolids production increases since the base year, operating expenses savings in inflation adjusted terms since the base year, and end year operating profit per kilogram milksolids (influenced by milk prices). DairyNZ and dairy farmers must increasingly focus on achieving cost-efficient milksolids production and PFP provides a means for monitoring the value of productivity gains over time.

PFP decreased from \$810 per hectare in 2018-19 to \$672 in 2019-20 (1998-99 base year PFP = \$0/ha). Figure 3.6 shows the gains made in PFP were relatively steady from 1990-91 to 2006-07. However, sharper fluctuations in both milk prices and seasonal rainfall have caused PFP to be more volatile since.

Figure 3.6: Profit from Productivity: Gains from 1998-99



## 4 Prices Received and Paid

### 4.1 Milk Payment

Owner-operators received an average cash payout of \$7.05 per kilogram milksolids sold for 2019-20 (net of the industry good levy, but includes advances and final payments). This was 63 cents more than 2018-19. The Fonterra average farmgate milk payout was \$7.14, 9 cents higher than the average cash payout.

International dairy prices for 2019-20 (as seen in Figure 4.1) were lower for all dairy products reported at May 2020 compared to levels in May 2019, despite fluctuations over the year. Whole milk powder (WMP) finished at \$2,745 (-\$555), and skim milk powder (SMP) finished at \$2,373 (-\$180). Butter finished at \$3,867 (-\$1,643), the greatest decrease with respect to the May 2019 prices. Cheese finished at \$4,115 (-\$135), the smallest decrease relative to May 2019 prices.

The NZD:USD exchange rate closed the 2019-20 season 5 cents lower than it started, finishing at 61 cents, with an average of 64 cents throughout the season, a lower average than 2018-19 (71 cents). The exchange rate in the last four seasons has been favourable for exporters and compares to 79 cents in 2014-15. Dairy contributed 33.05% to merchandise exports and 23.09% to total exports from New Zealand for 2019-20 season. Whole milk powder comprised 42% of New Zealand's dairy export earnings in 2018-19 season, which was the same in the 2018-19 season (39%). Skim milk powder increased to 9% of export earnings, up from 7% in 2018-19. Cheese export earnings remained unchanged at 12% of total dairy export earnings, while butter decreased for the first time in four seasons in a row from 15% in 2018-19 to 10% this season. Casein revenue increased to 9% (previously 8%). Anhydrous milk fat accounted for 9% of dairy export earnings in 2019-20 (previously 10%).

Figure 4.1: World Milk Commodity Prices (\$US per tonne)



The milk payout of \$7.05 per kilogram milksolids in 2019-20 was 63 cents above the decade average in inflation-adjusted terms (\$6.46) (Figure 4.2). The increase in the milk payout per kilogram milksolids from 2018-19 was a continued respite for farmers given volatility over the previous few seasons. Average payout over the past 20 years, in real terms, was \$6.72 per kilogram milksolids.

## 4.2. LIVESTOCK PRICES

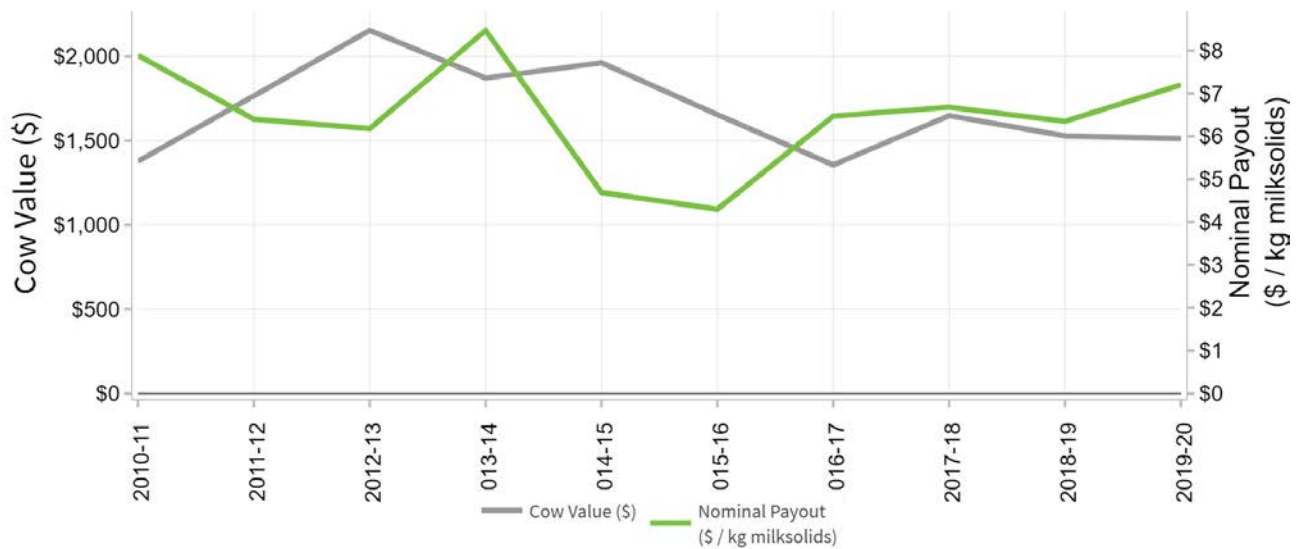
Figure 4.2: Trend in Milk Payout (Nominal and Real)



## 4.2 Livestock Prices

The value of mixed aged cows remained relatively unchanged declining slightly to \$1,513 (-\$16) in the 2019-20 season, relative to the 2018-19 season. Cow values, in nominal terms, were below the decade-average of \$1,684. Historically, cow values have followed the trend in milk prices, often with a slight time lag.

Figure 4.3: Trend in Cow Values Relative to Milk Payout



### 4.3 Feed and Fertiliser Prices

Feed and fertiliser prices between 2010-11 and 2019-20 are shown in Figures 4.4 and 4.5. Prices for wheat and barley remained relatively unchanged over the year, closing about \$10 and \$14 respectively per tonne lower. Palm kernel prices increased across the season, climbing in February to close about \$87 per tonne higher. PKE imports decreased nearly 4 percent from 1.89 million tonnes to 1.82 million tonnes in the year to June 2020.

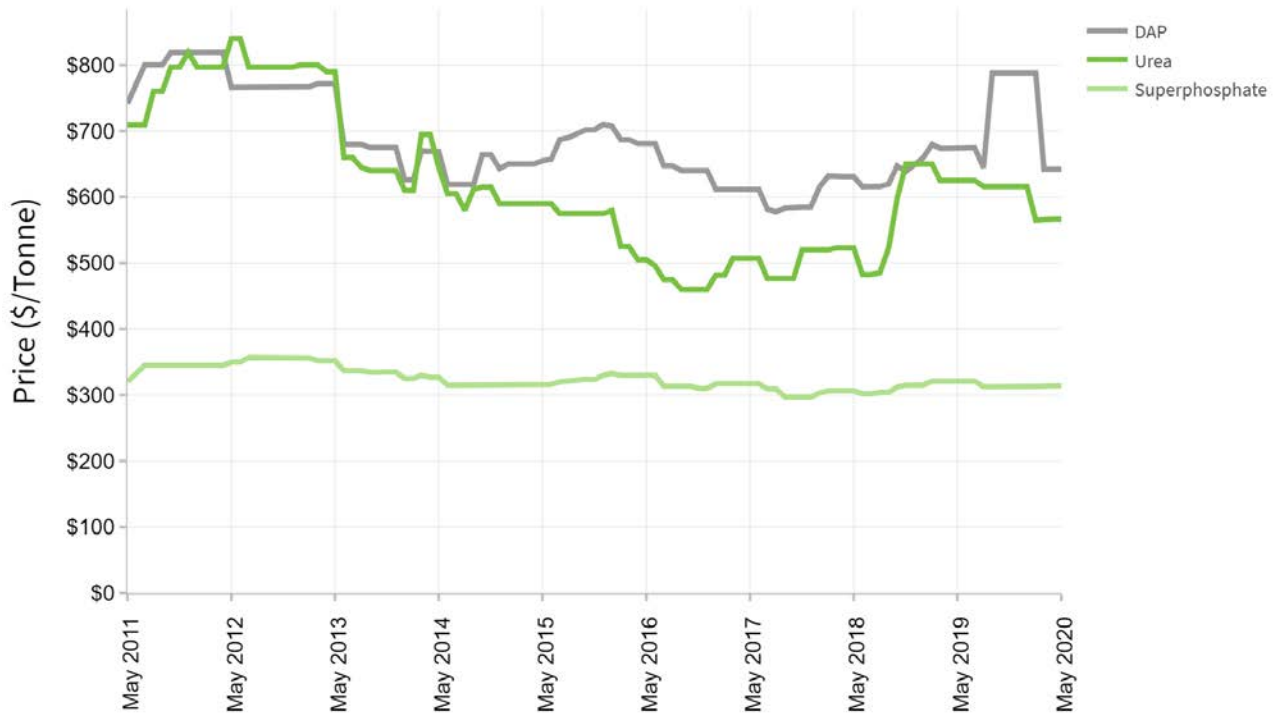
Figure 4.4: Feed Prices



Over the course of the year there was a fluctuation in the DAP prices, but the closing price of DAP, Superphosphate and Urea all decreased relative to the close of the previous season. There was an increase in the price of DAP prices in the middle of the season, up to \$788 per tonne, though DAP finished \$32 lower than the start the season. Across the season, the price of Urea declined the most, closing \$59 per tonne lower than the start of the season. Superphosphate remained relatively unchanged across the season, declining \$7 per tonne.

### 4.3. FEED AND FERTILISER PRICES

Figure 4.5: Fertiliser Prices

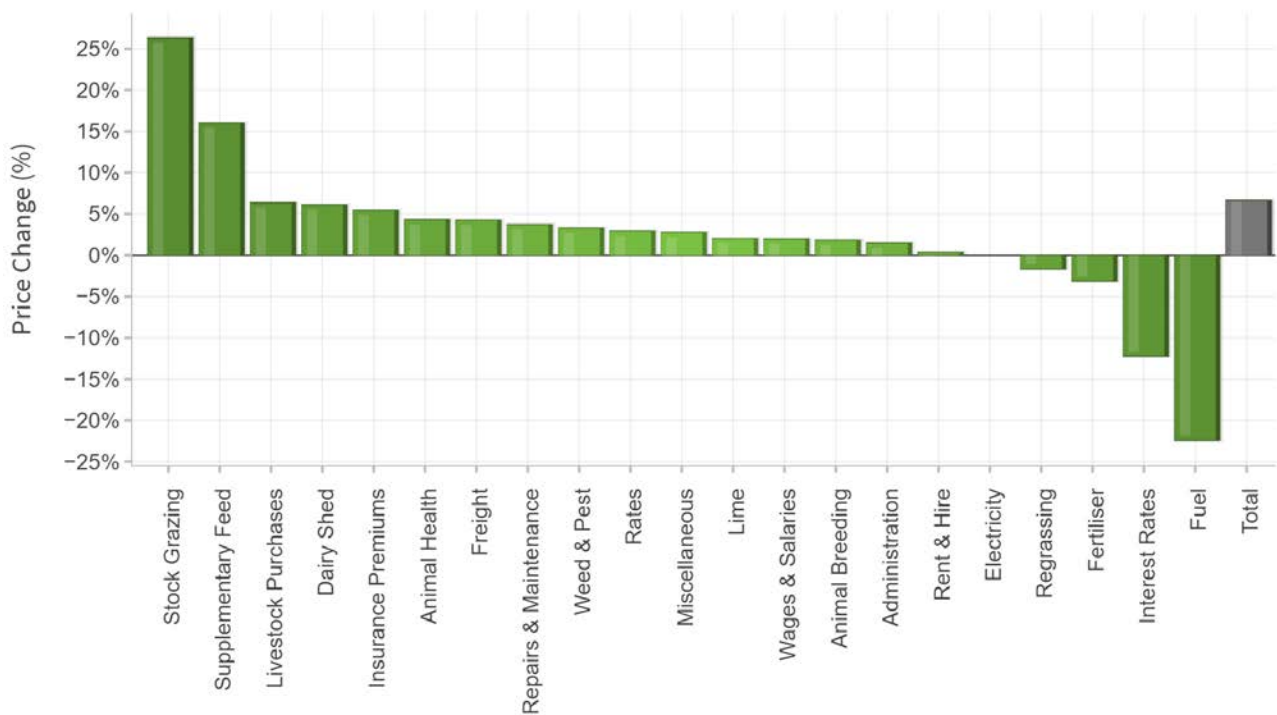




## 4.4 On-farm Inflation

The movement in on-farm input prices is compiled by Statistics New Zealand in the Farm Expenses Price Index for dairy farms. The percentage movement of each category is weighted by a three-year rolling average of the contribution of each category to total expenditure. In the year to June 2020, the average price for inputs increased (+6.6%) after four seasons of lower or stable input prices. The price movements of individual categories for the 2019-20 season are shown in Figure 4.6. Decreases in individual price categories such as fuel (-22.4%) and interest rates (-12.2%) were not enough to offset increases in other areas of expenditure. The most notable increases included stock grazing (+26.3%), supplementary feed (+16%), livestock purchase (+6.3%), leading to an overall 6.6% change in the Farm Expense Index for the season.

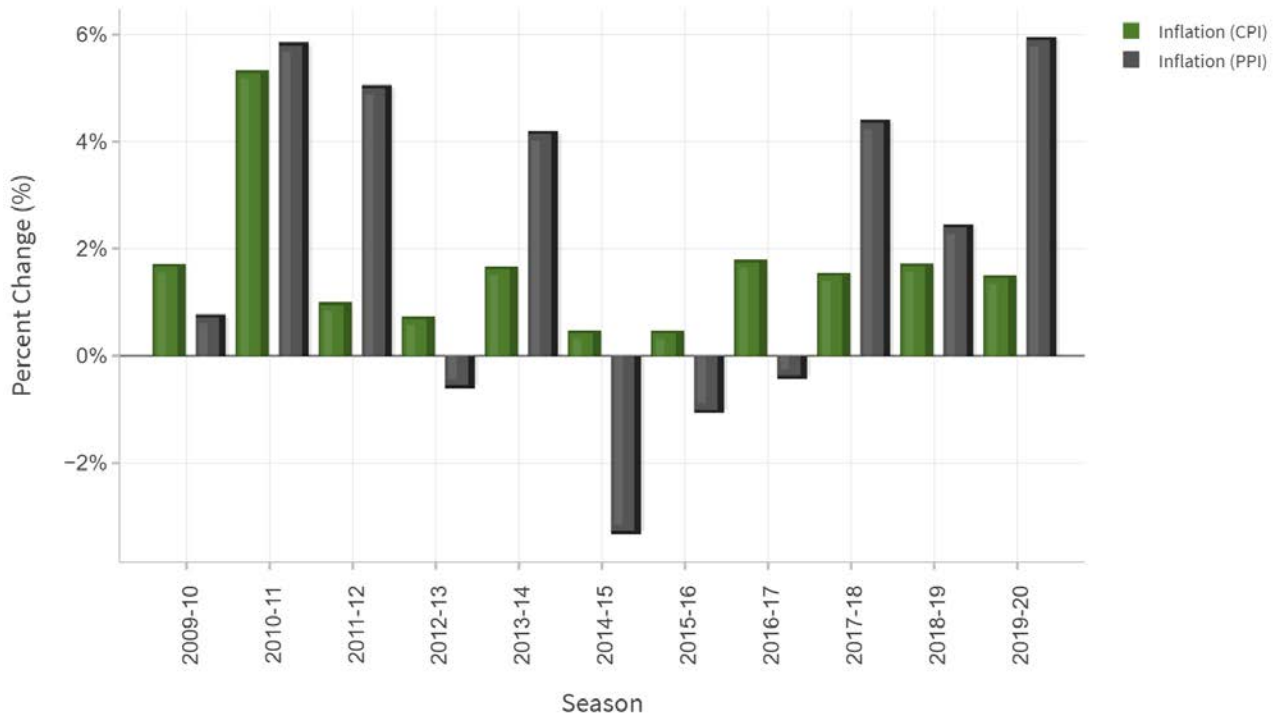
Figure 4.6: Dairy Input Price Changes 2019-20



The Producer Price Index (Stats NZ NZSIOC Level 3, June 2019 to June 2020) was up by 5.9% as seen in Figure 4.7. This increase in input prices was more than in 2017-18 and 2018-19, before which there was two seasons of deflation (2014-15 and 2015-16). General inflation, as measured by the Consumers Price Index (CPI), experienced an increase (+1.5%) in the same period.

#### 4.4. ON-FARM INFLATION

Figure 4.7: Dairy Farm Producer Price Index and CPI Changes



## 5 Owner Operator: Operational Financial Analysis

### 5.1 Introduction

Operating profit of \$2,750 per hectare in 2019-20 was up 27.7 percent on the previous season. The milk payout received of \$7.05 per kilogram milksolids was up 63 cents (+9.8%) on the price received in 2018-19. Both milksolids per cow (+14 kg MS per cow) and milksolids per hectare (+49 kgMS per hectare) increased in 2019-20. Livestock income in 2019-20 increased to \$0.49 per kg MS. Gross farm revenue was \$7.62 per kilogram milksolids in 2019-20 and was up 64 cents compared to the previous season. Farm working expenses (FWE) of \$4.41 per kilogram milksolids was 16 cents higher than last season. Operating expenses increased 21 cents to \$5.31 per kilogram milksolids, more than the record high of \$5.17 in 2013-14. The cash available for living and growth in 2019-20 was \$299,837 per farm, the highest level in ten years.

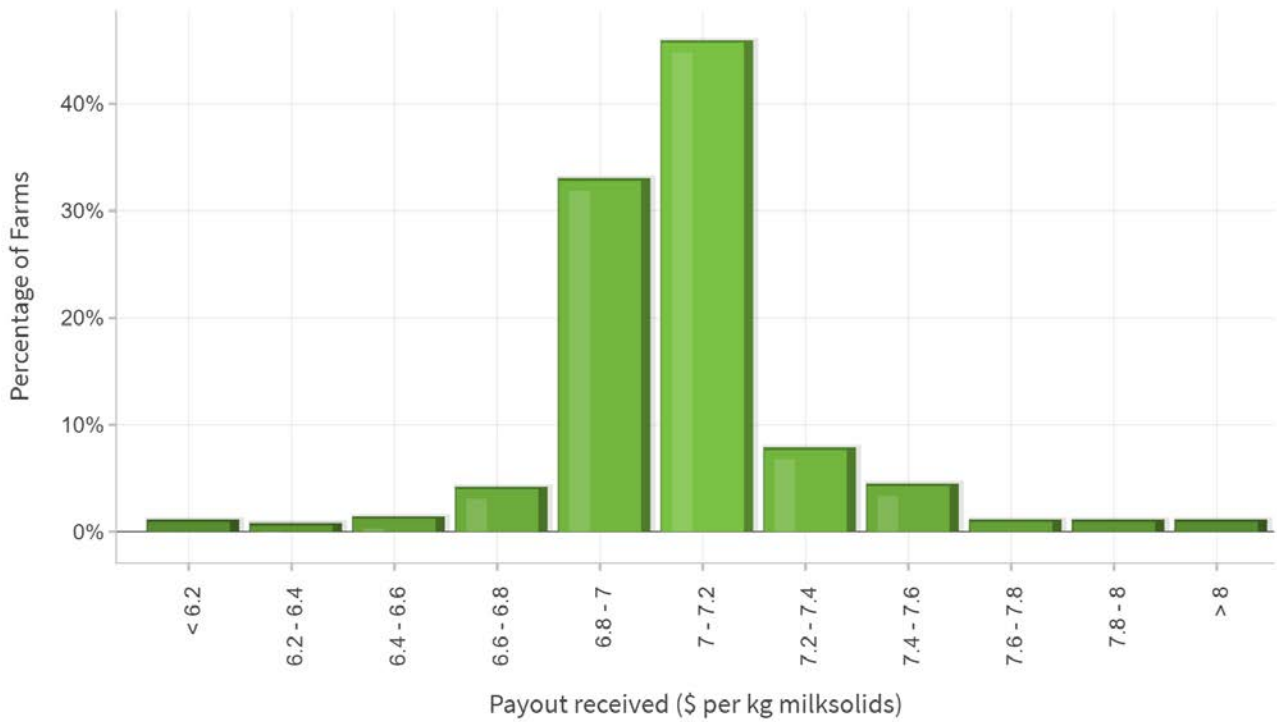
### 5.2 Revenue

The milk payout received (including dividend payments) in 2019-20 increased 63 cents (+9.8%) from the previous season to \$7.05 per kilogram milksolids. Milk production per cow and hectare, recorded by Economic Survey farms, increased slightly in 2019-20 from the 2018-19 season. Milk sales per farm (net of dairy levies) increased compared to last season, exceeding \$1 million (\$1,197,023) for the fourth time, the first being in 2013-14 following record high milk prices. Milk revenue in 2019-20 accounted for 93 percent of gross farm revenue. Revenue from livestock sales increased to \$82,883 in 2019-20. Livestock revenue accounted for 6.4 percent of the total gross farm revenue per farm.

There is variation (\$1.80 per kg MS) in the milk price farmers receive within a season (Figure 5.1) due to differences in milk composition, transport distances, milk production timing, annual account balance dates, milk companies supplied, different systems such as organics, penalties faced (grades), and whether a particular farm operated in the previous season. More than ninety percent of farms received a milk payout (milk price plus dividend) between \$6.60 and \$7.40 per kilogram milksolids in 2019-20. Within this, 46 percent received a milk payout between \$7.00 and \$7.20 per kilogram milksolids.

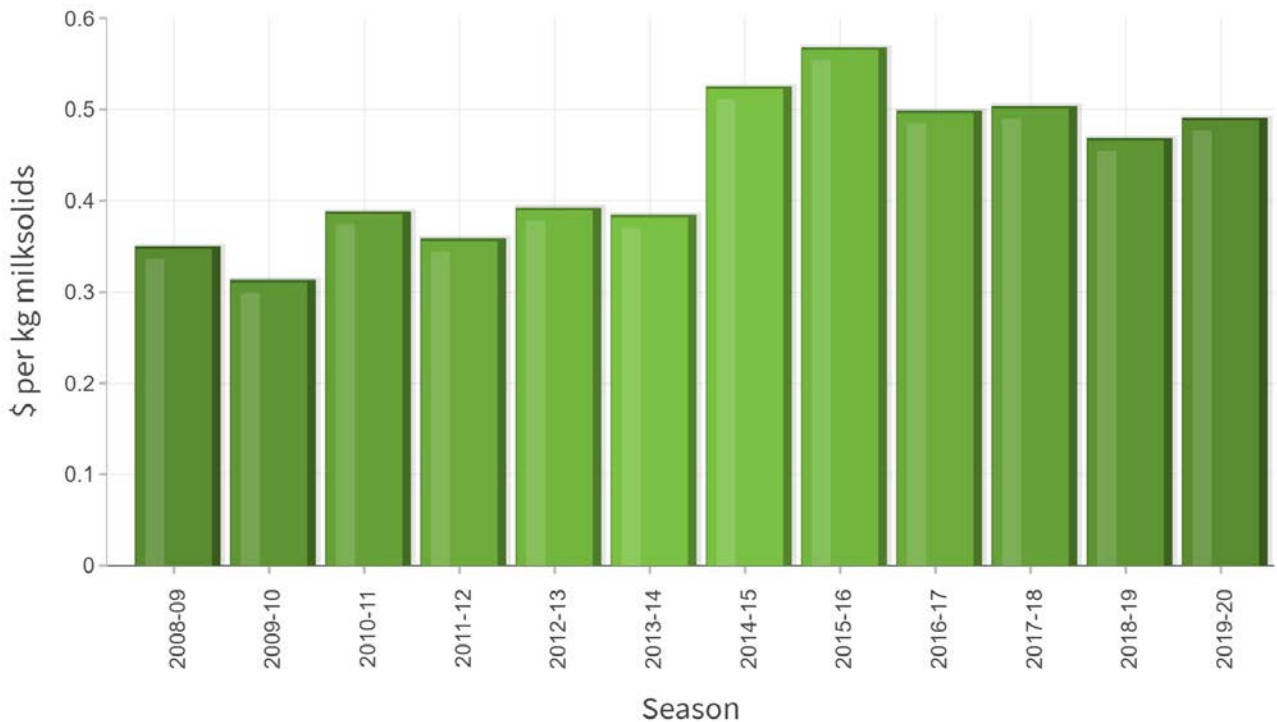
## 5.2. REVENUE

Figure 5.1: Distribution of Milk Payout Received 2019-20



Cash income from net livestock sales decreased slightly to \$0.49 per kilogram milk solids in 2019-20, compared to \$0.47 per kilogram milk solids in 2018-19. High beef schedule prices have bolstered dairy farm incomes over the last five seasons.

Figure 5.2: Net Livestock Sales (\$ per kg MS)



Dairy gross farm revenue on a typical New Zealand dairy farm was \$1,293,024 and was larger but similar to the previous season (\$1,166,413 in 2018-19). On a per hectare basis, gross farm revenue of \$9,099, was higher than the per hectare gross farm revenue in 2018-19. At \$7.62 per kilogram milk solids, gross farm revenue in 2019-20 was 64 cents (+9.2%) above the previous seasons when measured on a per kg MS basis.

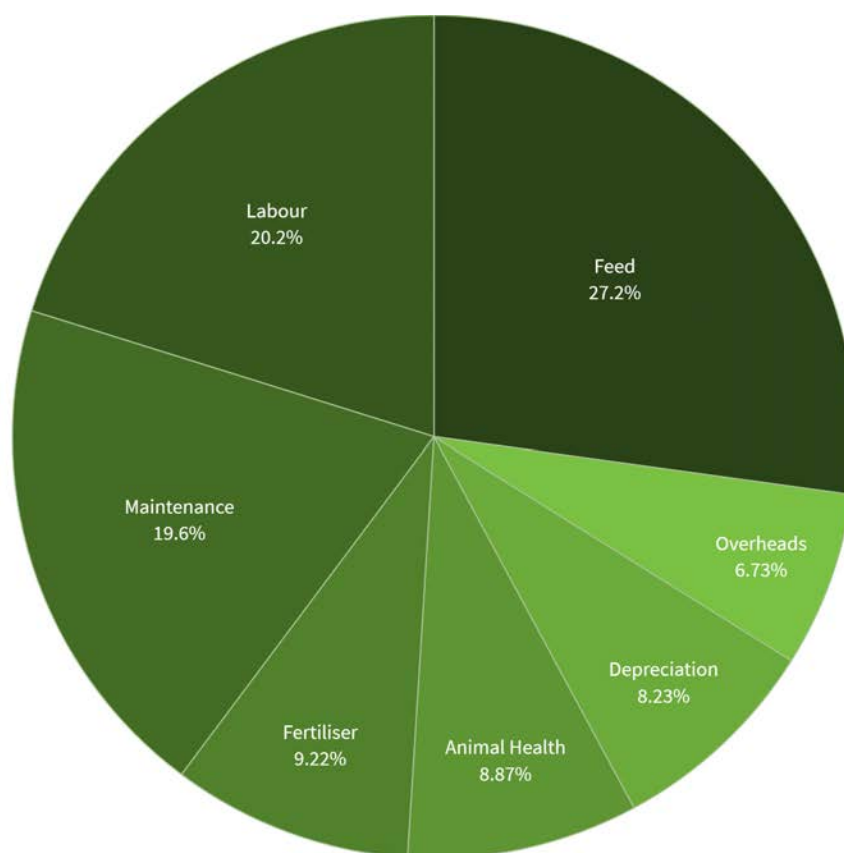
### 5.3. EXPENDITURE

Tables 12.1, 12.2, 12.3 and 12.4 show net cash income, cash farm working expenses and the adjustments made to calculate operating profit for the average New Zealand owner-operator on a per farm, per cow, per hectare and per kilogram milksolids sold basis.

## 5.3 Expenditure

Feed continues to be the largest category of expenditure at 27.2 percent in 2019-20 and has been the largest expenses category since 2007-08. Labour was the second highest operating expense for dairy farms at 20.2 percent of total operating expenditure. Maintenance and running costs and fertiliser contributed 19.6 and 9.22 percent respectively in the year to June 2020. Figure 5.3 shows the major 2019-20 expenditure categories.

Figure 5.3: Proportion of Dairy Operating Expenditure 2019-20



Changes in total farm expenditure are affected by changes in farm area and herd size, therefore per cow, per hectare and per kilogram milksolids are more appropriate measures of movement in individual items. Average farm working expenses (i.e. cash expenses) per kilogram milksolids increased 17 cents (+4%) to \$4.41. This was the highest expenditure recorded in a season, greater than \$4.33 per kilogram milksolids recorded in 2013-14 prior to the downturn in milk prices.

Dairy operating expenses per kilogram milksolids was \$5.31, 21 cents above the 2018-19 season. This was the highest level of operating expenses in the last decade, 13 cents greater than the previous high in 2013-14 and only the fifth time that operating expenses per kilogram milksolids has exceeded \$5.

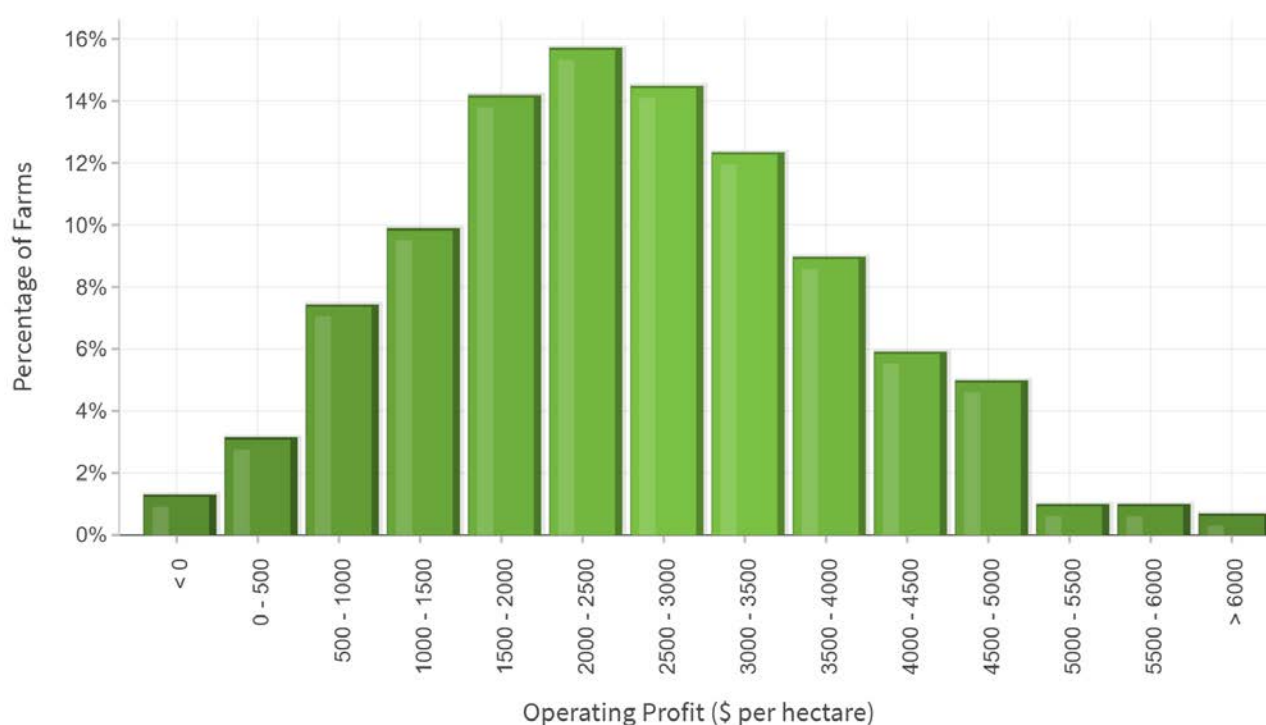
Table 12.4 shows the changes in the categories of operating expenses per kilogram milksolids. Animal health and breeding, labour, depreciation and overheads have remained steady over the past decade but feed, fertiliser, and maintenance and running costs have been more variable, reflecting significant changes in income levels from one season to the next.

## 5.4 Profitability

Operating profit is a key indicator of dairy farm financial performance. This measure, expressed on a per hectare basis, is particularly useful for comparing the profitability between farms. Operating profit incorporates adjustments to allow comparisons between farms, but does not include interest. Table 12.3 shows the revenue and expenditure items included in operating profit. Operating profit per hectare was \$2,750 in 2019-20, up 28 percent on the previous season.

Operating profit per hectare was normally distributed around the mean (\$2,750) per hectare, reflecting a wide range between farms. 91.5 percent of farmers had operating profits between \$0 and \$4,500 per hectare, while 7.3 percent of farmers had operating profits of over \$4,500 per hectare. Only 1.2 percent of farms recorded negative operating profits in 2019-20 (Figure 5.4).

Figure 5.4: Distribution of Owner-operating Profit (\$ per hectare) 2019-20



Tables 5.1 and 5.2 show the average size and profitability of farms by quartile. Quartiles have been constructed by ranking farms on operating profit per hectare across New Zealand. Operating profit per hectare for top quartile farms averaged \$4,195 compared with \$978 for the bottom quartile group. Each quartile group produced more milksolids per hectare compared with the quartile lower. Top quartile farmers produced 70 percent more kilograms milksolids per hectare than bottom quartile farmers, with substantially less farm working expenses per kilogram milksolids (-19.4%).

While there is a range in gross farm revenue across the quartiles the most significant difference between the groups is their operating expenses per kilogram milksolids. Top farms are more efficient as demonstrated by lower operating expenses per kilogram milksolids. Operating expenses increased from the top quartile group through to the bottom quartile group from \$4.74 through to \$6.42 per kilogram milksolids respectively.

## 5.4. PROFITABILITY

Table 5.1: Owner-operator Quartile Profit (\$/kg MS)

	Bottom Quartile	Lower Middle Quartile	Upper Middle Quartile	Top Quartile
<b>PHYSICAL CHARACTERISTICS:</b>				
Number of herds	82	82	81	81
Effective hectares	127.4	133.7	142.2	164.7
Peak cows milked	310	362	420	531
Stocking rate (cows/ha)	2.5	2.7	2.9	3.2
Kg milksolids sold	104,459	144,160	173,282	238,557
Milksolids sold per hectare	837	1,057	1,191	1,421
Milksolids sold per cow	336	390	406	446
<b>PAYOUT RECEIVED: \$/kg MS sold</b>	<b>7.03</b>	<b>7.04</b>	<b>7.03</b>	<b>7.14</b>
<b>DAIRY CASH INCOME \$:</b>				
Milk sales (net of dairy levies)	7.03	7.01	7.03	7.09
Net livestock sales (sales - purchases)	0.62	0.54	0.48	0.43
Other dairy cash income	0.05	0.03	0.04	0.03
<b>Net dairy cash income</b>	<b>7.70</b>	<b>7.59</b>	<b>7.56</b>	<b>7.55</b>
<b>CASH FARM WORKING EXPENSES:</b>				
Wages	0.74	0.64	0.64	0.65
Animal health	0.28	0.25	0.22	0.22
Breeding & herd improvement	0.19	0.16	0.16	0.17
Farm dairy	0.08	0.07	0.06	0.06
Electricity	0.14	0.12	0.10	0.10
Net feed made, purchased, cropped	1.11	1.22	1.06	0.82
Stock grazing	0.34	0.28	0.40	0.54
Support block lease	0.08	0.07	0.08	0.04
Fertiliser (incl Nitrogen)	0.57	0.52	0.48	0.41
Irrigation	0.04	0.05	0.07	0.19
Regrassing	0.09	0.10	0.06	0.06
Weed & pest	0.04	0.04	0.03	0.03
Vehicles & fuel	0.26	0.22	0.18	0.13
Repairs & maintenance	0.51	0.40	0.38	0.28
Freight & general	0.10	0.09	0.08	0.06
Administration	0.17	0.16	0.12	0.13
Insurance	0.11	0.10	0.08	0.07
ACC	0.02	0.02	0.02	0.02
Rates	0.15	0.11	0.10	0.08
<b>Farm working expenses</b>	<b>5.00</b>	<b>4.63</b>	<b>4.32</b>	<b>4.03</b>
<b>Cash operating surplus</b>	<b>2.70</b>	<b>2.96</b>	<b>3.24</b>	<b>3.52</b>
<b>ADJUSTMENTS:</b>				
Value of change in dairy livestock	-0.09	0.03	0.02	0.09
Less labour adjustment	0.64	0.46	0.37	0.24
Plus feed inventory adjustment	-0.14	-0.03	0.00	0.03
Less owned support block adjustment	0.13	0.14	0.08	0.08
Less depreciation	0.52	0.45	0.36	0.41
<b>Net adjustments</b>	<b>-1.51</b>	<b>-1.05</b>	<b>-0.80</b>	<b>-0.62</b>
<b>OPERATING CASH &amp; NON-CASH PER KG MILKSOLID SOLD:</b>				
Dairy gross farm revenue	7.61	7.62	7.58	7.63
Dairy operating expenses	6.42	5.72	5.14	4.74
<b>Dairy operating profit</b>	<b>1.19</b>	<b>1.90</b>	<b>2.44</b>	<b>2.90</b>
<b>OPERATING CASH &amp; NON-CASH PER HECTARE:</b>				
Dairy gross farm revenue	6,240	8,220	9,237	11,058
Dairy operating expenses	5,262	6,166	6,261	6,863
<b>Dairy operating profit</b>	<b>978</b>	<b>2,053</b>	<b>2,977</b>	<b>4,195</b>
<b>Operating profit margin</b>	<b>15.52%</b>	<b>26.15%</b>	<b>33.28%</b>	<b>39.41%</b>

There was over a five percent range between each of the quartiles of operating return on dairy assets, up from a three percent range last season. The top quartile averaged 7.4 percent, compared to the bottom quartile of 2.3 percent.

## 5.4. PROFITABILITY

Table 5.2: Owner-operator Quartile Financial Position

	Bottom Quartile	Lower Middle Quartile	Upper Middle Quartile	Top Quartile
<b>RETURNS:</b>				
Operating return on dairy assets %	2.3%	4.8%	6.5%	7.4%
Total return on assets %	-0.6%	1.4%	2.6%	3.5%
Total return on equity %	-4.9%	-1.9%	0.9%	4.5%
Growth in equity %	0.2%	-0.9%	-0.2%	0.8%
<b>DEBT:</b>				
Closing term liabilities per kg MS	23.63	22.61	22.34	23.14
Closing debt to asset %	43.6%	48.3%	51.0%	52.6%

In high payout seasons, such as 2007-08, 2010-11, and 2013-14, the correlation between milksolids production per hectare and operating profit per hectare strengthens and the reverse is true in low milk payout seasons. The changes in relationships over the past decade are detailed in Table 5.4. Measuring the cost efficiency of milksolids production (operating expenses/kg MS) relative to milk price is more relevant than production or expenditure alone when focusing on how to achieve high profit margins. The last two rows in Table 5.4 denote the strength of the association between the variables. A value of 0% denotes no association, while a value of 100% denotes a perfect association. The R<sup>2</sup> values for the 2019-20 season demonstrate the correlation where a high milk payout is associated with an increase in production.

Table 5.3: Correlations between Production, Profit and Operating Expenses

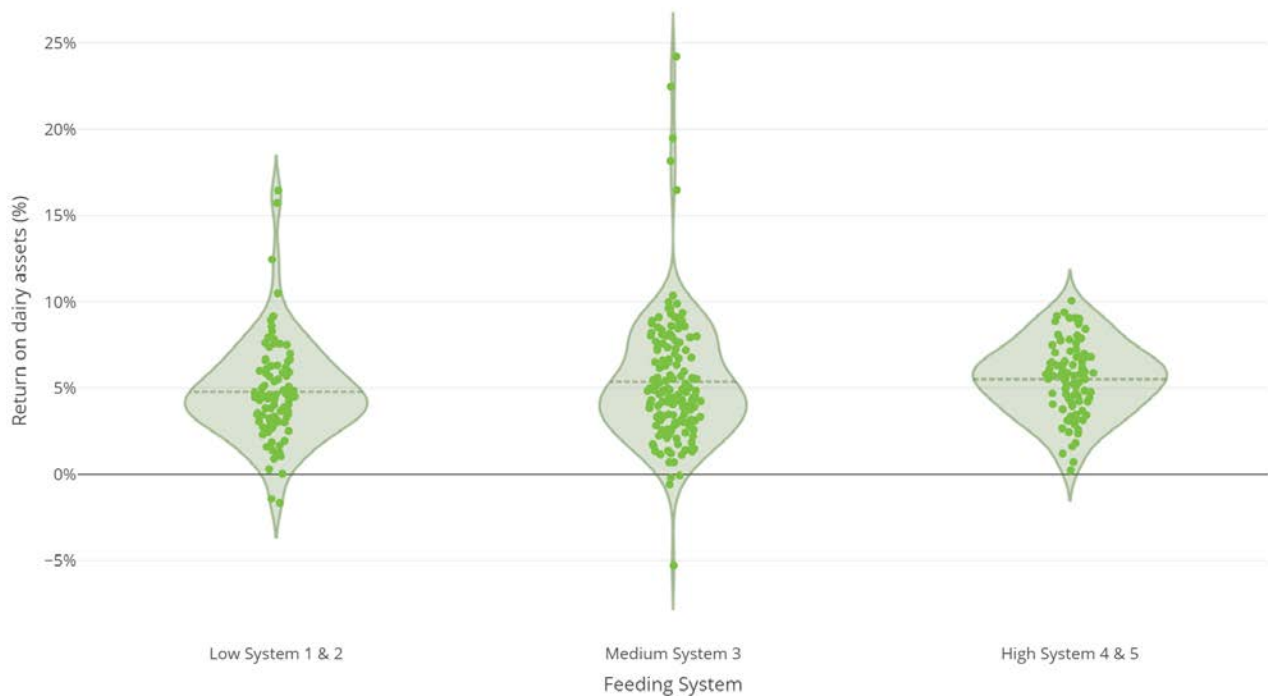
	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>CORRELATIONS:</b>										
Payout received \$/kg MS	7.36	6.69	6.33	7.69	5.76	3.92	5.79	6.62	6.42	7.06
Milksolids kg MS/ha	963	1,052	1,008	1,060	1,102	1,082	1,085	1,067	1,145	1,125
Dairy operating expenses \$/kg MS	4.95	4.73	5.03	5.17	4.94	4.45	4.60	5.13	5.10	5.47
Dairy operating profit \$/ha	2,810	2,624	1,830	3,295	1,537	-9	1,937	2,238	2,154	2,540
R2 - dairy operating profit \$/ha & kg MS/ha	54.3%	35.5%	40.0%	45.7%	17.3%	0.1%	32.7%	37.3%	39.3%	54.3%
R2 - dairy operating profit \$/ha & operating expenses \$/kg MS	53.6%	53.0%	54.1%	46.7%	59.4%	60.4%	49.7%	62.9%	59.5%	62.2%

Operating return on dairy assets is a measure of the operating profit generated by the dairy assets employed at the start of the season. This measure excludes non-dairy activities and any change in capital value. The average operating return on dairy assets was 5.1 percent in 2019-20. Grouping farm systems into low (systems 1 and 2), medium (system 3) and high input (systems 4 and 5) shows that the average operating return on dairy assets was slightly higher for high input farms (Figure 5.6). The range within each system group is very similar across the three system groups, with operating return on dairy assets ranging primarily between one percent to ten percent. Only eleven farms, across all five systems, had an operating return on dairy assets greater than ten percent.



## 5.4. PROFITABILITY

Figure 5.5: Return on Dairy Assets Distribution 2019-20



Business profit before tax is another measure of profitability that considers the cost of borrowing and other non-dairy activities. This is the overall profitability of the business enterprise and not just the dairy farm operation (Table 5.4).

Table 5.4: Business Profit before Tax

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>BUSINESS PROFIT:</b>										
<b>Dairy operating profit</b>	<b>388,024</b>	<b>369,163</b>	<b>258,049</b>	<b>470,808</b>	<b>223,630</b>	<b>-1,291</b>	<b>286,227</b>	<b>338,871</b>	<b>314,435</b>	<b>390,831</b>
+ Labour adjustment	51,797	54,748	55,162	59,309	59,021	56,341	61,154	63,920	62,545	62,011
+ Owned support block adjustment	11,062	13,554	14,601	15,338	14,889	14,126	14,359	16,786	13,143	16,151
+ Non-dairy operating profit	-1,100	-280	1,288	1,724	-673	-318	3,331	5,444	6,904	11,894
- Rent (excl support block)	20,040	19,374	22,812	23,366	22,250	20,047	19,582	20,703	12,499	17,280
- Interest	184,707	174,518	174,136	171,597	195,984	197,277	197,343	191,459	194,022	172,460
<b>Business profit before tax</b>	<b>257,478</b>	<b>254,103</b>	<b>144,512</b>	<b>362,074</b>	<b>90,731</b>	<b>-139,258</b>	<b>167,789</b>	<b>231,251</b>	<b>197,163</b>	<b>304,312</b>
<b>Business profit before tax per all effective hectares</b>	<b>1,471</b>	<b>1,386</b>	<b>785</b>	<b>1,981</b>	<b>478</b>	<b>-734</b>	<b>887</b>	<b>1,174</b>	<b>1,077</b>	<b>1,681</b>

The average dairy farm in 2019-20 made a business profit before tax of \$304,314, up \$107,138 per farm compared to the previous season. This business profit is equivalent to \$1,681 per all effective hectares (effective dairy + effective dairy support block + effective non-dairy). The dairy operating profit increased by \$76,396 on the previous season. Combined interest and rent payments remained similar to the previous season. Total effective hectares decreased by 3.9 hectares from the season prior, to 142.1 effective dairy hectares.

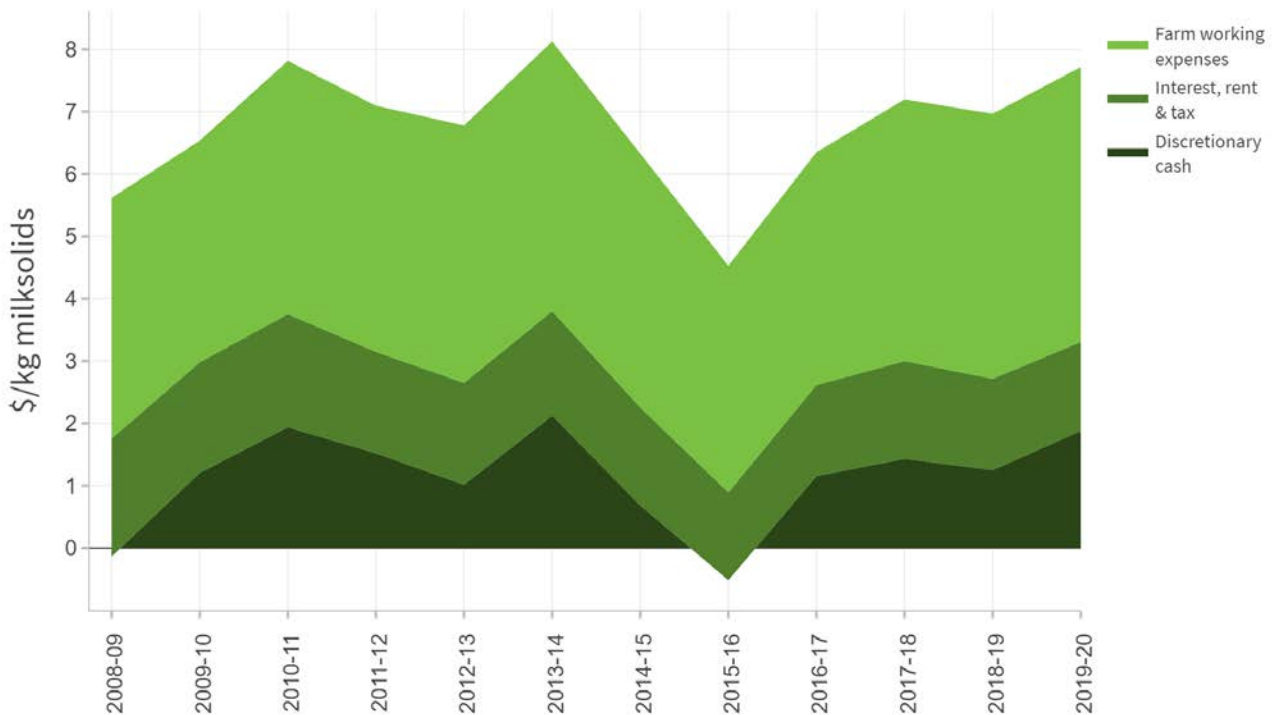
## 5.5 Cash Flow

The cash operating surplus is the difference between net dairy cash income and farm working expenses. In 2019-20 the cash operating surplus of \$537,460 increased by 20 percent from the previous season. On a per kilogram milksolids basis the \$3.17 cash operating surplus was up 50 cents on the previous season. Once rent, interest and tax are paid and net income from non-dairy farming activities are added, the amount left is discretionary cash. Total discretionary cash in 2019-20 was at \$318,872 which equates to \$1.88 per kilogram milksolids (refer to Table 12.5).

Many farm businesses include cash funds and off-farm income in their annual accounts. The cash available after including these activities and any change of funds deposited or withdrawn from the IRD Income Equalisation Scheme is the cash available for drawings, debt repayments and/or capital development and purchases. Cash available for living and business growth in 2019-20 was \$299,837 per farm, greater than the high in 2013-14 and up 41 percent from last season.

Cash for living and growth can also be used to repay debt and for farm family drawings. During the year, term debt decreased \$49,483 per farm, but there was also a large amount (\$113,522) spent on capital transactions. Drawings decreased (-\$3,083) to \$92,090 per farm. Tax payments increased to \$52,696 per farm (Table 12.5).

Figure 5.6: Annual Change in Revenue and Expenditure Over the Last 10 Years (\$ per kg MS)

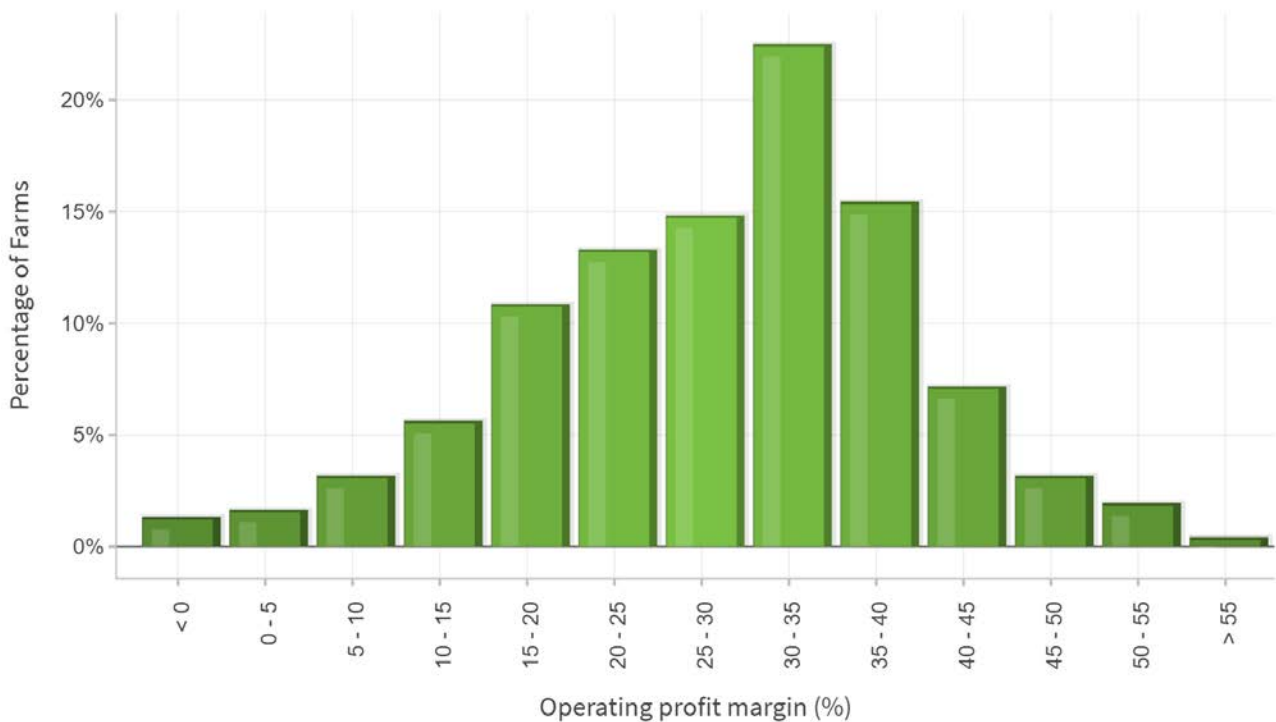


## 5.6 Operating Profit Margin

Operating profit margin is an indicator of dairy farm financial performance. This measurement is expressed as a percentage and describes the proportion of gross farm revenue that is converted to profit. The ability for a farmer to convert a high proportion of their revenue to profit indicates that the farm is cost efficient and better placed to deal with financial and production risks. Figure 5.7 shows the distribution of operating profit margins. The average operating profit margin was 30.2%, up 3.7% from the 2018-19 season.

Operating profit margin had a wide distribution ranging from -11.1 to 56.9 percent. Ninety-seven percent of farmers had an operating profit margin between 0 and 50 percent. Only one percent of farmers had an operating profit margin that was negative.

Figure 5.7: Distribution of Operating Profit Margin (%) 2019-20



## 6 Owner Operator: Equity and Capital Financial Analysis

### 6.1 Introduction

This section considers the equity and capital position of dairy farms, with additional information about trends over time in these positions.

Following a large capital expenditure, changes in debt and drawings, a cash surplus of \$57,909 was recorded. The operating return on dairy assets increased to 5.1 percent in 2019-20 and the total return on assets was 1.4 percent. Total return on equity decreased -1.1 percent. Equity levels decreased 2.1 percent (-\$85,307), with the positive growth in equity from profit more than offset by the decrease in asset values and small increase in liabilities. Total liabilities as a percentage of total assets (loan to value ratio) decreased to 51 percent at the end of the season. Closing term liabilities per kilogram milksolids decreased to \$23.25.

### 6.2 Dairy Assets

The number of dairy farms sold in 2019-20 was down 35 farms (-24%), to 113. The REINZ average sales price per kilogram milksolids and per hectare for the last five seasons is shown in Table 6.1. Hectares are measured as total, rather than effective area which is generally used in this publication. Raw data from REINZ was weighted by the number of farms in each region and the analysis only includes farms considered to be economic units. Dairy land prices have remained reasonably static over the last seven seasons at around \$40 per kilogram milksolids and around \$38,000 per hectare. In 2019-20 the land price decreased to \$37 per kilogram milksolids and \$33,410 per hectare.

Table 6.1: Average Sales Price and Number of Dairy Farms Sold

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>FARM SALES:</b>										
Farms sold	143	157	197	312	244	192	217	226	148	113
Average \$ sale price/kg MS	38	41	36	42	44	39	40	40	38	37
Average \$ sale price/ha	32,735	32,376	33,557	36,369	39,577	36,557	37,835	38,015	36,846	33,410
Average \$ sale price/ha (real 2019-20 dollars)	36,307	35,569	36,636	39,055	42,326	38,937	39,613	39,214	37,382	33,410

### 6.3 Liabilities and Debt Servicing

Interest is the cash cost of borrowing funds, while rent is the cost of borrowing assets. Interest and rent totalled \$1.12 per kilogram milksolids. Borrowing costs represented 14.7 percent of gross farm revenue (Table 6.2). Therefore, for every dollar of gross income earned, 14.7 cents is required to pay interest and rent.

Table 6.2: Debt Servicing Ratios

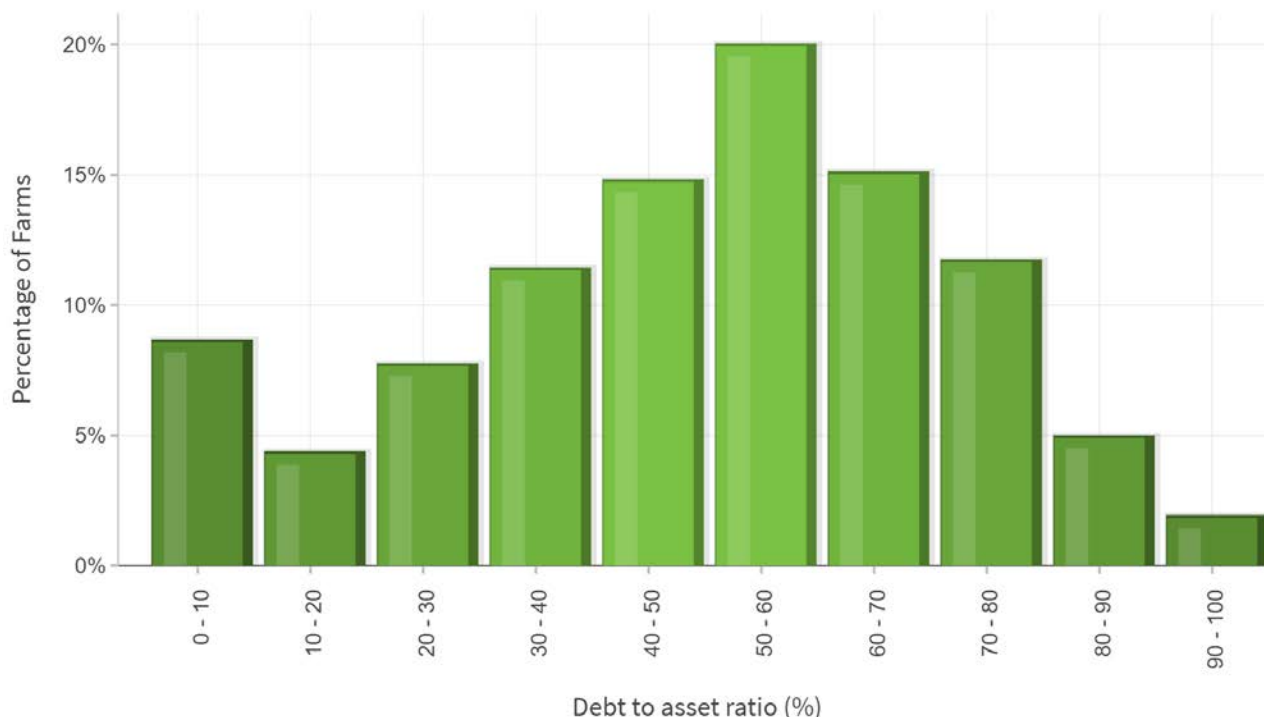
	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>DEBT SERVICING:</b>										
Interest & rent \$/kg MS	1.54	1.31	1.39	1.29	1.36	1.36	1.35	1.31	1.24	1.12
Interest & rent % GFR	19.6%	18.1%	20.2%	15.6%	21.5%	30.5%	21.2%	18.2%	17.7%	14.7%
Term liabilities \$/kg MS	20.44	19.24	20.82	20.14	21.26	22.49	25.00	25.31	24.92	23.25

The debt to asset ratio decreased from 53 percent at the close of 2018-19 to 51 percent in 2019-20 (Table 12.6). Debt to asset values had been around 50 percent for the past five seasons but were at lower levels prior to that.

## 6.4. LIQUIDITY

Figure 6.1 shows the debt to asset distribution in 2018-19, with an average of 51 percent. Thirty-two percent of farms have debt to asset ratios below 40 percent. Eighteen percent of the farms had debt to asset ratios over 70 percent, with nearly seven percent sitting in the high-risk area of over 90 percent.

Figure 6.1: Debt to Asset Distribution 2019-20



Over the last 10 years, the average farm has increased its milksolids production by 28 percent, while term liabilities have increased nearly twice as fast (+47%) to \$4 million per farm. Over the last few seasons farms have started to increase levels of principal repayments, increasing liquidity pressure on some farms through higher payments.

## 6.4 Liquidity

Given the high profitability and cash available for living and growth, a cash operating surplus of \$537,460 was recorded in 2019-20, increasing \$90,759 compared to last season. Table 6.3 shows a breakdown of the change in working capital, including the source and application of cash funds. The majority of the source of funds in 2019-20 was from the current year's farming operations. Term debt and introduced funds decreased this season. Cash from the income equalisation scheme was at -\$475 per farm in 2019-20. After farming operations, forty-two percent of the cash was spent on interest and rent payments for borrowing, while net capital transactions, development and purchases (25%) was the other large cash expenditure area in 2019-20. Drawings from the dairy business, for farm family living and so forth was (20.6%) and tax payments (11.8%), was where the remainder of the cash was spent.

## 6.5. EQUITY

Table 6.3: Flow of funds

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>WORKING CAPITAL:</b>										
Change in current assets	58,298	-33,122	17,733	58,063	-99,057	-24,651	56,493	-12,326	-17,418	205,720
- Change in current liabilities	18,596	5,959	-25,702	24,417	-20,779	-2,678	-9,780	29,949	-5,362	-7,441
Change in working capital	39,702	-39,081	43,435	33,646	-78,278	-21,973	66,273	-42,275	-12,056	213,162
<b>SOURCE OF FUNDS:</b>										
<b>Cash operating surplus</b>	<b>496,585</b>	<b>464,654</b>	<b>375,176</b>	<b>572,586</b>	<b>361,272</b>	<b>141,757</b>	<b>415,410</b>	<b>478,511</b>	<b>446,701</b>	<b>537,460</b>
+ Change in working capital	39,702	-39,081	43,435	33,646	-78,278	-21,973	66,273	-42,275	-12,056	213,162
+ Net non-dairy cash income	2,446	790	1,125	2,355	486	904	3,371	6,064	7,040	10,682
+ Net off-farm income	12,323	11,018	12,427	9,991	12,078	9,238	19,811	18,114	6,670	13,167
+ Introduced funds	6,240	-2,871	40,918	-44,275	28,307	77,696	-24,004	-40,908	-2,774	-18,560
+ Income equalisation	-274	-2,004	1,178	-4,756	-9,579	16,765	1,307	40	307	-475
+ Increase in term debt	-2,991	-22,153	123,346	10,790	93,026	111,778	75,868	92,523	74,554	-49,483
<b>= Total source of funds</b>	<b>554,031</b>	<b>410,353</b>	<b>597,605</b>	<b>580,337</b>	<b>407,312</b>	<b>336,165</b>	<b>558,036</b>	<b>512,069</b>	<b>520,442</b>	<b>705,952</b>
<b>APPLICATION OF FUNDS:</b>										
Rent (excl support block)	20,040	19,374	22,812	23,366	22,250	20,047	19,582	20,703	12,499	17,280
+ Interest	184,707	174,518	174,136	171,597	195,984	197,277	197,343	191,459	194,022	172,460
+ Tax	36,388	46,816	35,383	58,155	34,078	7,939	16,773	41,532	38,315	52,696
+ Net capital transactions	136,393	164,026	185,532	143,703	201,119	76,697	109,749	238,591	207,027	113,522
+ Drawings	97,099	83,781	92,872	116,224	110,437	78,151	82,043	104,334	95,173	92,090
<b>= Total application of funds</b>	<b>474,627</b>	<b>488,515</b>	<b>510,735</b>	<b>513,045</b>	<b>563,868</b>	<b>380,111</b>	<b>425,490</b>	<b>596,619</b>	<b>547,036</b>	<b>448,048</b>
<b>Source less application of funds</b>	<b>79,404</b>	<b>-78,162</b>	<b>86,870</b>	<b>67,292</b>	<b>-156,556</b>	<b>-43,946</b>	<b>132,546</b>	<b>-84,550</b>	<b>-26,593</b>	<b>257,903</b>

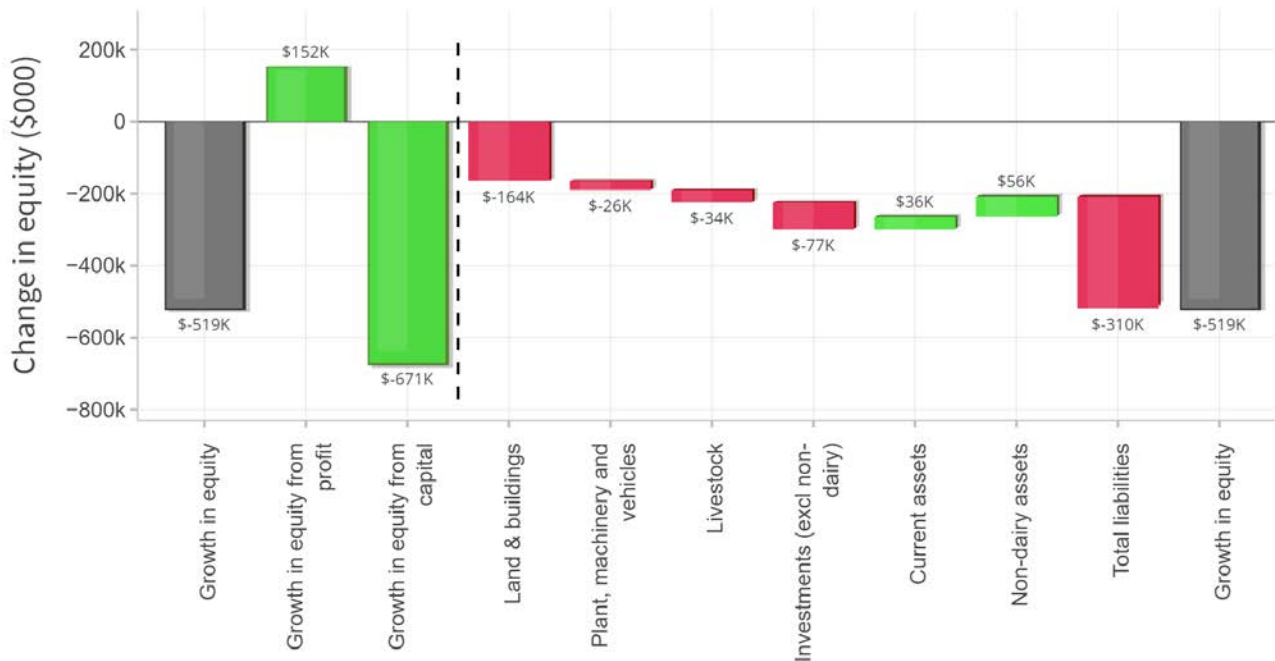
## 6.5 Equity

Equity (shareholders' funds or net worth) is the net value of the assets owned by the farm business (i.e. total assets less total liabilities at open and close of each year). At the opening of the 2019-20 season, dairy farm businesses had an average equity of \$4.05 million or 49 percent of total assets. This decreased to \$3.96 million at the end of the season or 48 percent of total closing asset values.

The equity value of the average dairy farm business decreased \$519,637 between 2015 and 2020 (Figure 6.2). Over the past five years, growth has been driven by increases in dairy and non-dairy assets (+\$36,505 and +\$55,505 respectively), and offset by the decline in the value of land and buildings (-\$163,680), investments (-\$76,729) and other assets (-\$248,880). Liabilities have increased \$309,927 over the past five years.

## 6.5. EQUITY

Figure 6.2: Components of Equity Change (\$000) 2015 - 20



## 6.6 Returns

The return on dairy assets is discussed under farm profitability (Section 5.4). The total return on assets takes into account operating profit from both dairy and non-dairy farming operations, plus the change in value of capital assets. The total return on assets in 2019-20 was 1.4 percent. The 2019-20 total return on assets comprised 5.1 percent net return from all farming operations with -3.7 percent net return from capital. For the past decade the total return on assets has ranged between -4.1 percent and 9.6 percent, driven by changes in the value of land and buildings, dairy company share values, livestock values and profits (Table 12.7).

Figure 6.3: 2019-20 Owner Operator Total Return on Assets



The percentage return on equity is the return on owner’s funds, including capital changes after interest is paid (Table 12.7). The return on equity will be higher than the total return on assets when the latter is greater than the cost of debt and vice versa. In 2019-20 the total return on equity was -1.1 percent compared to 1.4 percent total return on assets. Both 2014-15 and 2015-16 realised negative returns on equity due to low profitability, but in 2017-18, 2018-19 and 2019-20 the negative return was due to reduced capital values. Ideally, the return on assets should be above the returns for alternative investments of similar risk, such as shares or other forms of property investment.



## 7 Owner Operator: Regional and Systems Financial Analysis

### 7.1 Regional Profitability

DairyBase® classifies farms into eight regions, five in the North Island and three in the South Island (refer to Section 2.6). The averages reported in Table 7.1 and 7.2 are *median* values to reduce numerical bias created by the *average of sums* methodology in regional samples. Thus, totals and sub-totals in these tables will not add up but will better represent average values of the data sample. See section 2.11 for an explanation of this methodology.

Table 7.1 shows key 2019-20 average performance indicators per kilo milksolids in the eight region. North Island, South Island, and New Zealand data was weighted by owner-operator herd numbers in each region. Northland had the lowest average herd size of 230 cows, 69 cows below the North Island average (299). Bay of Plenty had the largest herd size in the North Island (377), followed by Lower North Island (325). Average herd sizes in the South Island were considerably larger than in the North Island, with on average 590 peak cows milked. In the South Island, Marlborough-Canterbury had the largest herd size with 780 cows, 190 cows above the South Island average (590), while the average herd size in Otago-Southland was 600 cows.

There is a range of stocking rates nationwide with Northland (2.4 cows/ha) and Lower North Island (2.5 cows/ha) having the lowest stocking rates. Marlborough-Canterbury had the highest stocking rate at 3.6 cows per hectare, while the rest of the regions had an average stocking rate of between 2.6 and 3.0. Northland recorded the lowest average milksolids production per cow of all the regions (316 kg MS). The other four North Island regions recorded milksolids per cow between 370 and 398 kg MS. Marlborough-Canterbury and Otago-Southland recorded similar production per cow of 465 and 433 kilograms milksolids per cow respectively. However on a per hectare basis Marlborough-Canterbury production is considerably higher due to its higher stocking rate.

Farms in most regions recorded average milk payouts at or above \$7.00 per kilogram milksolids. Regional average farm working expenses (FWE) per kilogram milksolids were lowest in Taranaki (\$3.83) and Lower North Island (\$4.12) and the highest FWE per kilogram milksolids was reported in Northland (\$4.72) while all other regions' average farm working expenses ranged between \$4.33 and \$4.51 per kilogram milksolids. The bottom of Table 7.1 shows the regional gross farm revenue, operating expenses, and operating profit levels on a per hectare basis in 2019-20. Marlborough-Canterbury (\$4,112), Otago-Southland (\$3,242) and the Taranaki region (\$2,695) recorded the highest operating profits per hectare, while Northland recorded the smallest operating profit at \$1,308 per hectare. Northland (\$4,824) recorded the lowest dairy operating expenses per hectare, while Marlborough-Canterbury had the highest at \$8,381, followed by the Otago-Southland at \$6,569. Due to the much higher gross farm revenue for Marlborough-Canterbury farms, they were the most profitable (\$4,112) region on a per hectare basis. Generally, Marlborough-Canterbury and Otago-Southland farms experienced higher levels of profitability in 2019-20 relative to other regions.

## 7.1. REGIONAL PROFITABILITY

Table 7.1: Regional Owner-operator Profitability (\$ / kg MS)

	Northland	Waikato	Bay of Plenty	Taranaki	Lower North Island	West Coast-Tasman	Marlborough-Canterbury	Otago-Southland
<b>PHYSICAL CHARACTERISTICS:</b>								
Number of herds	39	69	28	57	33	24	37	39
Effective hectares	110.0	109.0	129.0	97.0	138.0	147.5	210.0	205.0
Peak cows milked	230	310	377	252	325	390	780	600
Stocking rate (cows/ha)	2.4	3.0	2.9	2.7	2.5	2.6	3.6	2.9
Kg milksolids sold	75,423	121,734	127,677	107,211	118,711	138,562	362,262	263,482
Milksolids sold per hectare	796	1,092	1,085	1,134	933	1,023	1,640	1,225
Milksolids sold per cow	316	377	370	398	381	390	465	433
<b>PAYOUT RECEIVED: \$/kg MS sold</b>	<b>7.08</b>	<b>7.05</b>	<b>7.00</b>	<b>7.03</b>	<b>7.02</b>	<b>7.00</b>	<b>7.01</b>	<b>7.07</b>
<b>DAIRY CASH INCOME \$: MS BASIS</b>								
Milk sales (net of dairy levies)	7.08	7.05	7.00	7.03	7.02	7.00	7.01	7.07
Net livestock sales (sales - purchases)	0.82	0.48	0.57	0.43	0.52	0.42	0.43	0.40
Other dairy cash income	0.03	0.03	0.01	0.00	0.01	0.02	0.00	0.00
<b>Net dairy cash income</b>	<b>7.92</b>	<b>7.61</b>	<b>7.63</b>	<b>7.49</b>	<b>7.66</b>	<b>7.49</b>	<b>7.45</b>	<b>7.48</b>
<b>CASH FARM WORKING EXPENSES: MS BASIS</b>								
Wages	0.38	0.62	0.67	0.33	0.72	0.60	0.77	0.77
Animal health	0.25	0.25	0.26	0.22	0.23	0.21	0.23	0.22
Breeding & herd improvement	0.17	0.18	0.15	0.16	0.14	0.15	0.16	0.17
Farm dairy	0.06	0.06	0.05	0.06	0.07	0.06	0.04	0.05
Electricity	0.15	0.12	0.11	0.10	0.14	0.10	0.09	0.09
Net feed made, purchased, cropped	1.28	1.36	1.08	1.02	0.99	0.77	0.74	0.92
Stock grazing	0.09	0.32	0.27	0.32	0.14	0.31	0.94	0.57
Support block lease	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00
Fertiliser (incl Nitrogen)	0.55	0.41	0.47	0.41	0.36	0.79	0.42	0.49
Irrigation	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.00
Regrassing	0.12	0.06	0.09	0.03	0.08	0.06	0.05	0.04
Weed & pest	0.04	0.02	0.02	0.02	0.03	0.03	0.02	0.02
Vehicles & fuel	0.28	0.20	0.21	0.18	0.22	0.27	0.12	0.16
Repairs & maintenance	0.51	0.34	0.32	0.34	0.32	0.29	0.27	0.38
Freight & general	0.06	0.07	0.09	0.08	0.07	0.13	0.05	0.05
Administration	0.12	0.12	0.13	0.13	0.14	0.11	0.10	0.13
Insurance	0.10	0.09	0.10	0.10	0.11	0.11	0.07	0.07
ACC	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.02
Rates	0.13	0.13	0.15	0.12	0.15	0.07	0.05	0.06
<b>Farm working expenses</b>	<b>4.72</b>	<b>4.47</b>	<b>4.33</b>	<b>3.83</b>	<b>4.12</b>	<b>4.29</b>	<b>4.44</b>	<b>4.51</b>
<b>Cash operating surplus</b>	<b>3.29</b>	<b>3.01</b>	<b>3.33</b>	<b>3.61</b>	<b>3.54</b>	<b>3.30</b>	<b>3.13</b>	<b>2.94</b>
<b>ADJUSTMENTS: MS BASIS</b>								
Value of change in dairy livestock	-0.11	0.00	-0.08	-0.01	-0.04	0.01	0.01	0.10
Less labour adjustment	0.80	0.50	0.65	0.64	0.65	0.49	0.15	0.28
Plus feed inventory adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Less owned support block adjustment	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00
Less depreciation	0.41	0.37	0.35	0.35	0.40	0.40	0.45	0.32
<b>Net adjustments</b>	<b>-1.45</b>	<b>-0.94</b>	<b>-1.23</b>	<b>-1.17</b>	<b>-1.13</b>	<b>-1.10</b>	<b>-0.68</b>	<b>-0.52</b>
<b>OPERATING CASH &amp; NON-CASH: MS BASIS</b>								
Dairy gross farm revenue	7.89	7.68	7.61	7.49	7.63	7.46	7.48	7.64
Dairy operating expenses	6.14	5.46	5.57	5.01	5.36	5.52	5.16	5.07
<b>Dairy operating profit</b>	<b>1.69</b>	<b>2.24</b>	<b>2.30</b>	<b>2.51</b>	<b>2.17</b>	<b>2.06</b>	<b>2.49</b>	<b>2.53</b>
<b>OPERATING CASH &amp; NON-CASH: HA BASIS</b>								
Dairy gross farm revenue	6,461	8,419	8,504	8,673	7,008	7,692	12,178	9,579
Dairy operating expenses	4,824	6,036	5,928	5,504	4,965	5,519	8,381	6,569
<b>Dairy operating profit</b>	<b>1,308</b>	<b>2,334</b>	<b>2,211</b>	<b>2,695</b>	<b>1,999</b>	<b>2,163</b>	<b>4,112</b>	<b>3,242</b>
<b>Operating profit margin</b>	<b>20.81%</b>	<b>28.98%</b>	<b>30.03%</b>	<b>33.61%</b>	<b>27.95%</b>	<b>27.31%</b>	<b>32.44%</b>	<b>34.47%</b>

## 7.1. REGIONAL PROFITABILITY

Table 7.2 shows key 2019-20 average financial indicators in the eight region. The averages reported in this table are medians, see section 2.11 for an explanation of this methodology. Regional average operating return on dairy assets ranged from 3.8 percent to 6.8 percent. Otago-Southland (6.8%), and West Coast-Tasman (6.3%) had the highest operating returns on dairy assets in 2019-20. The national total return on assets (including change in asset values) was 1.4 percent. Waikato reported negative total return on assets (-1%).

Growth in equity is the return on owner's funds, including capital changes after interest is paid. Lower North Island, Marlborough-Canterbury and Northland experienced positive returns on equity, while all other regions experienced negative total growth in equity. The largest negative growth in equity was recorded for Waikato (-4.7%) followed by Otago-Southland (-4.4%).

Average term debt per kilogram milksolids increased nationally in 2019-20 and was higher in the North Island (\$23.48) compared to the South Island (\$19.98). There was some variation between regions with Taranaki (\$27.16) the highest, while West Coast-Tasman was the lowest (\$15.28). Debt to asset levels were lower in the North Island (50.3%) than the South Island (53.1%) with averages across all regions ranging between 41.7 percent and 59.7 percent.

Table 7.2: Regional Owner-operator Financial Position

	Northland	Waikato	Bay of Plenty	Taranaki	Lower North Island	West Coast-Tasman	Marlborough-Canterbury	Otago-Southland
<b>RETURNS:</b>								
Operating return on dairy assets %	3.8%	3.9%	5.1%	4.6%	4.5%	6.3%	6.2%	6.8%
Total return on assets %	2.0%	-1.0%	1.8%	0.9%	2.9%	3.3%	4.1%	2.1%
Total return on equity %	-0.7%	-6.2%	-0.7%	-2.1%	1.7%	2.8%	4.7%	-1.7%
Growth in equity %	0.3%	-4.7%	-0.4%	-2.8%	3.3%	-0.2%	2.5%	-4.4%
<b>DEBT:</b>								
Closing term liabilities per kg MS	22.71	25.11	19.40	27.16	23.00	15.28	23.10	21.56
Closing debt to asset %	51.6%	46.3%	47.7%	53.3%	52.6%	41.7%	57.9%	59.7%

## 7.2 Production Systems

DairyBase® categorises farms into five production systems based on the quantity of feed purchased (including cow grazing) and the timing and use of imported feed (refer to Section 2.7 for production system descriptions). For the following analysis the systems have been combined to produce three categories; low (systems 1 and 2), medium (system 3) and high (systems 4 and 5). Within each production system there is variation in milksolids production and profitability. Production system type is not a good indicator of profitability as a farm can be profitable (or unprofitable) operating any system. Profit is less to do with the production system type, and more to do with the management, milksolids production and the costs within the production system.

The averages reported in Table 7.3 and 7.4 are *median* values to reduce numerical bias created by the *average of sums* methodology in regional samples. Thus, totals and sub-totals in these tables will not add up, but will better represent average values in the data sample. See section 2.11 for of explanation of this methodology.

Average herd sizes, milking area and stocking rates increase from low systems through to high. Average milksolids produced per cow and per hectare also follow this trend, reflecting higher inputs of supplementary feed. Table 7.3 shows key 2019-20 average performance indicators per kilo milksolids in the three production system categories. Milksolids per cow for the average of medium system farms (391 kg MS/cow) was 45 kg MS/cow more compared to the average of low system farms (346 kg MS/cow). High input systems recorded an average of 448 kilograms milksolids per cow, which was 57 kilograms higher than the average for medium farms. Once stocking rates are included, average milksolids per hectare for medium input farms (1,102 kg) was 155 kilograms higher than low input farms (947 kg) and 258 kilograms less than the average for high input farms (1,360 kg).

Dairy cash income per kilogram milksolids was the highest for medium input systems at \$7.58 due to milk sales being greater than the other two systems on a per kilogram milksolids basis. Low input (\$7.56) and high input systems (\$7.53) had similar average dairy cash incomes per kilogram milksolids. Farm working expenses per kilogram milksolids was \$4.19 for low input systems and \$4.39 medium input systems, while high input systems had average farm working expenses of \$4.49 per kilogram milksolids.

Cash operating surplus per kilogram milksolids was the highest for low input systems (\$3.40), followed by medium input systems at \$3.25. High input systems recorded the lowest average cash operating surplus of \$3.08 per kilogram milksolids. Operating profit per kilogram of milksolids was the highest for the average of low input farms (\$2.34), although the spread between each of the system averages was 6 cents in 2019-20. Operating profit per hectare was highest for high input systems (\$3,145), while the profits were lower for medium input system farms (\$2,321). Low input systems averaged less profit (\$2,064) in 2019-20.

## 7.2. PRODUCTION SYSTEMS

Table 7.3: Owner-operator Production Systems Profitability (\$ / kg MS)

	1 & 2 (Low)	3 (Medium)	4 & 5 (High)
<b>PHYSICAL CHARACTERISTICS:</b>			
Number of herds	90	151	85
Effective hectares	117.0	126.5	150.0
Peak cows milked	300	360	465
Stocking rate (cows/ha)	2.6	2.8	3.1
Kg milksolids sold	101,206	131,018	217,861
Milksolids sold per hectare	947	1,102	1,360
Milksolids sold per cow	346	391	448
<b>PAYOUT RECEIVED: \$/kg MS sold</b>	<b>7.02</b>	<b>7.05</b>	<b>7.03</b>
<b>DAIRY CASH INCOME \$: MS BASIS</b>			
Milk sales (net of dairy levies)	7.02	7.05	7.03
Net livestock sales (sales - purchases)	0.49	0.47	0.47
Other dairy cash income	0.02	0.01	0.01
<b>Net dairy cash income</b>	<b>7.56</b>	<b>7.58</b>	<b>7.53</b>
<b>CASH FARM WORKING EXPENSES: MS BASIS</b>			
Wages	0.53	0.63	0.63
Animal health	0.22	0.24	0.24
Breeding & herd improvement	0.18	0.16	0.15
Farm dairy	0.06	0.06	0.05
Electricity	0.12	0.11	0.10
Net feed made, purchased, cropped	0.74	1.11	1.17
Stock grazing	0.13	0.32	0.37
Support block lease	0.00	0.00	0.00
Fertiliser (incl Nitrogen)	0.53	0.43	0.41
Irrigation	0.00	0.00	0.00
Regrassing	0.06	0.06	0.06
Weed & pest	0.03	0.02	0.02
Vehicles & fuel	0.22	0.21	0.16
Repairs & maintenance	0.41	0.33	0.32
Freight & general	0.06	0.07	0.06
Administration	0.14	0.13	0.11
Insurance	0.10	0.09	0.08
ACC	0.01	0.02	0.02
Rates	0.14	0.11	0.08
<b>Farm working expenses</b>	<b>4.19</b>	<b>4.39</b>	<b>4.49</b>
<b>Cash operating surplus</b>	<b>3.40</b>	<b>3.25</b>	<b>3.08</b>
<b>ADJUSTMENTS: MS BASIS</b>			
Value of change in dairy livestock	-0.01	-0.01	-0.01
Less labour adjustment	0.72	0.50	0.33
Plus feed inventory adjustment	0.00	0.00	0.00
Less owned support block adjustment	0.00	0.00	0.00
Less depreciation	0.39	0.36	0.43
<b>Net adjustments</b>	<b>-1.20</b>	<b>-1.01</b>	<b>-0.90</b>
<b>OPERATING CASH &amp; NON-CASH: MS BASIS</b>			
Dairy gross farm revenue	7.61	7.63	7.62
Dairy operating expenses	5.40	5.42	5.36
<b>Dairy operating profit</b>	<b>2.34</b>	<b>2.31</b>	<b>2.28</b>
<b>OPERATING CASH &amp; NON-CASH: HA BASIS</b>			
Dairy gross farm revenue	7,380	8,459	10,326
Dairy operating expenses	4,777	5,858	7,235
<b>Dairy operating profit</b>	<b>2,064</b>	<b>2,321</b>	<b>3,145</b>
<b>Operating profit margin</b>	<b>30.25%</b>	<b>29.98%</b>	<b>28.84%</b>

## 7.2. PRODUCTION SYSTEMS

Table 7.4 shows key 2019-20 average financial indicators in the three production system categories. The averages reported in this table are medians, see section 2.11 for an explanation of this methodology. The operating return on dairy assets was lower for average low input farms (4.5%). Medium input farm's operating return on dairy assets averaged 4.7 percent and was 5.7 percent for average high input farms. Once capital and non-dairy operations were accounted for, total return on assets was 1.7% for low and 1.8% medium input systems. High input systems averaged slightly higher for total return on assets (2.5%). The debt to asset ratio was moderate for low (48.7%) and medium (51.6%) input systems and a little higher (57.7%) for high input systems. Closing term liabilities per kilogram milksolids were highest for low input systems (\$22.88). The average term liabilities for high input systems was \$23.45, while medium input systems (\$21.99) had the lowest level in 2019-20.

All farm system types had negative average growth in equity percentages, the same as last season. Growth in equity for low input systems was -1.2 percent, medium input systems at -0.2 percent, while high input systems recorded the largest negative growth in equity of -1.3 percent.

Table 7.4: Owner-operator Production Systems Financial Position

	1 & 2 (Low)	3 (Medium)	4 & 5 (High)
<b>RETURNS:</b>			
Operating return on dairy assets %	4.5%	4.7%	5.7%
Total return on assets %	1.7%	1.8%	2.5%
Total return on equity %	-0.5%	-0.7%	0.7%
Growth in equity %	-1.2%	-0.2%	-1.3%
<b>DEBT:</b>			
Closing term liabilities per kg MS	22.88	21.99	23.45
Closing debt to asset %	48.7%	51.6%	57.7%

## 8 50:50 Sharemilkers: Operational Financial Analysis

### 8.1 Introduction

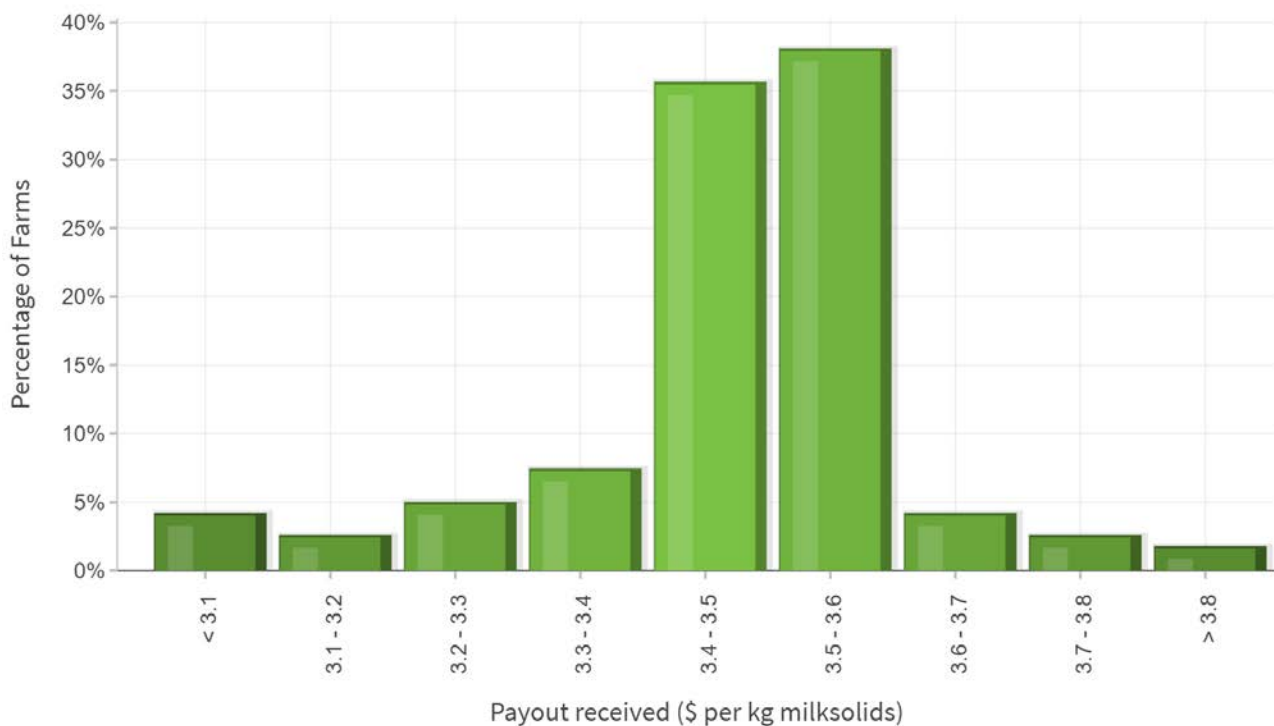
Operating profit per hectare for 50:50 sharemilkers (herd owning sharemilkers) recorded an increase (+35%) to \$1,050 per hectare in 2019-20. Higher milk payouts received (+28 cents per kilogram milksolids) were partially offset by a small decrease in kilogram milksolids produced per cow and a decrease in cows milked. Operating expenses per kilogram milksolids increased 13 cents to \$3.13. Production per cow and hectare increased from last season. The average cash available for living and growth increased to \$161,640 per farm. With increased capital expenditure, drawings and debt, a cash surplus of \$41,334 was recorded in 2019-20.

Tables 13.1, 13.2, 13.3 and 13.4 show net cash income, cash farm working expenses and the adjustments made to calculate operating profit for the average New Zealand 50:50 sharemilker on a per farm, per cow, per hectare and per kilogram milksolids sold basis.

### 8.2 Revenue

The price received for milk increased from \$3.17 to \$3.45 per kilogram milksolids in 2019-20, an increase of 28 cents (+8.8%) from the previous season. This is the third time that the price surpassed the decadal average of \$3.13 since 2013/14. Income from milk sales increased by 3.5 percent to \$606,847, alongside net livestock sales of \$60,008 and other dairy income of \$3,280. These contribute to a total net dairy cash income for the average farm of \$670,136 for the season, which is less than 1 percent above the result for 2018-19. Figure 8.1 shows the trend for the past decade. Milk production per herd decreased for sharemilkers (-5%), reflecting a decrease in herd size, effective hectares and milksolids per cow.

Figure 8.1: Distribution of Milk Payout Received 2019-20

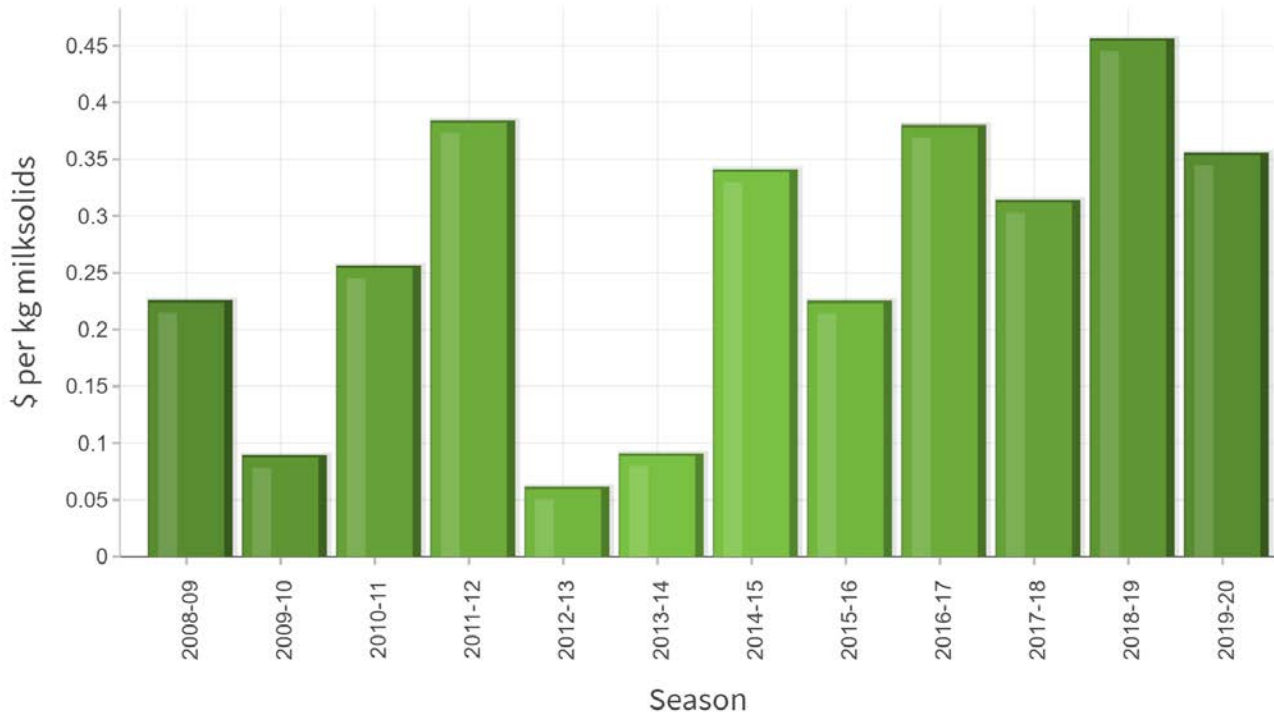


Net livestock sales have become a more prominent source of income for sharemilkers over the last five seasons. Annual average livestock sales were \$87 per cow over 2010-11 to 2014-15, but the annual average rose to \$139 between 2015-16 and 2019-20. Net livestock sales for the current season were \$139, the same as

### 8.3. EXPENDITURE

the average over the last five seasons. Nonetheless, livestock sales as a proportion of net dairy cash income fell from its historical high (per kilogram milksolids) reported in 2018-19, to a level closer to its long-term average.

Figure 8.2: Net Livestock Sales (\$ per kg MS)



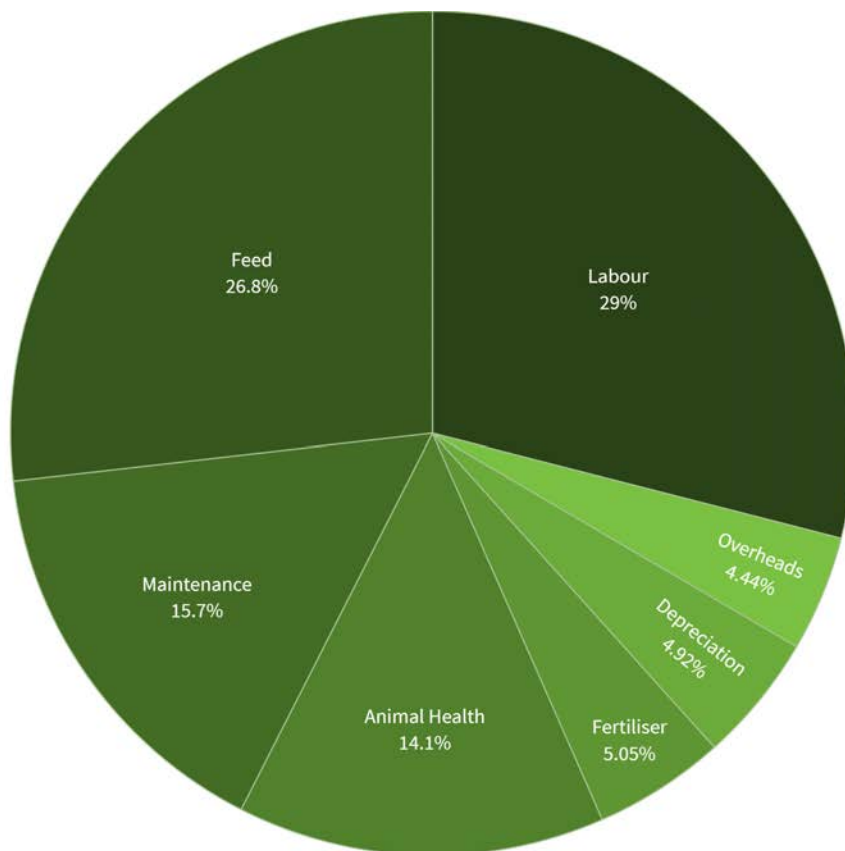
### 8.3 Expenditure

Farm working expenses (FWE) increased relative to last season. It averaged \$439,763 per sharemilking business or \$2.50 per kilogram milksolids. Farm expense items remained relatively similar to last season's on a per kilogram milksolids basis. After adjustments for resources used but not paid for in the cash account (e.g. unpaid family labour), operating expenses per kilogram milksolids were \$3.13, higher than last season's value of \$3.00.

The components of 50:50 sharemilking operating expenditure are shown in Figure 8.3. Labour continues to be the largest category of expenditure at 29 percent in 2019-20. Feed was the second highest operating expense for 50:50 sharemilker farms at 26.8 percent of total operating expenditure. Maintenance and animal health contributed 15.7 and 14.1 percent respectively in the year to June 2020.



Figure 8.3: Proportion of Dairy Operating Expenditure 2019-20

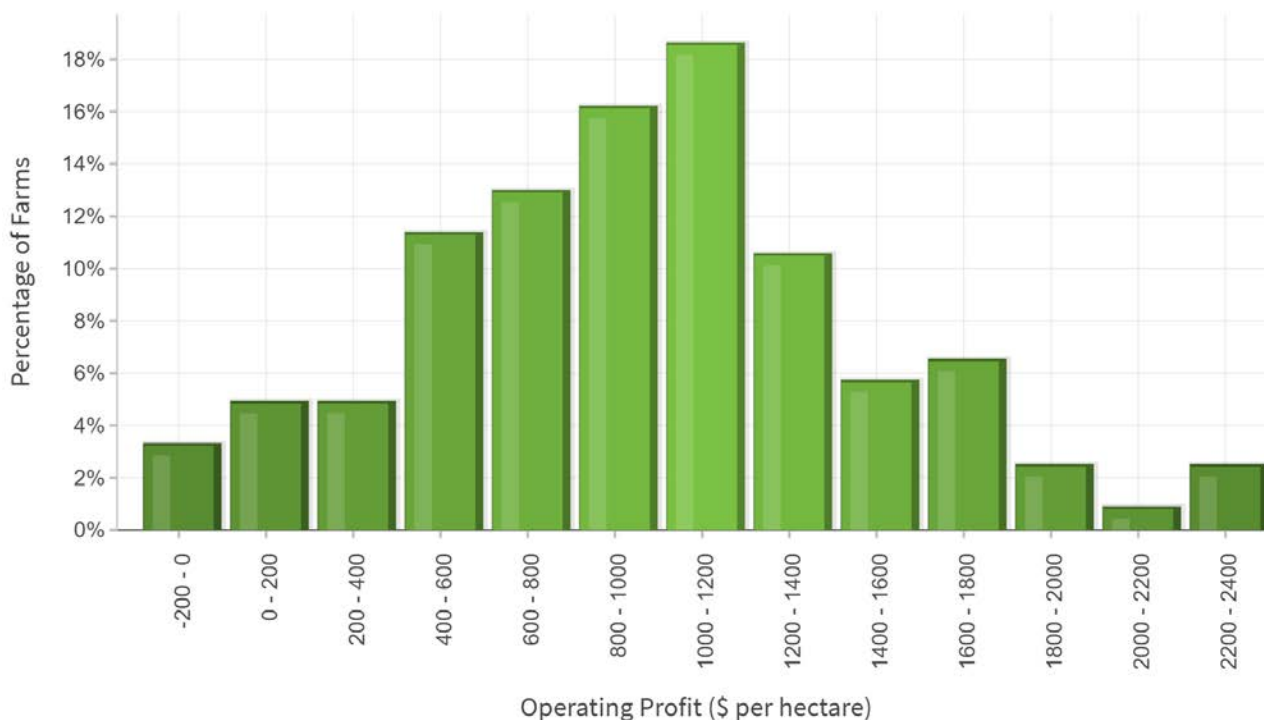


## 8.4 Profitability

Dairy operating profit per kilogram milksolids in 2019-20 was \$0.86 for the average 50:50 sharemilker, up 23 cents compared to the 2018-19 season. Net dairy cash income per kilogram milksolids also increased by 23 cents relative to last season. In comparison, operating profit per effective cow and per hectare both increased by 35%.

Figure 8.4 shows the distribution of 2019-20 operating profit per hectare. It is approximately normally distributed around the mean of \$1,050 per hectare. Ninety-seven percent of sharemilkers had positive operating profit, leaving 3% of sharemilkers below \$0 per hectare. Eighteen percent of sharemilkers achieved operating profits of over \$1,400 per hectare.

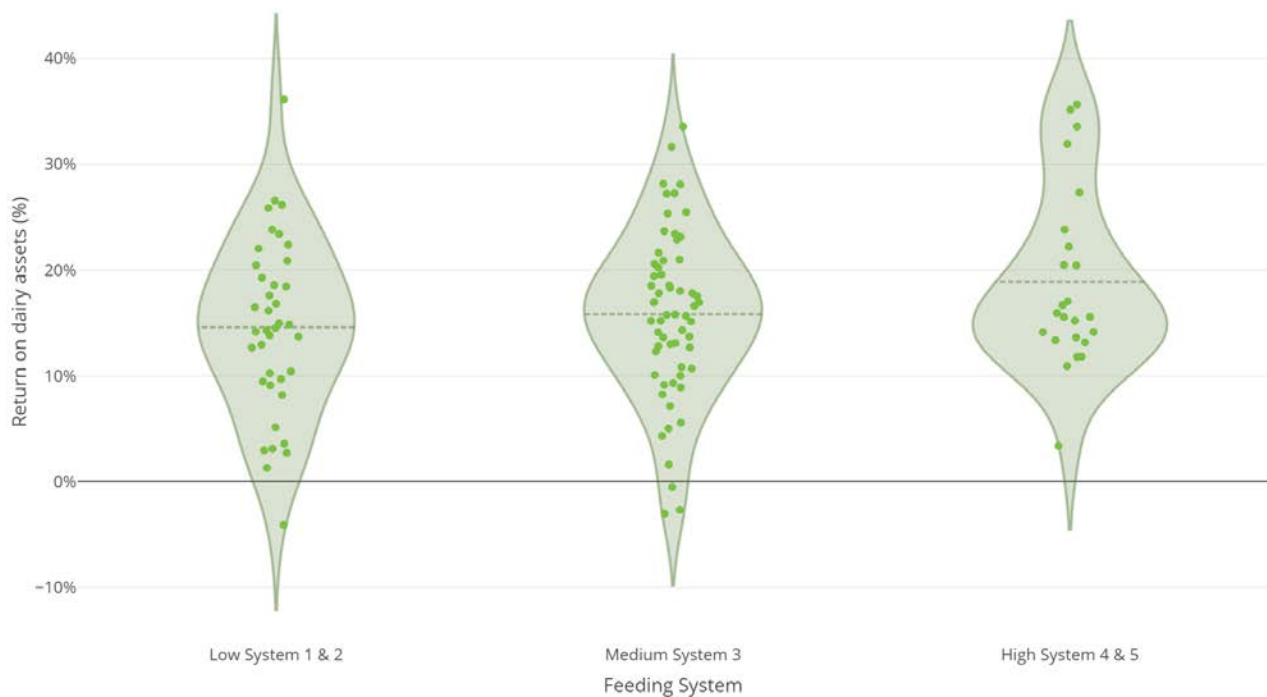
Figure 8.4: Distribution of Owner-operating Profit (\$ per hectare) 2019-20



Operating return on dairy assets measures the operating profit generated by the dairy assets employed at the start of the season. This measure excludes non-dairy activities and any change in capital value. Operating return on dairy assets for sharemilkers are more volatile than owner-operators because sharemilker's dairy assets primarily consist of livestock. The average operating return on dairy assets for sharemilkers was 16.8 percent in 2019-20. Grouping farm systems into low (systems 1 and 2), medium (system 3), and high input (systems 4 and 5) show that the average operating return on dairy assets was higher for high input farms (+18.8%) than low (14.7%) or medium (15.8%) input farms (Figure 8.6). This result is likely due to not controlling for regional differences between farms. High input system farms are more likely to be located in higher production regions such as Marlborough-Canterbury and Otago-Southland. Under higher milk price conditions, farms from these regions perform better relative to the rest of the country and generate higher operating returns.

## 8.4. PROFITABILITY

Figure 8.5: Return on Dairy Assets Distribution 2019-20



Business profit before tax is another measure of profitability that considers the cost of borrowing and other non-dairy activities, measuring the overall profitability of the business enterprise and not just the dairy farm operation (Table 8.1).

Table 8.1: Business Profit before Tax

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>BUSINESS PROFIT:</b>										
<b>Dairy operating profit</b>	<b>166,913</b>	<b>167,173</b>	<b>99,142</b>	<b>182,709</b>	<b>65,599</b>	<b>-53,678</b>	<b>91,877</b>	<b>98,570</b>	<b>117,177</b>	<b>151,293</b>
+ Labour adjustment	74,092	76,757	74,703	68,733	77,508	73,553	72,041	80,608	80,071	82,559
+ Owned support block adjustment	2,218	1,217	3,315	685	1,245	695	508	251	299	479
- Rent (excl support block)	2,111	3,450	4,385	3,401	5,154	1,407	1,047	2,320	827	1,220
- Interest	44,577	34,423	33,043	34,599	31,805	37,949	34,629	31,626	36,976	27,516
<b>Business profit before tax</b>	<b>204,439</b>	<b>211,673</b>	<b>144,313</b>	<b>220,149</b>	<b>113,971</b>	<b>-12,038</b>	<b>133,967</b>	<b>154,478</b>	<b>166,064</b>	<b>217,779</b>
<b>Business profit before tax per all effective hectares</b>	<b>1,266</b>	<b>1,268</b>	<b>854</b>	<b>1,484</b>	<b>755</b>	<b>-75</b>	<b>841</b>	<b>967</b>	<b>951</b>	<b>1,260</b>

The average sharemilker in 2019-20 made a business profit before tax of \$217,779, up \$51,715 per farm compared to the previous season. This business profit is equivalent to \$1,260 per all effective hectares (effective dairy + effective dairy support block + effective non-dairy). The dairy operating profit increased by \$34,116 on the previous season. Combined interest and rent payments were slightly down on last season (-\$9,067). Total effective hectares decreased by 1.8 hectares from the season prior to 172.8 effective dairy hectares.

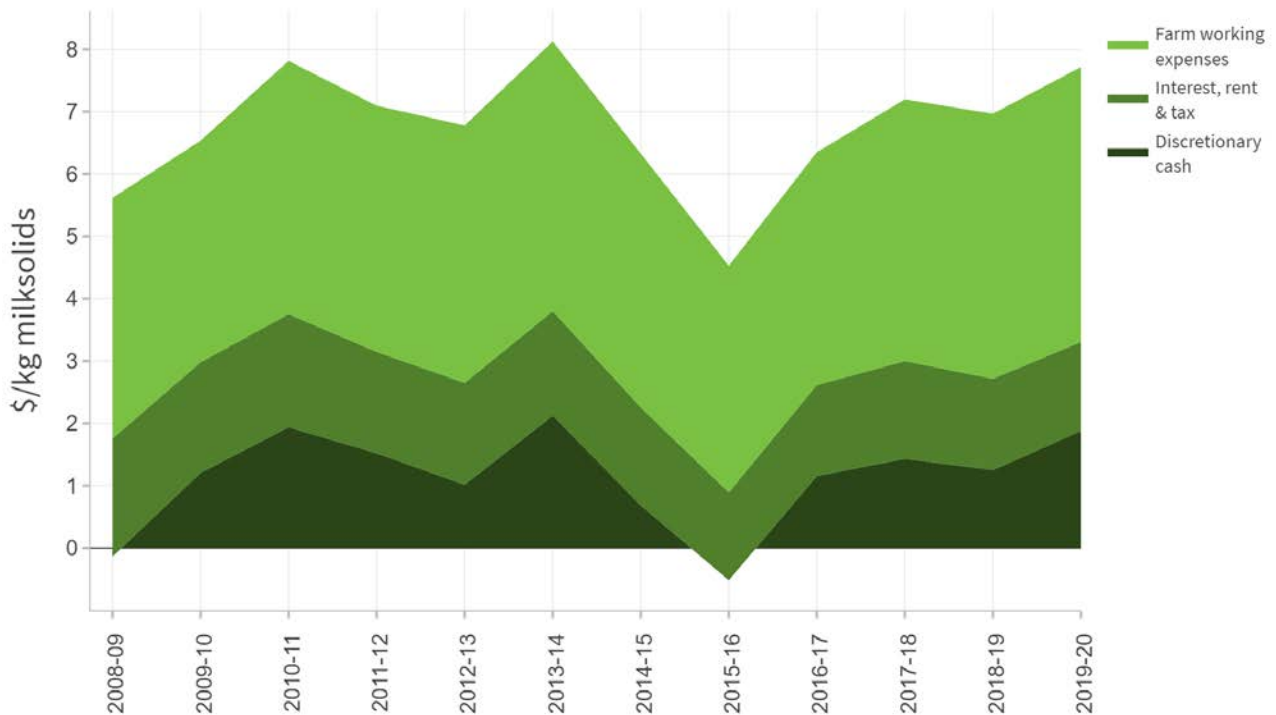
## 8.5 Cash Flow

The cash operating surplus is the difference between net dairy cash income and farm working expenses. In 2019-20, the average sharemilker cash operating surplus of \$230,372 increased by 8 percent from the previous season. On a per kilogram milk solids basis, the \$1.31 cash operating surplus was up 16 cents from last season. Once rent, interest and tax are paid, and net income from non-dairy farming activities are added, the remaining value is discretionary cash. Total discretionary cash in 2019-20 was at \$171,895, equating to \$0.98 per kilogram milk solids (refer to Table 13.5).

Many farm businesses include cash funds and off-farm income in their annual accounts. The cash available after including these activities and any change of funds deposited or withdrawn from the IRD Income Equalisation Scheme is the cash available for drawings, debt repayments and/or capital development and purchases. Cash available for living and business growth in 2019-20 was \$161,640 per farm, up 20 percent from last season.

Cash for living and growth can also be used to repay debt and for farm family drawings. During the year, term debt decreased \$8,192 per farm, and capital transactions of \$57,631 were down 49 percent from last season. Drawings decreased (-\$1,711) to \$65,458 per farm. Tax payments increased to \$39,336 per farm (Table 13.5).

Figure 8.6: Annual Change in Revenue and Expenditure Over the Last 10 Years (\$ per kg MS)

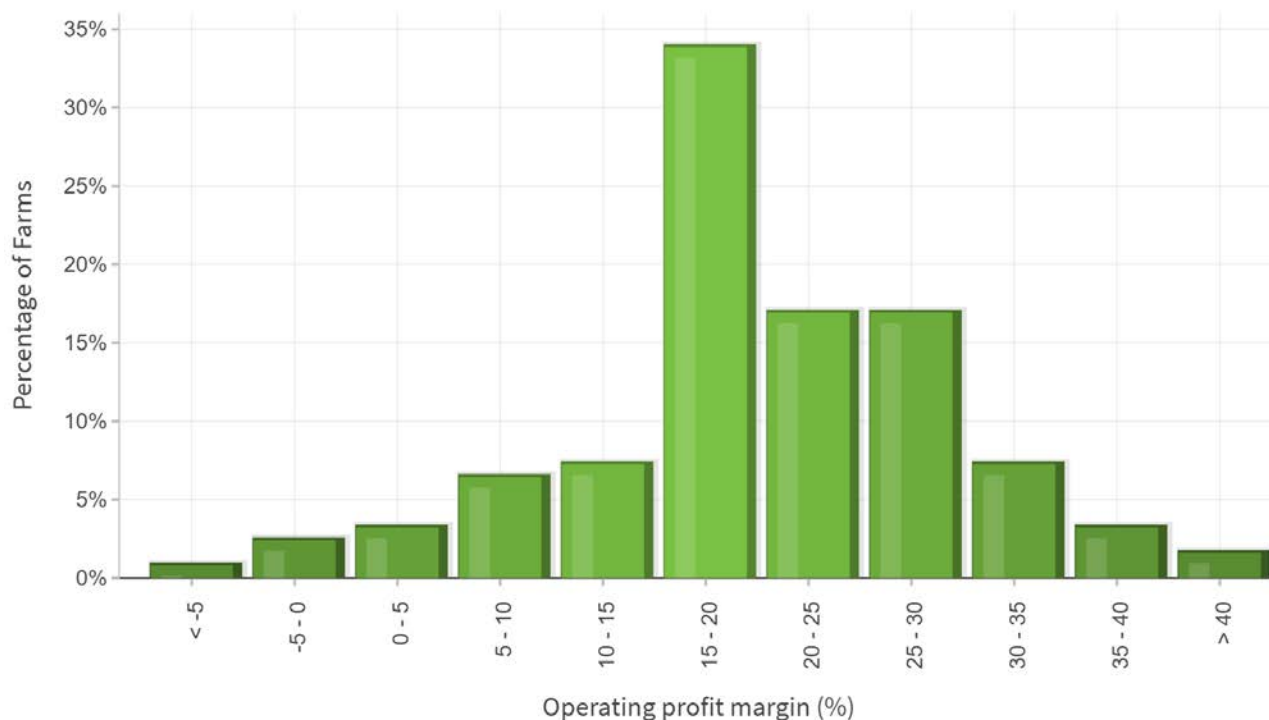


## 8.6 Operating Profit Margin

Operating profit margin in 2019-20 was 21.6% for the average 50:50 sharemilker, up 4.2% compared to the 2018-19 season and 3.7% higher than the ten-year average.

Figure 8.7 shows the distribution of operating profit margin for the 2019-20 season. Over ninety-six percent of sharemilkers had a positive operating profit margin, leaving 3.2% of sharemilkers below 0%. Approximately twelve percent of sharemilker achieved an operating profit margin of 30% or more.

Figure 8.7: Distribution of Operating Profit Margins (%) 2019-20



## 9 50:50 Sharemilkers: Equity and Capital Financial Analysis

### 9.1 Introduction

This section considers the equity and capital position of dairy farms, with additional information about trends over time in these positions.

Operating return on dairy assets was at 16.8 percent for sharemilkers, while total return on assets was measured at 9.3 percent. The level of debt to assets decreased to 47.9 percent at close, while term liabilities of \$3.19 per kilogram milksolids, a 15.6 percent decrease compared to the previous season.

### 9.2 Dairy Assets

Total dairy assets increased in value by \$78,756 during the 2019-20 season, closing at \$1.1 million per farm. Livestock accounted for 71 percent of total closing dairy assets, following a small increase in value throughout the season.

### 9.3 Liabilities and Debt Servicing

The flow of funds (Table 9.1) shows the components of the change in working capital, including the source and application of cash funds. Funds for 2019-20 were mostly from farm operations. Term debt decreased (\$8,192) on loans by the close of the season. Of the funds applied, 34% was spent on drawings, 30% was spent on capital transactions and 14% was spent on interest payments. Tax payments required 21 percent of funds at \$39,336 per herd.

Table 9.1: Flow of Funds

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>WORKING CAPITAL:</b>										
Change in current assets	23,742	-1,003	-22,966	32,816	-23,771	-16,221	22,455	2,932	-24,375	112,605
- Change in current liabilities	6,999	-2,464	7,412	13,755	-1,920	23,954	-9,244	15,668	-10,322	-10,193
Change in working capital	16,743	1,461	-30,378	19,061	-21,851	-40,175	31,699	-12,736	-14,053	122,798
<b>SOURCE OF FUNDS:</b>										
<b>Cash operating surplus</b>	<b>224,026</b>	<b>235,759</b>	<b>120,735</b>	<b>201,958</b>	<b>137,419</b>	<b>11,433</b>	<b>167,540</b>	<b>169,323</b>	<b>213,273</b>	<b>230,372</b>
+ Change in working capital	16,743	1,461	-30,378	19,061	-21,851	-40,175	31,699	-12,736	-14,053	122,798
+ Net non-dairy cash income	2,645	1,458	139	2,036	2,511	2,243	1,798	1,996	2,659	-1,380
+ Net off-farm income	5,508	3,753	4,244	3,989	3,817	4,546	2,281	4,071	5,230	10,975
+ Introduced funds	8,612	11,331	8,480	13,155	24,197	26,601	12,583	14,806	-19,006	-10,255
+ Income equalisation	519	-379	4,325	-2,621	-6,091	5,707	1,412	0	470	0
+ Increase in term debt	-58,537	-56,442	40,067	973	50,721	37,011	-17,644	-20,730	33,643	-8,192
<b>= Total source of funds</b>	<b>199,516</b>	<b>196,941</b>	<b>147,612</b>	<b>238,551</b>	<b>190,723</b>	<b>47,366</b>	<b>199,669</b>	<b>156,730</b>	<b>222,216</b>	<b>344,318</b>
<b>APPLICATION OF FUNDS:</b>										
Rent (excl support block)	2,111	3,450	4,385	3,401	5,154	1,407	1,047	2,320	827	1,220
+ Interest	44,577	34,423	33,043	34,599	31,805	37,949	34,629	31,626	36,976	27,516
+ Tax	23,930	31,344	27,351	29,237	25,101	5,492	6,220	24,199	30,109	39,336
+ Net capital transactions	27,519	48,945	70,590	60,379	89,030	26,407	36,654	49,540	113,811	57,631
+ Drawings	67,893	75,857	72,999	72,813	83,335	56,461	57,721	74,517	67,169	65,458
<b>= Total application of funds</b>	<b>166,030</b>	<b>194,019</b>	<b>208,368</b>	<b>200,429</b>	<b>234,425</b>	<b>127,716</b>	<b>136,271</b>	<b>182,202</b>	<b>248,891</b>	<b>191,161</b>
<b>Source less application of funds</b>	<b>33,486</b>	<b>2,922</b>	<b>-60,756</b>	<b>38,122</b>	<b>-43,702</b>	<b>-80,350</b>	<b>63,398</b>	<b>-25,472</b>	<b>-26,675</b>	<b>153,157</b>

The average 50:50 sharemilkers cash operating surplus was \$230,372, which was well above the previous season's \$213,273. This level of cash operating surplus for 2019-20 translates to around \$1.15 per kilogram milksolids, the same as last season's level. The 2019-20 average level of discretionary cash was \$171,895, well above last season's average of \$148,021. Average discretionary cash on farms has maintained a strong position since the 2016-17 season, in strong contrast to the 2015-16 season where it was negative (-\$31,172). Typically, these funds are required to reduce debt, sustain drawings and to fund capital expenditure. Term liabilities declined from \$3.78 at the close of the 2018-19 season to \$3.19 at the close of the 2019-20 season. Interest and rent expenditure at 16 cents per kilogram milksolids was 4 cents less than the previous year. Interest and rent per dollar of gross farm revenue decreased from 5.6% to 4.1% (Table 9.2).

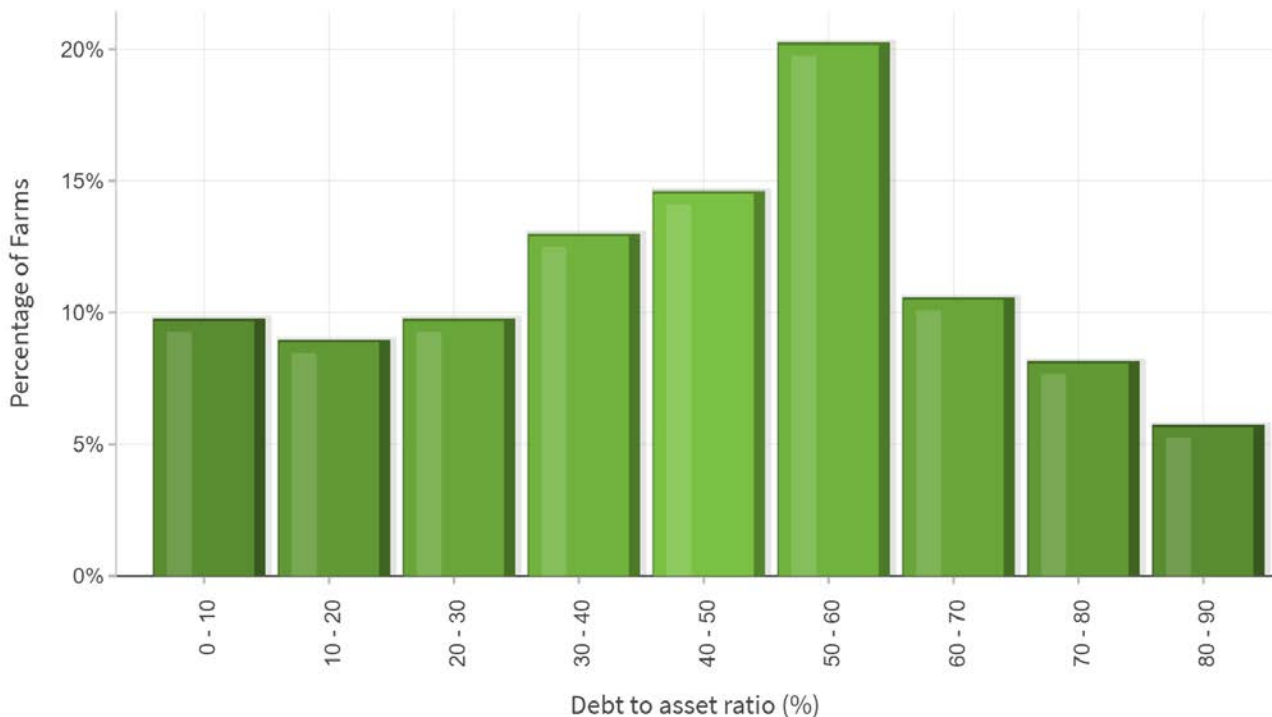
Table 9.2: Debt Servicing Ratios

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>DEBT SERVICING:</b>										
Interest & rent \$/kg MS	0.35	0.26	0.27	0.27	0.24	0.27	0.25	0.23	0.20	0.16
Interest & rent % GFR	8.2%	6.5%	7.0%	6.2%	7.1%	11.5%	7.3%	6.1%	5.6%	4.1%
Term liabilities \$/kg MS	3.98	3.09	3.64	3.71	3.36	4.07	4.05	3.81	3.78	3.19

The debt to asset ratio decreased from 61.6 percent at the close of 2018-19 to 47.9 percent in 2019-20 (Table 13.6). Debt to asset values have fluctuated between 70 and 50 percent for the past four seasons but were at lower levels prior to that.

Figure 9.1 shows the debt to asset distribution in 2019-20, with an average of 47.9 percent. Forty-one percent of farms have debt to asset ratios below 40 percent. Fourteen percent of the farms had debt to asset ratios over 70 percent, with no 50:50 sharemilker farms sitting in the high-risk area of over 90 percent debt.

Figure 9.1: Debt to Asset Distribution 2019-20

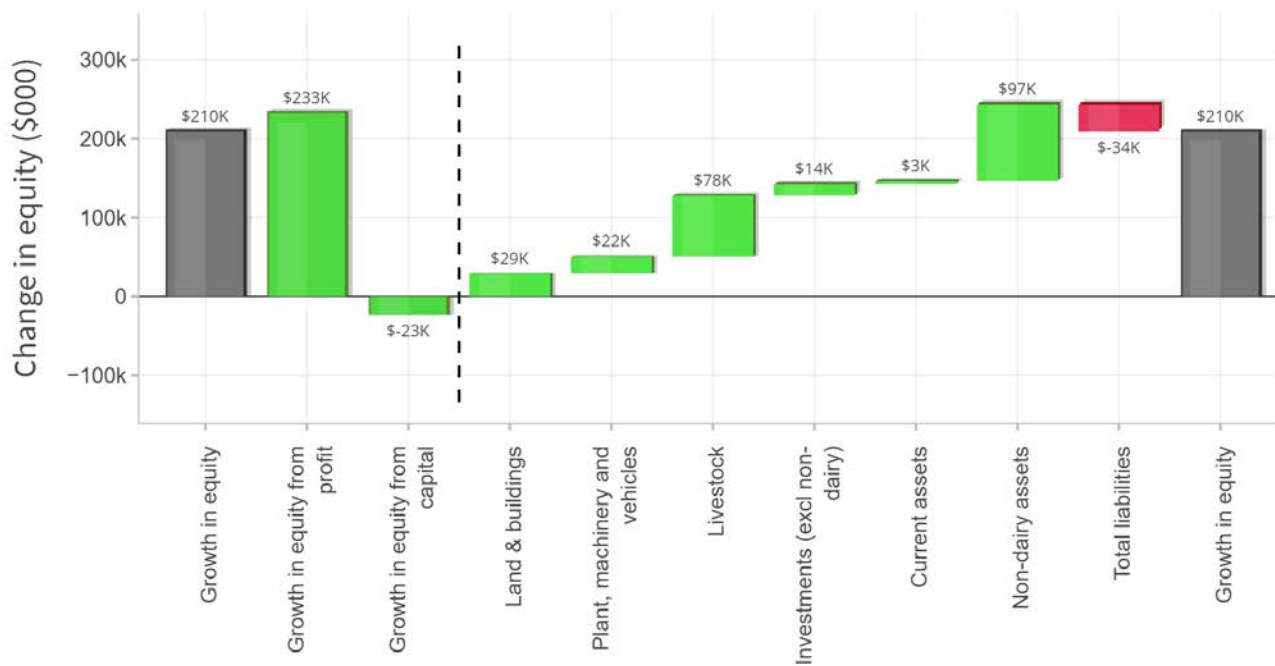


## 9.4 Equity

Equity (shareholders' funds or net worth) is the net value of the assets owned by the farm business (i.e. total assets less total liabilities at open and close of each year). At the opening of the 2019-20 season, 50:50 sharemilker farm businesses had an average equity of \$615,525 or 48 percent of total assets. This increased to \$712,919 at the end of the season or 52 percent of total closing asset values.

The equity value of the average 50:50 sharemilker farm business increased \$209,502 between 2015 and 2020 (Figure 9.2). Over the past five years, growth has primarily been driven by increases in non-dairy assets and livestock (+\$97,246 and +\$77,603 respectively), and offset by the increase in total liabilities (-\$33,951) over the past five years.

Figure 9.2: Components of Equity Change (\$000) 2015-20

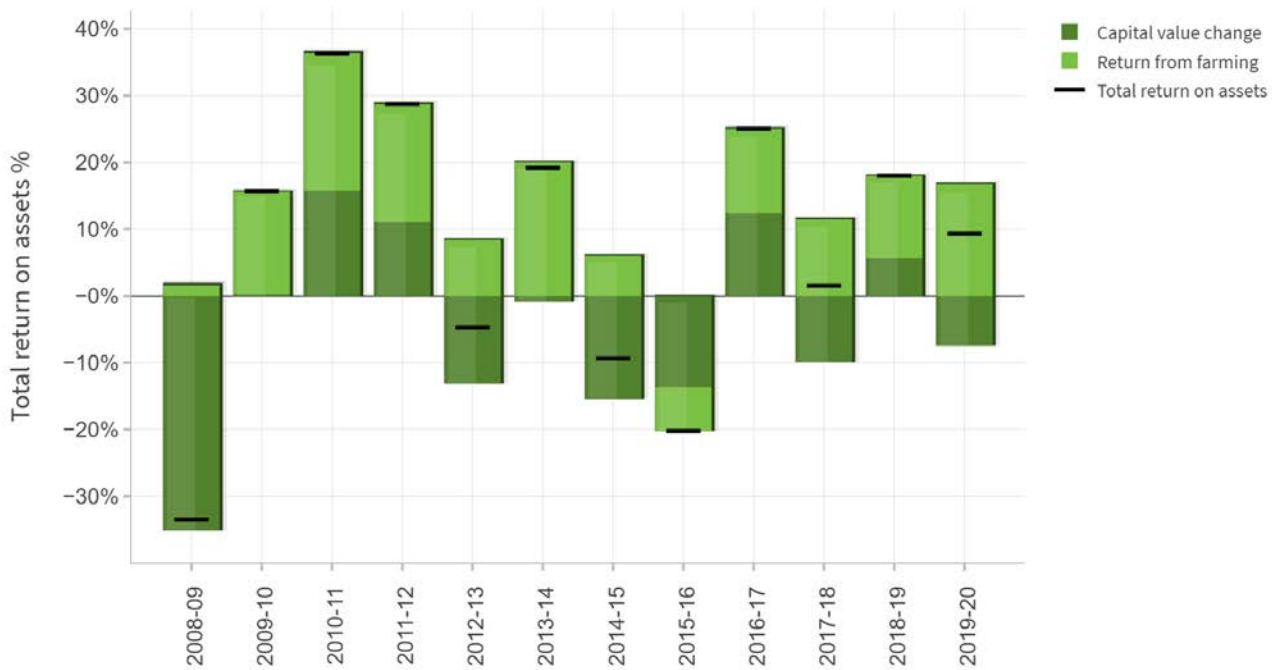




## 9.5 Returns

Total return on assets (profit including capital change generated by the assets employed) in 2019-20 was 9.3 percent, as shown in Figure 9.3. Net returns from dairy activity yielded \$150,552 across the 2019-20 season, combined with an average change in capital value of -\$31,459 per herd. Sharemilker returns are more volatile than those earned by Owner-operators due to livestock being their most significant asset class and livestock values fluctuating with greater magnitude than land prices.

Figure 9.3: Sharemilker Total Return on Assets 2019-20



Total returns on sharemilkers equity averaged an increase of 16.9 percent in 2019-20. This was a decrease from last season's 36.7 percent return.

## 10 50:50 Sharemilkers: Regional Financial Analysis

### 10.1 Regional Profitability

DairyBase® classifies farms into eight regions, five in the North Island and three in the South Island (refer to Section 2.6). Table 10.1 and 10.2 shows key 2019-20 average performance indicators per kilo milksolids for 50:50 sharemilker farms in these eight regions. The low number of farms in the regions presented here may also reduce the representativeness of the sample. Both Table 10.1 and 10.2 report *median* values to reduce numerical bias created by the *average of sums* methodology in regional samples. Thus, totals and sub-totals in these tables will not add up but will better represent average values of the data sample. See section 2.11 for an explanation of this methodology.

Key Points from Table 10.1 include:

- Marlborough-Canterbury had the largest farms by hectares, cows and milksolids, followed by Otago-Southland and then Lower North Island
- The cash operating surplus per kg MS was highest in Waikato (\$1.70), and lowest in Marlborough-Canterbury (\$1.25)
- All regions had an average profit per hectare between \$708 and \$1,270 per hectare.

## 10.1. REGIONAL PROFITABILITY

Table 10.1: Regional Sharemilker Profitability

	Northland	Waikato	Bay of Plenty	Taranaki	Lower North Island	West Coast-Tasman	Marlborough-Canterbury	Otago-Southland
<b>PHYSICAL CHARACTERISTICS:</b>								
Number of herds	16	33	10	17	13	5	8	22
Effective hectares	150.5	108.0	115.0	101.0	136.0	128.0	227.5	213.5
Peak cows milked	375	303	302	277	410	400	780	582
Stocking rate (cows/ha)	2.5	3.0	2.8	2.9	2.8	3.0	3.5	2.8
Kg milksolids sold	112,931	115,248	110,095	111,291	160,705	174,893	349,130	261,508
Milksolids sold per hectare	920	1,157	1,052	1,190	1,024	1,366	1,502	1,258
Milksolids sold per cow	322	380	373	409	367	443	447	444
<b>PAYOUT RECEIVED: \$/kg MS sold</b>	<b>3.49</b>	<b>3.50</b>	<b>3.39</b>	<b>3.51</b>	<b>3.48</b>	<b>3.55</b>	<b>3.49</b>	<b>3.52</b>
<b>DAIRY CASH INCOME \$: MS BASIS</b>								
Milk sales (net of dairy levies)	3.49	3.50	3.39	3.51	3.48	3.55	3.49	3.52
Net livestock sales (sales - purchases)	0.52	0.38	0.48	0.42	0.43	0.64	0.37	0.37
Other dairy cash income	0.00	0.01	0.00	0.00	0.00	0.03	0.00	0.00
<b>Net dairy cash income</b>	<b>4.08</b>	<b>3.90</b>	<b>3.82</b>	<b>3.94</b>	<b>3.94</b>	<b>4.23</b>	<b>3.90</b>	<b>3.90</b>
<b>CASH FARM WORKING EXPENSES: MS BASIS</b>								
Wages	0.30	0.28	0.33	0.30	0.48	0.37	0.52	0.47
Animal health	0.23	0.21	0.29	0.22	0.26	0.25	0.27	0.20
Breeding & herd improvement	0.16	0.15	0.17	0.15	0.23	0.16	0.15	0.17
Farm dairy	0.04	0.05	0.03	0.08	0.06	0.06	0.05	0.04
Electricity	0.10	0.10	0.15	0.11	0.14	0.09	0.10	0.08
Net feed made, purchased, cropped	0.56	0.62	0.39	0.55	0.68	0.50	0.37	0.46
Stock grazing	0.15	0.20	0.07	0.20	0.26	0.25	0.68	0.47
Support block lease	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fertiliser (incl Nitrogen)	0.21	0.11	0.13	0.12	0.14	0.19	0.17	0.16
Irrigation	0.00	0.00	0.00	0.00	0.00	0.04	0.11	0.00
Regrassing	0.01	0.00	0.02	0.00	0.01	0.02	0.01	0.01
Weed & pest	0.02	0.01	0.01	0.01	0.01	0.04	0.01	0.00
Vehicles & fuel	0.24	0.19	0.18	0.15	0.15	0.21	0.11	0.14
Repairs & maintenance	0.08	0.05	0.08	0.05	0.07	0.12	0.05	0.07
Freight & general	0.05	0.05	0.04	0.05	0.05	0.10	0.04	0.04
Administration	0.12	0.08	0.07	0.09	0.09	0.07	0.05	0.07
Insurance	0.04	0.03	0.03	0.05	0.04	0.04	0.02	0.03
ACC	0.02	0.02	0.03	0.01	0.01	0.01	0.01	0.01
Rates	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Farm working expenses</b>	<b>2.56</b>	<b>2.21</b>	<b>2.08</b>	<b>2.24</b>	<b>2.55</b>	<b>2.70</b>	<b>2.62</b>	<b>2.68</b>
<b>Cash operating surplus</b>	<b>1.62</b>	<b>1.70</b>	<b>1.59</b>	<b>1.65</b>	<b>1.48</b>	<b>1.39</b>	<b>1.25</b>	<b>1.31</b>
<b>ADJUSTMENTS: MS BASIS</b>								
Value of change in dairy livestock	0.32	0.10	-0.01	0.01	0.17	0.05	0.05	0.10
Less labour adjustment	0.66	0.57	0.74	0.79	0.58	0.65	0.31	0.35
Plus feed inventory adjustment	-0.02	0.00	0.00	-0.01	0.00	0.00	0.00	0.00
Less owned support block adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Less depreciation	0.23	0.17	0.12	0.16	0.15	0.18	0.11	0.12
<b>Net adjustments</b>	<b>-0.69</b>	<b>-0.68</b>	<b>-0.77</b>	<b>-0.97</b>	<b>-0.60</b>	<b>-0.58</b>	<b>-0.36</b>	<b>-0.36</b>
<b>OPERATING CASH &amp; NON-CASH: MS BASIS</b>								
Dairy gross farm revenue	4.37	3.98	3.95	3.98	4.19	4.23	3.90	3.98
Dairy operating expenses	3.70	3.14	2.95	3.09	3.32	3.42	3.08	3.16
<b>Dairy operating profit</b>	<b>0.85</b>	<b>0.83</b>	<b>0.89</b>	<b>0.80</b>	<b>0.80</b>	<b>0.81</b>	<b>0.87</b>	<b>0.80</b>
<b>OPERATING CASH &amp; NON-CASH: HA BASIS</b>								
Dairy gross farm revenue	3,943	4,507	3,855	4,575	4,332	4,434	6,157	5,034
Dairy operating expenses	3,039	3,439	3,023	3,545	3,621	4,043	4,831	3,738
<b>Dairy operating profit</b>	<b>708</b>	<b>850</b>	<b>993</b>	<b>1,030</b>	<b>923</b>	<b>1,123</b>	<b>1,270</b>	<b>948</b>
<b>Operating profit margin</b>	<b>18.90%</b>	<b>20.50%</b>	<b>23.37%</b>	<b>22.52%</b>	<b>19.19%</b>	<b>17.46%</b>	<b>21.55%</b>	<b>19.64%</b>

## 10.1. REGIONAL PROFITABILITY

Operating return on dairy assets ranged from 13.4 percent to 17.6 percent across the regions reported in Table 10.2. Term liabilities per kg MS were higher in Northland and West Coast-Tasman. The relatively high debt to asset ratio in West Coast-Tasman reflects the higher term liabilities per kg MS, and may be influenced by the sample selection.

Table 10.2: Regional 50:50 Sharemilker Financial Position

	Northland	Waikato	Bay of Plenty	Taranaki	Lower North Island	West Coast-Tasman	Marlborough-Canterbury	Otago-Southland
<b>RETURNS:</b>								
Operating return on dairy assets %	13.4%	15.8%	17.4%	13.7%	15.6%	15.6%	17.6%	15.4%
Total return on assets %	9.4%	9.7%	13.2%	7.5%	9.9%	11.4%	11.6%	11.0%
Total return on equity %	17.0%	16.0%	22.2%	19.0%	24.5%	35.5%	23.0%	16.1%
Growth in equity %	17.8%	20.7%	21.8%	20.8%	36.2%	45.9%	19.0%	14.6%
<b>DEBT:</b>								
Closing term liabilities per kg MS	3.35	2.52	2.39	2.37	3.01	3.31	3.14	2.17
Closing debt to asset %	54.0%	45.9%	42.1%	49.1%	54.3%	72.2%	54.8%	45.2%

# 11 Dairy Tomorrow Measures

## 11.1 Annual Update

The Dairy Tomorrow Strategy outlines the aspirations that the New Zealand dairy sector wants to achieve to be competitive, productive, trusted, and valued. A core part of the Strategy is the development of an integrated set of measures for dairy farms. This report focuses on the four measures that together have been selected to help capture the international competitiveness and resilience of the New Zealand dairy sector from an economic perspective. These measures are:

- The cost of production, measured in terms of dollars per kilogram of milksolids, is a popular metric in global studies of competitiveness. In the New Zealand context, it is measured as operating expenses (\$) per kilogram of milksolids. A lower cost of production mitigates the impact of a low milk price on profitability and results in increased operating profit during high milk prices. It is a key measure of resilience as a low cost of production helps to buffer the impacts of a change in the milk price on a farm business.
- The dairy operating profit margin (%) is the ratio of operating profit and gross farm revenue. The dairy operating profit margin is a percentage most often between zero and fifty. A higher value denotes that a farm produces a given level of revenue at a lower cost, indicating that it is able to better survive through turbulent market and production conditions.
- The operating return on dairy assets, measured in % terms, is a key financial metric used worldwide to measure how effectively a business is employing their asset base. It is computed as the ratio of operating profit and the total value of dairy assets, both measured in dollars per hectare. This metric captures the ability of a farm to grow through careful, considered investment in high-performing assets.
- The equity to milksolids metric, measured in dollars per kilogram of milksolid terms, reflects resilience through its focus on the value of the farm business asset that is owned and not borrowed. Controlling for the level of milk production makes it easier to compare across farms, both nationally and globally.

The Dairy Tomorrow measures are reported in Tables 11.1 through 11.4 by quartiles and the mean. The quartiles can be interpreted as follows:

- The 25th percentile for a variable represents a value where 25% of the data is lower.
- The 50th percentile or median represents the centre of the data, such that 50% of data points are lower, and 50% are higher than this value.
- The 75th percentile represents a value such that 75% of observations are lower than this value.

In comparison, the mean is an average calculated by adding all values together and dividing by the number of observations. The mean provides an average across the values for all observations.

Table 11.1: Cost of Production 2010-20

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>COST OF PRODUCTION (OPERATING EXPENSES / KG MS):</b>										
25th percentile	5.48	5.17	5.59	5.71	5.35	4.66	5.32	5.62	5.69	5.95
Mean	4.97	4.74	5.05	5.21	4.85	4.36	4.72	5.12	5.18	5.47
50th percentile	4.88	4.71	4.90	5.15	4.76	4.21	4.57	5.02	5.15	5.38
75th percentile	4.33	4.18	4.44	4.55	4.30	3.90	4.13	4.55	4.61	4.88

Table 11.2: Operating profit margin 2010-20

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>OPERATING PROFIT MARGIN (%):</b>										
25th percentile	30.3%	28.3%	18.7%	31.5%	17.0%	-6.3%	19.3%	23.1%	20.1%	21.7%
Mean	36.7%	34.5%	25.7%	37.0%	23.7%	2.2%	27.5%	29.7%	26.5%	28.5%
50th percentile	36.8%	34.6%	26.6%	37.2%	24.6%	4.7%	30.5%	30.9%	26.5%	30.0%
75th percentile	44.9%	41.3%	34.7%	44.7%	33.2%	12.1%	36.1%	36.1%	33.8%	35.5%

Table 11.3: Operating return on assets 2010-20

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>OPERATING RETURN ON DAIRY ASSETS (%):</b>										
25th percentile	4.6%	4.6%	2.6%	5.1%	2.2%	-0.7%	2.7%	3.2%	2.7%	3.2%
Mean	7.1%	6.4%	4.5%	8.2%	3.7%	-0.1%	4.4%	5.3%	4.0%	5.2%
50th percentile	6.3%	6.1%	4.1%	6.9%	3.4%	0.1%	4.3%	4.5%	3.9%	4.8%
75th percentile	8.6%	7.9%	5.7%	8.9%	4.8%	1.0%	5.4%	6.3%	5.2%	6.8%

Table 11.4: Equity per kg milksolids 2010-20

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>EQUITY (\$) PER KG MILKSOLIDS:</b>										
25th percentile	13.87	15.13	15.01	16.57	18.93	13.08	18.32	14.92	13.42	13.62
Mean	32.66	27.29	28.00	28.71	28.38	25.06	30.78	27.19	25.22	26.26
50th percentile	26.51	25.90	25.59	26.25	27.63	22.08	26.28	25.09	20.61	21.60
75th percentile	41.65	37.37	39.65	39.71	37.29	34.14	41.17	33.99	34.17	35.09

## 12 Time Series Tables: Owner Operator

Table 12.1: Cash Operating Surplus and Operating Profit - \$ per farm

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>PHYSICAL CHARACTERISTICS:</b>										
Number of herds	214	204	217	301	296	279	316	265	260	326
Effective hectares	138.1	140.7	141.0	142.9	145.5	148.1	147.8	151.4	146.0	142.1
Peak cows milked	383	393	397	402	419	418	414	430	424	415
Stocking rate (cows/ha)	2.8	2.8	2.8	2.8	2.9	2.8	2.8	2.8	2.9	2.9
Kg milksolids sold	133,030	147,964	142,089	151,455	160,367	160,270	160,302	161,567	167,189	169,761
Milksolids sold per hectare	963	1,052	1,008	1,060	1,102	1,082	1,085	1,067	1,145	1,194
Milksolids sold per cow	347	376	358	377	383	383	387	376	395	409
<b>PAYOUT RECEIVED: \$/kg MS sold</b>	<b>7.36</b>	<b>6.69</b>	<b>6.33</b>	<b>7.69</b>	<b>5.76</b>	<b>3.92</b>	<b>5.79</b>	<b>6.62</b>	<b>6.42</b>	<b>7.05</b>
<b>DAIRY CASH INCOME \$:</b>										
Milk sales (net of dairy levies)	979,430	990,172	899,388	1,164,274	923,621	628,192	928,944	1,068,927	1,073,346	1,197,023
Net livestock sales (sales - purchases)	51,283	52,637	55,381	57,832	83,804	90,596	79,495	80,967	77,911	82,883
Other dairy cash income	6,341	6,063	7,151	6,338	6,466	5,819	5,633	6,789	6,377	5,836
<b>Net dairy cash income</b>	<b>1,037,054</b>	<b>1,048,872</b>	<b>961,920</b>	<b>1,228,444</b>	<b>1,013,891</b>	<b>724,607</b>	<b>1,014,072</b>	<b>1,156,683</b>	<b>1,157,633</b>	<b>1,285,742</b>
<b>CASH FARM WORKING EXPENSES:</b>										
Wages	80,413	88,015	91,013	90,565	97,790	103,689	92,630	106,331	110,011	113,880
Animal health	31,352	31,621	32,944	35,800	36,553	30,906	34,577	37,497	37,958	40,754
Breeding & herd improvement	17,601	17,850	20,267	20,485	23,746	19,702	21,986	25,043	27,336	28,626
Farm dairy	8,184	9,781	10,225	10,068	9,693	7,902	9,636	9,433	9,773	10,804
Electricity	13,754	14,489	16,028	17,342	17,636	17,646	18,352	18,256	18,521	18,818
Net feed made, purchased, cropped	114,290	117,928	124,172	156,489	152,147	118,281	120,103	151,337	167,341	175,287
Stock grazing	48,080	55,505	52,914	53,919	64,319	64,317	58,368	58,254	71,042	72,720
Support block lease	8,881	12,361	12,543	11,519	11,992	12,385	12,322	10,882	9,548	10,371
Fertiliser (incl Nitrogen)	79,692	87,658	81,705	86,711	75,738	66,595	73,964	77,478	77,175	77,691
Irrigation	5,658	4,326	5,807	4,527	9,367	7,987	8,527	8,314	12,833	18,773
Regrassing	8,861	6,696	8,709	10,423	9,776	7,751	9,913	12,503	11,654	12,456
Weed & pest	4,874	5,074	4,714	6,387	5,502	5,561	5,631	5,951	5,299	5,441
Vehicles & fuel	25,686	29,014	30,026	32,423	28,918	26,704	29,220	31,584	30,955	30,230
Repairs & maintenance	46,688	51,664	43,114	62,561	52,240	35,753	46,630	63,665	58,032	61,811
Freight & general	6,739	7,612	7,630	9,030	8,700	8,666	7,755	8,518	7,912	12,330
Administration	15,671	17,080	17,765	17,697	17,680	18,974	17,895	19,675	21,182	24,213
Insurance	7,159	8,042	9,084	9,718	10,773	10,252	10,947	12,635	13,587	13,961
ACC	4,289	5,712	3,937	4,321	4,134	3,690	3,445	3,785	3,750	3,134
Rates	12,597	13,790	14,147	15,873	15,915	16,089	16,761	17,031	17,022	16,979
<b>Farm working expenses</b>	<b>540,469</b>	<b>584,218</b>	<b>586,744</b>	<b>655,858</b>	<b>652,619</b>	<b>582,850</b>	<b>598,662</b>	<b>678,172</b>	<b>710,932</b>	<b>748,282</b>
<b>Cash operating surplus</b>	<b>496,585</b>	<b>464,654</b>	<b>375,176</b>	<b>572,586</b>	<b>361,272</b>	<b>141,757</b>	<b>415,410</b>	<b>478,511</b>	<b>446,701</b>	<b>537,460</b>
<b>ADJUSTMENTS:</b>										
Plus value of change in dairy livestock	9,883	20,201	11,428	24,912	2,632	-13,067	9,835	11,378	8,780	7,282
Less labour adjustment	51,797	54,748	55,162	59,309	59,021	56,341	61,154	63,920	62,545	62,011
Plus feed inventory adjustment	3,313	4,782	-2,534	5,340	-210	3,453	2,790	-2,413	3,164	-3,484
Less owned support block adjustment	11,062	13,554	14,601	15,338	14,889	14,126	14,359	16,786	13,143	16,151
Less depreciation	58,898	52,172	56,258	57,383	66,154	62,967	66,295	67,899	68,522	72,265
<b>Net adjustments</b>	<b>-108,561</b>	<b>-95,491</b>	<b>-117,127</b>	<b>-101,778</b>	<b>-137,642</b>	<b>-143,048</b>	<b>-129,183</b>	<b>-139,640</b>	<b>-132,266</b>	<b>-146,629</b>
<b>OPERATING CASH &amp; NON-CASH:</b>										
Dairy gross farm revenue	1,046,937	1,069,073	973,348	1,253,356	1,016,523	711,540	1,023,907	1,168,061	1,166,413	1,293,024
Dairy operating expenses	658,913	699,910	715,299	782,548	792,893	712,831	737,680	829,190	851,978	902,193
<b>Dairy operating profit</b>	<b>388,024</b>	<b>369,163</b>	<b>258,049</b>	<b>470,808</b>	<b>223,630</b>	<b>-1,291</b>	<b>286,227</b>	<b>338,871</b>	<b>314,435</b>	<b>390,831</b>
<b>Dairy operating profit per ha</b>	<b>2,810</b>	<b>2,624</b>	<b>1,830</b>	<b>3,295</b>	<b>1,537</b>	<b>-9</b>	<b>1,937</b>	<b>2,238</b>	<b>2,154</b>	<b>2,750</b>

Table 12.2: Cash Operating Surplus and Operating Profit - \$ per cow

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>PHYSICAL CHARACTERISTICS:</b>										
Number of herds	214	204	217	301	296	279	316	265	260	326
Effective hectares	138.1	140.7	141.0	142.9	145.5	148.1	147.8	151.4	146.0	142.1
Peak cows milked	383	393	397	402	419	418	414	430	424	415
Stocking rate (cows/ha)	2.8	2.8	2.8	2.8	2.9	2.8	2.8	2.8	2.9	2.9
Kg milksolids sold	133,030	147,964	142,089	151,455	160,367	160,270	160,302	161,567	167,189	169,761
Milksolids sold per hectare	963	1,052	1,008	1,060	1,102	1,082	1,085	1,067	1,145	1,194
Milksolids sold per cow	347	376	358	377	383	383	387	376	395	409
<b>PAYOUT RECEIVED: \$/kg MS sold</b>	<b>7.36</b>	<b>6.69</b>	<b>6.33</b>	<b>7.69</b>	<b>5.76</b>	<b>3.92</b>	<b>5.79</b>	<b>6.62</b>	<b>6.42</b>	<b>7.05</b>
<b>DAIRY CASH INCOME \$:</b>										
Milk sales (net of dairy levies)	2,557	2,520	2,265	2,896	2,204	1,503	2,244	2,486	2,534	2,886
Net livestock sales (sales - purchases)	134	134	139	144	200	217	192	188	184	200
Other dairy cash income	17	15	18	16	15	14	14	16	15	14
<b>Net dairy cash income</b>	<b>2,708</b>	<b>2,669</b>	<b>2,423</b>	<b>3,056</b>	<b>2,420</b>	<b>1,734</b>	<b>2,449</b>	<b>2,690</b>	<b>2,733</b>	<b>3,100</b>
<b>CASH FARM WORKING EXPENSES:</b>										
Wages	210	224	229	225	233	248	224	247	260	275
Animal health	82	80	83	89	87	74	84	87	90	98
Breeding & herd improvement	46	45	51	51	57	47	53	58	65	69
Farm dairy	21	25	26	25	23	19	23	22	23	26
Electricity	36	37	40	43	42	42	44	42	44	45
Net feed made, purchased, cropped	298	300	313	389	363	283	290	352	395	423
Stock grazing	126	141	133	134	154	154	141	135	168	175
Support block lease	23	31	32	29	29	30	30	25	23	25
Fertiliser (incl Nitrogen)	208	223	206	216	181	159	179	180	182	187
Irrigation	15	11	15	11	22	19	21	19	30	45
Regrassing	23	17	22	26	23	19	24	29	28	30
Weed & pest	13	13	12	16	13	13	14	14	13	13
Vehicles & fuel	67	74	76	81	69	64	71	73	73	73
Repairs & maintenance	122	131	109	156	125	86	113	148	137	149
Freight & general	18	19	19	22	21	21	19	20	19	30
Administration	41	43	45	44	42	45	43	46	50	58
Insurance	19	20	23	24	26	25	26	29	32	34
ACC	11	15	10	11	10	9	8	9	9	8
Rates	33	35	36	39	38	38	40	40	40	41
<b>Farm working expenses</b>	<b>1,411</b>	<b>1,487</b>	<b>1,478</b>	<b>1,631</b>	<b>1,558</b>	<b>1,394</b>	<b>1,446</b>	<b>1,577</b>	<b>1,678</b>	<b>1,804</b>
<b>Cash operating surplus</b>	<b>1,297</b>	<b>1,182</b>	<b>945</b>	<b>1,424</b>	<b>862</b>	<b>339</b>	<b>1,003</b>	<b>1,113</b>	<b>1,055</b>	<b>1,296</b>
<b>ADJUSTMENTS:</b>										
Plus value of change in dairy livestock	26	51	29	62	6	-31	24	26	21	18
Less labour adjustment	135	139	139	148	141	135	148	149	148	149
Plus feed inventory adjustment	9	12	-6	13	-1	8	7	-6	7	-8
Less owned support block adjustment	29	34	37	38	36	34	35	39	31	39
Less depreciation	154	133	142	143	158	151	160	158	162	174
<b>Net adjustments</b>	<b>-283</b>	<b>-243</b>	<b>-295</b>	<b>-253</b>	<b>-329</b>	<b>-342</b>	<b>-312</b>	<b>-325</b>	<b>-312</b>	<b>-353</b>
<b>OPERATING CASH &amp; NON-CASH:</b>										
Dairy gross farm revenue	2,734	2,720	2,452	3,118	2,426	1,702	2,473	2,716	2,754	3,117
Dairy operating expenses	1,720	1,781	1,802	1,947	1,892	1,705	1,782	1,928	2,011	2,175
<b>Dairy operating profit</b>	<b>1,013</b>	<b>939</b>	<b>650</b>	<b>1,171</b>	<b>534</b>	<b>-3</b>	<b>691</b>	<b>788</b>	<b>742</b>	<b>942</b>



Table 12.3: Cash Operating Surplus and Operating Profit - \$ per effective hectare

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>PHYSICAL CHARACTERISTICS:</b>										
Number of herds	214	204	217	301	296	279	316	265	260	326
Effective hectares	138.1	140.7	141.0	142.9	145.5	148.1	147.8	151.4	146.0	142.1
Peak cows milked	383	393	397	402	419	418	414	430	424	415
Stocking rate (cows/ha)	2.8	2.8	2.8	2.8	2.9	2.8	2.8	2.8	2.9	2.9
Kg milksolids sold	133,030	147,964	142,089	151,455	160,367	160,270	160,302	161,567	167,189	169,761
Milksolids sold per hectare	963	1,052	1,008	1,060	1,102	1,082	1,085	1,067	1,145	1,194
Milksolids sold per cow	347	376	358	377	383	383	387	376	395	409
<b>PAYOUT RECEIVED: \$/kg MS sold</b>	<b>7.36</b>	<b>6.69</b>	<b>6.33</b>	<b>7.69</b>	<b>5.76</b>	<b>3.92</b>	<b>5.79</b>	<b>6.62</b>	<b>6.42</b>	<b>7.05</b>
<b>DAIRY CASH INCOME \$:</b>										
Milk sales (net of dairy levies)	7,092	7,037	6,379	8,147	6,348	4,242	6,285	7,060	7,353	8,421
Net livestock sales (sales - purchases)	371	374	393	405	576	612	538	535	534	583
Other dairy cash income	46	43	51	44	44	39	38	45	44	41
<b>Net dairy cash income</b>	<b>7,509</b>	<b>7,455</b>	<b>6,822</b>	<b>8,597</b>	<b>6,968</b>	<b>4,893</b>	<b>6,861</b>	<b>7,640</b>	<b>7,930</b>	<b>9,046</b>
<b>CASH FARM WORKING EXPENSES:</b>										
Wages	582	626	645	634	672	700	627	702	754	801
Animal health	227	225	234	251	251	209	234	248	260	287
Breeding & herd improvement	127	127	144	143	163	133	149	165	187	201
Farm dairy	59	70	73	70	67	53	65	62	67	76
Electricity	100	103	114	121	121	119	124	121	127	132
Net feed made, purchased, cropped	828	838	881	1,095	1,046	799	813	1,000	1,146	1,233
Stock grazing	348	394	375	377	442	434	395	385	487	512
Support block lease	64	88	89	81	82	84	83	72	65	73
Fertiliser (incl Nitrogen)	577	623	579	607	521	450	500	512	529	547
Irrigation	41	31	41	32	64	54	58	55	88	132
Regrassing	64	48	62	73	67	52	67	83	80	88
Weed & pest	35	36	33	45	38	38	38	39	36	38
Vehicles & fuel	186	206	213	227	199	180	198	209	212	213
Repairs & maintenance	338	367	306	438	359	241	315	421	398	435
Freight & general	49	54	54	63	60	59	52	56	54	87
Administration	113	121	126	124	122	128	121	130	145	170
Insurance	52	57	64	68	74	69	74	83	93	98
ACC	31	41	28	30	28	25	23	25	26	22
Rates	91	98	100	111	109	109	113	112	117	119
<b>Farm working expenses</b>	<b>3,914</b>	<b>4,152</b>	<b>4,161</b>	<b>4,590</b>	<b>4,485</b>	<b>3,936</b>	<b>4,050</b>	<b>4,479</b>	<b>4,870</b>	<b>5,264</b>
<b>Cash operating surplus</b>	<b>3,596</b>	<b>3,302</b>	<b>2,661</b>	<b>4,007</b>	<b>2,483</b>	<b>957</b>	<b>2,811</b>	<b>3,161</b>	<b>3,060</b>	<b>3,781</b>
<b>ADJUSTMENTS:</b>										
Plus value of change in dairy livestock	72	144	81	174	18	-88	67	75	60	51
Less labour adjustment	375	389	391	415	406	380	414	422	428	436
Plus feed inventory adjustment	24	34	-18	37	-1	23	19	-16	22	-25
Less owned support block adjustment	80	96	104	107	102	95	97	111	90	114
Less depreciation	426	371	399	402	455	425	449	448	469	508
<b>Net adjustments</b>	<b>-786</b>	<b>-679</b>	<b>-831</b>	<b>-712</b>	<b>-946</b>	<b>-966</b>	<b>-874</b>	<b>-922</b>	<b>-906</b>	<b>-1,032</b>
<b>OPERATING CASH &amp; NON-CASH:</b>										
Dairy gross farm revenue	7,581	7,598	6,903	8,771	6,986	4,804	6,928	7,715	7,991	9,097
Dairy operating expenses	4,771	4,974	5,073	5,476	5,449	4,813	4,991	5,477	5,837	6,347
<b>Dairy operating profit</b>	<b>2,810</b>	<b>2,624</b>	<b>1,830</b>	<b>3,295</b>	<b>1,537</b>	<b>-9</b>	<b>1,937</b>	<b>2,238</b>	<b>2,154</b>	<b>2,750</b>

Table 12.4: Cash Operating Surplus and Operating Profit - \$ per milksolid sold

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>PHYSICAL CHARACTERISTICS:</b>										
Number of herds	214	204	217	301	296	279	316	265	260	326
Effective hectares	138.1	140.7	141.0	142.9	145.5	148.1	147.8	151.4	146.0	142.1
Peak cows milked	383	393	397	402	419	418	414	430	424	415
Stocking rate (cows/ha)	2.8	2.8	2.8	2.8	2.9	2.8	2.8	2.8	2.9	2.9
Kg milksolids sold	133,030	147,964	142,089	151,455	160,367	160,270	160,302	161,567	167,189	169,761
Milksolids sold per hectare	963	1,052	1,008	1,060	1,102	1,082	1,085	1,067	1,145	1,194
Milksolids sold per cow	347	376	358	377	383	383	387	376	395	409
<b>PAYOUT RECEIVED: \$/kg MS sold</b>	<b>7.36</b>	<b>6.69</b>	<b>6.33</b>	<b>7.69</b>	<b>5.76</b>	<b>3.92</b>	<b>5.79</b>	<b>6.62</b>	<b>6.42</b>	<b>7.05</b>
<b>DAIRY CASH INCOME \$:</b>										
Milk sales (net of dairy levies)	7.36	6.69	6.33	7.69	5.76	3.92	5.79	6.62	6.42	7.05
Net livestock sales (sales - purchases)	0.39	0.36	0.39	0.38	0.52	0.57	0.50	0.50	0.47	0.49
Other dairy cash income	0.05	0.04	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.03
<b>Net dairy cash income</b>	<b>7.80</b>	<b>7.09</b>	<b>6.77</b>	<b>8.11</b>	<b>6.32</b>	<b>4.52</b>	<b>6.33</b>	<b>7.16</b>	<b>6.92</b>	<b>7.57</b>
<b>CASH FARM WORKING EXPENSES:</b>										
Wages	0.60	0.59	0.64	0.60	0.61	0.65	0.58	0.66	0.66	0.67
Animal health	0.24	0.21	0.23	0.24	0.23	0.19	0.22	0.23	0.23	0.24
Breeding & herd improvement	0.13	0.12	0.14	0.14	0.15	0.12	0.14	0.16	0.16	0.17
Farm dairy	0.06	0.07	0.07	0.07	0.06	0.05	0.06	0.06	0.06	0.06
Electricity	0.10	0.10	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Net feed made, purchased, cropped	0.86	0.80	0.87	1.03	0.95	0.74	0.75	0.94	1.00	1.03
Stock grazing	0.36	0.38	0.37	0.36	0.40	0.40	0.36	0.36	0.42	0.43
Support block lease	0.07	0.08	0.09	0.08	0.07	0.08	0.08	0.07	0.06	0.06
Fertiliser (incl Nitrogen)	0.60	0.59	0.58	0.57	0.47	0.42	0.46	0.48	0.46	0.46
Irrigation	0.04	0.03	0.04	0.03	0.06	0.05	0.05	0.05	0.08	0.11
Regrassing	0.07	0.05	0.06	0.07	0.06	0.05	0.06	0.08	0.07	0.07
Weed & pest	0.04	0.03	0.03	0.04	0.03	0.03	0.04	0.04	0.03	0.03
Vehicles & fuel	0.19	0.20	0.21	0.21	0.18	0.17	0.18	0.20	0.19	0.18
Repairs & maintenance	0.35	0.35	0.30	0.41	0.33	0.22	0.29	0.39	0.35	0.36
Freight & general	0.05	0.05	0.05	0.06	0.05	0.05	0.05	0.05	0.05	0.07
Administration	0.12	0.12	0.13	0.12	0.11	0.12	0.11	0.12	0.13	0.14
Insurance	0.05	0.05	0.06	0.06	0.07	0.06	0.07	0.08	0.08	0.08
ACC	0.03	0.04	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02
Rates	0.09	0.09	0.10	0.10	0.10	0.10	0.10	0.11	0.10	0.10
<b>Farm working expenses</b>	<b>4.06</b>	<b>3.95</b>	<b>4.13</b>	<b>4.33</b>	<b>4.07</b>	<b>3.64</b>	<b>3.73</b>	<b>4.20</b>	<b>4.25</b>	<b>4.41</b>
<b>Cash operating surplus</b>	<b>3.73</b>	<b>3.14</b>	<b>2.64</b>	<b>3.78</b>	<b>2.25</b>	<b>0.88</b>	<b>2.59</b>	<b>2.96</b>	<b>2.67</b>	<b>3.17</b>
<b>ADJUSTMENTS:</b>										
Plus value of change in dairy livestock	0.07	0.14	0.08	0.16	0.02	-0.08	0.06	0.07	0.05	0.04
Less labour adjustment	0.39	0.37	0.39	0.39	0.37	0.35	0.38	0.40	0.37	0.37
Plus feed inventory adjustment	0.02	0.03	-0.02	0.04	0.00	0.02	0.02	-0.01	0.02	-0.02
Less owned support block adjustment	0.08	0.09	0.10	0.10	0.09	0.09	0.09	0.10	0.08	0.10
Less depreciation	0.44	0.35	0.40	0.38	0.41	0.39	0.41	0.42	0.41	0.43
<b>Net adjustments</b>	<b>-0.82</b>	<b>-0.65</b>	<b>-0.82</b>	<b>-0.67</b>	<b>-0.86</b>	<b>-0.89</b>	<b>-0.81</b>	<b>-0.86</b>	<b>-0.79</b>	<b>-0.86</b>
<b>OPERATING CASH &amp; NON-CASH:</b>										
Dairy gross farm revenue	7.87	7.23	6.85	8.28	6.34	4.44	6.39	7.23	6.98	7.62
Dairy operating expenses	4.95	4.73	5.03	5.17	4.94	4.45	4.60	5.13	5.10	5.31
<b>Dairy operating profit</b>	<b>2.92</b>	<b>2.49</b>	<b>1.82</b>	<b>3.11</b>	<b>1.39</b>	<b>-0.01</b>	<b>1.79</b>	<b>2.10</b>	<b>1.88</b>	<b>2.30</b>

Table 12.5: Cashflow

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>PHYSICAL CHARACTERISTICS:</b>										
Number of herds	214	204	217	301	296	279	316	265	260	326
Effective hectares	138.1	140.7	141.0	142.9	145.5	148.1	147.8	151.4	146.0	142.1
Peak cows milked	383	393	397	402	419	418	414	430	424	415
Stocking rate (cows/ha)	2.8	2.8	2.8	2.8	2.9	2.8	2.8	2.8	2.9	2.9
Kg milksolids sold	133,030	147,964	142,089	151,455	160,367	160,270	160,302	161,567	167,189	169,761
Milksolids sold per hectare	963	1,052	1,008	1,060	1,102	1,082	1,085	1,067	1,145	1,194
Milksolids sold per cow	347	376	358	377	383	383	387	376	395	409
<b>PAYOUT RECEIVED: \$/kg MS sold</b>	<b>7.36</b>	<b>6.69</b>	<b>6.33</b>	<b>7.69</b>	<b>5.76</b>	<b>3.92</b>	<b>5.79</b>	<b>6.62</b>	<b>6.42</b>	<b>7.05</b>
<b>CASHFLOW</b>										
Net dairy cash income	1,037,054	1,048,872	961,920	1,228,444	1,013,891	724,607	1,014,072	1,156,683	1,157,633	1,285,742
Farm working expenses	540,469	584,218	586,744	655,858	652,619	582,850	598,662	678,172	710,932	748,282
<b>Cash operating surplus</b>	<b>496,585</b>	<b>464,654</b>	<b>375,176</b>	<b>572,586</b>	<b>361,272</b>	<b>141,757</b>	<b>415,410</b>	<b>478,511</b>	<b>446,701</b>	<b>537,460</b>
<b>DISCRETIONARY CASH</b>										
Less rent (excl support block)	20,040	19,374	22,812	23,366	22,250	20,047	19,582	20,703	12,499	17,280
Less interest	184,707	174,518	174,136	171,597	195,984	197,277	197,343	191,459	194,022	172,460
Less tax	36,388	46,816	35,383	58,155	34,078	7,939	16,773	41,532	38,315	52,696
Plus net non-dairy cash income	2,446	790	1,125	2,355	486	904	3,371	6,064	7,040	10,682
<b>Discretionary cash</b>	<b>257,896</b>	<b>224,736</b>	<b>143,970</b>	<b>321,823</b>	<b>109,446</b>	<b>-82,602</b>	<b>185,083</b>	<b>230,881</b>	<b>208,906</b>	<b>318,872</b>
<b>OTHER CASH INCOME</b>										
Plus net off-farm income	12,323	11,018	12,427	9,991	12,078	9,238	19,811	18,114	6,670	13,167
Plus introduced funds	6,240	-2,871	40,918	-44,275	28,307	77,696	-24,004	-40,908	-2,774	-18,560
Plus income equalisation	-274	-2,004	1,178	-4,756	-9,579	16,765	1,307	40	307	-475
<b>Cash available for living and growth</b>	<b>276,185</b>	<b>230,879</b>	<b>198,493</b>	<b>282,783</b>	<b>140,252</b>	<b>21,097</b>	<b>182,197</b>	<b>208,127</b>	<b>213,109</b>	<b>299,837</b>
<b>OTHER CASH EXPENDITURE</b>										
Less net capital transactions	136,393	164,026	185,532	143,703	201,119	76,697	109,749	238,591	207,027	113,522
less net debt	2,991	22,153	-123,346	-10,790	-93,026	-111,777	-75,867	-92,523	-74,133	49,483
less net drawings	97,099	83,781	92,872	116,224	110,437	78,151	82,043	104,334	95,173	92,090
<b>Cash surplus/deficit</b>	<b>39,702</b>	<b>-39,081</b>	<b>43,435</b>	<b>33,646</b>	<b>-78,278</b>	<b>-21,974</b>	<b>66,272</b>	<b>-42,275</b>	<b>-14,958</b>	<b>57,909</b>
<b>CASHFLOW PER KG MILKSOLIDS SOLD</b>										
Net dairy cash income	7.80	7.09	6.77	8.11	6.32	4.52	6.33	7.16	6.92	7.57
Farm working expenses	4.06	3.95	4.13	4.33	4.07	3.64	3.73	4.20	4.25	4.41
<b>Cash operating surplus</b>	<b>3.73</b>	<b>3.14</b>	<b>2.64</b>	<b>3.78</b>	<b>2.25</b>	<b>0.88</b>	<b>2.59</b>	<b>2.96</b>	<b>2.67</b>	<b>3.17</b>
<b>DISCRETIONARY CASH PER KG MILKSOLIDS SOLD</b>										
Less rent (excl support block)	0.15	0.13	0.16	0.15	0.14	0.13	0.12	0.13	0.07	0.10
Less interest	1.39	1.18	1.23	1.13	1.22	1.23	1.23	1.19	1.16	1.02
Less tax	0.27	0.32	0.25	0.38	0.21	0.05	0.10	0.26	0.23	0.31
Plus net non-dairy cash income	0.02	0.01	0.01	0.02	0.00	0.01	0.02	0.04	0.04	0.06
<b>Discretionary cash</b>	<b>1.94</b>	<b>1.52</b>	<b>1.01</b>	<b>2.12</b>	<b>0.68</b>	<b>-0.52</b>	<b>1.15</b>	<b>1.43</b>	<b>1.25</b>	<b>1.88</b>
<b>OTHER CASH INCOME PER KG MILKSOLIDS SOLD</b>										
Plus net off-farm income	0.09	0.07	0.09	0.07	0.08	0.06	0.12	0.11	0.04	0.08
Plus introduced funds	0.05	-0.02	0.29	-0.29	0.18	0.48	-0.15	-0.25	-0.02	-0.11
Plus income equalisation	0.00	-0.01	0.01	-0.03	-0.06	0.10	0.01	0.00	0.00	0.00
<b>Cash available for living and growth</b>	<b>2.08</b>	<b>1.56</b>	<b>1.40</b>	<b>1.87</b>	<b>0.87</b>	<b>0.13</b>	<b>1.14</b>	<b>1.29</b>	<b>1.27</b>	<b>1.77</b>
<b>OTHER CASH EXPENDITURE PER KG MILKSOLIDS SOLD</b>										
Less net capital transactions	1.03	1.11	1.31	0.95	1.25	0.48	0.68	1.48	1.24	0.67
Less net debt	0.02	0.15	-0.87	-0.07	-0.58	-0.70	-0.47	-0.57	-0.44	0.29
Less net drawings	0.73	0.57	0.65	0.77	0.69	0.49	0.51	0.65	0.57	0.54
<b>Cash surplus/deficit</b>	<b>0.30</b>	<b>-0.26</b>	<b>0.31</b>	<b>0.22</b>	<b>-0.49</b>	<b>-0.14</b>	<b>0.41</b>	<b>-0.26</b>	<b>-0.09</b>	<b>0.34</b>

Table 12.6: Capital Structure and Wealth Creation

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>PHYSICAL CHARACTERISTICS:</b>										
Number of herds	214	204	217	301	296	279	316	265	260	326
Effective hectares	138.1	140.7	141.0	142.9	145.5	148.1	147.8	151.4	146.0	142.1
Peak cows milked	383	393	397	402	419	418	414	430	424	415
Stocking rate (cows/ha)	2.8	2.8	2.8	2.8	2.9	2.8	2.8	2.8	2.9	2.9
Kg milksolids sold	133,030	147,964	142,089	151,455	160,367	160,270	160,302	161,567	167,189	169,761
Milksolids sold per hectare	963	1,052	1,008	1,060	1,102	1,082	1,085	1,067	1,145	1,194
Milksolids sold per cow	347	376	358	377	383	383	387	376	395	409
<b>PAYOUT RECEIVED: \$/kg MS sold</b>	<b>7.36</b>	<b>6.69</b>	<b>6.33</b>	<b>7.69</b>	<b>5.76</b>	<b>3.92</b>	<b>5.79</b>	<b>6.62</b>	<b>6.42</b>	<b>7.05</b>
<b>DAIRY ASSETS AT OPEN</b>										
Land & buildings	4,402,009	4,247,819	4,109,797	4,474,344	5,055,041	5,473,880	5,518,535	5,849,932	6,091,560	6,039,561
Plant, machinery and vehicles	185,881	213,589	193,255	224,385	233,302	258,077	254,722	252,258	249,118	260,302
Livestock	607,371	821,346	1,013,686	873,333	967,406	812,241	640,378	834,061	754,230	737,092
Investments (excl non-dairy)	658,358	616,654	628,020	899,384	892,639	688,384	791,795	800,126	815,583	660,658
Current assets	235,731	221,577	168,694	221,155	285,915	176,424	138,254	208,018	180,448	172,313
<b>Total dairy assets at open</b>	<b>6,089,350</b>	<b>6,120,985</b>	<b>6,113,452</b>	<b>6,692,601</b>	<b>7,434,303</b>	<b>7,409,006</b>	<b>7,343,684</b>	<b>7,944,395</b>	<b>8,090,939</b>	<b>7,869,926</b>
Plus non-dairy assets	227,726	243,626	226,186	225,437	207,058	258,166	267,387	403,636	353,525	351,490
<b>Total assets</b>	<b>6,317,076</b>	<b>6,364,611</b>	<b>6,339,638</b>	<b>6,918,038</b>	<b>7,641,361</b>	<b>7,667,172</b>	<b>7,611,071</b>	<b>8,348,031</b>	<b>8,444,463</b>	<b>8,221,416</b>
<b>LIABILITIES AT OPEN</b>										
Term liabilities	2,721,810	2,868,307	2,834,656	3,039,137	3,317,150	3,493,221	3,932,350	3,996,989	4,091,376	3,995,700
Current liabilities	101,438	167,634	174,851	154,442	182,128	197,175	160,682	149,261	189,611	178,179
<b>Total liabilities</b>	<b>2,823,248</b>	<b>3,035,941</b>	<b>3,009,507</b>	<b>3,193,579</b>	<b>3,499,278</b>	<b>3,690,396</b>	<b>4,093,032</b>	<b>4,146,250</b>	<b>4,280,987</b>	<b>4,173,879</b>
<b>Owners equity at open</b>	<b>3,493,828</b>	<b>3,328,670</b>	<b>3,330,131</b>	<b>3,724,459</b>	<b>4,142,083</b>	<b>3,976,776</b>	<b>3,518,039</b>	<b>4,201,781</b>	<b>4,163,476</b>	<b>4,047,537</b>
<b>DAIRY ASSETS AT CLOSE</b>										
Land & buildings	4,424,626	4,367,922	4,384,302	4,788,661	5,368,063	5,289,448	5,854,250	5,843,351	5,933,994	5,888,745
Plant, machinery and vehicles	189,607	227,328	196,594	252,083	233,593	243,360	249,436	255,794	246,538	253,497
Livestock	807,201	1,017,760	874,419	939,582	804,897	651,096	815,984	776,831	752,063	748,428
Investments (excl non-dairy)	676,231	649,996	967,958	817,865	751,874	810,143	823,402	748,739	665,352	632,180
Current assets	294,029	188,455	186,427	279,218	186,858	151,773	194,747	195,692	163,031	205,720
<b>Total dairy assets at close</b>	<b>6,391,694</b>	<b>6,451,461</b>	<b>6,609,700</b>	<b>7,077,409</b>	<b>7,345,285</b>	<b>7,145,820</b>	<b>7,937,819</b>	<b>7,820,407</b>	<b>7,760,977</b>	<b>7,728,570</b>
plus Non-dairy assets	256,722	271,339	260,335	236,874	224,823	258,766	280,232	411,434	388,794	350,613
<b>Total assets</b>	<b>6,648,416</b>	<b>6,722,800</b>	<b>6,870,035</b>	<b>7,314,283</b>	<b>7,570,108</b>	<b>7,404,586</b>	<b>8,218,051</b>	<b>8,231,841</b>	<b>8,149,771</b>	<b>8,079,184</b>
<b>LIABILITIES AT CLOSE</b>										
Term liabilities	2,718,819	2,846,154	2,958,002	3,049,927	3,410,176	3,604,999	4,008,218	4,089,512	4,165,930	3,946,217
Current liabilities	120,034	173,593	149,149	178,859	161,349	194,497	150,902	179,210	184,250	170,738
<b>Total liabilities</b>	<b>2,838,853</b>	<b>3,019,747</b>	<b>3,107,151</b>	<b>3,228,786</b>	<b>3,571,525</b>	<b>3,799,496</b>	<b>4,159,120</b>	<b>4,268,722</b>	<b>4,350,179</b>	<b>4,116,954</b>
<b>Owners equity at close</b>	<b>3,809,563</b>	<b>3,703,053</b>	<b>3,762,884</b>	<b>4,085,497</b>	<b>3,998,583</b>	<b>3,605,090</b>	<b>4,058,931</b>	<b>3,963,119</b>	<b>3,799,592</b>	<b>3,962,230</b>
<b>EQUITY</b>										
<b>Growth in equity</b>	<b>315,735</b>	<b>374,383</b>	<b>432,753</b>	<b>361,038</b>	<b>-143,500</b>	<b>-371,686</b>	<b>540,892</b>	<b>-238,662</b>	<b>-363,884</b>	<b>-85,307</b>
Growth in equity from profit	123,991	123,506	16,257	187,695	-53,784	-225,348	68,973	85,385	63,675	159,527
Growth in equity from capital	191,744	250,877	416,496	173,343	-89,716	-146,338	471,919	-324,047	-427,560	-244,765
<b>Growth in equity %</b>	<b>9.0%</b>	<b>11.2%</b>	<b>13.0%</b>	<b>9.7%</b>	<b>-3.5%</b>	<b>-9.3%</b>	<b>15.4%</b>	<b>-5.7%</b>	<b>-8.7%</b>	<b>-2.1%</b>
<b>Closing debt to asset %</b>	<b>40.0%</b>	<b>43.3%</b>	<b>43.7%</b>	<b>41.9%</b>	<b>45.8%</b>	<b>50.3%</b>	<b>49.4%</b>	<b>50.7%</b>	<b>53.4%</b>	<b>51.0%</b>
<b>Closing term liabilities per kg MS</b>	<b>20.44</b>	<b>19.24</b>	<b>20.82</b>	<b>20.14</b>	<b>21.26</b>	<b>22.49</b>	<b>25.00</b>	<b>25.31</b>	<b>24.92</b>	<b>23.25</b>

Table 12.7: Returns

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>PHYSICAL CHARACTERISTICS:</b>										
Number of herds	214	204	217	301	296	279	316	265	260	326
Effective hectares	138.1	140.7	141.0	142.9	145.5	148.1	147.8	151.4	146.0	142.1
Peak cows milked	383	393	397	402	419	418	414	430	424	415
Stocking rate (cows/ha)	2.8	2.8	2.8	2.8	2.9	2.8	2.8	2.8	2.9	2.9
Kg milksolids sold	133,030	147,964	142,089	151,455	160,367	160,270	160,302	161,567	167,189	169,761
Milksolids sold per hectare	963	1,052	1,008	1,060	1,102	1,082	1,085	1,067	1,145	1,194
Milksolids sold per cow	347	376	358	377	383	383	387	376	395	409
<b>PAYOUT RECEIVED: \$/kg MS sold</b>	<b>7.36</b>	<b>6.69</b>	<b>6.33</b>	<b>7.69</b>	<b>5.76</b>	<b>3.92</b>	<b>5.79</b>	<b>6.62</b>	<b>6.42</b>	<b>7.05</b>
<b>RETURN ON DAIRY ASSETS %</b>										
Dairy operating profit	388,024	369,163	258,049	470,808	223,630	-1,291	286,227	338,871	314,435	390,831
Plus owned support block adjustment	11,062	13,554	14,601	15,338	14,889	14,126	14,359	16,786	13,143	16,151
Less rent	20,040	19,374	22,812	23,366	22,250	20,047	19,582	20,703	12,499	17,280
<b>Net return from dairy</b>	<b>379,046</b>	<b>363,343</b>	<b>249,838</b>	<b>462,780</b>	<b>216,269</b>	<b>-7,212</b>	<b>281,004</b>	<b>334,954</b>	<b>315,079</b>	<b>389,701</b>
<b>Total dairy assets (less current) at open</b>	<b>5,853,619</b>	<b>5,899,408</b>	<b>5,944,758</b>	<b>6,471,446</b>	<b>7,148,388</b>	<b>7,232,582</b>	<b>7,205,430</b>	<b>7,736,377</b>	<b>7,910,490</b>	<b>7,697,613</b>
<b>Operating return on dairy assets %</b>	<b>6.5%</b>	<b>6.2%</b>	<b>4.2%</b>	<b>7.2%</b>	<b>3.0%</b>	<b>-0.1%</b>	<b>3.9%</b>	<b>4.3%</b>	<b>4.0%</b>	<b>5.1%</b>
<b>TOTAL RETURN ON ASSETS %</b>										
Net return from dairy	379,046	363,343	249,838	462,780	216,269	-7,212	281,004	334,954	315,079	389,701
Plus net non-dairy profit	-1,100	-280	1,288	1,724	-673	-318	3,331	5,444	6,904	11,894
Plus change in capital value	126,766	207,084	315,704	169,567	-175,947	-301,565	430,903	-353,833	-277,275	-287,474
<b>Total assets (less current) at open</b>	<b>6,081,345</b>	<b>6,143,034</b>	<b>6,170,944</b>	<b>6,696,883</b>	<b>7,355,446</b>	<b>7,490,748</b>	<b>7,472,817</b>	<b>8,140,013</b>	<b>8,264,015</b>	<b>8,221,416</b>
<b>Total return on assets %</b>	<b>8.3%</b>	<b>9.3%</b>	<b>9.2%</b>	<b>9.5%</b>	<b>0.5%</b>	<b>-4.1%</b>	<b>9.6%</b>	<b>-0.2%</b>	<b>0.5%</b>	<b>1.4%</b>
<b>TOTAL RETURN ON EQUITY %</b>										
Plus net off-farm income	12,323	11,018	12,427	9,991	12,078	9,238	19,811	18,114	6,670	13,167
Less interest	184,707	174,518	174,136	171,597	195,984	197,277	197,343	191,459	194,022	172,460
<b>Total return for equity</b>	<b>332,447</b>	<b>406,439</b>	<b>405,054</b>	<b>472,332</b>	<b>-144,237</b>	<b>-497,164</b>	<b>537,538</b>	<b>-186,502</b>	<b>-142,643</b>	<b>-45,173</b>
<b>Equity at open</b>	<b>3,493,828</b>	<b>3,328,670</b>	<b>3,330,131</b>	<b>3,724,459</b>	<b>4,142,083</b>	<b>3,976,776</b>	<b>3,518,039</b>	<b>4,201,781</b>	<b>4,163,476</b>	<b>4,047,537</b>
<b>Total return on equity %</b>	<b>9.5%</b>	<b>12.2%</b>	<b>12.2%</b>	<b>12.7%</b>	<b>-3.5%</b>	<b>-12.5%</b>	<b>15.3%</b>	<b>-4.4%</b>	<b>-3.4%</b>	<b>-1.1%</b>

## 13 Time Series Tables: 50:50 Sharemilkers

Table 13.1: Cash Operating Surplus and Operating Profit - \$ per farm

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>PHYSICAL CHARACTERISTICS:</b>										
Number of herds	100	96	92	114	111	109	113	108	122	124
Effective hectares	136.7	136.8	137.9	128.0	132.0	133.3	132.0	137.2	151.3	144.1
Peak cows milked	388	388	394	367	383	379	372	391	452	431
Stocking rate (cows/ha)	2.8	2.8	2.9	2.9	2.9	2.8	2.8	2.8	3.0	3.0
Kg milksolids sold	134,651	146,745	141,062	138,532	151,044	144,587	143,685	147,143	184,909	175,656
Milksolids sold per hectare	985	1,073	1,023	1,082	1,144	1,085	1,089	1,072	1,222	1,219
Milksolids sold per cow	347	378	358	377	394	381	386	376	410	408
<b>PAYOUT RECEIVED: \$/kg MS sold</b>	<b>3.63</b>	<b>3.34</b>	<b>3.13</b>	<b>3.76</b>	<b>2.88</b>	<b>1.88</b>	<b>2.82</b>	<b>3.21</b>	<b>3.17</b>	<b>3.45</b>
<b>DAIRY CASH INCOME \$:</b>										
Milk sales (net of dairy levies)	488,379	489,513	441,112	520,870	434,377	272,370	405,691	472,702	586,337	606,847
Net livestock sales (sales - purchases)	33,805	56,522	8,419	13,423	54,333	35,783	60,598	50,428	75,931	60,008
Other dairy cash income	5,149	5,206	2,844	3,407	2,381	3,368	2,419	2,321	2,332	3,280
<b>Net dairy cash income</b>	<b>527,333</b>	<b>551,241</b>	<b>452,375</b>	<b>537,700</b>	<b>491,091</b>	<b>311,521</b>	<b>468,708</b>	<b>525,451</b>	<b>664,600</b>	<b>670,136</b>
<b>CASH FARM WORKING EXPENSES:</b>										
Wages	48,112	51,719	57,928	51,400	52,915	48,799	51,624	61,841	82,680	76,511
Animal health	31,820	33,464	32,842	34,651	35,418	28,668	31,232	34,238	43,264	41,198
Breeding & herd improvement	17,663	19,251	21,195	20,468	22,026	20,299	20,065	24,196	30,219	29,137
Farm dairy	6,369	6,386	6,077	6,631	6,653	6,629	6,886	7,538	8,922	9,415
Electricity	12,884	13,868	13,765	14,439	15,840	15,435	15,505	15,362	18,649	18,121
Net feed made, purchased, cropped	60,080	62,553	70,461	74,677	77,650	53,410	55,474	72,032	93,630	93,405
Stock grazing	35,791	29,714	30,296	39,026	50,175	42,034	34,075	46,703	60,678	58,204
Support block lease	2,997	2,971	5,199	1,308	1,403	2,206	1,834	1,666	1,380	2,840
Fertiliser (incl Nitrogen)	22,083	24,548	22,666	20,377	21,454	18,608	18,616	21,151	25,577	27,222
Irrigation	1,108	655	933	1,778	2,135	3,991	2,462	2,043	5,126	6,117
Regrassing	3,314	3,256	2,388	2,821	2,560	2,502	2,442	3,026	4,270	3,428
Weed & pest	1,425	1,616	1,534	1,392	1,582	1,383	1,948	1,869	1,940	2,049
Vehicles & fuel	24,795	25,313	26,602	25,153	23,726	20,049	22,926	24,851	28,739	27,432
Repairs & maintenance	9,808	11,617	9,703	12,113	10,305	9,029	10,234	11,702	12,710	11,632
Freight & general	6,571	6,420	8,502	8,892	8,661	6,782	6,600	7,871	8,008	9,305
Administration	11,034	11,656	12,014	12,063	12,413	11,778	11,542	11,785	15,718	15,081
Insurance	3,199	4,093	4,379	4,016	4,255	4,906	4,254	4,970	5,351	5,614
ACC	3,388	5,357	4,169	3,914	3,248	3,054	2,937	2,982	3,918	2,399
Rates	866	1,025	987	623	1,253	526	512	302	549	656
<b>Farm working expenses</b>	<b>303,307</b>	<b>315,482</b>	<b>331,640</b>	<b>335,742</b>	<b>353,672</b>	<b>300,088</b>	<b>301,168</b>	<b>356,128</b>	<b>451,327</b>	<b>439,763</b>
<b>Cash operating surplus</b>	<b>224,026</b>	<b>235,759</b>	<b>120,735</b>	<b>201,958</b>	<b>137,419</b>	<b>11,433</b>	<b>167,540</b>	<b>169,323</b>	<b>213,273</b>	<b>230,372</b>
<b>ADJUSTMENTS:</b>										
Plus value of change in dairy livestock	40,245	27,593	80,132	70,394	32,000	30,838	16,893	32,946	8,193	31,018
Less labour adjustment	74,092	76,757	74,703	68,733	77,508	73,553	72,041	80,608	80,071	82,559
Plus feed inventory adjustment	912	3,819	-441	1,573	176	1,708	-486	1,860	2,496	-41
Less owned support block adjustment	2,218	1,217	3,315	685	1,245	695	508	251	299	479
Less depreciation	21,960	22,024	23,266	21,798	25,243	23,409	19,521	24,700	26,415	27,018
<b>Net adjustments</b>	<b>-57,113</b>	<b>-68,586</b>	<b>-21,593</b>	<b>-19,249</b>	<b>-71,820</b>	<b>-65,111</b>	<b>-75,663</b>	<b>-70,753</b>	<b>-96,096</b>	<b>-79,079</b>
<b>OPERATING CASH &amp; NON-CASH:</b>										
Dairy gross farm revenue	567,578	578,834	532,507	608,094	523,091	342,359	485,601	558,397	672,793	701,154
Dairy operating expenses	400,665	411,661	433,365	425,385	457,492	396,037	393,724	459,827	555,616	549,861
<b>Dairy operating profit</b>	<b>166,913</b>	<b>167,173</b>	<b>99,142</b>	<b>182,709</b>	<b>65,599</b>	<b>-53,678</b>	<b>91,877</b>	<b>98,570</b>	<b>117,177</b>	<b>151,293</b>
<b>Dairy operating profit per ha</b>	<b>1,221</b>	<b>1,222</b>	<b>719</b>	<b>1,427</b>	<b>497</b>	<b>-403</b>	<b>696</b>	<b>718</b>	<b>775</b>	<b>1,050</b>

Table 13.2: Cash Operating Surplus and Operating Profit - \$ per cow

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>PHYSICAL CHARACTERISTICS:</b>										
Number of herds	100	96	92	114	111	109	113	108	122	124
Effective hectares	136.7	136.8	137.9	128.0	132.0	133.3	132.0	137.2	151.3	144.1
Peak cows milked	388	388	394	367	383	379	372	391	452	431
Stocking rate (cows/ha)	2.8	2.8	2.9	2.9	2.9	2.8	2.8	2.8	3.0	3.0
Kg milksolids sold	134,651	146,745	141,062	138,532	151,044	144,587	143,685	147,143	184,909	175,656
Milksolids sold per hectare	985	1,073	1,023	1,082	1,144	1,085	1,089	1,072	1,222	1,219
Milksolids sold per cow	347	378	358	377	394	381	386	376	410	408
<b>PAYOUT RECEIVED: \$/kg MS sold</b>	<b>3.63</b>	<b>3.34</b>	<b>3.13</b>	<b>3.76</b>	<b>2.88</b>	<b>1.88</b>	<b>2.82</b>	<b>3.21</b>	<b>3.17</b>	<b>3.45</b>
<b>DAIRY CASH INCOME \$:</b>										
Milk sales (net of dairy levies)	1,259	1,262	1,120	1,419	1,134	719	1,091	1,209	1,299	1,408
Net livestock sales (sales - purchases)	87	146	21	37	142	94	163	129	168	139
Other dairy cash income	13	13	7	9	6	9	7	6	5	8
<b>Net dairy cash income</b>	<b>1,359</b>	<b>1,421</b>	<b>1,148</b>	<b>1,465</b>	<b>1,282</b>	<b>822</b>	<b>1,260</b>	<b>1,344</b>	<b>1,472</b>	<b>1,555</b>
<b>CASH FARM WORKING EXPENSES:</b>										
Wages	124	133	147	140	138	129	139	158	183	178
Animal health	82	86	83	94	92	76	84	88	96	96
Breeding & herd improvement	46	50	54	56	58	54	54	62	67	68
Farm dairy	16	16	15	18	17	17	19	19	20	22
Electricity	33	36	35	39	41	41	42	39	41	42
Net feed made, purchased, cropped	155	161	179	203	203	141	149	184	207	217
Stock grazing	92	77	77	106	131	111	92	119	134	135
Support block lease	8	8	13	4	4	6	5	4	3	7
Fertiliser (incl Nitrogen)	57	63	58	56	56	49	50	54	57	63
Irrigation	3	2	2	5	6	11	7	5	11	14
Regrassing	9	8	6	8	7	7	7	8	9	8
Weed & pest	4	4	4	4	4	4	5	5	4	5
Vehicles & fuel	64	65	68	69	62	53	62	64	64	64
Repairs & maintenance	25	30	25	33	27	24	28	30	28	27
Freight & general	17	17	22	24	23	18	18	20	18	22
Administration	28	30	30	33	32	31	31	30	35	35
Insurance	8	11	11	11	11	13	11	13	12	13
ACC	9	14	11	11	8	8	8	8	9	6
Rates	2	3	3	2	3	1	1	1	1	2
<b>Farm working expenses</b>	<b>782</b>	<b>813</b>	<b>842</b>	<b>915</b>	<b>923</b>	<b>792</b>	<b>810</b>	<b>911</b>	<b>1,000</b>	<b>1,021</b>
<b>Cash operating surplus</b>	<b>577</b>	<b>608</b>	<b>306</b>	<b>550</b>	<b>359</b>	<b>30</b>	<b>450</b>	<b>433</b>	<b>472</b>	<b>535</b>
<b>ADJUSTMENTS:</b>										
Plus value of change in dairy livestock	104	71	203	192	84	81	45	84	18	72
Less labour adjustment	191	198	190	187	202	194	194	206	177	192
Plus feed inventory adjustment	2	10	-1	4	0	5	-1	5	6	0
Less owned support block adjustment	6	3	8	2	3	2	1	1	1	1
Less depreciation	57	57	59	59	66	62	52	63	59	63
<b>Net adjustments</b>	<b>-147</b>	<b>-177</b>	<b>-55</b>	<b>-52</b>	<b>-188</b>	<b>-172</b>	<b>-203</b>	<b>-181</b>	<b>-213</b>	<b>-184</b>
<b>OPERATING CASH &amp; NON-CASH:</b>										
Dairy gross farm revenue	1,463	1,492	1,352	1,657	1,366	903	1,305	1,428	1,490	1,627
Dairy operating expenses	1,033	1,061	1,100	1,159	1,194	1,045	1,058	1,176	1,231	1,276
<b>Dairy operating profit</b>	<b>430</b>	<b>431</b>	<b>252</b>	<b>498</b>	<b>171</b>	<b>-142</b>	<b>247</b>	<b>252</b>	<b>260</b>	<b>351</b>

Table 13.3: Cash Operating Surplus and Operating Profit - \$ per effective hectare

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>PHYSICAL CHARACTERISTICS:</b>										
Number of herds	100	96	92	114	111	109	113	108	122	124
Effective hectares	136.7	136.8	137.9	128.0	132.0	133.3	132.0	137.2	151.3	144.1
Peak cows milked	388	388	394	367	383	379	372	391	452	431
Stocking rate (cows/ha)	2.8	2.8	2.9	2.9	2.9	2.8	2.8	2.8	3.0	3.0
Kg milksolids sold	134,651	146,745	141,062	138,532	151,044	144,587	143,685	147,143	184,909	175,656
Milksolids sold per hectare	985	1,073	1,023	1,082	1,144	1,085	1,089	1,072	1,222	1,219
Milksolids sold per cow	347	378	358	377	394	381	386	376	410	408
<b>PAYOUT RECEIVED: \$/kg MS sold</b>	<b>3.63</b>	<b>3.34</b>	<b>3.13</b>	<b>3.76</b>	<b>2.88</b>	<b>1.88</b>	<b>2.82</b>	<b>3.21</b>	<b>3.17</b>	<b>3.45</b>
<b>DAIRY CASH INCOME \$:</b>										
Milk sales (net of dairy levies)	3,573	3,578	3,199	4,069	3,291	2,043	3,073	3,445	3,876	4,210
Net livestock sales (sales - purchases)	247	413	61	105	412	268	459	368	502	416
Other dairy cash income	38	38	21	27	18	25	18	17	15	23
<b>Net dairy cash income</b>	<b>3,858</b>	<b>4,030</b>	<b>3,280</b>	<b>4,201</b>	<b>3,720</b>	<b>2,337</b>	<b>3,551</b>	<b>3,830</b>	<b>4,393</b>	<b>4,649</b>
<b>CASH FARM WORKING EXPENSES:</b>										
Wages	352	378	420	402	401	366	391	451	547	531
Animal health	233	245	238	271	268	215	237	250	286	286
Breeding & herd improvement	129	141	154	160	167	152	152	176	200	202
Farm dairy	47	47	44	52	50	50	52	55	59	65
Electricity	94	101	100	113	120	116	117	112	123	126
Net feed made, purchased, cropped	440	457	511	583	588	401	420	525	619	648
Stock grazing	262	217	220	305	380	315	258	340	401	404
Support block lease	22	22	38	10	11	17	14	12	9	20
Fertiliser (incl Nitrogen)	162	179	164	159	163	140	141	154	169	189
Irrigation	8	5	7	14	16	30	19	15	34	42
Regrassing	24	24	17	22	19	19	18	22	28	24
Weed & pest	10	12	11	11	12	10	15	14	13	14
Vehicles & fuel	181	185	193	197	180	150	174	181	190	190
Repairs & maintenance	72	85	70	95	78	68	78	85	84	81
Freight & general	48	47	62	69	66	51	50	57	53	65
Administration	81	85	87	94	94	88	87	86	104	105
Insurance	23	30	32	31	32	37	32	36	35	39
ACC	25	39	30	31	25	23	22	22	26	17
Rates	6	7	7	5	9	4	4	2	4	5
<b>Farm working expenses</b>	<b>2,219</b>	<b>2,306</b>	<b>2,405</b>	<b>2,623</b>	<b>2,679</b>	<b>2,251</b>	<b>2,282</b>	<b>2,596</b>	<b>2,983</b>	<b>3,051</b>
<b>Cash operating surplus</b>	<b>1,639</b>	<b>1,723</b>	<b>876</b>	<b>1,578</b>	<b>1,041</b>	<b>86</b>	<b>1,269</b>	<b>1,234</b>	<b>1,410</b>	<b>1,598</b>
<b>ADJUSTMENTS:</b>										
Plus value of change in dairy livestock	294	202	581	550	242	231	128	240	54	215
Less labour adjustment	542	561	542	537	587	552	546	588	529	573
Plus feed inventory adjustment	7	28	-3	12	1	13	-4	14	16	0
Less owned support block adjustment	16	9	24	5	9	5	4	2	2	3
Less depreciation	161	161	169	170	191	176	148	180	175	187
<b>Net adjustments</b>	<b>-418</b>	<b>-501</b>	<b>-157</b>	<b>-150</b>	<b>-544</b>	<b>-488</b>	<b>-573</b>	<b>-516</b>	<b>-635</b>	<b>-549</b>
<b>OPERATING CASH &amp; NON-CASH:</b>										
Dairy gross farm revenue	4,152	4,231	3,862	4,751	3,963	2,568	3,679	4,070	4,447	4,864
Dairy operating expenses	2,931	3,009	3,143	3,323	3,466	2,971	2,983	3,352	3,673	3,815
<b>Dairy operating profit</b>	<b>1,221</b>	<b>1,222</b>	<b>719</b>	<b>1,427</b>	<b>497</b>	<b>-403</b>	<b>696</b>	<b>718</b>	<b>775</b>	<b>1,050</b>



Table 13.4: Cash Operating Surplus and Operating Profit - \$ per milksolid sold

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>PHYSICAL CHARACTERISTICS:</b>										
Number of herds	100	96	92	114	111	109	113	108	122	124
Effective hectares	136.7	136.8	137.9	128.0	132.0	133.3	132.0	137.2	151.3	144.1
Peak cows milked	388	388	394	367	383	379	372	391	452	431
Stocking rate (cows/ha)	2.8	2.8	2.9	2.9	2.9	2.8	2.8	2.8	3.0	3.0
Kg milksolids sold	134,651	146,745	141,062	138,532	151,044	144,587	143,685	147,143	184,909	175,656
Milksolids sold per hectare	985	1,073	1,023	1,082	1,144	1,085	1,089	1,072	1,222	1,219
Milksolids sold per cow	347	378	358	377	394	381	386	376	410	408
<b>PAYOUT RECEIVED: \$/kg MS sold</b>	<b>3.63</b>	<b>3.34</b>	<b>3.13</b>	<b>3.76</b>	<b>2.88</b>	<b>1.88</b>	<b>2.82</b>	<b>3.21</b>	<b>3.17</b>	<b>3.45</b>
<b>DAIRY CASH INCOME \$:</b>										
Milk sales (net of dairy levies)	3.63	3.34	3.13	3.76	2.88	1.88	2.82	3.21	3.17	3.45
Net livestock sales (sales - purchases)	0.25	0.39	0.06	0.10	0.36	0.25	0.42	0.34	0.41	0.34
Other dairy cash income	0.04	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02
<b>Net dairy cash income</b>	<b>3.92</b>	<b>3.76</b>	<b>3.21</b>	<b>3.88</b>	<b>3.25</b>	<b>2.15</b>	<b>3.26</b>	<b>3.57</b>	<b>3.59</b>	<b>3.82</b>
<b>CASH FARM WORKING EXPENSES:</b>										
Wages	0.36	0.35	0.41	0.37	0.35	0.34	0.36	0.42	0.45	0.44
Animal health	0.24	0.23	0.23	0.25	0.23	0.20	0.22	0.23	0.23	0.23
Breeding & herd improvement	0.13	0.13	0.15	0.15	0.15	0.14	0.14	0.16	0.16	0.17
Farm dairy	0.05	0.04	0.04	0.05	0.04	0.05	0.05	0.05	0.05	0.05
Electricity	0.10	0.09	0.10	0.10	0.10	0.11	0.11	0.10	0.10	0.10
Net feed made, purchased, cropped	0.45	0.43	0.50	0.54	0.51	0.37	0.39	0.49	0.51	0.53
Stock grazing	0.27	0.20	0.21	0.28	0.33	0.29	0.24	0.32	0.33	0.33
Support block lease	0.02	0.02	0.04	0.01	0.01	0.02	0.01	0.01	0.01	0.02
Fertiliser (incl Nitrogen)	0.16	0.17	0.16	0.15	0.14	0.13	0.13	0.14	0.14	0.15
Irrigation	0.01	0.00	0.01	0.01	0.01	0.03	0.02	0.01	0.03	0.03
Regrassing	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Weed & pest	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Vehicles & fuel	0.18	0.17	0.19	0.18	0.16	0.14	0.16	0.17	0.16	0.16
Repairs & maintenance	0.07	0.08	0.07	0.09	0.07	0.06	0.07	0.08	0.07	0.07
Freight & general	0.05	0.04	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.05
Administration	0.08	0.08	0.09	0.09	0.08	0.08	0.08	0.08	0.09	0.09
Insurance	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
ACC	0.03	0.04	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.01
Rates	0.01	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00
<b>Farm working expenses</b>	<b>2.25</b>	<b>2.15</b>	<b>2.35</b>	<b>2.42</b>	<b>2.34</b>	<b>2.08</b>	<b>2.10</b>	<b>2.42</b>	<b>2.44</b>	<b>2.50</b>
<b>Cash operating surplus</b>	<b>1.66</b>	<b>1.61</b>	<b>0.86</b>	<b>1.46</b>	<b>0.91</b>	<b>0.08</b>	<b>1.17</b>	<b>1.15</b>	<b>1.15</b>	<b>1.31</b>
<b>ADJUSTMENTS:</b>										
Plus value of change in dairy livestock	0.30	0.19	0.57	0.51	0.21	0.21	0.12	0.22	0.04	0.18
Less labour adjustment	0.55	0.52	0.53	0.50	0.51	0.51	0.50	0.55	0.43	0.47
Plus feed inventory adjustment	0.01	0.03	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.00
Less owned support block adjustment	0.02	0.01	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00
Less depreciation	0.16	0.15	0.16	0.16	0.17	0.16	0.14	0.17	0.14	0.15
<b>Net adjustments</b>	<b>-0.42</b>	<b>-0.47</b>	<b>-0.15</b>	<b>-0.14</b>	<b>-0.48</b>	<b>-0.45</b>	<b>-0.53</b>	<b>-0.48</b>	<b>-0.52</b>	<b>-0.45</b>
<b>OPERATING CASH &amp; NON-CASH:</b>										
Dairy gross farm revenue	4.22	3.94	3.77	4.39	3.46	2.37	3.38	3.79	3.64	3.99
Dairy operating expenses	2.98	2.81	3.07	3.07	3.03	2.74	2.74	3.13	3.00	3.13
<b>Dairy operating profit</b>	<b>1.24</b>	<b>1.14</b>	<b>0.70</b>	<b>1.32</b>	<b>0.43</b>	<b>-0.37</b>	<b>0.64</b>	<b>0.67</b>	<b>0.63</b>	<b>0.86</b>

Table 13.5: Cashflow

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>PHYSICAL CHARACTERISTICS:</b>										
Number of herds	100	96	92	114	111	109	113	108	122	124
Effective hectares	136.7	136.8	137.9	128.0	132.0	133.3	132.0	137.2	151.3	144.1
Peak cows milked	388	388	394	367	383	379	372	391	452	431
Stocking rate (cows/ha)	2.8	2.8	2.9	2.9	2.9	2.8	2.8	2.8	3.0	3.0
Kg milksolids sold	134,651	146,745	141,062	138,532	151,044	144,587	143,685	147,143	184,909	175,656
Milksolids sold per hectare	985	1,073	1,023	1,082	1,144	1,085	1,089	1,072	1,222	1,219
Milksolids sold per cow	347	378	358	377	394	381	386	376	410	408
<b>PAYOUT RECEIVED: \$/kg MS sold</b>	<b>3.63</b>	<b>3.34</b>	<b>3.13</b>	<b>3.76</b>	<b>2.88</b>	<b>1.88</b>	<b>2.82</b>	<b>3.21</b>	<b>3.17</b>	<b>3.45</b>
<b>CASHFLOW</b>										
Net dairy cash income	527,333	551,241	452,375	537,700	491,091	311,521	468,708	525,451	664,600	670,136
Farm working expenses	303,307	315,482	331,640	335,742	353,672	300,088	301,168	356,128	451,327	439,763
<b>Cash operating surplus</b>	<b>224,026</b>	<b>235,759</b>	<b>120,735</b>	<b>201,958</b>	<b>137,419</b>	<b>11,433</b>	<b>167,540</b>	<b>169,323</b>	<b>213,273</b>	<b>230,372</b>
<b>DISCRETIONARY CASH</b>										
Less rent (excl support block)	2,111	3,450	4,385	3,401	5,154	1,407	1,047	2,320	827	1,220
Less interest	44,577	34,423	33,043	34,599	31,805	37,949	34,629	31,626	36,976	27,516
Less tax	23,930	31,344	27,351	29,237	25,101	5,492	6,220	24,199	30,109	39,336
Plus net non-dairy cash income	2,645	1,458	139	2,036	2,511	2,243	1,798	1,996	2,659	-1,380
<b>Discretionary cash</b>	<b>156,053</b>	<b>168,000</b>	<b>56,095</b>	<b>136,757</b>	<b>77,870</b>	<b>-31,172</b>	<b>127,442</b>	<b>113,174</b>	<b>148,021</b>	<b>171,895</b>
<b>OTHER CASH INCOME</b>										
Plus net off-farm income	5,508	3,753	4,244	3,989	3,817	4,546	2,281	4,071	5,230	10,975
Plus introduced funds	8,612	11,331	8,480	13,155	24,197	26,601	12,583	14,806	-19,006	-10,255
Plus income equalisation	519	-379	4,325	-2,621	-6,091	5,707	1,412	0	470	0
<b>Cash available for living and growth</b>	<b>170,692</b>	<b>182,705</b>	<b>73,144</b>	<b>151,280</b>	<b>99,793</b>	<b>5,682</b>	<b>143,718</b>	<b>132,051</b>	<b>134,715</b>	<b>161,640</b>
<b>OTHER CASH EXPENDITURE</b>										
Less net capital transactions	27,519	48,945	70,590	60,379	89,030	26,407	36,654	49,540	113,811	57,631
less net debt	58,537	56,442	-40,067	-973	-50,721	37,011	17,644	20,730	-33,643	8,192
less net drawings	67,893	75,857	72,999	72,813	83,335	56,461	57,721	74,517	67,169	65,458
<b>Cash surplus/deficit</b>	<b>16,743</b>	<b>1,461</b>	<b>-30,378</b>	<b>19,061</b>	<b>-21,851</b>	<b>-114,197</b>	<b>31,699</b>	<b>-12,736</b>	<b>-12,622</b>	<b>41,334</b>
<b>CASHFLOW PER KG MILKSOLIDS SOLD</b>										
Net dairy cash income	3.92	3.76	3.21	3.88	3.25	2.15	3.26	3.57	3.59	3.82
Farm working expenses	2.25	2.15	2.35	2.42	2.34	2.08	2.10	2.42	2.44	2.50
<b>Cash operating surplus</b>	<b>1.66</b>	<b>1.61</b>	<b>0.86</b>	<b>1.46</b>	<b>0.91</b>	<b>0.08</b>	<b>1.17</b>	<b>1.15</b>	<b>1.15</b>	<b>1.31</b>
<b>DISCRETIONARY CASH PER KG MILKSOLIDS SOLD</b>										
Less rent (excl support block)	0.02	0.02	0.03	0.02	0.03	0.01	0.01	0.02	0.00	0.01
Less interest	0.33	0.23	0.23	0.25	0.21	0.26	0.24	0.21	0.20	0.16
Less tax	0.18	0.21	0.19	0.21	0.17	0.04	0.04	0.16	0.16	0.22
Plus net non-dairy cash income	0.02	0.01	0.00	0.01	0.02	0.02	0.01	0.01	0.01	-0.01
<b>Discretionary cash</b>	<b>1.16</b>	<b>1.14</b>	<b>0.40</b>	<b>0.99</b>	<b>0.52</b>	<b>-0.22</b>	<b>0.89</b>	<b>0.77</b>	<b>0.80</b>	<b>0.98</b>
<b>OTHER CASH INCOME PER KG MILKSOLIDS SOLD</b>										
Plus net off-farm income	0.04	0.03	0.03	0.03	0.03	0.03	0.02	0.03	0.03	0.06
Plus introduced funds	0.06	0.08	0.06	0.09	0.16	0.18	0.09	0.10	-0.10	-0.06
Plus income equalisation	0.00	0.00	0.03	-0.02	-0.04	0.04	0.01	0.00	0.00	0.00
<b>Cash available for living and growth</b>	<b>1.27</b>	<b>1.25</b>	<b>0.52</b>	<b>1.09</b>	<b>0.66</b>	<b>0.04</b>	<b>1.00</b>	<b>0.90</b>	<b>0.73</b>	<b>0.92</b>
<b>OTHER CASH EXPENDITURE PER KG MILKSOLIDS SOLD</b>										
Less net capital transactions	0.20	0.33	0.50	0.44	0.59	0.18	0.26	0.34	0.62	0.33
Less net debt	0.43	0.38	-0.28	-0.01	-0.34	0.26	0.12	0.14	-0.18	0.05
Less net drawings	0.50	0.52	0.52	0.53	0.55	0.39	0.40	0.51	0.36	0.37
<b>Cash surplus/deficit</b>	<b>0.12</b>	<b>0.01</b>	<b>-0.22</b>	<b>0.14</b>	<b>-0.14</b>	<b>-0.79</b>	<b>0.22</b>	<b>-0.09</b>	<b>-0.07</b>	<b>0.24</b>

Table 13.6: Capital Structure and Wealth Creation

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>PHYSICAL CHARACTERISTICS:</b>										
Number of herds	100	96	92	114	111	109	113	108	122	124
Effective hectares	136.7	136.8	137.9	128.0	132.0	133.3	132.0	137.2	151.3	144.1
Peak cows milked	388	388	394	367	383	379	372	391	452	431
Stocking rate (cows/ha)	2.8	2.8	2.9	2.9	2.9	2.8	2.8	2.8	3.0	3.0
Kg milksolids sold	134,651	146,745	141,062	138,532	151,044	144,587	143,685	147,143	184,909	175,656
Milksolids sold per hectare	985	1,073	1,023	1,082	1,144	1,085	1,089	1,072	1,222	1,219
Milksolids sold per cow	347	378	358	377	394	381	386	376	410	408
<b>PAYOUT RECEIVED: \$/kg MS sold</b>	<b>3.63</b>	<b>3.34</b>	<b>3.13</b>	<b>3.76</b>	<b>2.88</b>	<b>1.88</b>	<b>2.82</b>	<b>3.21</b>	<b>3.17</b>	<b>3.45</b>
<b>DAIRY ASSETS AT OPEN</b>										
Land & buildings	105,003	28,567	86,836	15,098	30,040	11,402	18,684	11,326	4,691	12,128
Plant, machinery and vehicles	95,481	106,678	117,383	108,099	126,212	125,820	117,301	128,521	140,793	137,363
Livestock	598,372	788,495	948,782	763,980	845,693	691,128	569,288	691,303	790,098	731,432
Investments (excl non-dairy)	13,340	12,004	12,323	9,835	14,950	7,629	15,904	7,852	5,442	15,611
Current assets	82,002	118,029	106,625	82,670	138,435	103,524	46,993	95,392	116,653	93,939
<b>Total dairy assets at open</b>	<b>894,198</b>	<b>1,053,773</b>	<b>1,271,949</b>	<b>979,682</b>	<b>1,155,330</b>	<b>939,503</b>	<b>768,170</b>	<b>934,394</b>	<b>1,057,677</b>	<b>990,474</b>
Plus non-dairy assets	112,936	139,545	111,848	148,952	126,234	152,207	195,254	136,930	177,130	298,734
<b>Total assets</b>	<b>1,007,134</b>	<b>1,193,318</b>	<b>1,383,797</b>	<b>1,128,634</b>	<b>1,281,564</b>	<b>1,091,710</b>	<b>963,424</b>	<b>1,071,324</b>	<b>1,234,807</b>	<b>1,289,208</b>
<b>LIABILITIES AT OPEN</b>										
Term liabilities	594,089	510,469	473,652	513,263	456,746	552,001	599,319	581,994	665,150	569,206
Current liabilities	77,308	101,391	96,334	97,513	88,015	95,703	89,844	73,944	107,777	104,477
<b>Total liabilities</b>	<b>671,397</b>	<b>611,860</b>	<b>569,986</b>	<b>610,776</b>	<b>544,761</b>	<b>647,704</b>	<b>689,163</b>	<b>655,938</b>	<b>772,928</b>	<b>673,683</b>
<b>Owners equity at open</b>	<b>335,737</b>	<b>581,458</b>	<b>813,811</b>	<b>517,858</b>	<b>736,803</b>	<b>444,006</b>	<b>274,261</b>	<b>415,386</b>	<b>461,880</b>	<b>615,525</b>
<b>DAIRY ASSETS AT CLOSE</b>										
Land & buildings	103,473	28,759	95,068	15,631	45,015	10,361	19,483	11,326	14,637	31,423
Plant, machinery and vehicles	106,965	126,654	129,332	132,115	126,025	121,846	125,203	140,605	141,864	142,025
Livestock	827,120	985,447	887,135	870,676	731,576	594,679	734,331	667,438	787,504	766,899
Investments (excl non-dairy)	14,062	17,438	13,086	11,543	17,568	7,796	23,409	8,439	10,920	16,278
Current assets	105,744	117,026	83,659	115,486	114,664	87,303	69,448	98,324	92,277	112,605
<b>Total dairy assets at close</b>	<b>1,157,364</b>	<b>1,275,324</b>	<b>1,208,280</b>	<b>1,145,451</b>	<b>1,034,848</b>	<b>821,985</b>	<b>971,874</b>	<b>926,132</b>	<b>1,047,203</b>	<b>1,069,230</b>
plus Non-dairy assets	107,949	136,933	144,476	165,597	172,672	163,079	203,511	146,603	245,321	298,988
<b>Total assets</b>	<b>1,265,313</b>	<b>1,412,257</b>	<b>1,352,756</b>	<b>1,311,048</b>	<b>1,207,520</b>	<b>985,064</b>	<b>1,175,385</b>	<b>1,072,735</b>	<b>1,292,524</b>	<b>1,368,218</b>
<b>LIABILITIES AT CLOSE</b>										
Term liabilities	535,552	454,027	513,719	514,236	507,467	589,012	581,675	561,264	698,793	561,014
Current liabilities	84,307	98,927	103,746	111,268	86,095	119,657	80,600	89,612	97,455	94,284
<b>Total liabilities</b>	<b>619,859</b>	<b>552,954</b>	<b>617,465</b>	<b>625,504</b>	<b>593,562</b>	<b>708,669</b>	<b>662,275</b>	<b>650,876</b>	<b>796,248</b>	<b>655,298</b>
<b>Owners equity at close</b>	<b>645,454</b>	<b>859,303</b>	<b>735,291</b>	<b>685,544</b>	<b>613,958</b>	<b>276,395</b>	<b>513,110</b>	<b>421,859</b>	<b>496,276</b>	<b>712,919</b>
<b>EQUITY</b>										
<b>Growth in equity</b>	<b>309,717</b>	<b>277,845</b>	<b>-78,520</b>	<b>167,686</b>	<b>-122,845</b>	<b>-167,611</b>	<b>238,849</b>	<b>6,473</b>	<b>34,397</b>	<b>97,394</b>
Growth in equity from profit	112,617	104,473	43,782	118,099	4,979	-73,991	69,859	53,694	70,311	112,985
Growth in equity from capital	197,100	173,372	-122,302	49,587	-127,824	-93,620	168,990	-47,221	-35,914	-15,536
<b>Growth in equity %</b>	<b>92.2%</b>	<b>47.8%</b>	<b>-9.6%</b>	<b>32.4%</b>	<b>-16.7%</b>	<b>-37.7%</b>	<b>87.1%</b>	<b>1.6%</b>	<b>7.4%</b>	<b>15.8%</b>
<b>Closing debt to asset %</b>	<b>44.3%</b>	<b>33.7%</b>	<b>42.1%</b>	<b>42.7%</b>	<b>43.8%</b>	<b>69.2%</b>	<b>53.6%</b>	<b>56.7%</b>	<b>61.6%</b>	<b>47.9%</b>
<b>Closing term liabilities per kg MS</b>	<b>3.98</b>	<b>3.09</b>	<b>3.64</b>	<b>3.71</b>	<b>3.36</b>	<b>4.07</b>	<b>4.05</b>	<b>3.81</b>	<b>3.78</b>	<b>3.19</b>

Table 13.7: Returns

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
<b>PHYSICAL CHARACTERISTICS:</b>										
Number of herds	100	96	92	114	111	109	113	108	122	124
Effective hectares	136.7	136.8	137.9	128.0	132.0	133.3	132.0	137.2	151.3	144.1
Peak cows milked	388	388	394	367	383	379	372	391	452	431
Stocking rate (cows/ha)	2.8	2.8	2.9	2.9	2.9	2.8	2.8	2.8	3.0	3.0
Kg milksolids sold	134,651	146,745	141,062	138,532	151,044	144,587	143,685	147,143	184,909	175,656
Milksolids sold per hectare	985	1,073	1,023	1,082	1,144	1,085	1,089	1,072	1,222	1,219
Milksolids sold per cow	347	378	358	377	394	381	386	376	410	408
<b>PAYOUT RECEIVED: \$/kg MS sold</b>	<b>3.63</b>	<b>3.34</b>	<b>3.13</b>	<b>3.76</b>	<b>2.88</b>	<b>1.88</b>	<b>2.82</b>	<b>3.21</b>	<b>3.17</b>	<b>3.45</b>
<b>RETURN ON DAIRY ASSETS %</b>										
Dairy operating profit	166,913	167,173	99,142	182,709	65,599	-53,678	91,877	98,570	117,177	151,293
Plus owned support block adjustment	2,218	1,217	3,315	685	1,245	695	508	251	299	479
Less rent	2,111	3,450	4,385	3,401	5,154	1,407	1,047	2,320	827	1,220
<b>Net return from dairy</b>	<b>167,020</b>	<b>164,940</b>	<b>98,072</b>	<b>179,993</b>	<b>61,690</b>	<b>-54,390</b>	<b>91,338</b>	<b>96,501</b>	<b>116,649</b>	<b>150,552</b>
<b>Total dairy assets (less current) at open</b>	<b>812,196</b>	<b>935,744</b>	<b>1,165,324</b>	<b>897,012</b>	<b>1,016,895</b>	<b>835,979</b>	<b>721,177</b>	<b>839,002</b>	<b>941,025</b>	<b>896,535</b>
<b>Operating return on dairy assets %</b>	<b>20.6%</b>	<b>17.6%</b>	<b>8.4%</b>	<b>20.1%</b>	<b>6.1%</b>	<b>-6.5%</b>	<b>12.7%</b>	<b>11.5%</b>	<b>12.4%</b>	<b>16.8%</b>
<b>TOTAL RETURN ON ASSETS %</b>										
Net return from dairy	167,020	164,940	98,072	179,993	61,690	-54,390	91,338	96,501	116,649	150,552
Plus change in capital value	166,673	143,404	-158,797	18,825	-171,303	-147,670	135,959	-84,007	82,092	-31,459
<b>Total return</b>	<b>336,256</b>	<b>309,028</b>	<b>-60,280</b>	<b>200,870</b>	<b>-106,942</b>	<b>-199,857</b>	<b>229,684</b>	<b>15,252</b>	<b>201,356</b>	<b>120,302</b>
<b>Total assets (less current) at open</b>	<b>925,132</b>	<b>1,075,289</b>	<b>1,277,172</b>	<b>1,045,964</b>	<b>1,143,129</b>	<b>988,186</b>	<b>916,431</b>	<b>975,932</b>	<b>1,118,155</b>	<b>1,289,208</b>
<b>Total return on assets %</b>	<b>36.3%</b>	<b>28.7%</b>	<b>-4.7%</b>	<b>19.2%</b>	<b>-9.4%</b>	<b>-20.2%</b>	<b>25.1%</b>	<b>1.6%</b>	<b>18.0%</b>	<b>9.3%</b>
<b>TOTAL RETURN ON EQUITY %</b>										
Total return	336,256	309,028	-60,280	200,870	-106,942	-199,857	229,684	15,252	201,356	120,302
Plus net off-farm income	5,508	3,753	4,244	3,989	3,817	4,546	2,281	4,071	5,230	10,975
Less interest	44,577	34,423	33,043	34,599	31,805	37,949	34,629	31,626	36,976	27,516
<b>Total return for equity</b>	<b>297,021</b>	<b>278,321</b>	<b>-89,187</b>	<b>170,239</b>	<b>-134,838</b>	<b>-233,264</b>	<b>197,355</b>	<b>-12,206</b>	<b>169,610</b>	<b>103,761</b>
<b>Equity at open</b>	<b>335,737</b>	<b>581,458</b>	<b>813,811</b>	<b>517,858</b>	<b>736,803</b>	<b>444,006</b>	<b>274,261</b>	<b>415,386</b>	<b>461,880</b>	<b>615,525</b>
<b>Total return on equity %</b>	<b>88.5%</b>	<b>47.9%</b>	<b>-11.0%</b>	<b>32.9%</b>	<b>-18.3%</b>	<b>-52.5%</b>	<b>72.0%</b>	<b>-2.9%</b>	<b>36.7%</b>	<b>16.9%</b>



