

DairyNZ 

Economic Survey 2021-22



Contents

Introduction	2
Executive Summary	3
Owner-operator Summary	3
Owner-operator Summary Table	4
50:50 Sharemilkers Summary	5
50:50 Sharemilkers Summary Table	6
1 Background	7
2 Survey Description	8
2.1 Survey Methodology	8
2.2 Ownership Structure Definitions	8
2.3 Sample Unit	8
2.4 Survey Weights	9
2.5 Herd Size Distributions	9
2.6 Survey Regions	12
2.7 Production Systems	13
2.8 Operating Profit Adjustments	13
2.9 Asset Values	14
2.10 GST	14
2.11 Statistical Methodology	14
3 Physical Analysis	15
3.1 Introduction	15
3.2 Rainfall Summary	15
3.3 Feed Use	16
3.4 Partial Productivity	17
3.5 Profit from Productivity	19
4 Prices Received and Paid	20
4.1 Milk Payment	20
4.2 Livestock Prices	21
4.3 Feed and Fertiliser Prices	22
4.4 On-farm Inflation	24

5 Owner Operator: Operational Financial Analysis	26
5.1 Introduction	26
5.2 Revenue	26
5.3 Expenditure	28
5.4 Profitability	29
5.5 Cash Flow	33
5.6 Operating Profit Margin	34
6 Owner Operator: Equity and Capital Financial Analysis	35
6.1 Introduction	35
6.2 Dairy Assets	35
6.3 Liabilities and Debt Servicing	35
6.4 Liquidity	36
6.5 Returns	37
7 Owner Operator: Regional and Systems Financial Analysis	39
7.1 Regional Profitability	39
7.2 Production Systems	42
8 50:50 Sharemilkers: Operational Financial Analysis	45
8.1 Introduction	45
8.2 Revenue	45
8.3 Expenditure	47
8.4 Profitability	47
8.5 Cash Flow	50
8.6 Operating Profit Margin	51
9 50:50 Sharemilkers: Equity and Capital Financial Analysis	52
9.1 Introduction	52
9.2 Dairy Assets	52
9.3 Liabilities and Debt Servicing	52
9.4 Returns	54
10 50:50 Sharemilkers: Regional Financial Analysis	56
10.1 Regional Profitability	56
11 Dairy Tomorrow Measures	58
11.1 Annual Update	58
12 Time Series Tables: Owner Operator	60
13 Time Series Tables: 50:50 Sharemilkers	67

Introduction

The 2021-22 DairyNZ Economic Survey is the seventeenth 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:

DairyBase®
Private Bag 3221
Hamilton
Phone: (07) 858-3890
Email: info@dairybase.co.nz
Website: www.dairynz.co.nz/dairybase

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 2021-22.

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

Attribution: This publication was created using R and RStudio, along with essential packages, including Bookdown and Highcharts.



Queries about this publication should be made by mail, phone or email using the following contact details:

DairyNZ
Private Bag 3221
Hamilton
Phone: 0800 4 DairyNZ (0800 4324 7969)
Email: info@dairynz.co.nz
Website: www.dairynz.co.nz

© 2023 DairyNZ Limited
v1.0

June 2023 - Original release

Executive Summary

Milk payout received by farmers in 2021-22 increased by \$1.79 to \$9.19 per kilogram of milksolids (MS). Compared to the 2020-21 season, milksolids production per cow and per hectare decreased slightly, operating expenses per kilogram of milksolids increased by \$1.03 to \$6.35, operating profit per hectare increased by \$955 to \$4,150, operating return on dairy assets increased from 6.1 percent to 7.6 percent and total return on assets increased by 2.7 percentage points to 7.5 percent. Total return on equity increased to 11.5 percent (from 6.4 percent), driven by high returns from dairy operations.

Owner-operator Summary

Operating profit of \$4,150 per hectare in 2021-22 was up 30 percent on the previous season. The milk payout received of \$9.19 per kilogram of milksolids was up \$1.79 (+24%) on the price received in 2020-21. Milksolids sold per cow and milksolids sold per hectare both decreased by 1.9 percent in 2021-22. Livestock income per kilogram of milksolids increased by 6 cents to \$0.55. Gross farm revenue of \$9.81 per kilogram of milksolids was up \$1.87 in 2021-22. Farm working expenses of \$5.32 per kilogram of milksolids were \$0.89 higher compared with last season. Operating expenses increased \$1.03 to \$6.35 per kilogram of milksolids, setting a new record high.

Cash available for living and growth in 2021-22 was \$427,950 per farm, breaking the record ten year high set last season. Following high levels of capital expenditure (\$267,306), net debt (\$43,029) and drawings (\$114,873), an average cash surplus of \$2,543 per farm was recorded. The operating return on dairy assets increased to 7.6 percent and the total return on assets was 7.5 percent. Total return on equity was 11.5 percent, 5.1 percentage points higher than in the previous season. Equity growth was positive, increasing by \$194,675 to \$362,987. Total liabilities as a percentage of total assets (debt to asset ratio) decreased to 47.4 percent at the end of the season, but Closing term liabilities per kilogram of milksolids increased from \$22.37 to \$23.56.

Owner-operator Summary Table

Table 1

	2020-21	2021-22
PHYSICAL KPIS:		
Effective hectares	140.6	144.1
Peak cows milked	408	419
Stocking rate (cows/ha)	2.9	2.9
Kg milksolids sold	171,720	172,832
Milksolids sold per hectare	1,222	1,199
Milksolids sold per cow	421	413
PRICES:		
PAYOUT RECEIVED: \$/kg MS sold	7.40	9.19
CASHFLOW:		
Cash operating surplus	601,492	771,689
Discretionary Cash	379,869	489,779
Cash available for living and growth	363,911	427,950
Cash surplus/deficit	59,112	2,543
PROFITABILITY PER HA:		
Dairy gross farm revenue per ha	9,695	11,761
Dairy operating expenses per ha	6,500	7,611
Dairy operating profit per ha	3,195	4,150
Business profit before tax per all effective hectares	2,131	2,868
PROFITABILITY PER KG MILKSOLIDS:		
Dairy gross farm revenue per kg milksolids	7.94	9.81
Farm working expenses per kg milksolids	4.43	5.32
Dairy operating expenses per kg milksolids	5.32	6.35
Dairy operating profit per kg milksolids	2.62	3.46
RETURNS:		
Operating return on dairy assets %	6.1%	7.6%
Total return on assets %	4.8%	7.5%
Total return on equity %	6.4%	11.5%
WEALTH CREATION:		
Growth in equity	168,312	362,987
Growth in equity from profit	208,237	297,876
Growth in equity from capital	-39,822	65,148
Growth in equity %	4.4%	8.3%
RISK:		
Closing debt to asset %	50.1%	47.4%
Closing term liabilities per kg MS	22.37	23.56

50:50 Sharemilkers Summary

Dairy operating profit per hectare for 50:50 sharemilkers (herd owning sharemilkers) recorded an increase (+37%) to \$1,764 per hectare in 2021-22. Higher milk payouts received (+\$0.89 per kilogram of milksolids) were partially offset by a decrease in milksolids per cow (-23 kg MS) and a slight reduction in herd size. Gross farm revenue of \$5.05 per kilogram of milksolids was up \$0.93 in 2021-22. Farm working expenses of \$2.86 per kilogram of milksolids were 38 cents higher than last season. Operating expenses per kilogram of milksolids increased by 48 cents in 2021-22 to \$3.61.

The cash available for living and growth in 2021-22 for 50:50 Sharemilkers was \$249,488 per farm, 3.4 percent lower than the previous season. Capital expenditure was lower in 2021-22, but combined with increases in net debt and drawings resulted in a cash operating surplus of \$38,556 per farm, 35 percent lower than the previous season. The operating return on dairy assets increased to 26.9 percent, while the total return on equity was 42.5 percent, 20 percentage points higher than in 2020-21. High equity growth from profit was complemented by positive growth in equity from capital. Total liabilities as a percentage of total assets (debt to asset ratio) decreased to 36.5 percent. Closing term liabilities per kilogram of milksolids decreased to \$2.67.

50:50 Sharemilkers Summary Table

Table 2

	2020-21	2021-22
PHYSICAL KPIS:		
Effective hectares	140.0	139.6
Peak cows milked	424	422
Stocking rate (cows/ha)	3.0	3.0
Kg milksolids sold	182,030	171,282
Milksolids sold per hectare	1,300	1,227
Milksolids sold per cow	429	406
PRICES:		
PAYOUT RECEIVED: \$/kg MS sold	3.65	4.54
CASHFLOW:		
Cash operating surplus	298,298	344,252
Discretionary Cash	230,033	258,608
Cash available for living and growth	258,338	249,488
Cash surplus/deficit	51,154	38,556
PROFITABILITY PER HA:		
Dairy gross farm revenue per ha	5,357	6,198
Dairy operating expenses per ha	4,070	4,434
Dairy operating profit per ha	1,287	1,764
Business profit before tax per all effective hectares	1,577	2,202
PROFITABILITY PER KG MILKSOLIDS:		
Dairy gross farm revenue per kg milksolids	4.12	5.05
Farm working expenses per kg milksolids	2.48	2.86
Dairy operating expenses per kg milksolids	3.13	3.61
Dairy operating profit per kg milksolids	0.99	1.44
RETURNS:		
Operating return on dairy assets %	19.1%	26.9%
Total return on assets %	12.2%	23.6%
Total return on equity %	22.4%	42.5%
WEALTH CREATION:		
Growth in equity	155,984	260,649
Growth in equity from profit	127,784	182,517
Growth in equity from capital	28,259	78,156
Growth in equity %	24.0%	36.8%
RISK:		
Closing debt to asset %	43.3%	36.5%
Closing term liabilities per kg MS	2.91	2.67

1 Background

The 2021-22 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 before 2005-06 were conducted by the 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 to match the average regional herd size, hectares and milksolids production as published in the New Zealand Dairy Statistics 2021-22 as close as possible while maintaining a large sample size.

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 and 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 it 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 and production system data.

2 Survey Description

2.1 Survey Methodology

Groups of farms were selected to match the average regional herd size, hectares and milksolids production as published in the New Zealand Dairy Statistics 2021-22 as close as possible while maintaining a large sample size. The initial pool of farms included 784 owner-operators and 220 50:50 sharemilkers (herd owning sharemilkers) with data validated and committed to the DairyBase® database for the 2021-22 financial year. This excluded:

- multiple herds operating under one business identity, and/or
- herds with fewer than 50 cows.

Businesses were then excluded for the following reasons:

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

The sample selection process aimed 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. These regional and national averages are available in New Zealand Dairy Statistics 2021-22 publication.

The final number of herds included in this survey comprised 255 owner-operators and 87 50:50 sharemilker herds. Of the owner-operator herds, 185 (72.5%) were North Island herds, and 70 (27.5%) were from the South Island. Of the sharemilker herds, 64 (73.6%) were from the North Island, and 23 (26.4%) were South Island herds.

2.2 Ownership Structure Definitions

An owner-operator receives 100 percent 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 percent 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

All national averages in this report have been weighted by the regional proportion of herds reported in the New Zealand Dairy Statistics 2021-22 (Table 2.1). Simply averaging the regional data shown in this document does not produce the same national average. Weighting the data ensures that each region contributes a representative proportion to the national averages. The national averages for 50:50 sharemilkers are weighted by the regional proportion of sharemilkers.

Table 2.1: Regional Distribution of Herds: Dairy Statistics

Region	Owner-operator herds	% of Owner-operator herds	50:50 Sharemilker herds	% of 50:50 Sharemilker herds
Northland	471	8.3%	176	5.9%
Waikato	1,776	31.1%	1,118	37.8%
Bay of Plenty	307	5.4%	150	5.1%
Taranaki	836	14.7%	465	15.7%
Lower North Island	599	10.5%	205	6.9%
West Coast - Top of the South	299	5.2%	85	2.9%
Canterbury	688	12.1%	327	11.0%
Otago - Southland	728	12.8%	435	14.7%
Total New Zealand	5,704	100.0%	2,961	100.0%

2.5 Herd Size Distributions

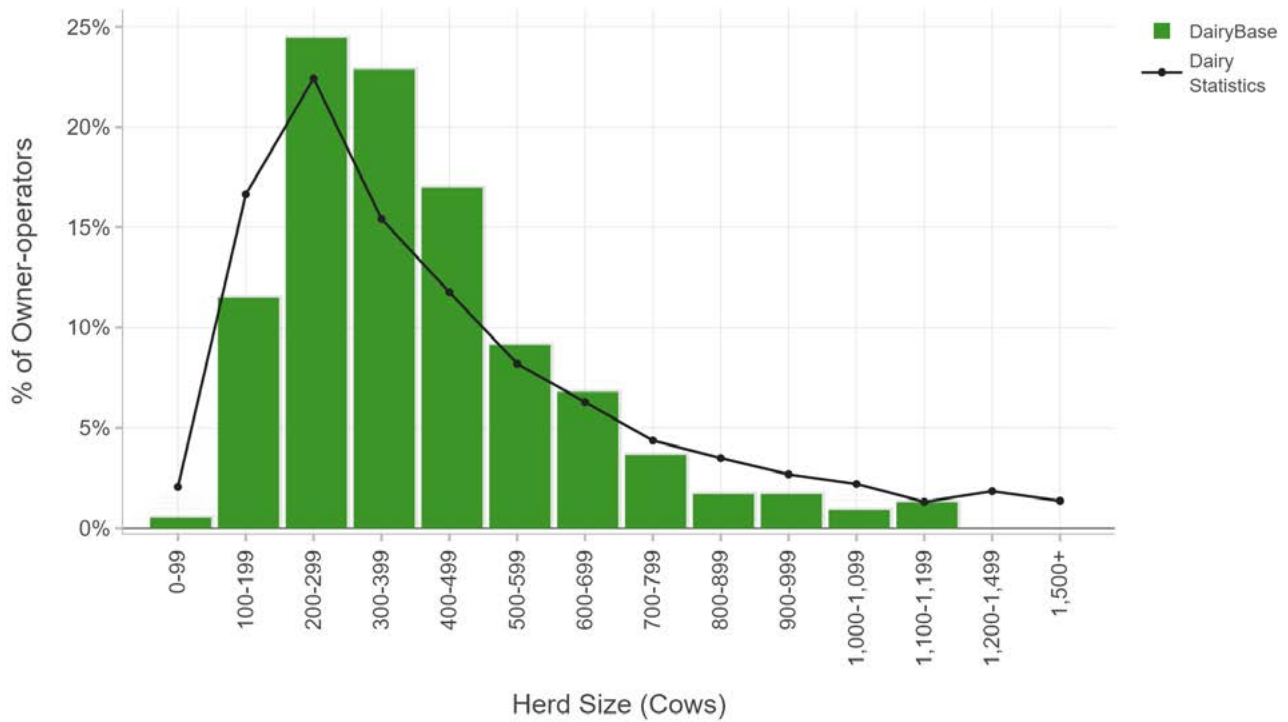
The average owner-operator herd in the Economic Survey had 419 cows, an increase of 11 relative to the 2020-21 season. In comparison to the New Zealand Dairy Statistics 2021-22 national average herd size of 441, the average Economic Survey farm had 22 cows less.

A comparison of the owner-operator herd distribution between the DairyNZ Economic Survey and the New Zealand Dairy Statistics 2021-22 shows the DairyNZ survey:

- is over-represented by herds between 200 and 600 cows;
- is under-represented by herds with less than 200 cows, by herds between 700 and 1100 cows, and by herds with 1200+ cows.

Refer to Figure 2.1.

Figure 2.1: New Zealand Owner-operator Herd Size Distributions 2021-22



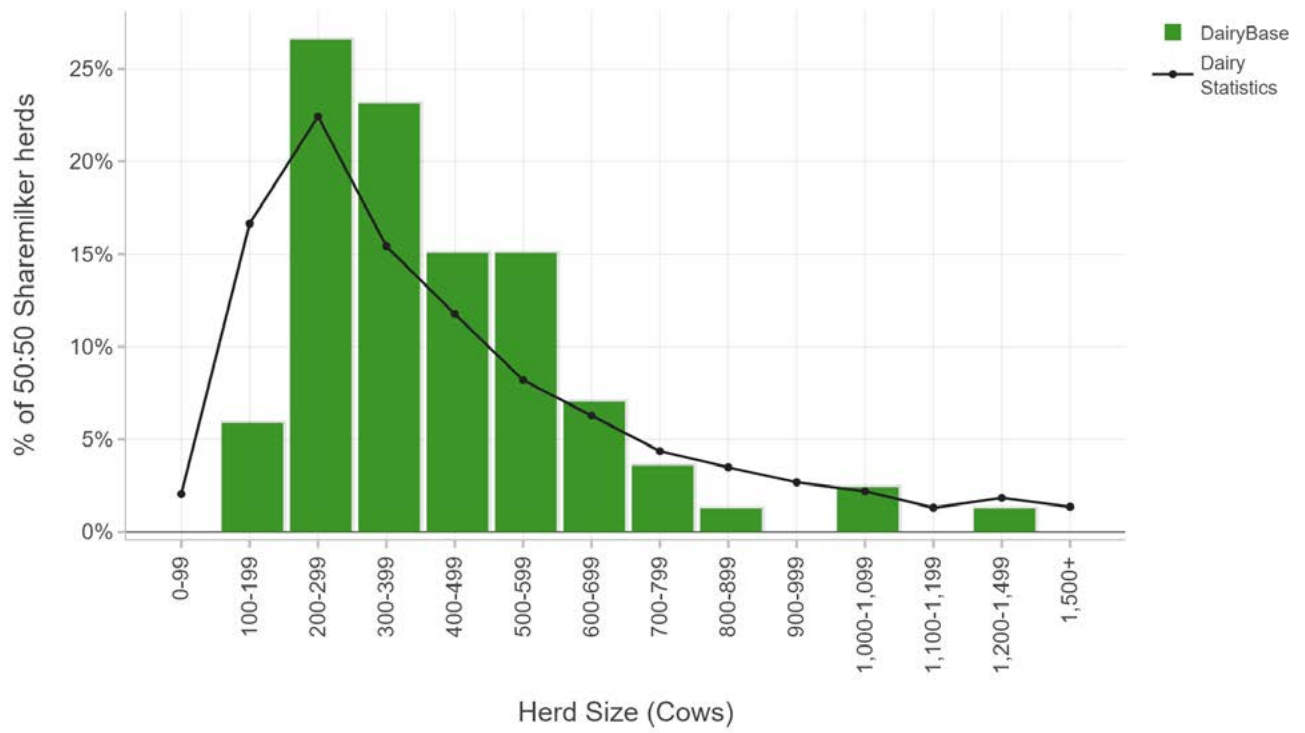
The DairyNZ Economic Survey national average herd size for 50:50 sharemilkers of 424 cows is larger than the 422 cows recorded in the New Zealand Dairy Statistics 2021-22.

As compared with the New Zealand Dairy Statistics 2021-22, for 50:50 sharemilkers, the DairyNZ Economic Survey:

- excludes herds under 100 cows, herds between 900 and 1000 cows, herds between 1,100 and 1,200 cows, and herds with more than 1,500 cows;
- is over-represented by herds between 200 and 600 cows;
- is under-represented by herds between 700 and 900 cows.

Refer to Figure 2.2.

Figure 2.2: New Zealand 50:50 Sharemilker Herd Size Distributions 2021-22



2.6 Survey Regions

This survey uses geographic regions and districts as defined by the 73 Territorial Local Authorities (TLAs). These districts are amalgamated into eight regions, five in the North Island and three in the South Island. Regions 6 and 7, and the TLAs included in them were updated for the 2021-22 Economic Survey, to reflect similar changes in DairyBase®. For regions 6 and 7, part of the difference in values between the 2021-22 season and previous seasons (sections 7.1 and 10.1) is due to the rearrangement of the TLAs that were part of them.

1. Northland

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

2. Waikato

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

3. Bay of Plenty

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

4. Taranaki

30. New Plymouth District
31. Stratford District
32. South Taranaki District

5. Lower North Island

33. Hastings District
34. Napier City
35. Rangitikei District
36. Whanganui District
37. Central Hawke's Bay District
38. Manawatu District
39. Palmerston North City
40. Taranua District
41. Horowhenua District
42. Kapiti Coast District
43. Masterton District
44. Carterton District
45. Upper Hutt City

46. Porirua City
47. Wellington City
48. Lower Hutt City
49. South Wairarapa District

6. West Coast - Top of the South

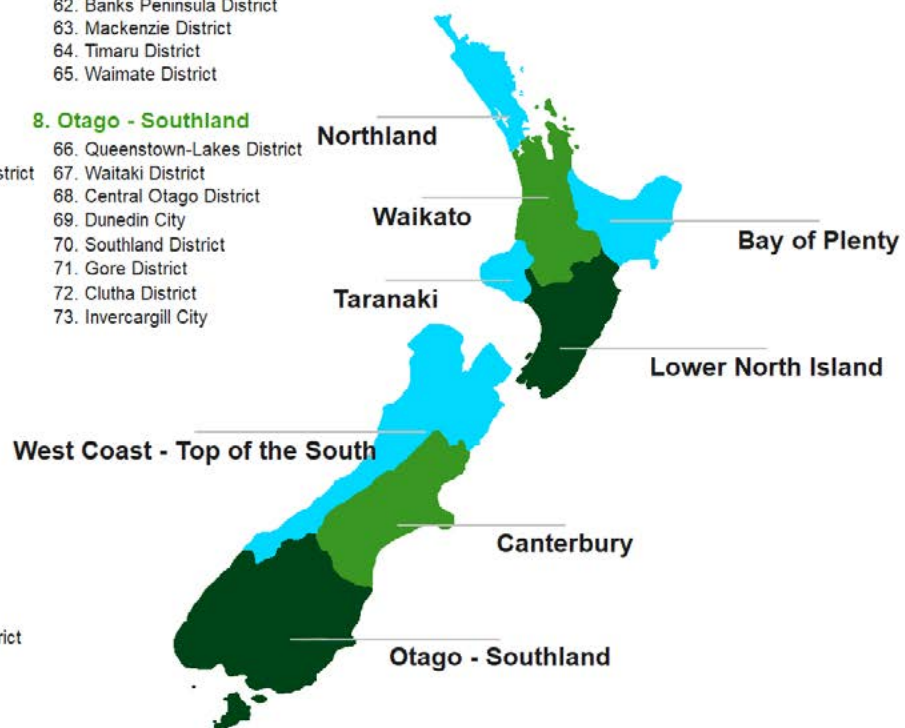
50. Tasman District
51. Nelson City
52. Marlborough District
53. Buller District
54. Kaikoura District
55. Grey District
56. Westland District

7. Canterbury

57. Hurunui District
58. Waimakariri District
59. Selwyn District
60. Christchurch City
61. Ashburton District
62. Banks Peninsula District
63. Mackenzie District
64. Timaru District
65. Waimate District

8. Otago - Southland

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



2.7 Production Systems

Farms are categorised into one of five production systems based on the timing, purpose and amount of imported feed used, 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 is fed unless harvested off the effective milking area, and dry cows are not grazed off the effective milking area.

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

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

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

- 80-89 percent of total feed is home grown feed.

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

- 70-79 percent of total feed is home grown feed.

System 5: Imported feed used all year

- 50-69 percent of total feed is home grown feed, though it could be less than 50 percent in some cases. Approximately 6 percent of owner-operator herds.

This publication refers 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. An example of non-cash adjustments is the value of change in dairy livestock, which is calculated and added to net dairy cash income to form gross farm revenue. Note: this is the value due to a change in livestock numbers. This adjustment is because the revenue from net dairy cash income can be affected by changes in herd size. For example, in drought years, more stock are sold and therefore, revenue through net livestock sales will be considerably higher. Similarly, livestock will be purchased in years following a drought 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 an hourly market rate.
- **Feed inventory adjustment** – closing supplementary feed on hand less opening supplementary feed on hand, valued at a standard 35 cents per kilogram dry matter in 2021-22.
- **Owned support block adjustment** – valued based on regional market lease rate per hectare.
- **Depreciation** – as recorded in the annual financial statements of the farm.

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 2020 and 1 June 2021 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, values 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 issues of this kind, we now report the median of the data in the tables and graphs that are most at risk of showing such bias i.e. regional data. 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, they do not add up to net dairy cash income, in contrast to the equivalent table presented in the 2018-19 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. It was decided that accurate representation of these values was more important than ensuring the values added up in the table.

3 Physical Analysis

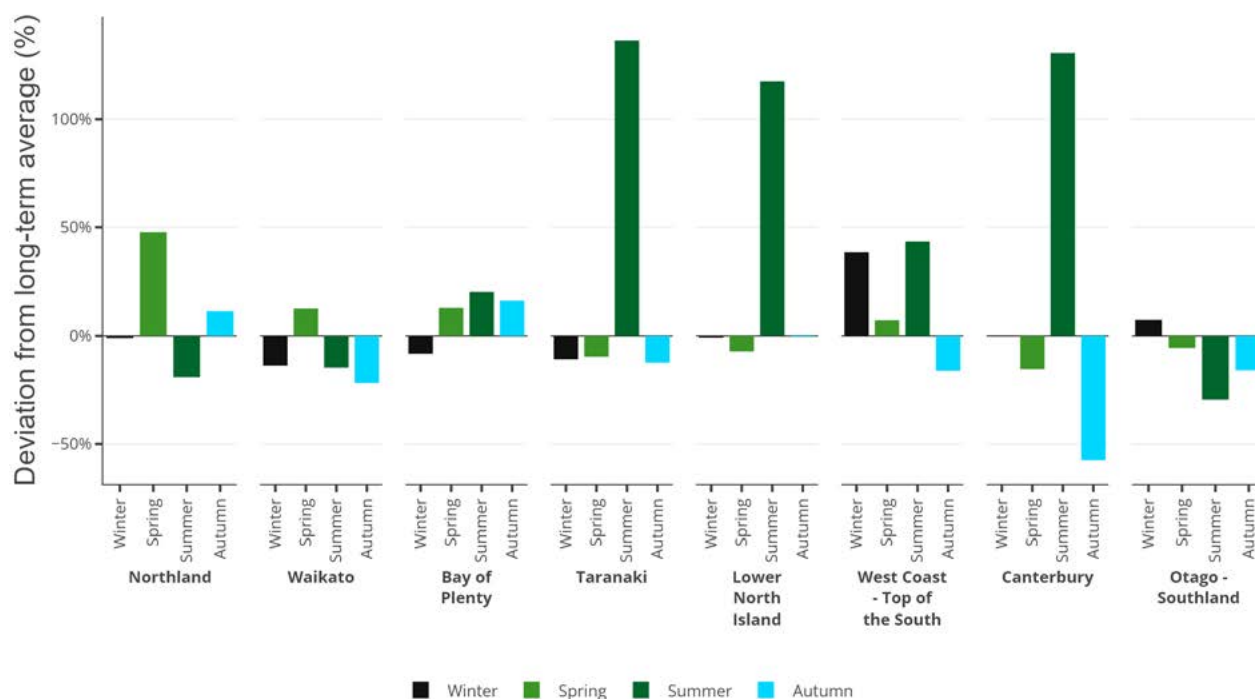
3.1 Introduction

The DairyNZ Economic Survey reports the trends in the 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 the days in milk, cow condition, reproductive performance, soil fertility, and fertiliser use data available in 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 the thirty-year-weighted median is shown in Figure 3.1. See section 2.11 for an explanation of the median methodology used here. Overall, some regions had significantly wetter summers than the thirty-year weighted median.

Figure 3.1: Variation in rainfall

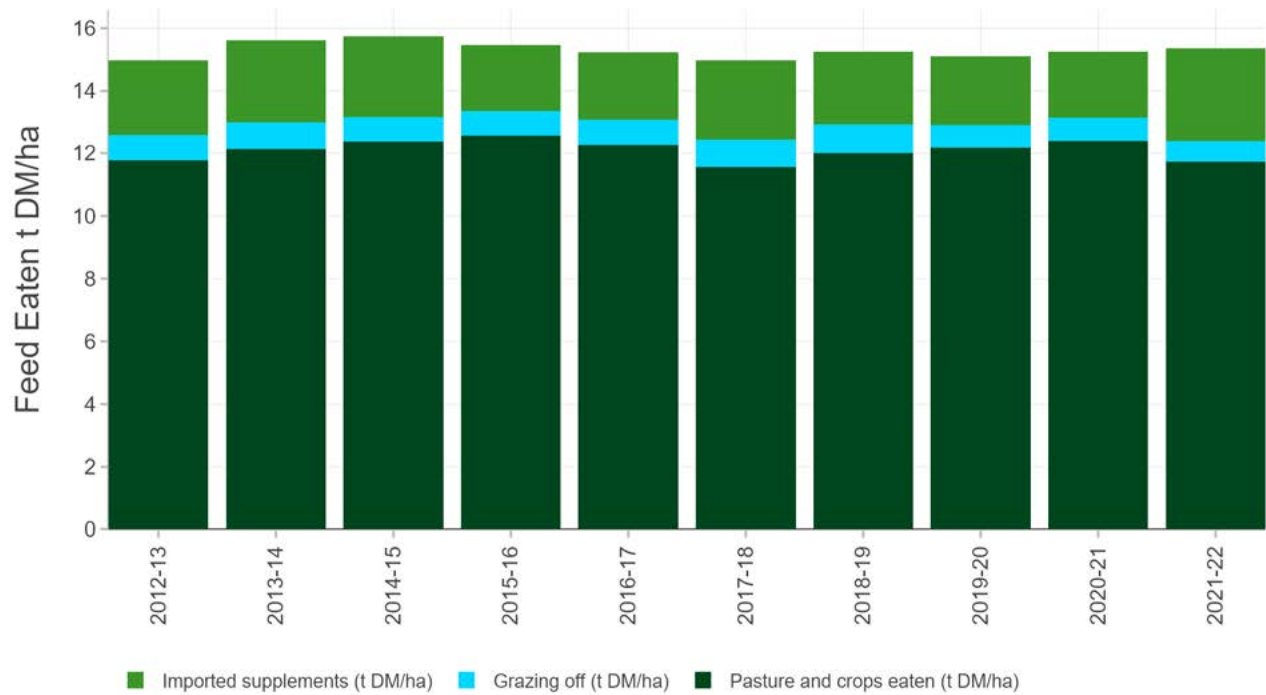


3.3 Feed Use

Pasture and crop eaten, grazing off farm, and imported feed were estimated from DairyBase® data. Pasture eaten decreased from 12.4 tDM/ha in 2020-21 to 11.7 tDM/ha in 2021-22 while the use of imported supplements increased from 2.11 tDM/ha to 2.97 tDM/ha, respectively (Figure 3.2).

In 2021-22, of the total feed eaten per hectare, approximately 77 percent corresponded to pasture and crops eaten, 19 percent to imported supplements and 4 percent to grazing off.

Figure 3.2: Trends in feed use



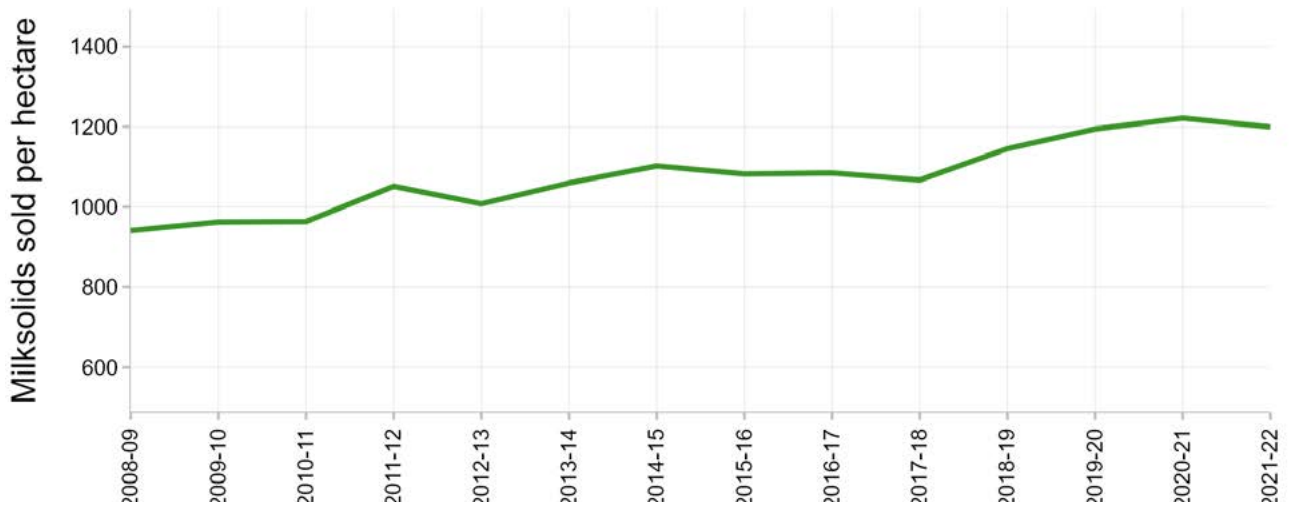
3.4 Partial Productivity

Milk production per cow and per hectare both decreased from last season (Figure 3.3 and 3.4). Milksolids sold per cow on the average Economic Survey dairy farm decreased from 421 kg in 2020-21 to 413 kg in 2021-22. Milksolids sold per hectare also decreased from 1,222 kg in 2020-21 to 1,199 kg in 2021-22.

Figure 3.3: Milksolids production per cow

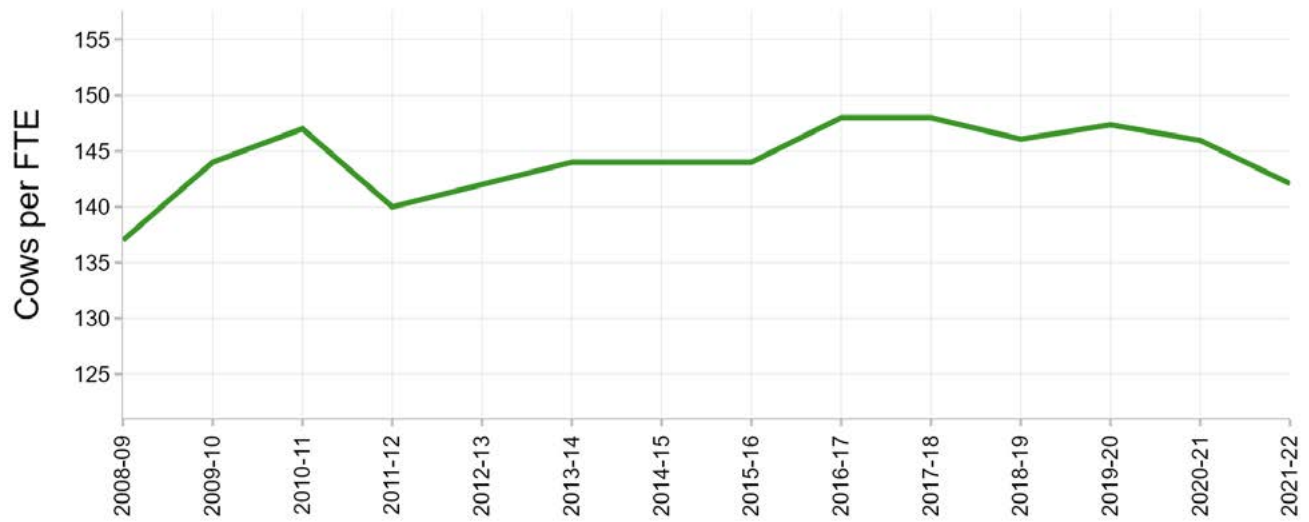


Figure 3.4: Milksolids production per hectare



The number of cows per FTE has decreased in the last 5 years. In 2021-22, the number of cows per FTE was 142, 4 less than the previous season (Figure 3.5).

Figure 3.5: Cows per FTE

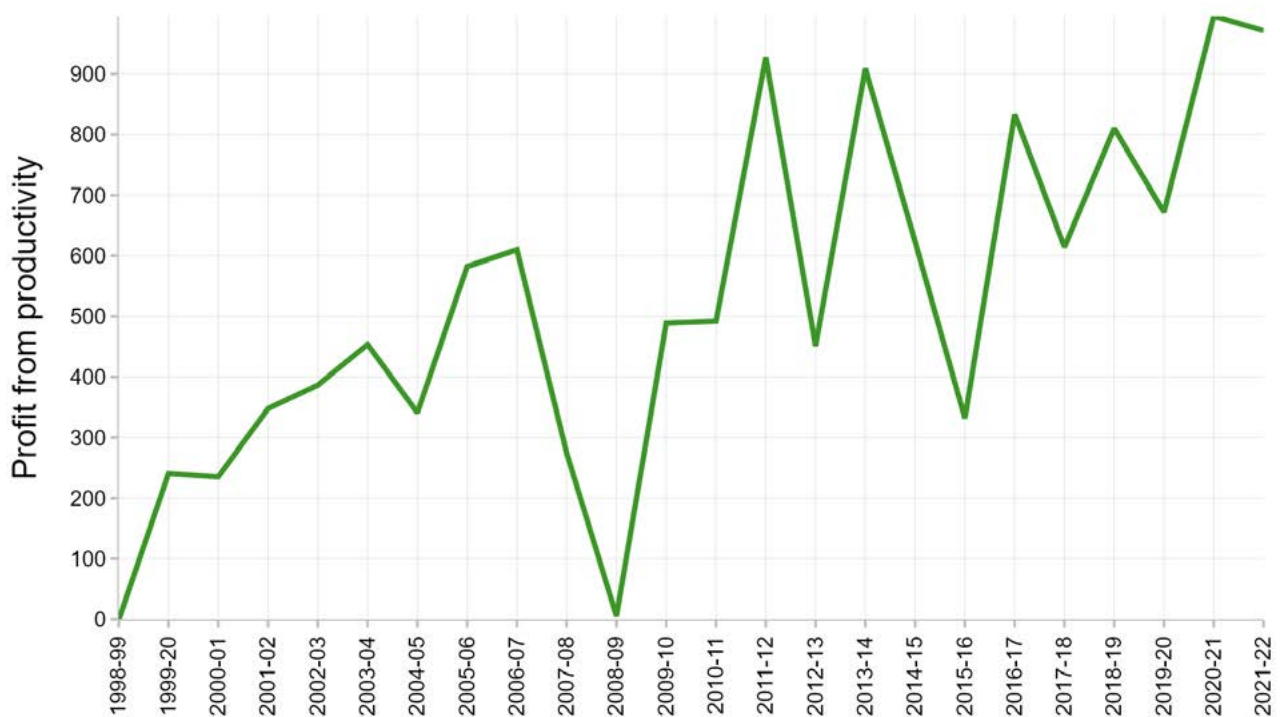


3.5 Profit from Productivity

Productivity improvements over time are essential to sustain or grow business profits and 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. PFP is a measure of cost-efficient milksolids production increases since the base year, valued at the end of the year operating profit margin per kilogram of 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 are increasingly focused on achieving cost-efficient milksolids production, and PFP provides a means for monitoring the value of productivity gains over time.

PFP decreased slightly from \$995 per hectare in 2020-21 to \$972 in 2021-22 (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



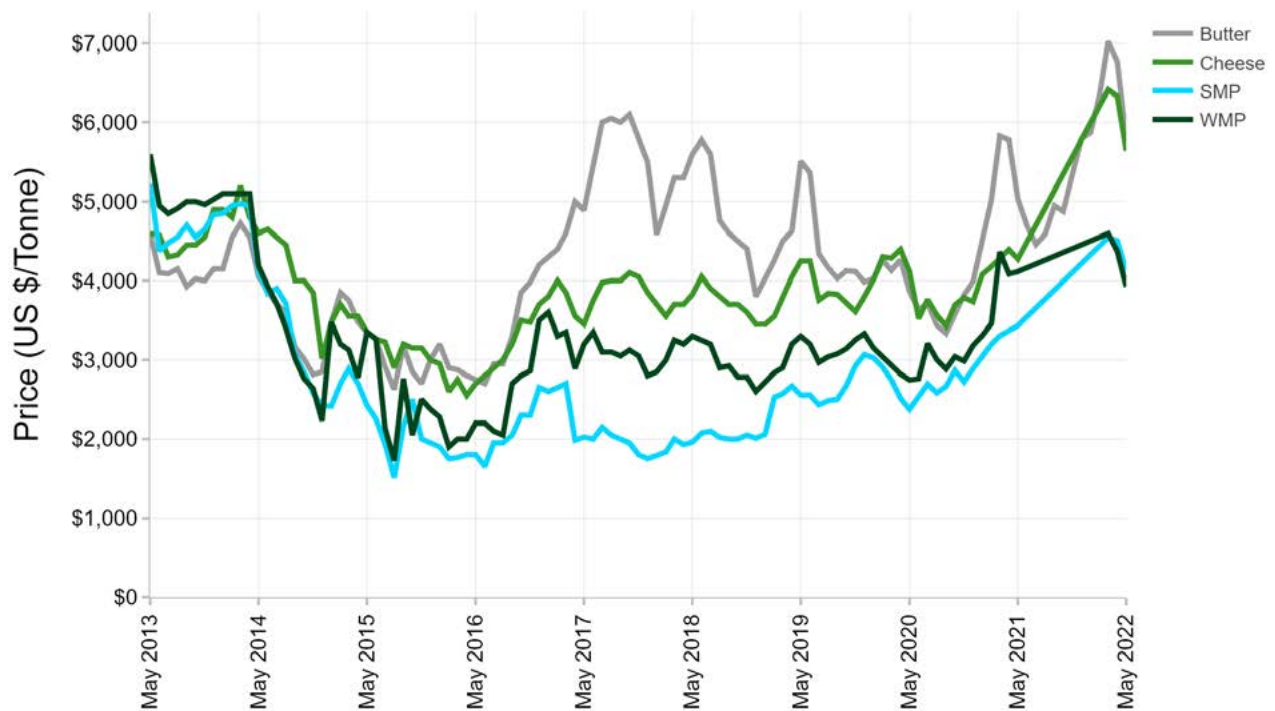
4 Prices Received and Paid

4.1 Milk Payment

Owner-operators in DairyBase® received an average cash payout of \$9.19/kg milksolids sold in 2021-22 (net of the industry good levy but includes advance and final payments). This was \$1.79 more than the previous season. The New Zealand Dairy Statistics 2021-22 publication reported an average nominal payout (including dividend payments) of \$9.52.

International dairy prices (as seen in Figure 4.1) increased in the first half of the season, but decreased towards the end of the season. With the exception of whole milk powder, the price of skim milk powder, cheese and butter in May 2022 was still higher than in May of the previous year.

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



The 2021-22 average nominal milk payout reported by the New Zealand Dairy Statistics publication of \$9.52 per kilogram milksolids was \$1.8 above the decade average in inflation-adjusted terms (\$7.63) (Figure 4.2). The increase in milk payout per kilogram milksolids from 2018-19 reflects the strength of the international dairy commodity market in 2021-22.

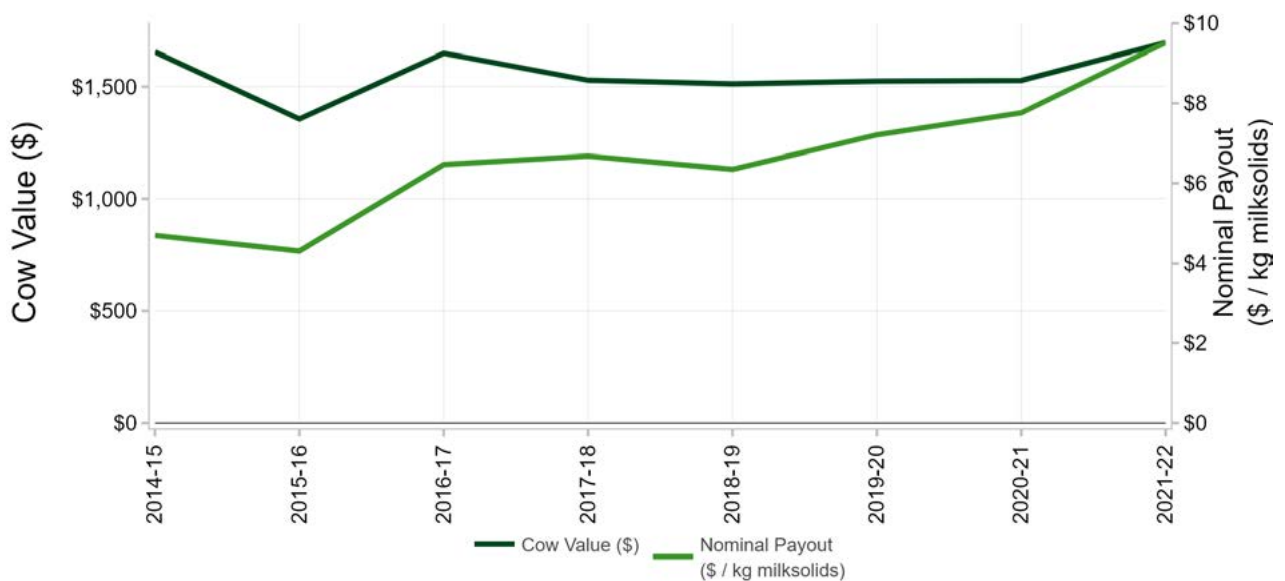
Figure 4.2: Trend in Milk Payout (Nominal and Real)



4.2 Livestock Prices

The value of mixed aged dairy cows increased to \$1,697 in 2021-22 (from \$1,528 in the 2020-21 season). Dairy cow values, in nominal terms, were close to the decade-average of \$1,670. Historically, dairy cow values have followed the trend in milk prices, often with a slight time lag (Figure 4.3).

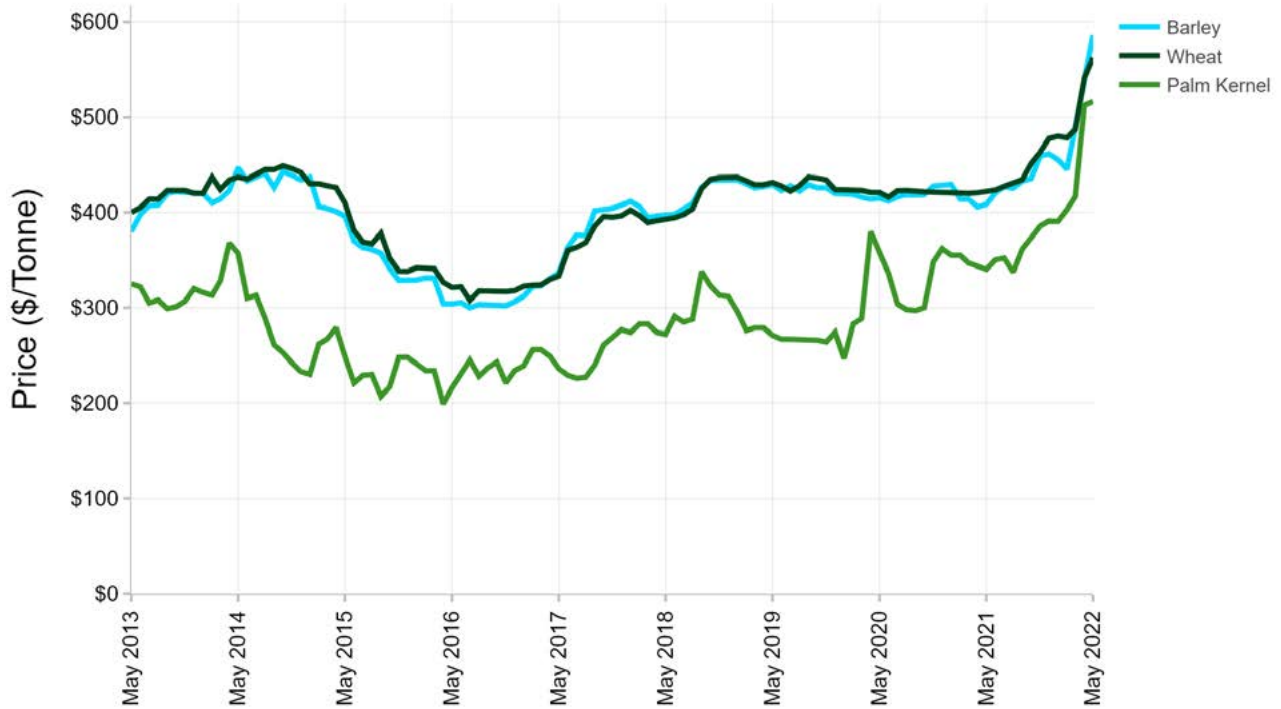
Figure 4.3: Trend in Cow Values Relative to Milk Payout



4.3 Feed and Fertiliser Prices

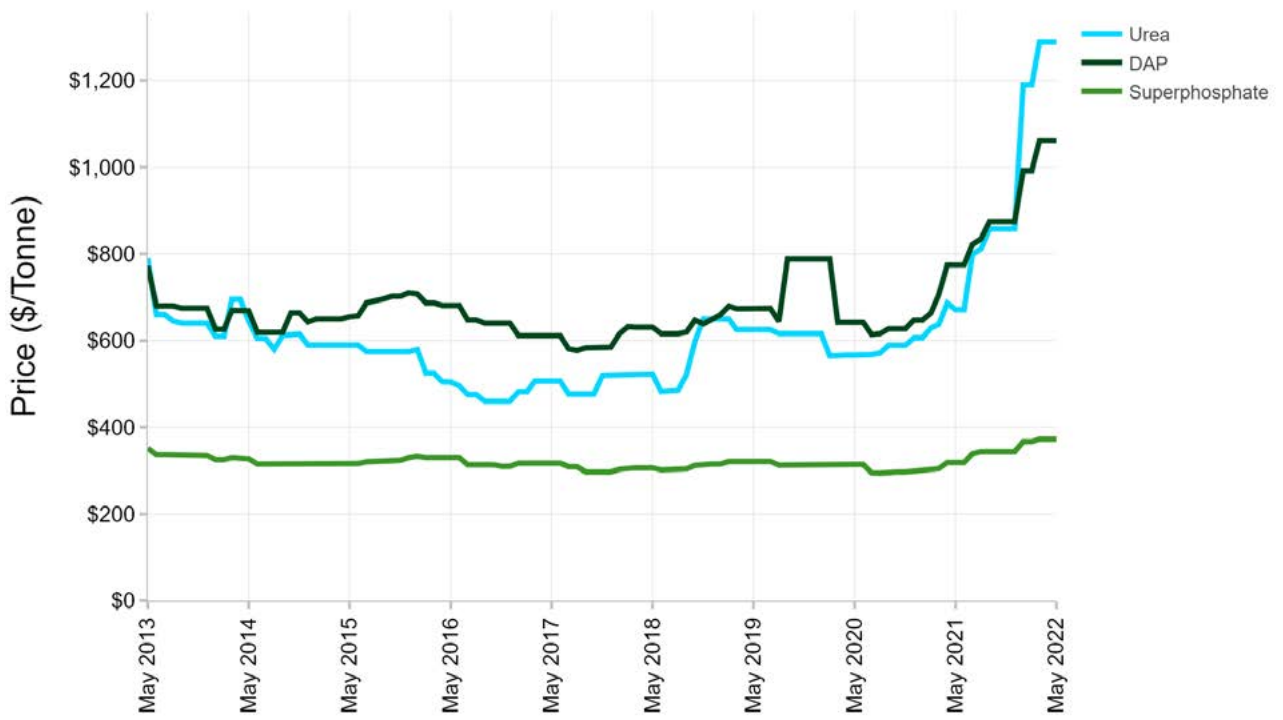
The price for barley, wheat and PKE increased during the 2021-22 season, with the rate of increase in price higher in the last 4 months of the season. Between June 2021 and May 2022, the price per tonne increased from \$412 to \$586 for barley, from \$416 to \$563 for wheat and from \$336 to \$516 for PKE. Of these feeds, PKE had the highest percentage increase in price during this time (+53%).

Figure 4.4: Feed Prices



During the 2021-22 season the price of fertilisers increased majorly (Figure 4.5). Between June 2021 and May 2022, the price (\$/t) of urea increased from \$672 to \$1,289, this represented a 92% increase in price during the season. The price of DAP increased by \$287/t to \$1,065/t, 37% higher than at the beginning of the season. The price of superphosphate at the end of the season (\$373/t) was 17% higher than at the beginning of the season.

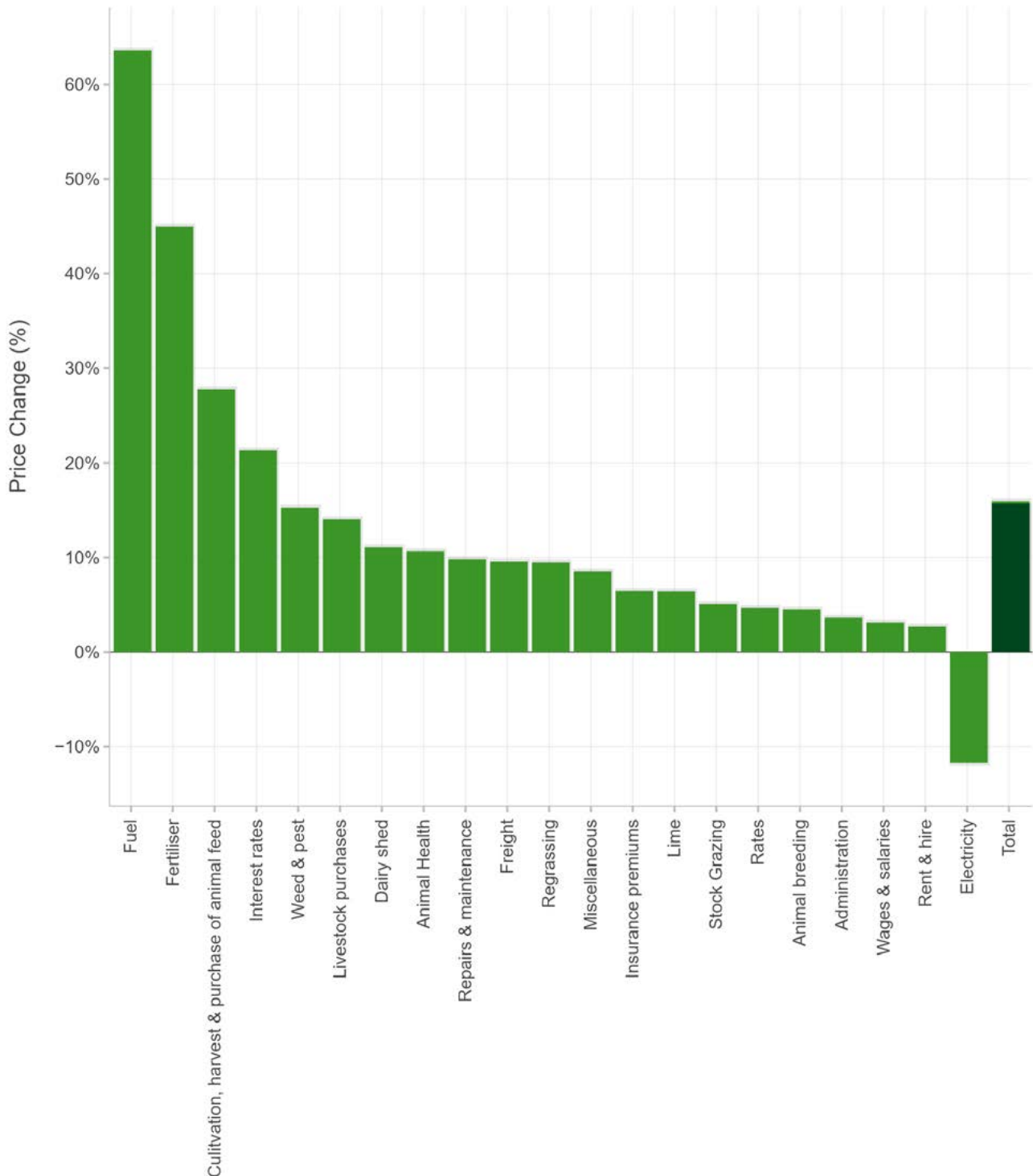
Figure 4.5: Fertiliser Prices



4.4 On-farm Inflation

Statistics New Zealand compiles the movement of on-farm input prices 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 2021, the overall change in expense price index was a 16 percent increase. The price movements of individual categories for the 2021-22 season are shown in Figure 4.6. The only price category to experience price reductions was electricity (-11%). The most notable increases included fuel (+63%), fertiliser (+45%), feed (+27%) and interest rates (+21%).

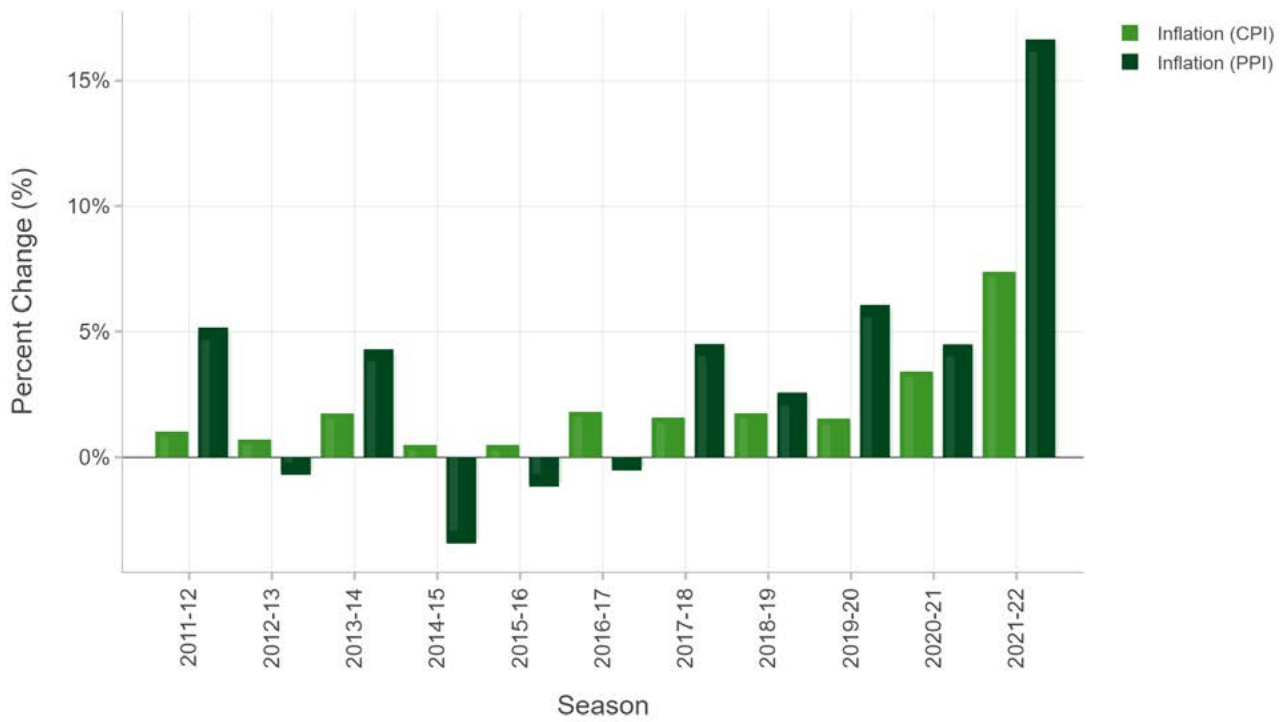
Figure 4.6: Dairy Input Price Changes 2021-22



The Producer Price Index (Stats NZ NZSIOC Level 3, June 2021 to June 2022) was up by 16%, as seen in

Figure 4.7. General inflation, as measured by the Consumer Price Index (CPI), experienced a large increase (+7%) in 2021-22.

Figure 4.7: Dairy Farm Producer Price Index and CPI Changes



5 Owner Operator: Operational Financial Analysis

5.1 Introduction

Operating profit of \$4,150 per hectare in 2021-22 was up 30 percent on the previous season. The milk payout received of \$9.19 per kilogram of milksolids was up \$1.79 (+24%) on the average price received in 2020-21. Both milksolids per cow (-8 kgMS per cow) and milksolids per hectare (-23 kgMS per hectare) decreased in 2021-22. Net livestock income (sales minus purchases) increased from by 12% 2021-22 to 2021-22 to \$0.55 per kgMS. Gross farm revenue was \$9.81 per kilogram milksolids in 2021-22, increasing \$1.87 compared to the previous season. Farm working expenses (FWE) of \$5.32 per kilogram of milksolids was 89 cents higher than the last season. Operating expenses increased \$1.03 to a record-high \$6.35 per kilogram of milksolids in 2021-22 compared to the previous season (second consecutive record-high in a row). The cash available for living and growth in 2021-22 was \$427,950 per farm, the highest value recorded in the past ten seasons.

5.2 Revenue

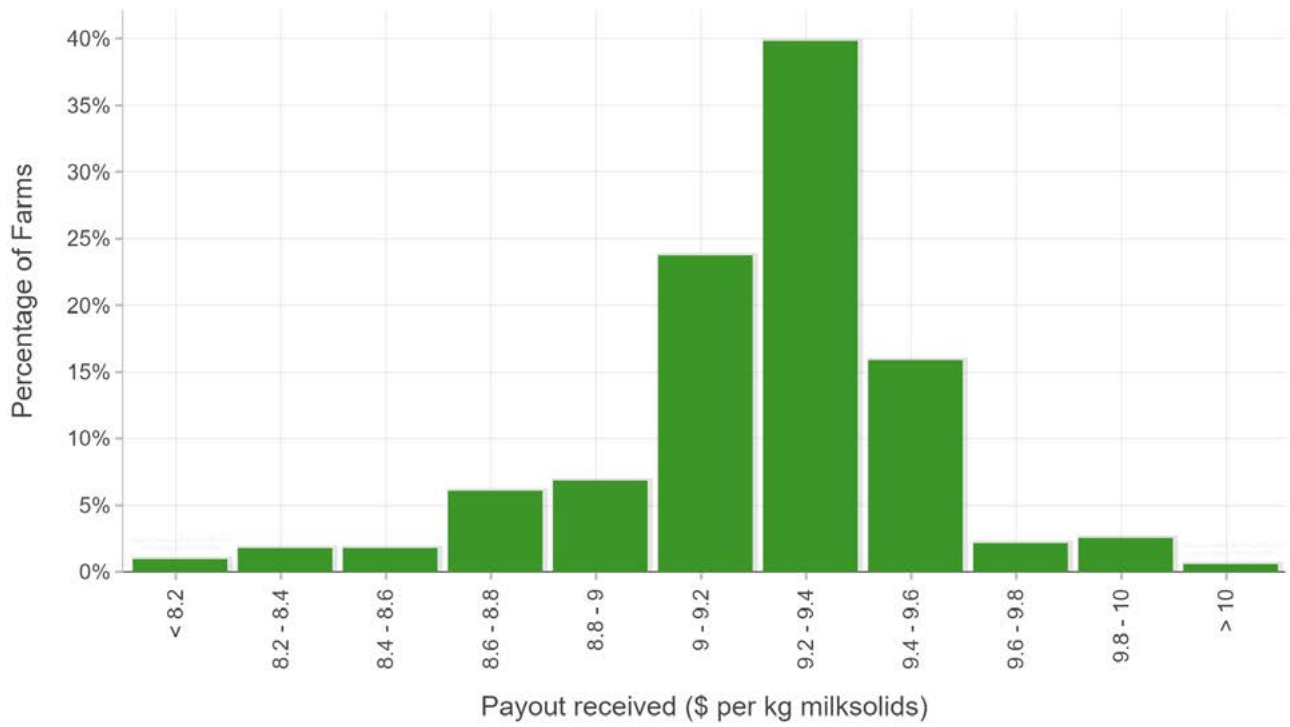
The milk payout received (including dividend payments) in 2021-22 increased by \$1.79 (+24%) from the previous season to \$9.19 per kilogram of milksolids. Milksolids production per cow and hectare, recorded by the Economic Farm Survey farms, decreased marginally in 2021-22 from the 2020-21 season. Milk sales per farm (net of dairy levies) increased by \$317,078 (+25%) from last season to another record-breaking figure of \$1.6 million (\$1,588,525). Milk revenue in 2021-22 increased by 1 percent relative to 2020-21, to account for 94 percent of gross farm revenue. Net revenue from livestock sales increased to \$95,756 in 2021-22. Livestock revenue accounted for 6% of the total gross farm revenue per farm. Table 12.1 describes average revenue per farm, while revenue values normalised by cows and effective hectares can be found in tables 12.2 and 12.3 respectively.

There is a variation of \$1.8 per kg MS in farmers' milk price within the 2021-22 season (Figure 5.1). These differences are driven by:

- Variations in the milk composition (fat, protein, lactose, minerals),
- Transport distances,
- Annual account balance dates,
- Milk company supplied,
- Different systems such as organics,
- Penalties incurred,
- Whether the farm operated in the previous season.

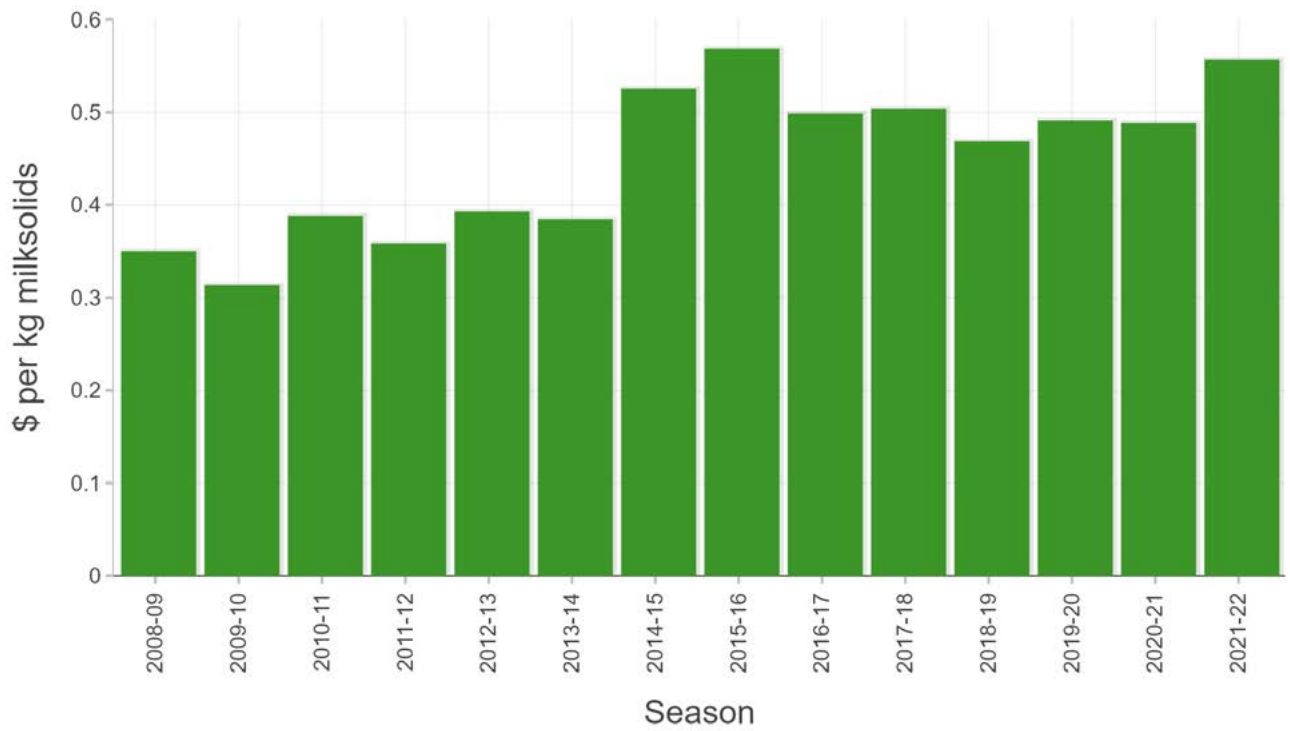
More than ninety percent of farms (91.4%) received a milk payout (milk price plus dividend) between \$8.6 and \$9.6 per kilogram of milksolids in 2021-22. The highest percentage was between \$9.20 and \$9.4, with 40 percent of farms receiving a milk payout in this range. Notably, the most common range is exactly \$2 per kilogram of milksolids more than the most common range in 2020-21.

Figure 5.1: Distribution of Milk Payout Received 2021-22



Cash income from net livestock sales increased to \$0.55 per kilogram milksolids in 2021-22 (+12%).

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

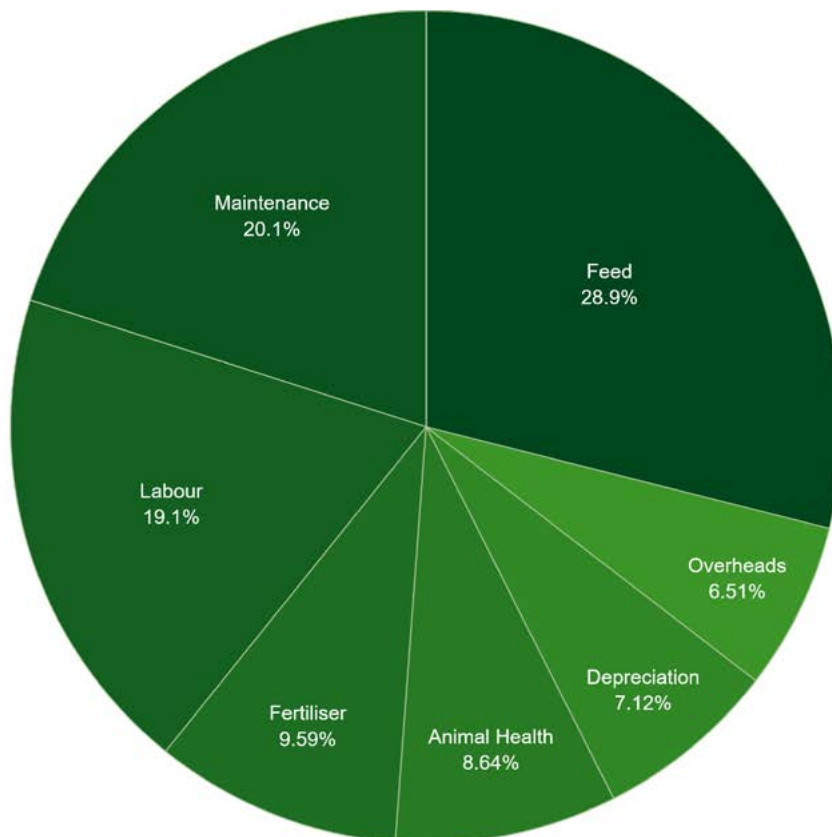


Tables 12.1, 12.2, 12.3 and 12.4 in chapter 12 show net cash income, cash farm working expenses and the adjustments made to calculate operating profit for the average New Zealand owner-operator on a per farm, per cow, per hectare and per kilogram milksolids sold basis.

5.3 Expenditure

Feed continues to be the largest expenditure category at 28.9 percent in 2021-22 and has been the largest expense category since 2007-08. Maintenance was the second-highest operating expense for dairy farms at 20.1 percent of total operating expenditure. Labour and fertiliser contributed 19.1 and 9.6 percent respectively. Figure 5.3 shows the major 2021-22 expenditure categories.

Figure 5.3: Proportion of Dairy Operating Expenditure 2021-22



Changes in the total farm expenditure are affected by the farm area, herd size and milksolids produced. Therefore, it is more appropriate to consider spending per cow, hectare or kilogram of milksolids to measure the movement of expenses for individual items. Average farm working expenses (i.e. cash expenses) per kilogram of milksolids increased 89 cents (+20%) to \$5.32. This was the highest expenditure recorded in a season.

Dairy operating expenses per kilogram milksolids were \$6.35, \$1.03 above the 2020-21 season. As with many of the trends over the season this was the highest level of operating expenses in the last decade with a larger change than typically observed. This was the first time that operating expenses per kilogram of milksolids exceeded \$6.

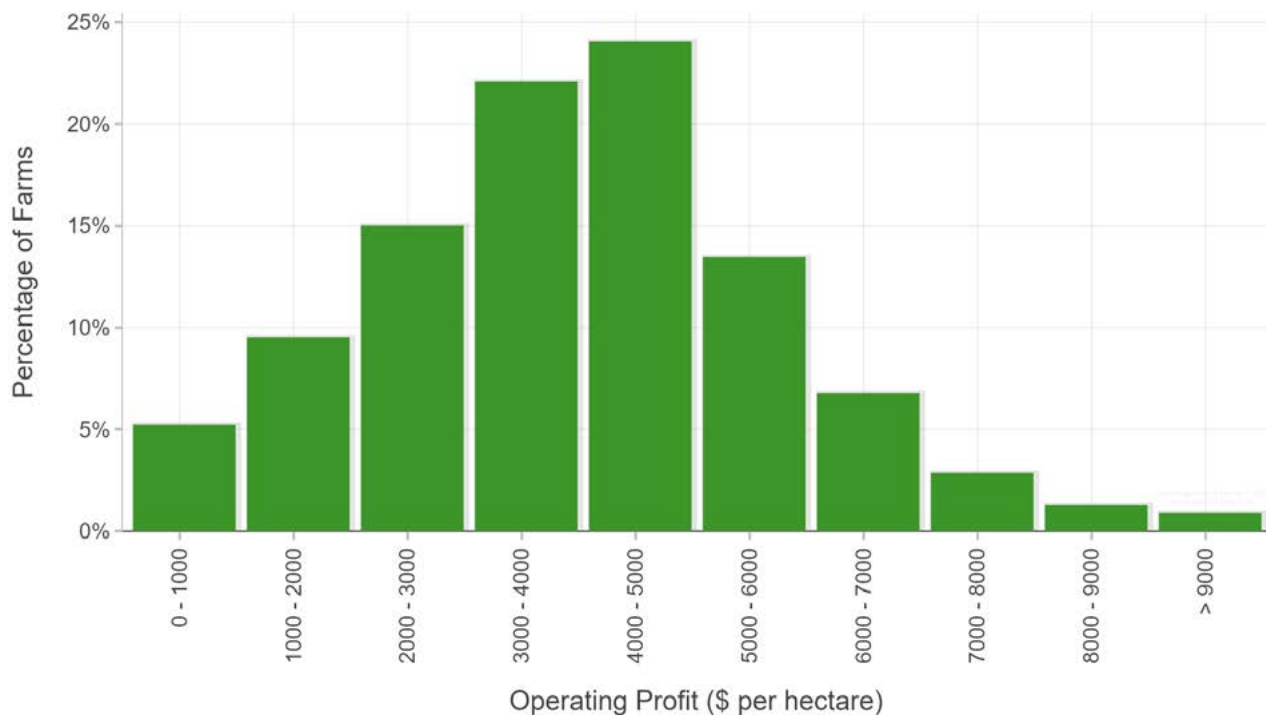
Table 12.4 shows the changes in the categories of operating expenses per kilogram milksolids. Many of these expenses have followed close to their long term trend. Feed, fertiliser and maintenance saw increases greater than the preceding years, driving up dairy operating expenses and therefore large variation in operating expenses from 2020-21 to 2021-22.

5.4 Profitability

Operating profit is a key indicator of dairy farm financial performance. This measure, expressed on a per hectare basis, is beneficial for comparing the profitability between farms. Operating profit incorporates adjustments to allow comparisons between farms, but does not include interest, tax, rent payments or capital expenditure. Table 12.3 shows the revenue and expenditure items included in operating profit.

Figure 5.4 shows the distribution of 2021-22 operating profit per hectare. Operating profit per hectare was distributed around the mean (\$4,150) per hectare, reflecting a wide range between farms. 89 percent of farmers had operating profits between \$0 and \$6,000 per hectare, while 11 percent of farmers had operating profits over \$6,000 per hectare. None of the Economic Farm Survey farms recorded a negative operating profit in 2021-22 (Figure 5.4).

Figure 5.4: Distribution of Owner-operating Profit (\$ per hectare) 2021-22



Tables 5.1 and 5.2 show the average size and profitability of farms by quartile. Quartiles were constructed by ranking surveyed farms on operating profit per hectare across New Zealand. Top quartile farms average \$6,353 operating profit per hectare, compared with \$1,744 for the bottom quartile group. Each quartile group produced more milksolids per hectare compared with the quartile lower. Top quartile farmers produced approximately 67 percent more kilograms of milksolids per hectare than the bottom quartile farmers, with substantially lower farm working expenses per kilogram of milksolids (-25%).

There is minimal difference in gross farm revenue per kg MS across the quartiles. The differences in profit per kilogram of milksolids between the quartiles is driven by significant differences in the groups operating expenses per kilogram of milksolids. Top farms are more efficient, demonstrated by the lower operating expenses per kilogram of milksolids. Operating expenses increased from the top quartile group to the bottom quartile group from \$5.55 to \$7.82 per kilogram of milksolids, respectively.

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

	Bottom Quartile	Lower Middle Quartile	Upper Middle Quartile	Top Quartile
PHYSICAL CHARACTERISTICS:				
Number of herds	64	64	64	63
Effective hectares	135.7	120.0	142.3	162.5
Peak cows milked	343	318	410	541
Stocking rate (cows/ha)	2.5	2.7	2.9	3.3
Kg milksolids sold	119,032	124,197	171,035	243,249
Milksolids sold per hectare	878	1,039	1,192	1,468
Milksolids sold per cow	344	390	413	445
PAYOUT RECEIVED:	9.11	9.26	9.20	9.23
\$/kg MS sold				
DAIRY CASH INCOME \$:				
Milk sales (net of dairy levies)	9.09	9.26	9.18	9.23
Net livestock sales (sales - purchases)	0.69	0.53	0.50	0.57
Other dairy cash income	0.06	0.07	0.04	0.03
Net dairy cash income	9.84	9.86	9.72	9.84
CASH FARM WORKING EXPENSES:				
Wages	0.91	0.72	0.64	0.65
Animal health	0.33	0.31	0.30	0.26
Breeding & herd improvement	0.22	0.17	0.17	0.17
Farm dairy	0.10	0.08	0.06	0.05
Electricity	0.15	0.14	0.12	0.09
Net feed made, purchased, cropped	1.48	1.47	1.51	1.24
Stock grazing	0.39	0.26	0.29	0.57
Support block lease	0.14	0.08	0.08	0.05
Fertiliser (incl Nitrogen)	0.73	0.64	0.59	0.51
Irrigation	0.05	0.03	0.05	0.15
Regrassing	0.13	0.11	0.09	0.07
Weed & pest	0.07	0.06	0.04	0.03
Vehicles & fuel	0.34	0.29	0.23	0.16
Repairs & maintenance	0.72	0.61	0.50	0.40
Freight & general	0.11	0.09	0.09	0.06
Administration	0.24	0.18	0.14	0.14
Insurance	0.13	0.11	0.10	0.08
ACC	0.04	0.04	0.03	0.02
Rates	0.14	0.14	0.13	0.08
Farm working expenses	6.40	5.49	5.13	4.77
Cash operating surplus	3.44	4.37	4.59	5.07
ADJUSTMENTS:				
Value of change in dairy livestock	-0.03	0.02	0.10	-0.04
Less labour adjustment	0.68	0.63	0.50	0.30
Plus feed inventory adjustment	-0.02	0.01	-0.01	-0.01
Less owned support block adjustment	0.20	0.15	0.08	0.06
Less depreciation	0.54	0.43	0.41	0.42
Net adjustments	-1.45	-1.18	-0.91	-0.83
OPERATING CASH & NON-CASH PER KG MILKSOLID SOLD:				
Dairy gross farm revenue	9.81	9.88	9.82	9.80
Dairy operating expenses	7.82	6.69	6.14	5.55

5.4. PROFITABILITY

Dairy operating profit	1.99	3.19	3.68	4.24
OPERATING CASH & NON-CASH PER HECTARE:				
Dairy gross farm revenue	8,608	10,220	11,798	14,667
Dairy operating expenses	6,864	6,920	7,375	8,315
Dairy operating profit	1,744	3,300	4,423	6,353
Operating profit margin	20.79%	33.10%	38.91%	43.81%

Operating return on dairy assets ranged from 10.2 percent in the top quartile to 4.4 percent in the bottom quartile, a range of 5.8 percent. The range in operating return on dairy assets grew from 4.8 percent in 2020-21 to 5.8 percent in 2021-22 (+1%).

Table 5.2: Owner-operator Quartile Financial Position

	Bottom Quartile	Lower Middle Quartile	Upper Middle Quartile	Top Quartile
RETURNS:				
Operating return on dairy assets %	4.4%	7.3%	8.7%	10.2%
Total return on assets %	5.1%	7.3%	8.0%	9.7%
Total return on equity %	6.3%	12.3%	15.4%	16.6%
Growth in equity %	6.9%	10.1%	11.3%	7.4%
DEBT:				
Closing term liabilities per kg MS	25.42	24.12	24.07	21.35
Closing debt to asset %	40.7%	45.9%	48.4%	44.3%

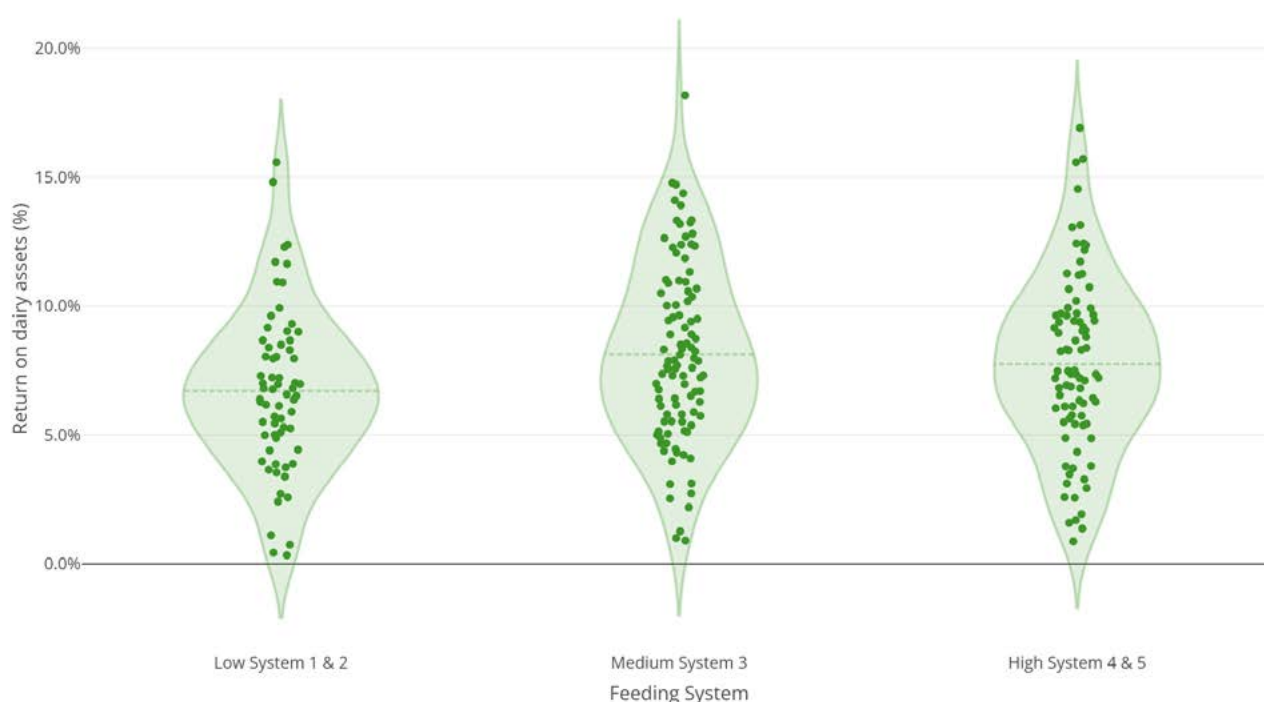
In high payout seasons, such as 2013-14, 2019-20, and 2020-21 the correlation between milksolids production per hectare and operating profit per hectare strengthens, and the reverse is true in low milk payout seasons. The changes in relationships over the past decade are detailed in Table 5.3. Measuring 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 5.3 denote the strength of the association between the variables. A value of 0 percent denotes no association, while a value of 100 percent denotes a perfect association. The R² values (R2 in Table 5.3) for the 2021-22 season demonstrate the correlation of a high milk payout with a small decrease in production.

Table 5.3: Correlations between Production, Profit and Operating Expenses

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
CORRELATIONS:										
Payout received \$/kg MS	6.33	7.69	5.76	3.92	5.79	6.62	6.42	7.05	7.40	9.20
Milksolids kg MS/ha	1,008	1,060	1,102	1,082	1,085	1,067	1,145	1,125	1,154	1,143
Dairy operating expenses \$/kg MS	5.03	5.17	4.94	4.45	4.60	5.13	5.10	5.47	5.44	6.51
Dairy operating profit \$/ha	1,830	3,295	1,537	-9	1,937	2,238	2,154	2,540	2,976	3,920
R2 - dairy operating profit \$/ha & kg MS/ha	40.0%	45.7%	17.3%	0.2%	32.7%	37.3%	39.3%	54.3%	53.2%	54.1%
R2 - dairy operating profit \$/ha & operating expenses \$/kg MS	54.1%	46.7%	59.4%	60.4%	49.7%	62.9%	59.5%	62.2%	61.2%	58.8%

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 7.5 percent in 2021-22. 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 highest for medium input farms (+6.4%, Figure 5.5). There was a significant difference in the variation of operating returns on dairy assets within the groups, with the highest range in the medium input farms (0.9% to 18.2%) and the lowest range in the low input farms (0.3% to 15.6%).

Figure 5.5: Return on Dairy Assets Distribution 2021-22



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

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
BUSINESS PROFIT:										
Dairy operating profit	258,049	470,808	223,630	-1,291	286,227	338,871	314,435	390,831	449,132	598,081
+ Labour adjustment	55,162	59,309	59,021	56,341	61,154	63,920	62,545	62,011	70,195	79,852
+ Owned support block adjustment	14,601	15,338	14,889	14,126	14,359	16,786	13,143	16,151	16,720	18,843
+ Non-dairy operating profit	1,288	1,724	-673	-318	3,331	5,444	6,904	11,894	3,870	5,499
+ Net off-farm income	12,427	9,991	12,078	9,238	19,811	18,114	6,670	13,167	9,838	-199
- Rent (excl support block)	22,812	23,366	22,250	20,047	19,582	20,703	12,499	17,280	17,069	14,929
- Interest	174,136	171,597	195,984	197,277	197,343	191,459	194,022	172,460	140,608	149,895
Business profit before tax	144,512	362,074	90,731	-139,258	167,789	231,251	197,163	304,312	392,077	537,252
Business profit before tax per all effective hectares	785	1,981	478	-734	887	1,174	1,077	1,681	2,131	2,868

Total effective hectares (effective dairy + effective dairy support block + effective non-dairy) increased by three hectares from the previous season to 187 hectares. The average dairy farm in 2021-22 made a business profit before tax of \$537,252 in 2021-22. This business profit is equivalent to \$2,868 per total effective hectare. The dairy operating profit increased by \$148,949 from the previous season. Rent payments decreased by 12 percent (-\$2,140). Interest payments in 2021-22 were higher than 2020-21, increasing by \$9,287.

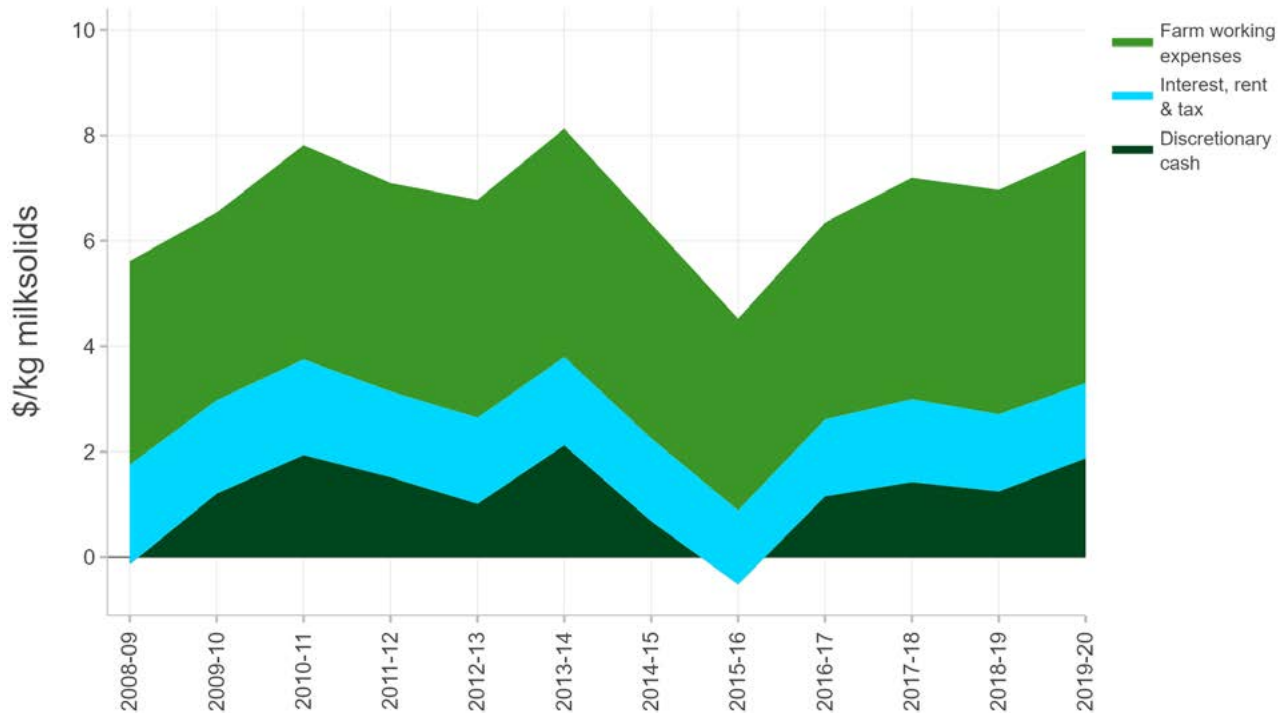
5.5 Cash Flow

The cash operating surplus is the difference between net dairy cash income and farm working expenses. In 2021-22 the cash operating surplus was \$771,689, constituting a 28 percent increase from 2020-21. On a per kilogram of milksolids basis, the cash operating surplus in 2021-22 was \$4.46, up 20 percent from 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 2021-22 was \$489,779, equating to \$2.83 per kilogram of 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 2021-22 was \$427,950 per farm, larger than last season which was the highest to date.

Cash for living and growth can also be used to repay debt and for farm family drawings. Term debt decreased \$43,029 per farm during the year, and a large amount (\$267,306) was spent on capital transactions. Drawings increased \$8,194 to \$114,873 per farm. Tax payments increased to \$124,502 per farm (Table 12.5).

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

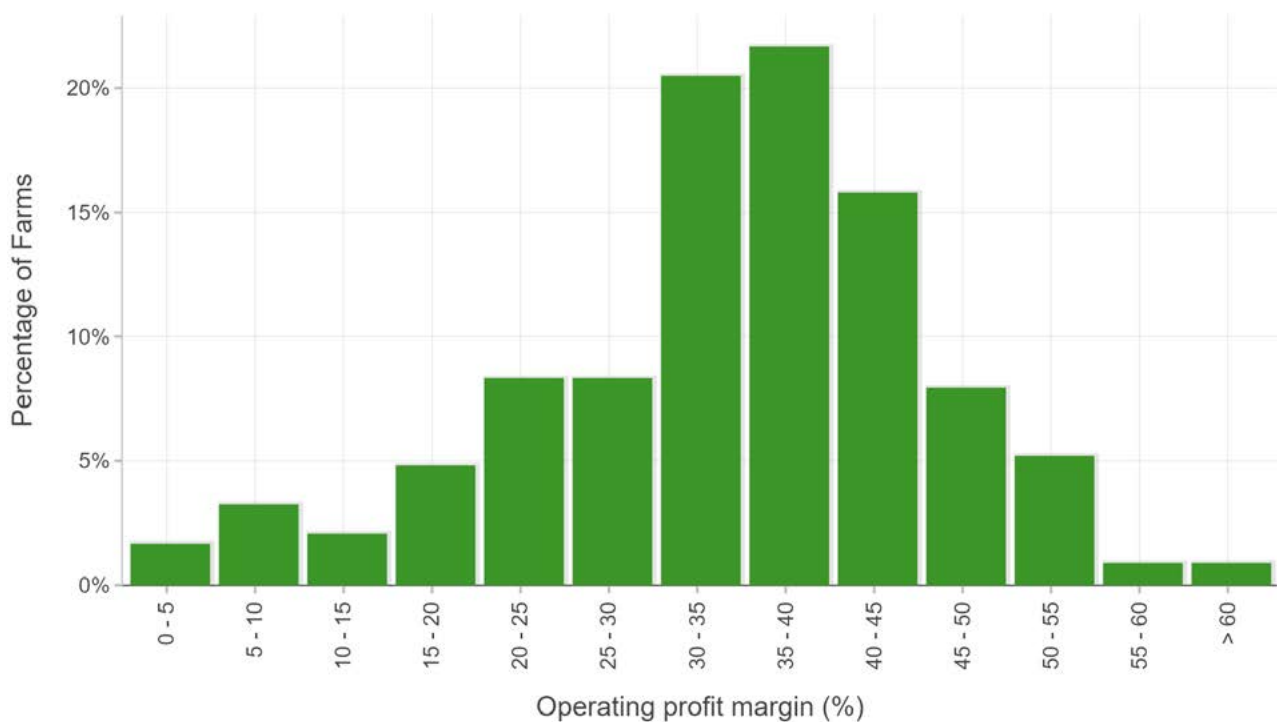


5.6 Operating Profit Margin

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 converted to profit. The ability of 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 35.3 percent, up 2.4 percent from the 2020-21 season. The highest proportion of farms (21%) made an operating profit margin between 35 to 40 percent.

Operating profit margin had a wide distribution ranging from 0 to 65 percent. 65 percent of farmers had an operating profit margin between 30 and 50 percent, and no farmers had a negative operating profit margin.

Figure 5.7: Distribution of Operating Profit Margin (%) 2021-22



6 Owner Operator: Equity and Capital Financial Analysis

6.1 Introduction

This section considers dairy farms' equity and capital position, with additional information about trends over time.

Following significant capital expenditure and changes in debt and drawings, a cash surplus of \$2,543 was recorded in 2021-22, a \$56,569 decrease from 2020-21. The operating return on dairy assets increased to 7.6 percent in 2021-22. Total return on equity increased to 11.5 percent. The Return for equity increased on average by \$260,156. The 2021-22 season was the first in five seasons to experience positive changes in land value, where the \$124,639 increase contributed to the aforementioned growth in Return for equity. Total liabilities as a percentage of total assets (debt to asset ratio) decreased to 47.4 percent at the end of the season. Closing term liabilities per kilogram of milksolids decreased to \$23.56.

6.2 Dairy Assets

Compared to the 2020-21 season, the number of dairy farms sold in 2021-22 marginally increased by 1 percent (2 farms) to 200. The REINZ average sales price per kilogram of milksolids and hectares for the last seasons is shown below 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 decreased in the past five seasons from \$40 in 2017-18 to \$35 per kilogram of milksolids in both 2020-21 and 2021-22. This corresponds with a reduction from \$43,483 to \$34,427 per hectare, however, this season there was a slight recovery from this reduction as the average sale price/ha increased by 9.67 percent.

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

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
FARM SALES:										
Farms sold	197	312	244	192	217	226	148	113	198	200
Average \$ sale price/kg MS	36	42	44	39	40	40	38	37	35	35
Average \$ sale price/ha	33,557	36,369	39,577	36,557	37,835	38,015	36,846	33,410	31,393	34,427
Average \$ sale price/ha (real 2019-20 dollars)	40,625	43,307	46,935	43,177	43,926	43,483	41,452	37,048	33,685	34,427

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 \$0.95 per kilogram of milksolids. Borrowing costs represented 9.7 percent of gross farm revenue (Table 6.2). Therefore, for every dollar of gross income earned, 9.7 cents is required to pay interest and rent.

Table 6.2: Debt Servicing Ratios

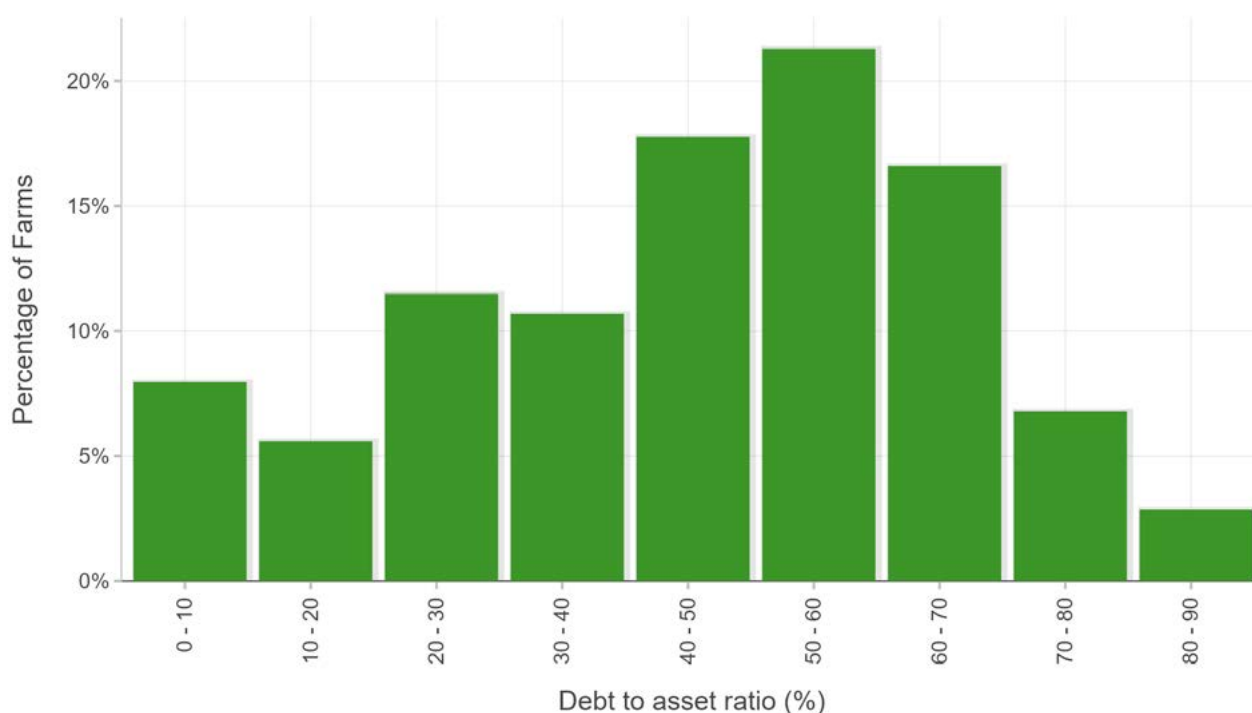
	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
DEBT SERVICING:										
Interest & rent \$/kg MS	1.39	1.29	1.36	1.36	1.35	1.31	1.24	1.12	0.92	0.95
Interest & rent % GFR	20.2%	15.6%	21.5%	30.5%	21.2%	18.2%	17.7%	14.7%	11.6%	9.7%
Term liabilities \$/kg MS	20.82	20.14	21.26	22.49	25.00	25.31	24.92	23.25	22.37	23.56

The debt to asset ratio decreased from 50.1 percent at the close of 2020-21 to 47.4 percent in 2021-22 (Table 12.6). Debt to asset values have been around 50 percent for the past six seasons but were at lower

levels before that. This season is the first since 2016/17 where debt to asset values have been below 50 percent.

Figure 6.1 shows the debt to asset distribution in 2021-22, with an average of 50.1 percent. Thirty-five percent of farms have a debt to asset ratio below 40 percent. Nine percent of the farms had a debt to asset ratio over 70 percent, with none sitting in the high-risk area of over 90 percent. Compared to the 2020-21 season the number of farms in the higher debt to asset categories fell, while the number in lower categories rose.

Figure 6.1: Debt to Asset Distribution 2021-22



Over the last ten years, the average farm has increased its milksolids production by 21.6 percent, while term liabilities have increased nearly twice as fast (+38%) to \$4 million per farm. In 2021-22, farmers increased their term liabilities by 6 percent.

6.4 Liquidity

Given the high profitability and cash available for living and growth, a cash operating surplus of \$771,689 was recorded in 2021-22, increasing \$170,197 compared to the last season. Table 6.3 shows a breakdown of the changes in working capital, including the source and application of cash funds. The majority of the source of funds in 2021-22 was from the current season's farming operations. The change in working capital increased to \$265,474 this season, reflecting an increase in current assets (+\$68,404), with a proportionately larger increase in current liabilities (+\$38,858). Net debt decreased for the third season in a row, decreasing \$43,029. Cash from the income equalisation scheme was at -\$1,643 per farm in 2021-22. After the farming operations, 21 percent of cash was spent on interest and rent payments for borrowing, while net capital transactions, development and purchases (35%) were the other large cash expenditure area in 2021-22. Drawings from the dairy business, for farm family living and so forth (15%), and tax payments (16%) make up the remainder of the cash spent.

6.5. RETURNS

Table 6.3: Flow of funds

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
WORKING CAPITAL:										
Change in current assets	17,733	58,063	-99,057	-24,651	56,493	-12,326	-17,418	205,720	241,278	309,682
- Change in current liabilities	-25,702	24,417	-20,779	-2,678	-9,780	29,949	-5,362	-7,441	5,350	44,208
Change in working capital	43,435	33,646	-78,278	-21,973	66,273	-42,275	-12,056	213,162	235,928	265,474
SOURCE OF FUNDS:										
Cash operating surplus	375,176	572,586	361,272	141,757	415,410	478,511	446,701	537,460	601,492	771,689
+ Change in working capital	43,435	33,646	-78,278	-21,973	66,273	-42,275	-12,056	213,162	235,928	265,474
+ Net non-dairy cash income	1,125	2,355	486	904	3,371	6,064	7,040	10,682	3,378	7,614
+ Net off-farm income	12,427	9,991	12,078	9,238	19,811	18,114	6,670	13,167	9,838	-199
+ Introduced funds	40,918	-44,275	28,307	77,696	-24,004	-40,908	-2,774	-18,560	-16,833	-60,186
+ Income equalisation	1,178	-4,756	-9,579	16,765	1,307	40	307	-475	875	-1,643
+ Increase in term debt	123,346	10,790	93,026	111,778	75,868	92,523	74,554	-49,483	-59,719	-43,029
= Total source of funds	597,605	580,337	407,312	336,165	558,036	512,069	520,442	705,952	774,958	939,721
APPLICATION OF FUNDS:										
Rent (excl support block)	22,812	23,366	22,250	20,047	19,582	20,703	12,499	17,280	17,069	14,929
+ Interest	174,136	171,597	195,984	197,277	197,343	191,459	194,022	172,460	140,608	149,895
+ Tax	35,383	58,155	34,078	7,939	16,773	41,532	38,315	52,696	77,161	124,502
+ Net capital transactions	185,532	143,703	201,119	76,697	109,749	238,591	207,027	113,522	148,238	267,306
+ Drawings	92,872	116,224	110,437	78,151	82,043	104,334	95,173	92,090	106,679	114,873
= Total application of funds	510,735	513,045	563,868	380,111	425,490	596,619	547,036	448,048	489,756	671,505
Source less application of funds	86,870	67,292	-156,556	-43,946	132,546	-84,550	-26,593	257,903	285,202	268,215

->

6.5 Returns

The return on dairy assets is discussed under farm profitability (Section 5.4). The total return on assets considers operating profit from both dairy and non-dairy farming operations, plus the change in the value of capital assets. The total return on assets in 2021-22 was 7.5 percent. The 2021-22 total return on assets comprised 7.6 percent net return from all farming operations and -0.05 percent net return from capital.

For the past decade, the total return on assets has ranged between -4.1 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)

6.5. RETURNS

Figure 6.2: 2021-22 Owner Operator Total Return on Assets



The percentage return on equity is the return on the 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 2021-22 the total return on equity was 11.5 percent compared to 7.5 percent total return on assets. In 2015-16, the negative equity was due to low profitability, and in 2017-18, 2018-19 and 2019-20, the negative returns were 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 values 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 the average values of the data sample. See section 2.11 for an explanation of this methodology.

Table 7.1 shows the values of key performance indicators (KPI) per kilogram of milksolids in the eight regions, for the 2021-22 season. Dairy farms in the Taranaki region had the smallest herd size (281 cows), followed by Lower North Island (295). The Canterbury and Otago-Southland regions had the largest herd sizes in the South Island and the rest of the country, with 730 cows and 611 cows, respectively.

Northland and Lower North Island had the lowest stocking rates in the country, with 2.2 and 2.4 cows/ha, respectively, while Canterbury had the highest stocking rate (3.6 cows/ha). The remaining regions had an stocking rate that varied between 2.6 and 2.9 cows/ha.

Northland recorded the lowest average milksolids production per cow of all the regions (345 kg MS). The other four North Island regions recorded milksolids per cow between 380 and 402 kg MS. Canterbury and Otago-Southland recorded similar milksolids production per cow of 444 and 437 kilograms, respectively. However, Canterbury production is considerably higher on a per hectare basis due to its higher stocking rate.

The average payout received in each region was at or above \$9.19 per kilogram of milksolids. Regional average farm working expenses (FWE) per kilogram milksolids were lowest in Lower North Island (\$4.13), and the highest FWE per kilogram of milksolids was reported in both Canterbury and Otago-Southland (\$5.60). The other regions reported average FWE between \$5.06 and \$5.41. The bottom of Table 7.1 shows the regional gross farm revenue, operating expenses and operating profit levels on a per hectare basis in 2021-22. Canterbury (\$5,950), Otago-Southland (\$4,118), and Taranaki (\$4,114) recorded the highest operating profit on a per hectare basis, while Northland recorded the lowest operating profit at \$2,401 per hectare. Farms in the Lower North Island and Canterbury experienced higher levels of profitability in 2021-22 relative to other regions in terms of dairy operating profit on a milksolids basis, and operating profit margin on a hectare basis.

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

	Northland	Waikato	Bay of Plenty	Taranaki	Lower North Island	West Coast - Top of the South	Canterbury	Otago - Southland
PHYSICAL CHARACTERISTICS:								
Number of herds	24	68	24	49	20	20	28	22
Effective hectares	158.0	114.5	119.5	110.0	120.0	111.0	216.5	211.3
Peak cows milked	344	346	332	281	295	352	730	611
Stocking rate (cows/ha)	2.2	3.0	3.0	2.8	2.4	2.6	3.6	2.9
Kg milksolids sold	111,941	142,064	127,018	110,446	105,818	108,996	317,761	265,566
Milksolids sold per hectare	738	1,120	1,133	1,102	953	950	1,519	1,239
Milksolids sold per cow	345	397	382	402	380	351	444	437
PAYOUT RECEIVED: \$/kg MS	9.26	9.29	9.28	9.26	9.20	9.22	9.26	9.19
DAIRY CASH INCOME \$: MS BASIS								
Milk sales (net of dairy levies)	9.26	9.29	9.28	9.26	9.20	9.22	9.26	9.19
Net livestock sales (sales - purchases)	0.73	0.47	0.52	0.53	0.57	0.64	0.55	0.56
Other dairy cash income	0.02	0.02	0.01	0.03	0.00	0.05	0.01	0.01
Net dairy cash income	10.07	9.83	9.79	9.83	9.83	9.97	9.77	9.61
CASH FARM WORKING EXPENSES: MS BASIS								
Wages	0.78	0.64	0.70	0.40	0.76	0.75	0.78	0.77
Animal health	0.31	0.30	0.31	0.28	0.25	0.22	0.26	0.28
Breeding & herd improvement	0.19	0.18	0.18	0.17	0.17	0.17	0.16	0.18
Farm dairy	0.07	0.06	0.05	0.07	0.08	0.08	0.04	0.07
Electricity	0.15	0.13	0.12	0.12	0.15	0.13	0.08	0.12
Net feed made, purchased, cropped	1.25	1.68	1.42	1.37	0.78	1.15	0.97	1.49

7.1 Regional Profitability

Stock grazing	0.14	0.33	0.32	0.29	0.03	0.18	0.86	0.54
Support block lease	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Fertiliser (incl Nitrogen)	0.60	0.49	0.57	0.56	0.43	0.98	0.55	0.70
Irrigation	0.00	0.00	0.00	0.00	0.00	0.03	0.26	0.00
Regrassing	0.16	0.07	0.09	0.05	0.03	0.08	0.08	0.07
Weed & pest	0.06	0.04	0.03	0.03	0.04	0.03	0.02	0.04
Vehicles & fuel	0.32	0.24	0.23	0.24	0.27	0.30	0.14	0.21
Repairs & maintenance	0.75	0.49	0.50	0.52	0.37	0.39	0.43	0.47
Freight & general	0.08	0.06	0.10	0.09	0.07	0.08	0.07	0.09
Administration	0.14	0.13	0.14	0.15	0.15	0.19	0.13	0.13
Insurance	0.11	0.09	0.11	0.12	0.11	0.15	0.08	0.10
ACC	0.04	0.03	0.03	0.02	0.04	0.04	0.02	0.03
Rates	0.15	0.13	0.14	0.13	0.15	0.08	0.06	0.09
Farm working expenses	5.39	5.41	5.42	5.06	4.13	5.60	5.14	5.60
Cash operating surplus	4.47	4.52	4.59	4.81	5.82	4.56	4.70	3.91
ADJUSTMENTS: MS BASIS								
Value of change in dairy livestock	0.20	0.00	-0.03	-0.05	0.02	-0.12	-0.01	-0.04
Less labour adjustment	0.71	0.55	0.62	0.72	0.73	0.74	0.30	0.45
Plus feed inventory adjustment	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Less owned support block adjustment	0.00	0.00	0.00	0.00	0.07	0.03	0.00	0.07
Less depreciation	0.39	0.39	0.40	0.37	0.44	0.50	0.46	0.44
Net adjustments	-0.99	-1.02	-1.15	-1.38	-1.32	-1.33	-0.76	-1.03
OPERATING CASH & NON-CASH: MS BASIS								
Dairy gross farm revenue	10.18	9.90	9.85	9.79	9.86	9.81	9.74	9.67
Dairy operating expenses	6.60	6.48	6.57	6.41	5.64	6.73	5.85	6.82
Dairy operating profit	3.46	3.43	3.34	3.58	3.89	3.19	3.94	3.00
OPERATING CASH & NON-CASH: HA BASIS								
Dairy gross farm revenue	7,464	11,315	11,243	10,582	9,185	9,195	15,024	12,167
Dairy operating expenses	5,291	7,331	7,105	7,079	5,224	6,268	9,170	8,436
Dairy operating profit	2,401	3,933	4,140	4,114	3,660	2,953	5,950	4,118
Operating profit margin	34.82%	34.46%	32.75%	35.76%	40.81%	31.50%	40.29%	30.54%

7.1. REGIONAL PROFITABILITY

Table 7.2 shows the values for the key indicators of financial position for the eight regions in 2021-22. The values reported in this table are medians; see section 2.11 for an explanation of this methodology. Regional average operating returns on dairy assets ranged between 6.5 and 10.0 percent. West Coast - Top of the South (10.0%) and Canterbury (9.8%) had the highest operating returns on dairy assets in 2021-22. Waikato had the lowest operating returns on dairy assets (6.5%). All regions reported positive total returns on assets, with West Coast - Top of the South recording the highest (10.0%) and Taranaki recording the lowest (4.6%).

Total return on equity is the return on the owner's funds, including capital changes after interest is paid. No regions experienced a negative return on equity. The largest growth in equity was recorded for West Coast - Top of the South (19.5%), followed by Waikato (15.0%).

Average term debt per kilogram of milksolids stayed relatively constant in 2021-22 with some regional variation. Taranaki was the highest (\$31.70) and West Coast - Top of the South was the lowest (\$14.65). Debt to asset levels varied heavily regionally, West Coast - Top of the South was the lowest (40.0%) while Taranaki was the highest (55.1%).

Table 7.2: Regional Owner-operator Financial Position

	Northland	Waikato	Bay of Plenty	Taranaki	Lower North Island	West Coast - Top of the South	Canterbury	Otago - Southland
RETURNS:								
Operating return on dairy assets %	7.3%	6.5%	8.5%	6.8%	8.0%	10.0%	9.8%	7.2%
Total return on assets %	5.2%	8.7%	6.4%	4.6%	5.9%	10.0%	8.1%	7.9%
Total return on equity %	9.1%	15.0%	10.4%	5.3%	7.4%	19.5%	12.3%	13.7%
Growth in equity %	5.2%	14.0%	3.3%	2.2%	5.2%	12.1%	7.0%	8.4%
DEBT:								
Closing term liabilities per kg MS	21.59	25.63	20.65	31.70	22.01	14.65	21.82	22.27
Closing debt to asset %	44.8%	52.5%	48.6%	55.1%	40.6%	40.0%	46.8%	54.6%

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. The production system type is not a good indicator of profitability as a farm can be profitable (or unprofitable) operating at 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 an explanation of this methodology.

Average herd sizes, milking area and stocking rates increase from low to high production systems. Average milksolids per cow and per hectare also follow this trend, reflecting higher inputs of supplementary feed. Table 7.3 shows the key 2021-22 average performance indicators per kilogram of milksolids in the three production system categories. On average low system farms recorded 357 kgMS per cow, medium system farms recorded an average of 397 kgMS per cow while high input farms recorded an average of 436 kgMS per cow. The average milksolids production per hectare for medium input farms (1,105 kg) was 156 kilograms higher than low input farms (949 kg) and 191 kilograms less than the average for high input farms (1,296 kg).

Dairy cash income per kilogram of milksolids was highest for high input systems (\$9.28) due to milk sales being greater than the other two systems on a per kilogram of milksolids basis. Low input (\$9.24) and medium input systems (\$9.23) had similar average dairy cash incomes per kilogram of milksolids. Farm working expenses per kilogram of milksolids were \$4.87 for low input systems, \$5.11 for medium input systems and \$5.62 for high input systems.

Cash operating surplus per kilogram of milksolids was the highest for low input systems (\$4.90), followed by medium input systems (\$4.73). High input systems recorded the lowest average cash operating surplus of \$4.17 per kilogram of milksolids. Operating profit per kilogram of milksolids was highest for medium input farms (\$3.72), although high input (\$3.25) and low input systems (\$3.51) were not far behind. Operating profit per hectare was highest for medium input systems (\$4,224). Operating profit per hectare was \$3,297 per hectare for low systems and \$4,170 for high input systems.

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

	1 & 2 (Low)	3 (Medium)	4 & 5 (High)
PHYSICAL CHARACTERISTICS:			
Number of herds	67	102	86
Effective hectares	115.0	138.5	146.3
Peak cows milked	295	372	429
Stocking rate (cows/ha)	2.6	2.8	3.0
Kg milksolids sold	100,788	149,312	183,996
Milksolids sold per hectare	949	1,105	1,296
Milksolids sold per cow	357	397	427
PAYOUT RECEIVED: \$/kg MS sold	9.24	9.23	9.28
DAIRY CASH INCOME \$: MS BASIS			
Milk sales (net of dairy levies)	9.24	9.23	9.28
Net livestock sales (sales - purchases)	0.50	0.59	0.51
Other dairy cash income	0.02	0.02	0.01
Net dairy cash income	9.82	9.82	9.82
CASH FARM WORKING EXPENSES: MS BASIS			
Wages	0.64	0.65	0.69
Animal health	0.29	0.28	0.29
Breeding & herd improvement	0.20	0.17	0.16
Farm dairy	0.07	0.07	0.05
Electricity	0.14	0.13	0.12

Net feed made, purchased, cropped	0.77	1.31	1.68
Stock grazing	0.14	0.33	0.32
Support block lease	0.00	0.00	0.00
Fertiliser (incl Nitrogen)	0.56	0.55	0.57
Irrigation	0.00	0.00	0.00
Regrassing	0.06	0.08	0.08
Weed & pest	0.03	0.04	0.04
Vehicles & fuel	0.30	0.22	0.24
Repairs & maintenance	0.54	0.47	0.46
Freight & general	0.08	0.08	0.07
Administration	0.16	0.14	0.14
Insurance	0.12	0.10	0.10
ACC	0.03	0.03	0.03
Rates	0.16	0.11	0.09
Farm working expenses	4.87	5.11	5.62
Cash operating surplus	4.90	4.73	4.17
ADJUSTMENTS: MS BASIS			
Value of change in dairy livestock	0.05	0.00	-0.02
Less labour adjustment	0.76	0.57	0.43
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	0.41	0.42
Net adjustments	-1.33	-1.08	-0.94
OPERATING CASH & NON-CASH: MS BASIS			
Dairy gross farm revenue	9.91	9.79	9.81
Dairy operating expenses	6.49	6.22	6.57
Dairy operating profit	3.51	3.72	3.25
OPERATING CASH & NON-CASH: HA BASIS			
Dairy gross farm revenue	9,563	10,643	12,735
Dairy operating expenses	5,814	6,990	8,626
Dairy operating profit	3,297	4,224	4,170
Operating profit margin	35.24%	37.01%	32.98%

7.2. PRODUCTION SYSTEMS

Table 7.4 shows key 2021-22 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 highest for medium input farms (7.8%) and lowest for low input farms (6.6%). Once capital and non-dairy operations were included, the average total return on assets was 5.4 percent for low input farms, 6.8 percent for medium input farms and 6.9 percent for high input farms. For all three production systems, the operating return on dairy assets was higher than the total return on assets due to a reduction in capital values. All production systems saw a reduction in closing debt to asset ratio relative to the previous year where low input farms had the smallest debt to asset ratio (41.1%). Medium input farms had a debt to asset ratio of 48.9 percent and high input farms had a debt to asset ratio of 54.8 percent. Closing term liabilities per kilogram of milksolids were highest for low input systems (\$24.35). The average closing term liabilities for medium input systems were \$22.49, and for high input systems were \$22.78.

All farm system types had positive average growth in equity percentages. Average growth in equity for low input systems was 5.5 percent, medium input systems recorded the most significant growth in equity of 8.2 percent, and high input systems recorded an average growth in equity of 7.3 percent.

Table 7.4: Owner-operator Production Systems Financial Position

	1 & 2 (Low)	3 (Medium)	4 & 5 (High)
RETURNS:			
Operating return on dairy assets %	6.6%	7.8%	7.4%
Total return on assets %	5.4%	6.8%	6.9%
Total return on equity %	8.0%	11.9%	12.1%
Growth in equity %	5.5%	8.2%	7.3%
DEBT:			
Closing term liabilities per kg MS	24.35	22.49	22.78
Closing debt to asset %	41.1%	48.9%	54.8%

8 50:50 Sharemilkers: Operational Financial Analysis

8.1 Introduction

Operating profit per hectare for 50:50 sharemilkers (herd owning sharemilkers) increased by 37 percent to \$1,764 per hectare in 2021-22. The higher payout received offset the reduction in milksolids production per hectare (from 1,300 kg to 1,227) and peak cows milked (from 424 to 422). Operating expenses per kilogram of milksolids increased by 15 percent to \$3.61. The average cash available for living and growth decreased to \$249,488 per farm, an decrease of \$8,890 from 2020-21 (Table 13.5). With increased capital expenditure, drawings and debt, a cash surplus of \$38,556 was recorded in 2021-22 (Table 13.5).

Tables 13.1, 13.2, 13.3 and 13.4 in Chapter 13 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

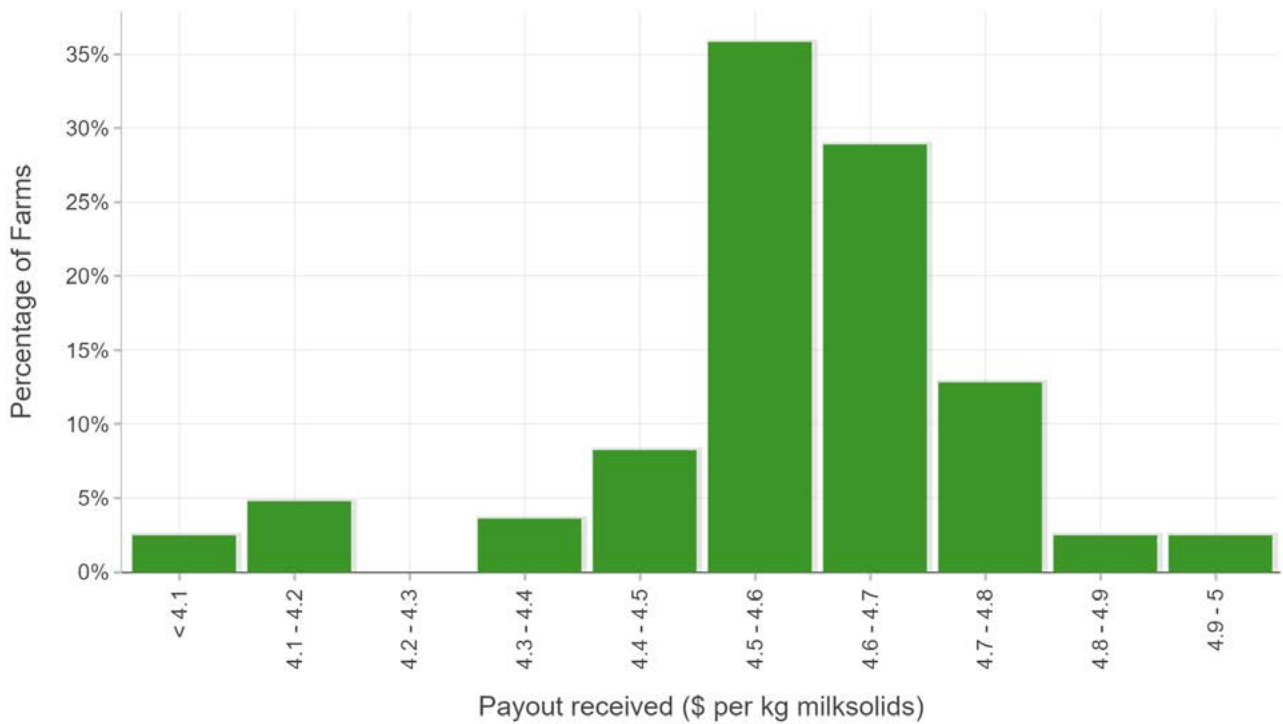
The milk payout received (including dividend payments) in 2021-22 increased 89 cents (24%) from the previous season to \$4.54 per kilogram of milksolids. Both, kilograms of milksolids sold per cow and per hectare decreased from 2020-21 to 2021-22, by 23 and 73 kg MS, respectively. Milk sales per farm (net of dairy levies) were higher than in the previous season (\$778,049). Milk revenue in 2021-22 accounted for 93 percent of gross farm revenue. Livestock revenue accounted for 6.3 percent of the total gross farm revenue per farm.

Figure 8.1 shows the variation in milksolids payout received by farmers in the 2021-22 season. These differences are driven by:

- Differences in the percentage of milk payment received,
- Variations in the milk composition (fat, protein, lactose, minerals),
- Annual account balance dates,
- Milk company supplied,
- Different systems such as organics,
- Penalties incurred, and,
- Whether the sharemilker operated in the previous season.

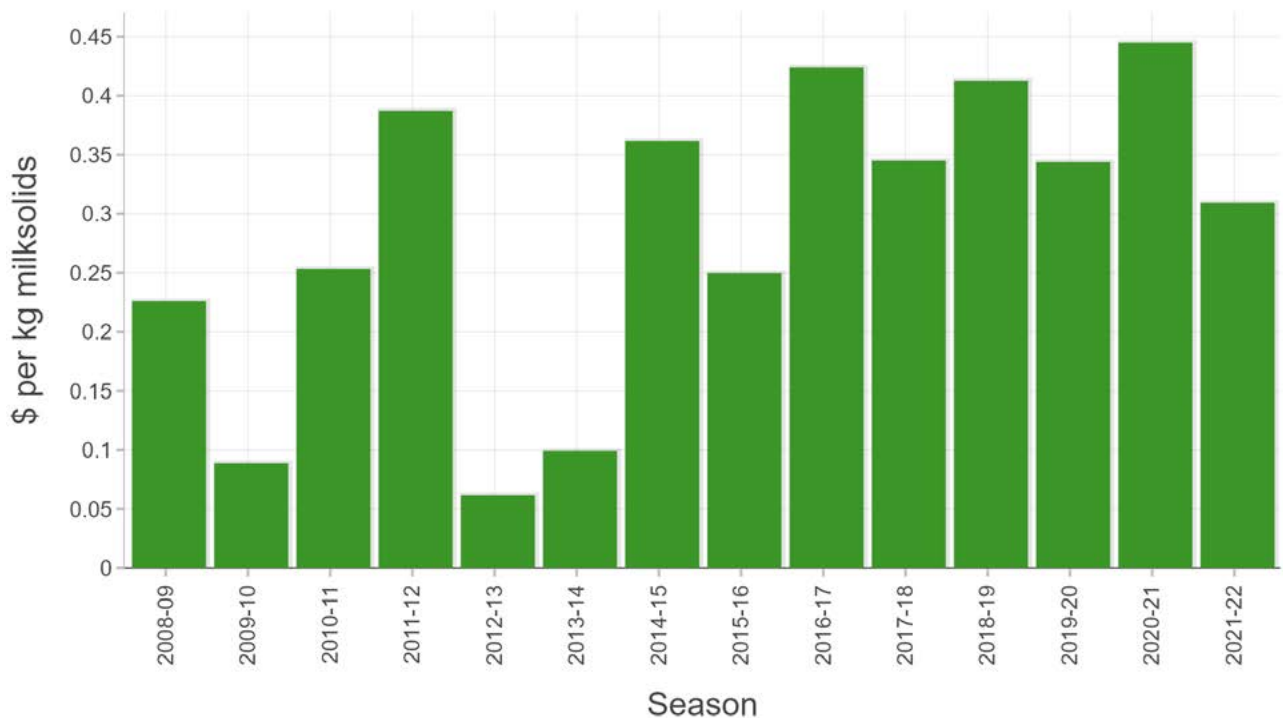
The majority (64%) of farmers in this business type received a milksolids payout between \$4.50 and \$4.70.

Figure 8.1: Distribution of Milk Payout Received 2021-22



Cash income from net livestock sales decreased by \$0.14 to \$0.31 per kilogram of milksolids in 2021-22 (Figure 8.2). Net livestock sales per cow decreased by \$65 to \$125, the lowest from the last 6 seasons.

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



Dairy gross farm revenue for a typical New Zealand sharemilker was \$865,070 and was larger than the previous season by 15 percent (\$750,010 in 2020-21). On a per hectare basis, gross farm revenue of \$6,198 was higher (+16%) in 2021-22 compared to 2020-21.

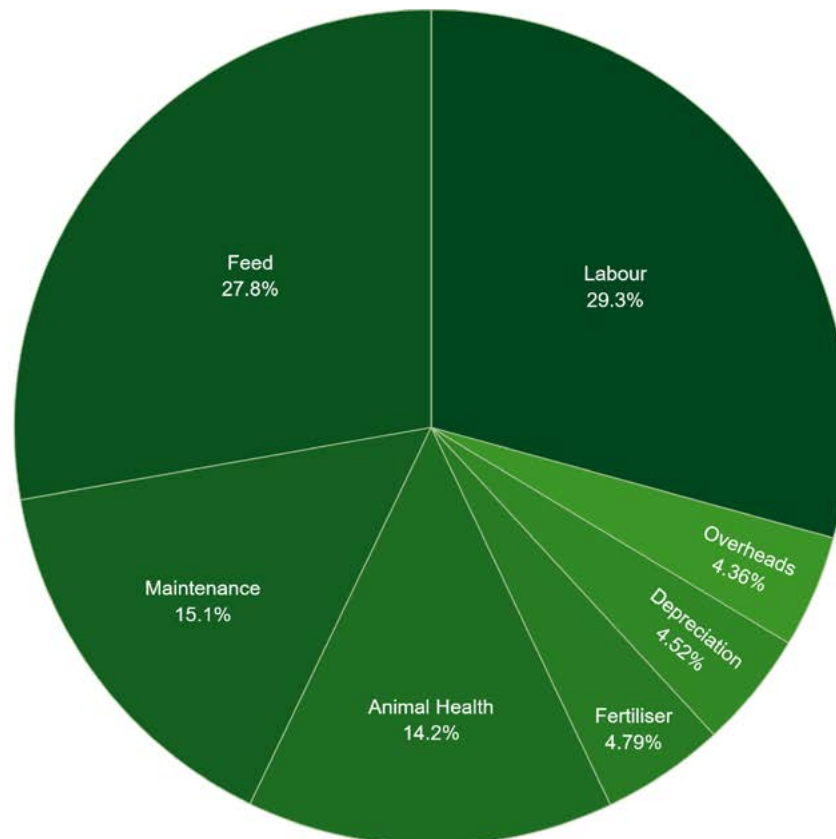
Tables 13.1, 13.2, 13.3 and 13.4 show net cash income, cash farm working expenses and the adjustments

made to calculate operating profit for the average New Zealand owner-operator on a per farm, per cow, per hectare and per kilogram milksolids sold basis.

8.3 Expenditure

Labour continues to be the largest category of expenditure at 29.3 percent in 2021-22. Feed was the second-highest operating expense at 27.8 percent. Maintenance and animal health contributed 15.1 and 14.2 percent, respectively. Figure 8.3 shows the major 2021-22 expenditure categories for sharemilkers.

Figure 8.3: Proportion of Dairy Operating Expenditure 2021-22

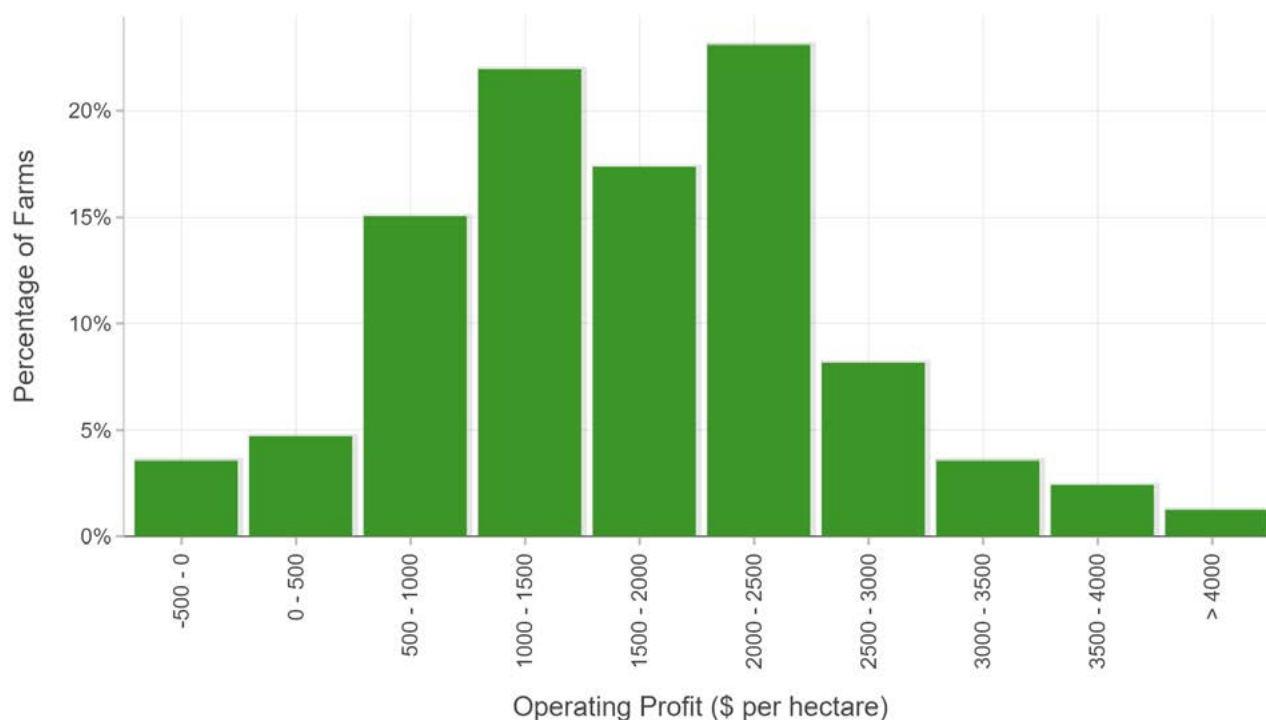


Changes in total farm expenditure for sharemilkers are primarily affected by the herd size and milksolids produced, since sharemilkers primarily pay animal related costs. Compared to the previous season, farm working expenses (FWE) per farm increased by 8 percent to \$489,795. On a per kilogram of milksolids basis, FWE increased 38 cents to \$2.86. After adjustments for resources used but not paid for with cash, operating expenses per kilogram of milksolids were 48 cents higher (\$3.61) than in 2020-21.

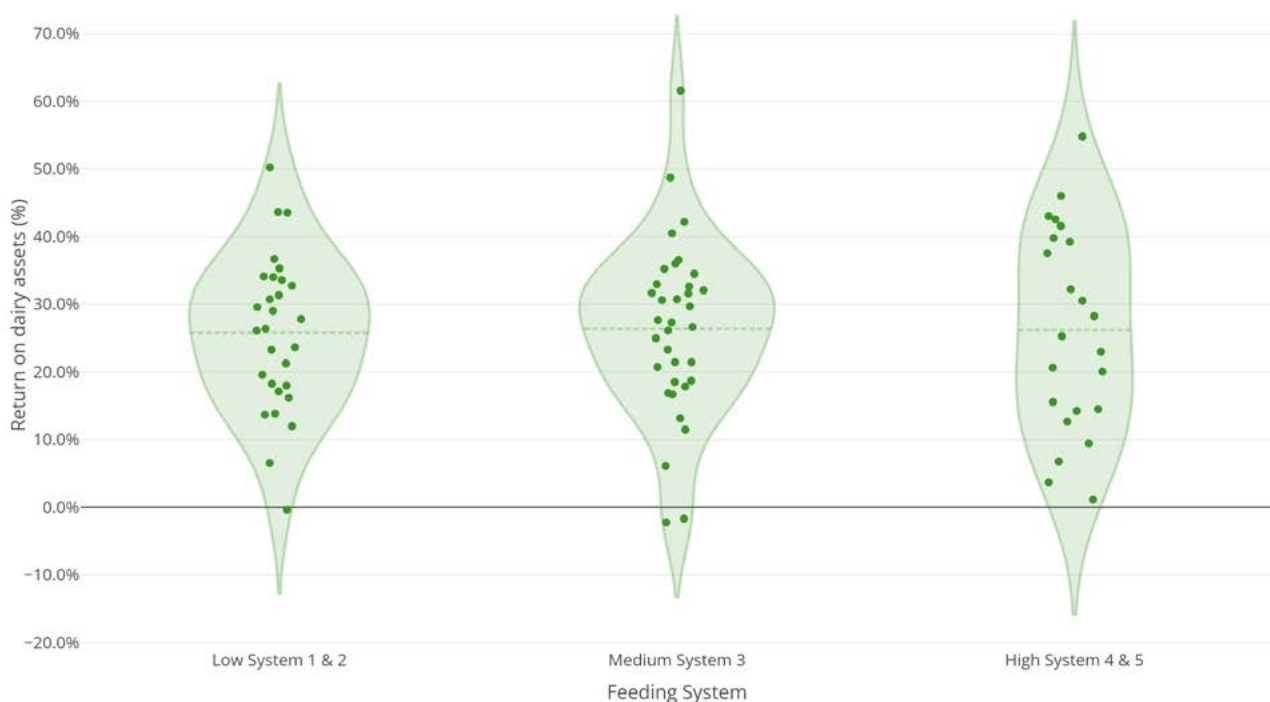
8.4 Profitability

Operating profit is a key indicator of dairy farm financial performance. This measure, expressed on a per hectare basis, is useful for comparing the profitability between farms. Operating profit incorporates adjustments to allow comparisons between farms but does not include interest, tax or rent payments. Tables 13.1, 13.2, 13.3 and 13.1 show the revenue and expenditure items included in operating profit. Operating profit per hectare in 2021-22 was higher than in the previous 10 seasons.

Figure 8.4 shows the distribution of operating profit per hectare in the 2021-22 season. Sixty-two percent of farmers had operating profits between \$1,000 and \$2,500 per hectare, while 1.2 percent of farmers had operating profits over \$4,000 per hectare. About 3.5 percent of farms recorded a negative operating profit in 2021-22 (Figure 8.4).

Figure 8.4: Distribution of Operating Profit (\$ per hectare) 2021-22

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 returns on dairy assets for sharemilkers are more volatile than owner-operators because sharemilkers' dairy assets primarily consist of livestock. The average operating return on dairy assets for sharemilkers increased to 26.9 percent in 2021-22. Grouping farm production 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 similar for high, medium and low input farms (26%). Figure 8.5 shows the distribution of operating return on dairy assets by production systems. High input systems are more likely to be located in higher producing regions such as Canterbury and Otago-Southland.

Figure 8.5: Return on Dairy Assets Distribution 2021-22

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

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
BUSINESS PROFIT:										
Dairy operating profit	99,142	182,709	65,599	-53,678	91,877	98,570	117,177	151,293	180,220	246,175
+ Labour adjustment	74,703	68,733	77,508	73,553	72,041	80,608	80,071	82,559	91,240	100,776
+ Owned support block adjustment	3,315	685	1,245	695	508	251	299	479	611	1,010
+ Non-dairy operating profit	445	2,052	2,671	2,203	2,387	2,758	2,615	1,209	5,284	844
+ Net off-farm income	4,244	3,989	3,817	4,546	2,281	4,071	5,230	10,975	8,513	12,921
- Rent (excl support block)	4,385	3,401	5,154	1,407	1,047	2,320	827	1,220	438	214
- Interest	33,043	34,599	31,805	37,949	34,629	31,626	36,976	27,516	21,389	19,725
Business profit before tax	144,313	220,149	113,971	-12,038	133,967	154,478	166,064	217,779	264,041	341,787
Business profit before tax per all effective hectares	854	1,484	755	-75	841	967	951	1,260	1,577	2,202

The average sharemilker in 2021-22 made a business profit before tax of \$341,787, up \$77,746 per farm compared to the previous season. This business profit is equivalent to \$2,202 per all effective hectares (effective dairy + effective dairy support block + effective non-dairy). Combined interest and rent payments were slightly down on last season.

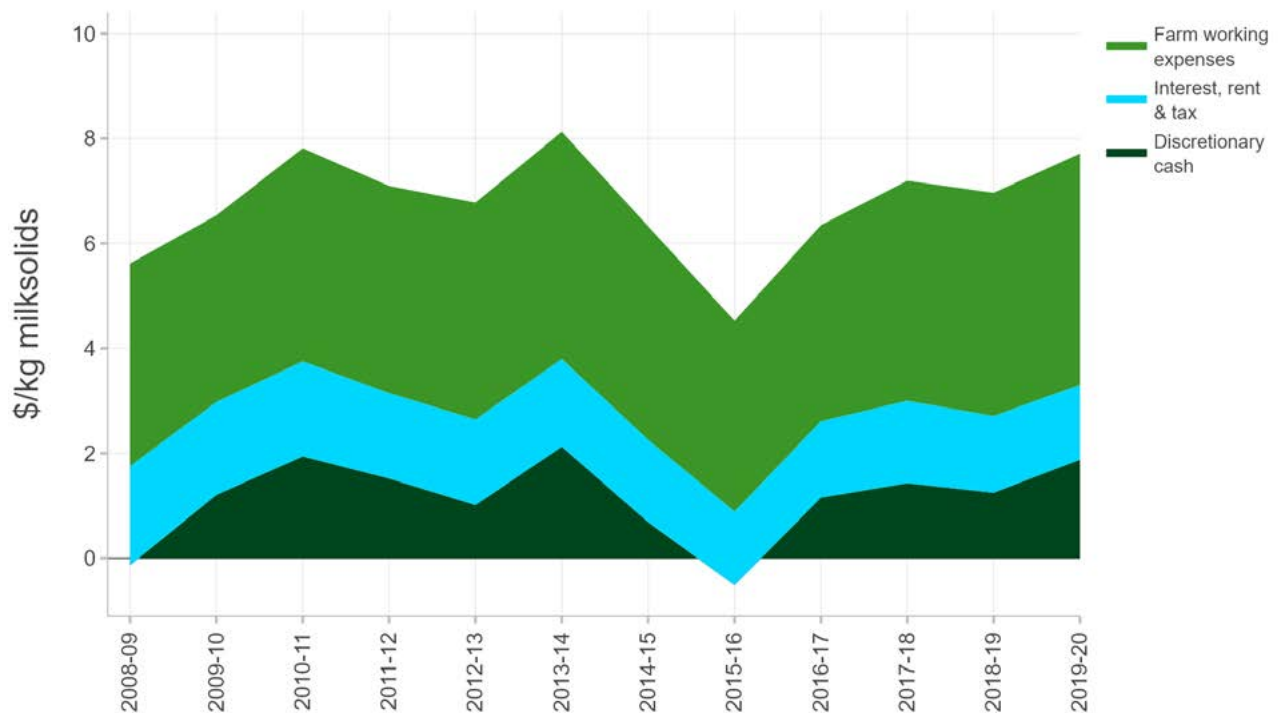
8.5 Cash Flow

The cash operating surplus is the difference between net dairy cash income and farm working expenses. In 2021-22, the average sharemilker cash operating surplus of \$344,252 increased by 15 percent from the previous season. On a per kilogram milksolids basis, the \$2.01 cash operating surplus was up 37 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 2021-22 was \$258,608, equating to \$1.51 per kilogram milksolids (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 2021-22 was \$249,488 per farm, down 3.4 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 increased \$39,955 per farm to \$60,025, and capital transactions of \$84,090 were down 30 percent from last season. Drawings increased slightly (+\$3,492) to \$79,739 per farm. Tax payments increased to \$79,532 per farm (Table 13.5).

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

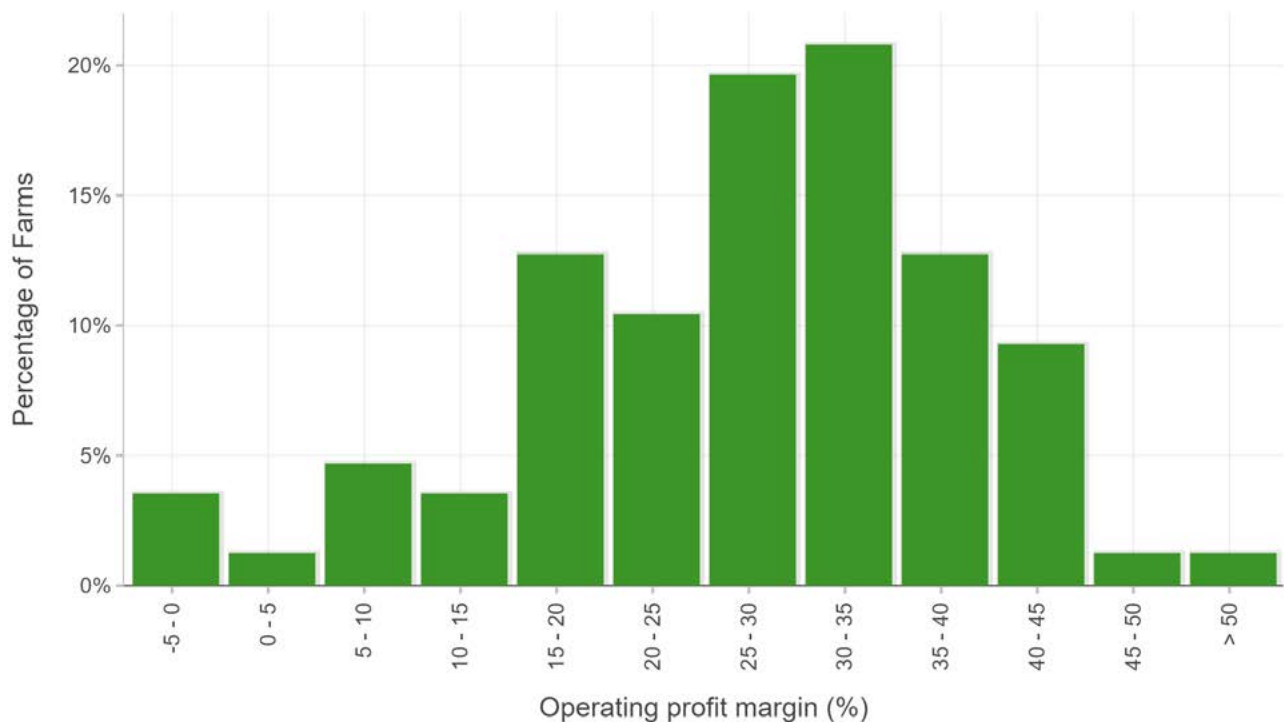


8.6 Operating Profit Margin

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 converted to profit. The ability of 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 8.6 shows the distribution of operating profit margins. The majority of farms (52.9 percent) had an operating profit margin between 25 and 40 percent.

Operating profit margin had a wide distribution, with 3.5 percent having a negative operating profit margin and 2.3% having an operating profit margin above 45 percent.

Figure 8.7: Distribution of Operating Profit Margins (%) 2021-22



9 50:50 Sharemilkers: Equity and Capital Financial Analysis

9.1 Introduction

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

Net capital transactions decreased by 30 percent to 84,090 in 2021-22, while tax payments increased (+33%) to 79,532. The proportion of source funds applied decreased in 2021-22 from \$277,464 to \$263,300, resulting in a cash surplus of \$38,556 (Table 13.5). This constitutes a 25 percent decrease from the 2020-21 season. The operating return on dairy assets increased to 26.9 percent, and the total return on assets was 23.6 percent (Table 13.7). Sharemilkers' equity increased by \$163,084 to \$969,209, with significant increases in growth in equity from profit (+43%) and growth in equity from capital (+177%). Total liabilities as a percentage of total assets (the debt to asset ratio) decreased to 36.5 percent at the end of the season. Closing term liabilities per kg of milksolids decreased from \$2.91 (2020-21 season) to \$2.67 (2021-22 season).

9.2 Dairy Assets

Total dairy assets increased by \$104,331 in the 2021-22 season, closing at \$1.25 million per farm (Table 13.6). Livestock constitutes the highest proportion of sharemilkers' dairy assets, comprising 67 percent of total dairy assets at closing.

9.3 Liabilities and Debt Servicing

Interest is the cash cost of borrowing funds, while rent is the cost of borrowing assets. Interest & rent in 2021-22 totalled \$0.12 per kilogram of milksolids, similar to that of the previous year.

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 2021-22 were mostly from farm operations. Term debt increased (\$60,025) on loans at the season's close. Of the funds applied, 30 percent was spent on drawings (3 percentage points higher than the previous season), 32 percent on capital transactions, and 7 percent on interest payments. Tax payments required 30 percent of funds at \$79,532 per herd.

Table 9.1: Flow of Funds

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
WORKING CAPITAL:										
Change in current assets	-22,966	32,816	-23,771	-16,221	22,455	2,932	-24,375	112,605	161,046	195,556
- Change in current liabilities	7,412	13,755	-1,920	23,954	-9,244	15,668	-10,322	-10,193	-16,512	21,208
Change in working capital	-30,378	19,061	-21,851	-40,175	31,699	-12,736	-14,053	122,798	177,558	174,349
SOURCE OF FUNDS:										
Cash operating surplus	120,735	201,958	137,419	11,433	167,540	169,323	213,273	230,372	298,298	344,252
+ Change in working capital	-30,378	19,061	-21,851	-40,175	31,699	-12,736	-14,053	122,798	177,558	174,349
+ Net non-dairy cash income	139	2,036	2,511	2,243	1,798	1,996	2,659	-1,380	5,060	906
+ Net off-farm income	4,244	3,989	3,817	4,546	2,281	4,071	5,230	10,975	8,513	12,921
+ Introduced funds	8,480	13,155	24,197	26,601	12,583	14,806	-19,006	-10,255	27,709	-9,120
+ Income equalisation	4,325	-2,621	-6,091	5,707	1,412	0	470	0	596	0
+ Increase in term debt	40,067	973	50,721	37,011	-17,644	-20,730	33,643	-8,192	-20,070	-60,025
= Total source of funds	147,612	238,551	190,723	47,366	199,669	156,730	222,216	344,318	497,664	463,283
APPLICATION OF FUNDS:										
Rent (excl support block)	4,385	3,401	5,154	1,407	1,047	2,320	827	1,220	438	214
+ Interest	33,043	34,599	31,805	37,949	34,629	31,626	36,976	27,516	21,389	19,725
+ Tax	27,351	29,237	25,101	5,492	6,220	24,199	30,109	39,336	60,010	79,532
+ Net capital transactions	70,590	60,379	89,030	26,407	36,654	49,540	113,811	57,631	119,380	84,090
+ Drawings	72,999	72,813	83,335	56,461	57,721	74,517	67,169	65,458	76,247	79,739
= Total application of funds	208,368	200,429	234,425	127,716	136,271	182,202	248,891	191,161	277,464	263,300
Source less application of funds	-60,756	38,122	-43,702	-80,350	63,398	-25,472	-26,675	153,157	220,200	199,984

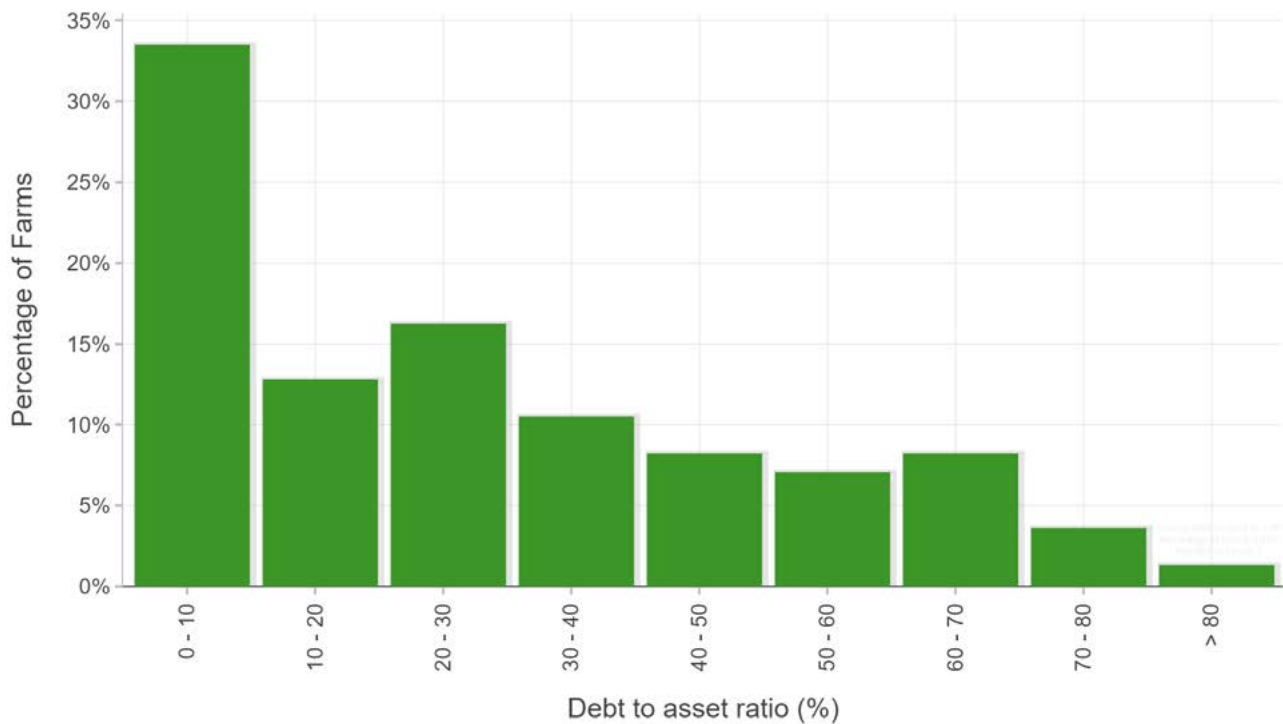
The 2021-22 average 50:50 sharemilkers' cash operating surplus was \$344,252 (Table 9.1), higher than that recorded in the previous season (\$298,298). This translates to \$2.01 per kilogram of milksolids (Table 13.5). The 2021-22 average level of discretionary cash was \$258,608, increasing \$28,575 from 2020-21. Average discretionary cash for sharemilkers has maintained a strong position since the 2016-17 season. Term liabilities declined to \$2.67 per kg MS at the close of the 2021-22 season (Table 9.2).

Table 9.2: Debt Servicing Ratios

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
DEBT SERVICING:										
Interest & rent \$/kg MS	0.27	0.27	0.24	0.27	0.25	0.23	0.20	0.16	0.12	0.12
Interest & rent % GFR	7.0%	6.2%	7.1%	11.5%	7.3%	6.1%	5.6%	4.1%	2.9%	2.3%
Term liabilities \$/kg MS	3.64	3.71	3.36	4.07	4.05	3.81	3.78	3.19	2.91	2.67

The debt to asset ratio decreased from 43 percent at the close of 2020-21 to 37 percent in 2021-22. Debt to asset values have significantly fallen from a period of high debt to asset ratios from 2015-16 to 2018-19, corresponding with stronger milk payouts for sharemilkers.

Figure 9.1 shows the distribution of debt to asset ratio for the 2021-22 season. About 72 percent of farms had a debt to asset ratio below 40 percent. Less than five percent of farms had a debt to asset ratio over 70 percent.

Figure 9.1: Debt to Asset Distribution 2021-22

9.4 Returns

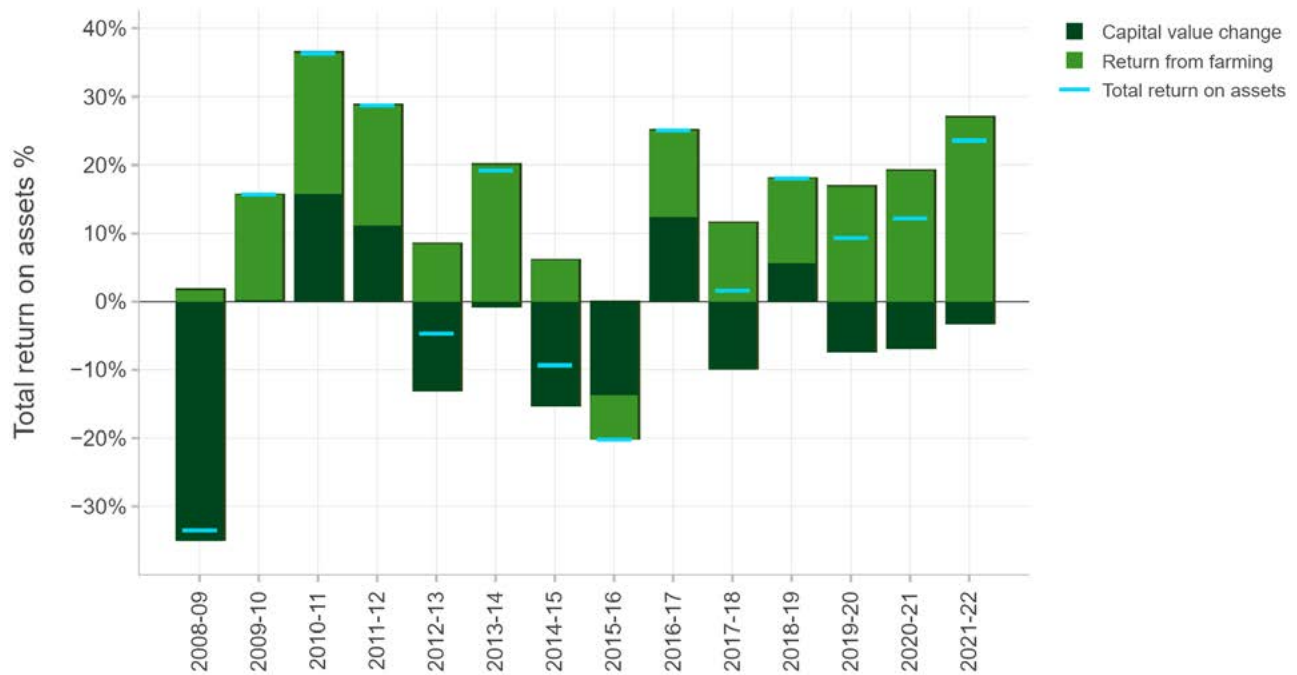
The return on dairy assets is discussed under farm profitability (Section 8.4). The total return on assets considers operating profit from both dairy and non-dairy farming operations, plus the change in the value of capital assets. The total return on assets in 2021-22 was 23.6 percent (Table 13.7).

Net returns from dairy activity yielded \$246,971 across the 2021-22 season, combined with an average change in capital value of -\$60,109 per herd. Sharemilker returns are more volatile than those earned by Owner-operators due to livestock being their largest asset class and livestock values fluctuating with greater magnitude than land prices.

During the last 10 years (2012-13 to 2021-22) the total return on assets has ranged between -20.2 and 23.6 percent, as a result of changes in capital and returns from farming operations (Figure 9.3)

9.4. RETURNS

Figure 9.2: Sharemilker Total Return on Assets 2021-22



The percentage return on equity is the return on the owner’s funds, including capital changes after interest is paid (Table 13.7). 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 2021-22 the total return on equity was 42.5 percent (Table 13.7), significantly higher than the total return on assets (23.6 percent). The 2021-22 season was the fourth season in a row with a positive return on equity.

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 2021-22 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 better represent average values of the data sample, but will not add up. See section 2.11 for an explanation of this methodology.

Table 10.1 shows key 2021-22 average performance indicators per kilogram of milksolids in the eight regions. Bay of Plenty had the smallest average herd size of 275 cows, followed by Taranaki (304). Average herd sizes in the South Island were considerably larger than in the North Island. Canterbury had the largest average herd size in the South Island with 772 cows, 183 cows above the South Island average (589), while the average herd size in Otago-Southland was 538 cows.

There is a range of stocking rates nationwide, with Northland (2.3 cows/ha) and West Coast - Top of the South (2.1 cows/ha) having the lowest stocking rates. Canterbury had the highest stocking rate at 3.6 cows per hectare, while the remaining regions had average stocking rates between 2.6 and 3.1.

Bay of Plenty recorded the lowest average milksolids production per cow of all the regions (346 kg MS). The other four North Island regions recorded milksolids per cow between 380 and 416 kg MS. Canterbury recorded the highest milksolids sold per cow at 445 kg MS, and Otago-Southland recorded a milksolids sold per hectare of 431.

The average payout received in each region was at or above \$4.39 per kilogram of milksolids. Regional average farm working expenses (FWE) per kilogram of milksolids were lowest in Lower North Island (\$2.53), and the highest FWE per kilogram of milksolids was reported in Otago-Southland (\$3.12). The bottom of Table 10.1 shows the regional gross farm revenue, operating expenses and operating profit levels on a per hectare basis in 2021-22. Canterbury recorded the highest operating profit on a per hectare basis (\$2,217), while West Coast - Top of the South recorded the lowest operating profit per hectare, and was the only region to average below \$1,000/ha at \$975/ha. West Coast - Top of the South (\$3,889) and Northland (\$4,461) recorded the lowest gross farm revenue per hectare and the lowest operating expenses per hectare (\$3,162 and \$3,247, respectively). Canterbury recorded the highest gross farm revenue (\$7,989) and operating expenses (\$4,901) per hectare. In general, Sharemilkers in Canterbury and Lower North Island experienced higher levels of profitability in 2021-22 relative to other regions.

Table 10.1: Regional Sharemilker Profitability (\$ / kg MS)

	Northland	Waikato	Bay of Plenty	Taranaki	Lower North Island	West Coast - Top of the South	Canterbury	Otago-Southland
PHYSICAL CHARACTERISTICS:								
Number of herds	8	28	7	14	7	4	10	9
Effective hectares	177.0	104.0	115.0	105.1	120.0	176.0	230.5	185.0
Peak cows milked	386	339	275	304	308	388	772	538
Stocking rate (cows/ha)	2.3	3.1	2.7	2.9	2.6	2.1	3.6	2.9
Kg milksolids sold	137,873	135,485	91,800	123,880	114,266	133,952	345,925	179,891
Milksolids sold per hectare	855	1,201	1,037	1,231	1,018	770	1,545	1,285
Milksolids sold per cow	380	390	346	416	394	352	445	431
PAYOUT RECEIVED: \$/kg MS	4.57	4.60	4.57	4.61	4.55	4.67	4.61	4.39
DAIRY CASH INCOME \$: MS BASIS								
Milk sales (net of dairy levies)	4.57	4.60	4.57	4.61	4.55	4.67	4.61	4.39
Net livestock sales (sales - purchases)	0.64	0.42	0.38	0.46	0.51	0.58	0.35	0.59
Other dairy cash income	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00
Net dairy cash income	5.15	5.05	4.91	5.06	5.14	5.28	4.99	4.81
CASH FARM WORKING EXPENSES: MS BASIS								
Wages	0.63	0.37	0.48	0.39	0.42	0.19	0.59	0.49
Animal health	0.30	0.32	0.41	0.28	0.30	0.34	0.22	0.27
Breeding & herd improvement	0.17	0.19	0.14	0.16	0.21	0.23	0.13	0.16

10.1 Regional Profitability

Farm dairy	0.04	0.04	0.05	0.07	0.06	0.05	0.06	0.05
Electricity	0.13	0.11	0.11	0.13	0.12	0.11	0.08	0.10
Net feed made, purchased, cropped	0.82	0.76	0.64	0.60	0.63	0.62	0.51	0.79
Stock grazing	0.11	0.21	0.17	0.21	0.17	0.18	0.61	0.56
Support block lease	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fertiliser (incl Nitrogen)	0.26	0.14	0.18	0.17	0.10	0.32	0.19	0.15
Irrigation	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00
Regrassing	0.01	0.01	0.01	0.00	0.01	0.00	0.00	0.01
Weed & pest	0.02	0.00	0.00	0.00	0.02	0.01	0.01	0.01
Vehicles & fuel	0.26	0.19	0.25	0.20	0.15	0.30	0.13	0.20
Repairs & maintenance	0.11	0.09	0.06	0.06	0.08	0.21	0.07	0.07
Freight & general	0.08	0.05	0.05	0.06	0.05	0.14	0.03	0.06
Administration	0.09	0.09	0.07	0.09	0.09	0.10	0.07	0.08
Insurance	0.04	0.04	0.04	0.04	0.05	0.07	0.03	0.03
ACC	0.04	0.04	0.02	0.02	0.03	0.05	0.03	0.03
Rates	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Farm working expenses	2.84	2.68	2.69	2.85	2.53	3.20	2.94	3.12
Cash operating surplus	2.13	2.37	2.27	2.51	2.49	1.74	2.02	1.63
ADJUSTMENTS: MS BASIS								
Value of change in dairy livestock	0.11	0.07	0.06	-0.04	-0.05	-0.07	0.02	0.04
Less labour adjustment	0.77	0.68	0.82	0.74	0.77	0.66	0.35	0.53
Plus feed inventory adjustment	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.01
Less owned support block adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Less depreciation	0.18	0.20	0.19	0.17	0.13	0.18	0.15	0.15
Net adjustments	-0.53	-0.84	-0.83	-0.92	-1.09	-0.95	-0.44	-0.54
OPERATING CASH & NON-CASH: MS BASIS								
Dairy gross farm revenue	5.43	5.06	4.99	5.06	4.85	5.20	5.15	5.04
Dairy operating expenses	3.88	3.61	3.64	3.55	3.46	4.01	3.38	3.60
Dairy operating profit	1.37	1.48	1.39	1.55	1.44	1.19	1.56	1.43
OPERATING CASH & NON-CASH: HA BASIS								
Dairy gross farm revenue	4,461	6,132	5,176	6,228	4,994	3,889	7,989	6,081
Dairy operating expenses	3,247	4,430	3,887	4,142	3,621	3,162	5,354	4,901
Dairy operating profit	1,134	1,814	1,458	2,089	1,432	975	2,217	1,774
Operating profit margin	27.43%	29.51%	27.82%	30.59%	29.86%	23.09%	32.57%	27.53%

Table 10.2 shows the eight regions' key 2021-22 average financial indicators. The averages reported in this table are medians; see section 2.11 for an explanation of the *average of sums* methodology. Regional average operating returns on dairy assets ranged between 19.4 and 32.6 percent. Canterbury (32.6%) and Otago - Southland (30.6%) had the highest operating returns on dairy assets in 2021-22. West Coast - Top of the South had the lowest operating returns on dairy assets (19.4%). All regions reported positive returns on assets, with Canterbury (33.8%) and Otago - Southland (30.8%) recording the highest total returns on assets. Taranaki recorded the lowest total return on assets at 17.5 percent.

Total return on equity is the return on the owner's funds, including capital changes after interest is paid. All regions reported positive returns on equity, with Canterbury (52.9%) and Lower North Island (51.9%) recording the highest total return on equity. Taranaki (31.1%) recorded the lowest total return on equity.

Average term debt per kilogram of milksolids decreased nationally in 2021-22. There was variation between the regions, with Lower North Island (\$1.30) the lowest and Canterbury (\$2.53) the highest. The regional average debt to asset ratio ranged between 24.2 percent (Lower North Island) and 36.1 percent (Canterbury).

Table 10.2: Regional 50:50 Sharemilker Financial Position

	Northland	Waikato	Bay of Plenty	Taranaki	Lower North Island	West Coast - Top of the South	Canterbury	Otago - Southland
RETURNS:								
Operating return on dairy assets %	22.3%	27.2%	23.6%	23.4%	25.0%	19.4%	32.6%	30.6%
Total return on assets %	21.5%	27.2%	26.2%	17.5%	26.8%	23.9%	33.8%	30.8%
Total return on equity %	43.7%	44.4%	41.0%	31.1%	51.9%	40.9%	52.9%	43.9%
Growth in equity %	52.3%	32.4%	40.4%	31.6%	48.9%	36.0%	45.7%	39.8%
DEBT:								
Closing term liabilities per kg MS	1.62	1.91	1.56	2.19	1.30	2.27	2.53	1.43
Closing debt to asset %	24.8%	31.1%	26.7%	32.7%	24.4%	33.6%	36.1%	31.9%

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 percentage terms, is a key financial metric used worldwide to measure how effectively a business is employing their asset base. 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 milksolids 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 percent of the data is lower.
- The 50th percentile or median represents the centre of the data, such that 50 percent of data points are lower, and 50 percent are higher than this value.
- The 75th percentile represents a value such that 75 percent 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 2012-22

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
COST OF PRODUCTION (OPERATING EXPENSES / KG MS):										
25th percentile	5.59	5.71	5.35	4.66	5.32	5.62	5.69	5.95	5.94	7.09
Mean	5.05	5.21	4.85	4.36	4.72	5.12	5.18	5.47	5.44	6.51
50th percentile	4.90	5.15	4.76	4.21	4.57	5.02	5.15	5.38	5.34	6.43
75th percentile	4.44	4.55	4.30	3.90	4.13	4.55	4.61	4.88	4.84	5.72

11.1. ANNUAL UPDATE

59

Table 11.2: Operating profit margin 2012-22

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
OPERATING PROFIT MARGIN (%):										
25th percentile	18.7%	31.5%	17.0%	-6.3%	19.3%	23.1%	20.1%	21.7%	25.5%	28.2%
Mean	25.7%	37.0%	23.7%	2.2%	27.5%	29.7%	26.5%	28.5%	31.5%	34.1%
50th percentile	26.6%	37.2%	24.6%	4.7%	30.5%	30.9%	26.5%	30.0%	32.5%	35.3%
75th percentile	34.7%	44.7%	33.2%	12.1%	36.1%	36.1%	33.8%	35.5%	38.9%	41.6%

Table 11.3: Operating return on assets 2012-22

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
OPERATING RETURN ON DAIRY ASSETS (%):										
25th percentile	2.6%	5.1%	2.2%	-0.7%	2.7%	3.2%	2.7%	3.2%	4.3%	5.4%
Mean	4.5%	8.2%	3.7%	-0.1%	4.4%	5.3%	4.0%	5.2%	6.3%	7.6%
50th percentile	4.1%	6.9%	3.4%	0.1%	4.3%	4.5%	3.9%	4.8%	5.8%	7.3%
75th percentile	5.7%	8.9%	4.8%	1.0%	5.4%	6.3%	5.2%	6.8%	8.0%	9.6%

Table 11.4: Equity per kg milksolids 2012-22

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
EQUITY (\$) PER KG MILKSOLIDS:										
25th percentile	15.01	16.57	18.93	13.08	18.32	14.92	13.42	13.62	14.09	17.53
Mean	28.00	28.71	28.38	25.06	30.78	27.19	25.22	26.26	26.52	32.70
50th percentile	25.59	26.25	27.63	22.08	26.28	25.09	20.61	21.60	22.17	26.59
75th percentile	39.65	39.71	37.29	34.14	41.17	33.99	34.17	35.09	33.43	40.03

12 Time Series Tables: Owner Operator

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

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
PHYSICAL CHARACTERISTICS:										
Number of herds	217	301	296	279	316	265	260	326	308	255
Effective hectares	141.0	142.9	145.5	148.1	147.8	151.4	146.0	142.1	140.6	144.1
Peak cows milked	397	402	419	418	414	430	424	415	408	419
Stocking rate (cows/ha)	2.8	2.8	2.9	2.8	2.8	2.8	2.9	2.9	2.9	2.9
Kg milksolids sold	142,089	151,455	160,367	160,270	160,302	161,567	167,189	169,761	171,720	172,832
Milksolids sold per hectare	1,008	1,060	1,102	1,082	1,085	1,067	1,145	1,194	1,222	1,199
Milksolids sold per cow	358	377	383	383	387	376	395	409	421	413
PAYOUT RECEIVED: \$/kg MS sold	6.33	7.69	5.76	3.92	5.79	6.62	6.42	7.05	7.40	9.19
DAIRY CASH INCOME \$:										
Milk sales (net of dairy levies)	899,388	1,164,274	923,621	628,192	928,944	1,068,927	1,073,346	1,197,023	1,271,447	1,588,525
Net livestock sales (sales - purchases)	55,381	57,832	83,804	90,596	79,495	80,967	77,911	82,883	83,337	95,756
Other dairy cash income	7,151	6,338	6,466	5,819	5,633	6,789	6,377	5,836	7,705	7,495
Net dairy cash income	961,920	1,228,444	1,013,891	724,607	1,014,072	1,156,683	1,157,633	1,285,742	1,362,488	1,691,776
CASH FARM WORKING EXPENSES:										
Wages	91,013	90,565	97,790	103,689	92,630	106,331	110,011	113,880	111,931	123,332
Animal health	32,944	35,800	36,553	30,906	34,577	37,497	37,958	40,754	41,674	51,240
Breeding & herd improvement	20,267	20,485	23,746	19,702	21,986	25,043	27,336	28,626	28,930	30,470
Farm dairy	10,225	10,068	9,693	7,902	9,636	9,433	9,773	10,804	10,391	11,569
Electricity	16,028	17,342	17,636	17,646	18,352	18,256	18,521	18,818	19,217	20,233
Net feed made, purchased, cropped	124,172	156,489	152,147	118,281	120,103	151,337	167,341	175,287	186,564	245,970
Stock grazing	52,914	53,919	64,319	64,317	58,368	58,254	71,042	72,720	70,207	73,343
Support block lease	12,543	11,519	11,992	12,385	12,322	10,882	9,548	10,371	10,285	13,850
Fertiliser (incl Nitrogen)	81,705	86,711	75,738	66,595	73,964	77,478	77,175	77,691	75,625	101,368
Irrigation	5,807	4,527	9,367	7,987	8,527	8,314	12,833	18,773	16,270	14,191
Regrassing	8,709	10,423	9,776	7,751	9,913	12,503	11,654	12,456	12,321	15,067
Weed & pest	4,714	6,387	5,502	5,561	5,631	5,951	5,299	5,441	5,567	7,981
Vehicles & fuel	30,026	32,423	28,918	26,704	29,220	31,584	30,955	30,230	28,783	39,257
Repairs & maintenance	43,114	62,561	52,240	35,753	46,630	63,665	58,032	61,811	70,505	89,439
Freight & general	7,630	9,030	8,700	8,666	7,755	8,518	7,912	12,330	12,109	14,389
Administration	17,765	17,697	17,680	18,974	17,895	19,675	21,182	24,213	24,300	27,755
Insurance	9,084	9,718	10,773	10,252	10,947	12,635	13,587	13,961	14,319	16,302
ACC	3,937	4,321	4,134	3,690	3,445	3,785	3,750	3,134	4,785	5,041
Rates	14,147	15,873	15,915	16,089	16,761	17,031	17,022	16,979	17,212	19,289
Farm working expenses	586,744	655,858	652,619	582,850	598,662	678,172	710,932	748,282	760,996	920,087
Cash operating surplus	375,176	572,586	361,272	141,757	415,410	478,511	446,701	537,460	601,492	771,689
ADJUSTMENTS:										
Plus value of change in dairy livestock	11,428	24,912	2,632	-13,067	9,835	11,378	8,780	7,282	230	3,176
Less labour adjustment	55,162	59,309	59,021	56,341	61,154	63,920	62,545	62,011	70,195	79,852
Plus feed inventory adjustment	-2,534	5,340	-210	3,453	2,790	-2,413	3,164	-3,484	5,884	-1,929
Less owned support block adjustment	14,601	15,338	14,889	14,126	14,359	16,786	13,143	16,151	16,720	18,843
Less depreciation	56,258	57,383	66,154	62,967	66,295	67,899	68,522	72,265	71,559	76,161
Net adjustments	-117,127	-101,778	-137,642	-143,048	-129,183	-139,640	-132,266	-146,629	-152,360	-173,609
OPERATING CASH & NON-CASH:										
Dairy gross farm revenue	973,348	1,253,356	1,016,523	711,540	1,023,907	1,168,061	1,166,413	1,293,024	1,362,718	1,694,953
Dairy operating expenses	715,299	782,548	792,893	712,831	737,680	829,190	851,978	902,193	913,587	1,096,872
Dairy operating profit	258,049	470,808	223,630	-1,291	286,227	338,871	314,435	390,831	449,132	598,081
Dairy operating profit per ha	1,830	3,295	1,537	-9	1,937	2,238	2,154	2,750	3,195	4,150

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

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
PHYSICAL CHARACTERISTICS:										
Number of herds	217	301	296	279	316	265	260	326	308	255
Effective hectares	141.0	142.9	145.5	148.1	147.8	151.4	146.0	142.1	140.6	144.1
Peak cows milked	397	402	419	418	414	430	424	415	408	419
Stocking rate (cows/ha)	2.8	2.8	2.9	2.8	2.8	2.8	2.9	2.9	2.9	2.9
Kg milksolids sold	142,089	151,455	160,367	160,270	160,302	161,567	167,189	169,761	171,720	172,832
Milksolids sold per hectare	1,008	1,060	1,102	1,082	1,085	1,067	1,145	1,194	1,222	1,199
Milksolids sold per cow	358	377	383	383	387	376	395	409	421	413
PAYOUT RECEIVED: \$/kg MS sold	6.33	7.69	5.76	3.92	5.79	6.62	6.42	7.05	7.40	9.19
DAIRY CASH INCOME \$:										
Milk sales (net of dairy levies)	2,265	2,896	2,204	1,503	2,244	2,486	2,534	2,886	3,118	3,792
Net livestock sales (sales - purchases)	139	144	200	217	192	188	184	200	204	229
Other dairy cash income	18	16	15	14	14	16	15	14	19	18
Net dairy cash income	2,423	3,056	2,420	1,734	2,449	2,690	2,733	3,100	3,341	4,038
CASH FARM WORKING EXPENSES:										
Wages	229	225	233	248	224	247	260	275	274	294
Animal health	83	89	87	74	84	87	90	98	102	122
Breeding & herd improvement	51	51	57	47	53	58	65	69	71	73
Farm dairy	26	25	23	19	23	22	23	26	25	28
Electricity	40	43	42	42	44	42	44	45	47	48
Net feed made, purchased, cropped	313	389	363	283	290	352	395	423	457	587
Stock grazing	133	134	154	154	141	135	168	175	172	175
Support block lease	32	29	29	30	30	25	23	25	25	33
Fertiliser (incl Nitrogen)	206	216	181	159	179	180	182	187	185	242
Irrigation	15	11	22	19	21	19	30	45	40	34
Regrassing	22	26	23	19	24	29	28	30	30	36
Weed & pest	12	16	13	13	14	14	13	13	14	19
Vehicles & fuel	76	81	69	64	71	73	73	73	71	94
Repairs & maintenance	109	156	125	86	113	148	137	149	173	213
Freight & general	19	22	21	21	19	20	19	30	30	34
Administration	45	44	42	45	43	46	50	58	60	66
Insurance	23	24	26	25	26	29	32	34	35	39
ACC	10	11	10	9	8	9	9	8	12	12
Rates	36	39	38	38	40	40	40	41	42	46
Farm working expenses	1,478	1,631	1,558	1,394	1,446	1,577	1,678	1,804	1,866	2,196
Cash operating surplus	945	1,424	862	339	1,003	1,113	1,055	1,296	1,475	1,842
ADJUSTMENTS:										
Plus value of change in dairy livestock	29	62	6	-31	24	26	21	18	1	8
Less labour adjustment	139	148	141	135	148	149	148	149	172	191
Plus feed inventory adjustment	-6	13	-1	8	7	-6	7	-8	14	-5
Less owned support block adjustment	37	38	36	34	35	39	31	39	41	45
Less depreciation	142	143	158	151	160	158	162	174	175	182
Net adjustments	-295	-253	-329	-342	-312	-325	-312	-353	-374	-414
OPERATING CASH & NON-CASH:										
Dairy gross farm revenue	2,452	3,118	2,426	1,702	2,473	2,716	2,754	3,117	3,341	4,046
Dairy operating expenses	1,802	1,947	1,892	1,705	1,782	1,928	2,011	2,175	2,240	2,618
Dairy operating profit	650	1,171	534	-3	691	788	742	942	1,101	1,428

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

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
PHYSICAL CHARACTERISTICS:										
Number of herds	217	301	296	279	316	265	260	326	308	255
Effective hectares	141.0	142.9	145.5	148.1	147.8	151.4	146.0	142.1	140.6	144.1
Peak cows milked	397	402	419	418	414	430	424	415	408	419
Stocking rate (cows/ha)	2.8	2.8	2.9	2.8	2.8	2.8	2.9	2.9	2.9	2.9
Kg milksolids sold	142,089	151,455	160,367	160,270	160,302	161,567	167,189	169,761	171,720	172,832
Milksolids sold per hectare	1,008	1,060	1,102	1,082	1,085	1,067	1,145	1,194	1,222	1,199
Milksolids sold per cow	358	377	383	383	387	376	395	409	421	413
PAYOUT RECEIVED: \$/kg MS sold	6.33	7.69	5.76	3.92	5.79	6.62	6.42	7.05	7.40	9.19
DAIRY CASH INCOME \$:										
Milk sales (net of dairy levies)	6,379	8,147	6,348	4,242	6,285	7,060	7,353	8,421	9,046	11,022
Net livestock sales (sales - purchases)	393	405	576	612	538	535	534	583	593	664
Other dairy cash income	51	44	44	39	38	45	44	41	55	52
Net dairy cash income	6,822	8,597	6,968	4,893	6,861	7,640	7,930	9,046	9,694	11,739
CASH FARM WORKING EXPENSES:										
Wages	645	634	672	700	627	702	754	801	796	856
Animal health	234	251	251	209	234	248	260	287	296	356
Breeding & herd improvement	144	143	163	133	149	165	187	201	206	211
Farm dairy	73	70	67	53	65	62	67	76	74	80
Electricity	114	121	121	119	124	121	127	132	137	140
Net feed made, purchased, cropped	881	1,095	1,046	799	813	1,000	1,146	1,233	1,327	1,707
Stock grazing	375	377	442	434	395	385	487	512	499	509
Support block lease	89	81	82	84	83	72	65	73	73	96
Fertiliser (incl Nitrogen)	579	607	521	450	500	512	529	547	538	703
Irrigation	41	32	64	54	58	55	88	132	116	98
Regrassing	62	73	67	52	67	83	80	88	88	105
Weed & pest	33	45	38	38	38	39	36	38	40	55
Vehicles & fuel	213	227	199	180	198	209	212	213	205	272
Repairs & maintenance	306	438	359	241	315	421	398	435	502	621
Freight & general	54	63	60	59	52	56	54	87	86	100
Administration	126	124	122	128	121	130	145	170	173	193
Insurance	64	68	74	69	74	83	93	98	102	113
ACC	28	30	28	25	23	25	26	22	34	35
Rates	100	111	109	109	113	112	117	119	122	134
Farm working expenses	4,161	4,590	4,485	3,936	4,050	4,479	4,870	5,264	5,414	6,384
Cash operating surplus	2,661	4,007	2,483	957	2,811	3,161	3,060	3,781	4,279	5,355
ADJUSTMENTS:										
Plus value of change in dairy livestock	81	174	18	-88	67	75	60	51	2	22
Less labour adjustment	391	415	406	380	414	422	428	436	499	554
Plus feed inventory adjustment	-18	37	-1	23	19	-16	22	-25	42	-13
Less owned support block adjustment	104	107	102	95	97	111	90	114	119	131
Less depreciation	399	402	455	425	449	448	469	508	509	528
Net adjustments	-831	-712	-946	-966	-874	-922	-906	-1,032	-1,084	-1,205
OPERATING CASH & NON-CASH:										
Dairy gross farm revenue	6,903	8,771	6,986	4,804	6,928	7,715	7,991	9,097	9,695	11,761
Dairy operating expenses	5,073	5,476	5,449	4,813	4,991	5,477	5,837	6,347	6,500	7,611
Dairy operating profit	1,830	3,295	1,537	-9	1,937	2,238	2,154	2,750	3,195	4,150

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

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
PHYSICAL CHARACTERISTICS:										
Number of herds	217	301	296	279	316	265	260	326	308	255
Effective hectares	141.0	142.9	145.5	148.1	147.8	151.4	146.0	142.1	140.6	144.1
Peak cows milked	397	402	419	418	414	430	424	415	408	419
Stocking rate (cows/ha)	2.8	2.8	2.9	2.8	2.8	2.8	2.9	2.9	2.9	2.9
Kg milksolids sold	142,089	151,455	160,367	160,270	160,302	161,567	167,189	169,761	171,720	172,832
Milksolids sold per hectare	1,008	1,060	1,102	1,082	1,085	1,067	1,145	1,194	1,222	1,199
Milksolids sold per cow	358	377	383	383	387	376	395	409	421	413
PAYOUT RECEIVED: \$/kg MS sold	6.33	7.69	5.76	3.92	5.79	6.62	6.42	7.05	7.40	9.19
DAIRY CASH INCOME \$:										
Milk sales (net of dairy levies)	6.33	7.69	5.76	3.92	5.79	6.62	6.42	7.05	7.40	9.19
Net livestock sales (sales - purchases)	0.39	0.38	0.52	0.57	0.50	0.50	0.47	0.49	0.49	0.55
Other dairy cash income	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.04	0.04
Net dairy cash income	6.77	8.11	6.32	4.52	6.33	7.16	6.92	7.57	7.93	9.79
CASH FARM WORKING EXPENSES:										
Wages	0.64	0.60	0.61	0.65	0.58	0.66	0.66	0.67	0.65	0.71
Animal health	0.23	0.24	0.23	0.19	0.22	0.23	0.23	0.24	0.24	0.30
Breeding & herd improvement	0.14	0.14	0.15	0.12	0.14	0.16	0.16	0.17	0.17	0.18
Farm dairy	0.07	0.07	0.06	0.05	0.06	0.06	0.06	0.06	0.06	0.07
Electricity	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.12
Net feed made, purchased, cropped	0.87	1.03	0.95	0.74	0.75	0.94	1.00	1.03	1.09	1.42
Stock grazing	0.37	0.36	0.40	0.40	0.36	0.36	0.42	0.43	0.41	0.42
Support block lease	0.09	0.08	0.07	0.08	0.08	0.07	0.06	0.06	0.06	0.08
Fertiliser (incl Nitrogen)	0.58	0.57	0.47	0.42	0.46	0.48	0.46	0.46	0.44	0.59
Irrigation	0.04	0.03	0.06	0.05	0.05	0.05	0.08	0.11	0.09	0.08
Regrassing	0.06	0.07	0.06	0.05	0.06	0.08	0.07	0.07	0.07	0.09
Weed & pest	0.03	0.04	0.03	0.03	0.04	0.04	0.03	0.03	0.03	0.05
Vehicles & fuel	0.21	0.21	0.18	0.17	0.18	0.20	0.19	0.18	0.17	0.23
Repairs & maintenance	0.30	0.41	0.33	0.22	0.29	0.39	0.35	0.36	0.41	0.52
Freight & general	0.05	0.06	0.05	0.05	0.05	0.05	0.05	0.07	0.07	0.08
Administration	0.13	0.12	0.11	0.12	0.11	0.12	0.13	0.14	0.14	0.16
Insurance	0.06	0.06	0.07	0.06	0.07	0.08	0.08	0.08	0.08	0.09
ACC	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.03	0.03
Rates	0.10	0.10	0.10	0.10	0.10	0.11	0.10	0.10	0.10	0.11
Farm working expenses	4.13	4.33	4.07	3.64	3.73	4.20	4.25	4.41	4.43	5.32
Cash operating surplus	2.64	3.78	2.25	0.88	2.59	2.96	2.67	3.17	3.50	4.46
ADJUSTMENTS:										
Plus value of change in dairy livestock	0.08	0.16	0.02	-0.08	0.06	0.07	0.05	0.04	0.00	0.02
Less labour adjustment	0.39	0.39	0.37	0.35	0.38	0.40	0.37	0.37	0.41	0.46
Plus feed inventory adjustment	-0.02	0.04	0.00	0.02	0.02	-0.01	0.02	-0.02	0.03	-0.01
Less owned support block adjustment	0.10	0.10	0.09	0.09	0.09	0.10	0.08	0.10	0.10	0.11
Less depreciation	0.40	0.38	0.41	0.39	0.41	0.42	0.41	0.43	0.42	0.44
Net adjustments	-0.82	-0.67	-0.86	-0.89	-0.81	-0.86	-0.79	-0.86	-0.89	-1.00
OPERATING CASH & NON-CASH:										
Dairy gross farm revenue	6.85	8.28	6.34	4.44	6.39	7.23	6.98	7.62	7.94	9.81
Dairy operating expenses	5.03	5.17	4.94	4.45	4.60	5.13	5.10	5.31	5.32	6.35
Dairy operating profit	1.82	3.11	1.39	-0.01	1.79	2.10	1.88	2.30	2.62	3.46

Table 12.5: Cashflow

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
PHYSICAL CHARACTERISTICS:										
Number of herds	217	301	296	279	316	265	260	326	308	255
Effective hectares	141.0	142.9	145.5	148.1	147.8	151.4	146.0	142.1	140.6	144.1
Peak cows milked	397	402	419	418	414	430	424	415	408	419
Stocking rate (cows/ha)	2.8	2.8	2.9	2.8	2.8	2.8	2.9	2.9	2.9	2.9
Kg milksolids sold	142,089	151,455	160,367	160,270	160,302	161,567	167,189	169,761	171,720	172,832
Milksolids sold per hectare	1,008	1,060	1,102	1,082	1,085	1,067	1,145	1,194	1,222	1,199
Milksolids sold per cow	358	377	383	383	387	376	395	409	421	413
PAYOUT RECEIVED: \$/kg MS sold	6.33	7.69	5.76	3.92	5.79	6.62	6.42	7.05	7.40	9.19
CASHFLOW										
Net dairy cash income	961,920	1,228,444	1,013,891	724,607	1,014,072	1,156,683	1,157,633	1,285,742	1,362,488	1,691,776
Farm working expenses	586,744	655,858	652,619	582,850	598,662	678,172	710,932	748,282	760,996	920,087
Cash operating surplus	375,176	572,586	361,272	141,757	415,410	478,511	446,701	537,460	601,492	771,689
DISCRETIONARY CASH										
Less rent (excl support block)	22,812	23,366	22,250	20,047	19,582	20,703	12,499	17,280	17,069	14,929
Less interest	174,136	171,597	195,984	197,277	197,343	191,459	194,022	172,460	140,608	149,895
Less tax	35,383	58,155	34,078	7,939	16,773	41,532	38,315	52,696	77,161	124,502
Plus net non-dairy cash income	1,125	2,355	486	904	3,371	6,064	7,040	10,682	3,378	7,614
Discretionary cash	143,970	321,823	109,446	-82,602	185,083	230,881	208,906	318,872	379,869	489,779
OTHER CASH INCOME										
Plus net off-farm income	12,427	9,991	12,078	9,238	19,811	18,114	6,670	13,167	9,838	-199
Plus introduced funds	40,918	-44,275	28,307	77,696	-24,004	-40,908	-2,774	-18,560	-16,833	-60,186
Plus income equalisation	1,178	-4,756	-9,579	16,765	1,307	40	307	-475	875	-1,643
Cash available for living and growth	198,493	282,783	140,252	21,097	182,197	208,127	213,109	299,837	363,911	427,950
OTHER CASH EXPENDITURE										
Less net capital transactions	185,532	143,703	201,119	76,697	109,749	238,591	207,027	113,522	148,238	267,306
less net debt	-123,346	-10,790	-93,026	-111,777	-75,867	-92,523	-74,133	49,483	59,719	43,029
less net drawings	92,872	116,224	110,437	78,151	82,043	104,334	95,173	92,090	106,679	114,873
Cash surplus/deficit	43,435	33,646	-78,278	-21,974	66,272	-42,275	-14,958	57,909	59,112	2,543
CASHFLOW PER KG MILKSOLIDS SOLD										
Net dairy cash income	6.77	8.11	6.32	4.52	6.33	7.16	6.92	7.57	7.93	9.79
Farm working expenses	4.13	4.33	4.07	3.64	3.73	4.20	4.25	4.41	4.43	5.32
Cash operating surplus	2.64	3.78	2.25	0.88	2.59	2.96	2.67	3.17	3.50	4.46
DISCRETIONARY CASH PER KG MILKSOLIDS SOLD										
Less rent (excl support block)	0.16	0.15	0.14	0.13	0.12	0.13	0.07	0.10	0.10	0.09
Less interest	1.23	1.13	1.22	1.23	1.23	1.19	1.16	1.02	0.82	0.87
Less tax	0.25	0.38	0.21	0.05	0.10	0.26	0.23	0.31	0.45	0.72
Plus net non-dairy cash income	0.01	0.02	0.00	0.01	0.02	0.04	0.04	0.06	0.02	0.04
Discretionary cash	1.01	2.12	0.68	-0.52	1.15	1.43	1.25	1.88	2.21	2.83
OTHER CASH INCOME PER KG MILKSOLIDS SOLD										
Plus net off-farm income	0.09	0.07	0.08	0.06	0.12	0.11	0.04	0.08	0.06	0.00
Plus introduced funds	0.29	-0.29	0.18	0.48	-0.15	-0.25	-0.02	-0.11	-0.10	-0.35
Plus income equalisation	0.01	-0.03	-0.06	0.10	0.01	0.00	0.00	0.00	0.01	-0.01
Cash available for living and growth	1.40	1.87	0.87	0.13	1.14	1.29	1.27	1.77	2.12	2.48
OTHER CASH EXPENDITURE PER KG MILKSOLIDS SOLD										
Less net capital transactions	1.31	0.95	1.25	0.48	0.68	1.48	1.24	0.67	0.86	1.55
Less net debt	-0.87	-0.07	-0.58	-0.70	-0.47	-0.57	-0.44	0.29	0.35	0.25
Less net drawings	0.65	0.77	0.69	0.49	0.51	0.65	0.57	0.54	0.62	0.66
Cash surplus/deficit	0.31	0.22	-0.49	-0.14	0.41	-0.26	-0.09	0.34	0.34	0.01

Table 12.6: Capital Structure and Wealth Creation

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
PHYSICAL CHARACTERISTICS:										
Number of herds	217	301	296	279	316	265	260	326	308	255
Effective hectares	141.0	142.9	145.5	148.1	147.8	151.4	146.0	142.1	140.6	144.1
Peak cows milked	397	402	419	418	414	430	424	415	408	419
Stocking rate (cows/ha)	2.8	2.8	2.9	2.8	2.8	2.8	2.9	2.9	2.9	2.9
Kg milksolids sold	142,089	151,455	160,367	160,270	160,302	161,567	167,189	169,761	171,720	172,832
Milksolids sold per hectare	1,008	1,060	1,102	1,082	1,085	1,067	1,145	1,194	1,222	1,199
Milksolids sold per cow	358	377	383	383	387	376	395	409	421	413
PAYOUT RECEIVED: \$/kg MS sold	6.33	7.69	5.76	3.92	5.79	6.62	6.42	7.05	7.40	9.19
DAIRY ASSETS at OPEN										
Land & buildings	4,109,797	4,474,344	5,055,041	5,473,880	5,518,535	5,849,932	6,091,560	6,039,561	5,752,162	6,339,284
Plant, machinery and vehicles	193,255	224,385	233,302	258,077	254,722	252,258	249,118	260,302	240,288	259,426
Livestock	1,013,686	873,333	967,406	812,241	640,378	834,061	754,230	737,092	730,625	755,462
Investments (excl non-dairy)	628,020	899,384	892,639	688,384	791,795	800,126	815,583	660,658	585,604	586,494
Current assets	168,694	221,155	285,915	176,424	138,254	208,018	180,448	172,313	189,667	262,660
Total dairy assets at open	6,113,452	6,692,601	7,434,303	7,409,006	7,343,684	7,944,395	8,090,939	7,869,926	7,498,345	8,203,328
Plus non-dairy assets	226,186	225,437	207,058	258,166	267,387	403,636	353,525	351,490	371,716	480,669
Total assets	6,339,638	6,918,038	7,641,361	7,667,172	7,611,071	8,348,031	8,444,463	8,221,416	7,870,061	8,683,997
LIABILITIES at OPEN										
Term liabilities	2,834,656	3,039,137	3,317,150	3,493,221	3,932,350	3,996,989	4,091,376	3,995,700	3,901,222	4,115,003
Current liabilities	174,851	154,442	182,128	197,175	160,682	149,261	189,611	178,179	156,630	173,275
Total liabilities	3,009,507	3,193,579	3,499,278	3,690,396	4,093,032	4,146,250	4,280,987	4,173,879	4,057,851	4,288,278
Owners equity at open	3,330,131	3,724,459	4,142,083	3,976,776	3,518,039	4,201,781	4,163,476	4,047,537	3,812,209	4,395,719
DAIRY ASSETS at CLOSE										
Land & buildings	4,384,302	4,788,661	5,368,063	5,289,448	5,854,250	5,843,351	5,933,994	5,888,745	5,808,851	6,631,060
Plant, machinery and vehicles	196,594	252,083	233,593	243,360	249,436	255,794	246,538	253,497	240,804	286,344
Livestock	874,419	939,582	804,897	651,096	815,984	776,831	752,063	748,428	734,146	848,540
Investments (excl non-dairy)	967,958	817,865	751,874	810,143	823,402	748,739	665,352	632,180	584,287	467,449
Current assets	186,427	279,218	186,858	151,773	194,747	195,692	163,031	205,720	241,278	309,682
Total dairy assets at close	6,609,700	7,077,409	7,345,285	7,145,820	7,937,819	7,820,407	7,760,977	7,728,570	7,609,364	8,543,075
plus Non-dairy assets	260,335	236,874	224,823	258,766	280,232	411,434	388,794	350,613	374,638	505,088
Total assets	6,870,035	7,314,283	7,570,108	7,404,586	8,218,051	8,231,841	8,149,771	8,079,184	7,984,003	9,048,163
LIABILITIES at CLOSE										
Term liabilities	2,958,002	3,049,927	3,410,176	3,604,999	4,008,218	4,089,512	4,165,930	3,946,217	3,841,503	4,071,973
Current liabilities	149,149	178,859	161,349	194,497	150,902	179,210	184,250	170,738	161,979	217,484
Total liabilities	3,107,151	3,228,786	3,571,525	3,799,496	4,159,120	4,268,722	4,350,179	4,116,954	4,003,482	4,289,457
Owners equity at close	3,762,884	4,085,497	3,998,583	3,605,090	4,058,931	3,963,119	3,799,592	3,962,230	3,980,521	4,758,706
EQUITY										
Growth in equity	432,753	361,038	-143,500	-371,686	540,892	-238,662	-363,884	-85,307	168,312	362,987
Growth in equity from profit	16,257	187,695	-53,784	-225,348	68,973	85,385	63,675	159,527	208,237	297,876
Growth in equity from capital	416,496	173,343	-89,716	-146,338	471,919	-324,047	-427,560	-244,765	-39,822	65,148
Growth in equity %	13.0%	9.7%	-3.5%	-9.3%	15.4%	-5.7%	-8.7%	-2.1%	4.4%	8.3%
Closing debt to asset %	43.7%	41.9%	45.8%	50.3%	49.4%	50.7%	53.4%	51.0%	50.1%	47.4%
Closing term liabilities per kg MS	20.82	20.14	21.26	22.49	25.00	25.31	24.92	23.25	22.37	23.56

Table 12.7: Returns

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
PHYSICAL CHARACTERISTICS:										
Number of herds	217	301	296	279	316	265	260	326	308	255
Effective hectares	141.0	142.9	145.5	148.1	147.8	151.4	146.0	142.1	140.6	144.1
Peak cows milked	397	402	419	418	414	430	424	415	408	419
Stocking rate (cows/ha)	2.8	2.8	2.9	2.8	2.8	2.8	2.9	2.9	2.9	2.9
Kg milksolids sold	142,089	151,455	160,367	160,270	160,302	161,567	167,189	169,761	171,720	172,832
Milksolids sold per hectare	1,008	1,060	1,102	1,082	1,085	1,067	1,145	1,194	1,222	1,199
Milksolids sold per cow	358	377	383	383	387	376	395	409	421	413
PAYOUT RECEIVED: \$/kg MS sold	6.33	7.69	5.76	3.92	5.79	6.62	6.42	7.05	7.40	9.19
RETURN on DAIRY ASSETS %										
Dairy operating profit	258,049	470,808	223,630	-1,291	286,227	338,871	314,435	390,831	449,132	598,081
Plus owned support block adjustment	14,601	15,338	14,889	14,126	14,359	16,786	13,143	16,151	16,720	18,843
Less rent	22,812	23,366	22,250	20,047	19,582	20,703	12,499	17,280	17,069	14,929
Net return from dairy	249,838	462,780	216,269	-7,212	281,004	334,954	315,079	389,701	448,783	601,995
Total dairy assets (less current) at open	5,944,758	6,471,446	7,148,388	7,232,582	7,205,430	7,736,377	7,910,490	7,697,613	7,308,678	7,940,668
Operating return on dairy assets %	4.2%	7.2%	3.0%	-0.1%	3.9%	4.3%	4.0%	5.1%	6.1%	7.6%
TOTAL RETURN ON ASSETS %										
Net return from dairy	249,838	462,780	216,269	-7,212	281,004	334,954	315,079	389,701	448,783	601,995
Plus net non-dairy profit	1,288	1,724	-673	-318	3,331	5,444	6,904	11,894	3,870	5,499
Plus change in capital value	315,704	169,567	-175,947	-301,565	430,903	-353,833	-277,275	-287,474	-78,028	46,611
Total return	566,830	634,071	39,649	-309,095	715,238	-13,435	44,709	114,121	374,625	654,105
Total assets (less current) at open	6,170,944	6,696,883	7,355,446	7,490,748	7,472,817	8,140,013	8,264,015	8,221,416	7,870,061	8,683,997
Total return on assets %	9.2%	9.5%	0.5%	-4.1%	9.6%	-0.2%	0.5%	1.4%	4.8%	7.5%
TOTAL RETURN ON EQUITY %										
Total return	566,830	634,071	39,649	-309,095	715,238	-13,435	44,709	114,121	374,625	654,105
Plus net off-farm income	12,427	9,991	12,078	9,238	19,811	18,114	6,670	13,167	9,838	-199
Less interest	174,136	171,597	195,984	197,277	197,343	191,459	194,022	172,460	140,608	149,895
Total return for equity	405,054	472,332	-144,237	-497,164	537,538	-186,502	-142,643	-45,173	243,855	504,011
Equity at open	3,330,131	3,724,459	4,142,083	3,976,776	3,518,039	4,201,781	4,163,476	4,047,537	3,812,209	4,395,719
Total return on equity %	12.2%	12.7%	-3.5%	-12.5%	15.3%	-4.4%	-3.4%	-1.1%	6.4%	11.5%

13 Time Series Tables: 50:50 Sharemilkers

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

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
PHYSICAL CHARACTERISTICS:										
Number of herds	92	114	111	109	113	108	122	124	108	87
Effective hectares	137.9	128.0	132.0	133.3	132.0	137.2	151.3	144.1	140.0	139.6
Peak cows milked	394	367	383	379	372	391	452	431	424	422
Stocking rate (cows/ha)	2.9	2.9	2.9	2.8	2.8	2.8	3.0	3.0	3.0	3.0
Kg milksolids sold	141,062	138,532	151,044	144,587	143,685	147,143	184,909	175,656	182,030	171,282
Milksolids sold per hectare	1,023	1,082	1,144	1,085	1,089	1,072	1,222	1,219	1,300	1,227
Milksolids sold per cow	358	377	394	381	386	376	410	408	429	406
PAYOUT RECEIVED: \$/kg MS sold	3.13	3.76	2.88	1.88	2.82	3.21	3.17	3.45	3.65	4.54
DAIRY CASH INCOME \$:										
Milk sales (net of dairy levies)	441,112	520,870	434,377	272,370	405,691	472,702	586,337	606,847	665,124	778,049
Net livestock sales (sales - purchases)	8,419	13,423	54,333	35,783	60,598	50,428	75,931	60,008	80,562	52,633
Other dairy cash income	2,844	3,407	2,381	3,368	2,419	2,321	2,332	3,280	4,596	3,365
Net dairy cash income	452,375	537,700	491,091	311,521	468,708	525,451	664,600	670,136	750,282	834,048
CASH FARM WORKING EXPENSES:										
Wages	57,928	51,400	52,915	48,799	51,624	61,841	82,680	76,511	80,791	82,429
Animal health	32,842	34,651	35,418	28,668	31,232	34,238	43,264	41,198	43,119	49,737
Breeding & herd improvement	21,195	20,468	22,026	20,299	20,065	24,196	30,219	29,137	30,536	30,290
Farm dairy	6,077	6,631	6,653	6,629	6,886	7,538	8,922	9,415	8,627	8,671
Electricity	13,765	14,439	15,840	15,435	15,505	15,362	18,649	18,121	19,104	18,387
Net feed made, purchased, cropped	70,461	74,677	77,650	53,410	55,474	72,032	93,630	93,405	100,999	116,467
Stock grazing	30,296	39,026	50,175	42,034	34,075	46,703	60,678	58,204	53,146	58,865
Support block lease	5,199	1,308	1,403	2,206	1,834	1,666	1,380	2,840	1,817	891
Fertiliser (incl Nitrogen)	22,666	20,377	21,454	18,608	18,616	21,151	25,577	27,222	24,985	29,510
Irrigation	933	1,778	2,135	3,991	2,462	2,043	5,126	6,117	4,720	4,303
Regrassing	2,388	2,821	2,560	2,502	2,442	3,026	4,270	3,428	3,776	4,651
Weed & pest	1,534	1,392	1,582	1,383	1,948	1,869	1,940	2,049	2,046	1,904
Vehicles & fuel	26,602	25,153	23,726	20,049	22,926	24,851	28,739	27,432	26,732	31,024
Repairs & maintenance	9,703	12,113	10,305	9,029	10,234	11,702	12,710	11,632	16,045	14,443
Freight & general	8,502	8,892	8,661	6,782	6,600	7,871	8,008	9,305	9,605	10,761
Administration	12,014	12,063	12,413	11,778	11,542	11,785	15,718	15,081	14,212	14,732
Insurance	4,379	4,016	4,255	4,906	4,254	4,970	5,351	5,614	6,223	6,798
ACC	4,169	3,914	3,248	3,054	2,937	2,982	3,918	2,399	5,084	5,379
Rates	987	623	1,253	526	512	302	549	656	417	553
Farm working expenses	331,640	335,742	353,672	300,088	301,168	356,128	451,327	439,763	451,984	489,795
Cash operating surplus	120,735	201,958	137,419	11,433	167,540	169,323	213,273	230,372	298,298	344,252
ADJUSTMENTS:										
Plus value of change in dairy livestock	80,132	70,394	32,000	30,838	16,893	32,946	8,193	31,018	-272	31,022
Less labour adjustment	74,703	68,733	77,508	73,553	72,041	80,608	80,071	82,559	91,240	100,776
Plus feed inventory adjustment	-441	1,573	176	1,708	-486	1,860	2,496	-41	2,515	1,041
Less owned support block adjustment	3,315	685	1,245	695	508	251	299	479	611	1,010
Less depreciation	23,266	21,798	25,243	23,409	19,521	24,700	26,415	27,018	28,470	28,354
Net adjustments	-21,593	-19,249	-71,820	-65,111	-75,663	-70,753	-96,096	-79,079	-118,078	-98,077
OPERATING CASH & NON-CASH:										
Dairy gross farm revenue	532,507	608,094	523,091	342,359	485,601	558,397	672,793	701,154	750,010	865,070
Dairy operating expenses	433,365	425,385	457,492	396,037	393,724	459,827	555,616	549,861	569,791	618,895
Dairy operating profit	99,142	182,709	65,599	-53,678	91,877	98,570	117,177	151,293	180,220	246,175
Dairy operating profit per ha	719	1,427	497	-403	696	718	775	1,050	1,287	1,764

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

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
PHYSICAL CHARACTERISTICS:										
Number of herds	92	114	111	109	113	108	122	124	108	87
Effective hectares	137.9	128.0	132.0	133.3	132.0	137.2	151.3	144.1	140.0	139.6
Peak cows milked	394	367	383	379	372	391	452	431	424	422
Stocking rate (cows/ha)	2.9	2.9	2.9	2.8	2.8	2.8	3.0	3.0	3.0	3.0
Kg milksolids sold	141,062	138,532	151,044	144,587	143,685	147,143	184,909	175,656	182,030	171,282
Milksolids sold per hectare	1,023	1,082	1,144	1,085	1,089	1,072	1,222	1,219	1,300	1,227
Milksolids sold per cow	358	377	394	381	386	376	410	408	429	406
PAYOUT RECEIVED: \$/kg MS sold	3.13	3.76	2.88	1.88	2.82	3.21	3.17	3.45	3.65	4.54
DAIRY CASH INCOME \$:										
Milk sales (net of dairy levies)	1,120	1,419	1,134	719	1,091	1,209	1,299	1,408	1,567	1,843
Net livestock sales (sales - purchases)	21	37	142	94	163	129	168	139	190	125
Other dairy cash income	7	9	6	9	7	6	5	8	11	8
Net dairy cash income	1,148	1,465	1,282	822	1,260	1,344	1,472	1,555	1,768	1,975
CASH FARM WORKING EXPENSES:										
Wages	147	140	138	129	139	158	183	178	190	195
Animal health	83	94	92	76	84	88	96	96	102	118
Breeding & herd improvement	54	56	58	54	54	62	67	68	72	72
Farm dairy	15	18	17	17	19	19	20	22	20	21
Electricity	35	39	41	41	42	39	41	42	45	44
Net feed made, purchased, cropped	179	203	203	141	149	184	207	217	238	276
Stock grazing	77	106	131	111	92	119	134	135	125	139
Support block lease	13	4	4	6	5	4	3	7	4	2
Fertiliser (incl Nitrogen)	58	56	56	49	50	54	57	63	59	70
Irrigation	2	5	6	11	7	5	11	14	11	10
Regrassing	6	8	7	7	7	8	9	8	9	11
Weed & pest	4	4	4	4	5	5	4	5	5	5
Vehicles & fuel	68	69	62	53	62	64	64	64	63	73
Repairs & maintenance	25	33	27	24	28	30	28	27	38	34
Freight & general	22	24	23	18	18	20	18	22	23	25
Administration	30	33	32	31	31	30	35	35	33	35
Insurance	11	11	11	13	11	13	12	13	15	16
ACC	11	11	8	8	8	8	9	6	12	13
Rates	3	2	3	1	1	1	1	2	1	1
Farm working expenses	842	915	923	792	810	911	1,000	1,021	1,065	1,160
Cash operating surplus	306	550	359	30	450	433	472	535	703	815
ADJUSTMENTS:										
Plus value of change in dairy livestock	203	192	84	81	45	84	18	72	-1	73
Less labour adjustment	190	187	202	194	194	206	177	192	215	239
Plus feed inventory adjustment	-1	4	0	5	-1	5	6	0	6	2
Less owned support block adjustment	8	2	3	2	1	1	1	1	1	2
Less depreciation	59	59	66	62	52	63	59	63	67	67
Net adjustments	-55	-52	-188	-172	-203	-181	-213	-184	-278	-232
OPERATING CASH & NON-CASH:										
Dairy gross farm revenue	1,352	1,657	1,366	903	1,305	1,428	1,490	1,627	1,767	2,049
Dairy operating expenses	1,100	1,159	1,194	1,045	1,058	1,176	1,231	1,276	1,342	1,466
Dairy operating profit	252	498	171	-142	247	252	260	351	425	583

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

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
PHYSICAL CHARACTERISTICS:										
Number of herds	92	114	111	109	113	108	122	124	108	87
Effective hectares	137.9	128.0	132.0	133.3	132.0	137.2	151.3	144.1	140.0	139.6
Peak cows milked	394	367	383	379	372	391	452	431	424	422
Stocking rate (cows/ha)	2.9	2.9	2.9	2.8	2.8	2.8	3.0	3.0	3.0	3.0
Kg milksolids sold	141,062	138,532	151,044	144,587	143,685	147,143	184,909	175,656	182,030	171,282
Milksolids sold per hectare	1,023	1,082	1,144	1,085	1,089	1,072	1,222	1,219	1,300	1,227
Milksolids sold per cow	358	377	394	381	386	376	410	408	429	406
PAYOUT RECEIVED: \$/kg MS sold	3.13	3.76	2.88	1.88	2.82	3.21	3.17	3.45	3.65	4.54
DAIRY CASH INCOME \$:										
Milk sales (net of dairy levies)	3,199	4,069	3,291	2,043	3,073	3,445	3,876	4,210	4,751	5,574
Net livestock sales (sales - purchases)	61	105	412	268	459	368	502	416	575	377
Other dairy cash income	21	27	18	25	18	17	15	23	33	24
Net dairy cash income	3,280	4,201	3,720	2,337	3,551	3,830	4,393	4,649	5,359	5,975
CASH FARM WORKING EXPENSES:										
Wages	420	402	401	366	391	451	547	531	577	591
Animal health	238	271	268	215	237	250	286	286	308	356
Breeding & herd improvement	154	160	167	152	152	176	200	202	218	217
Farm dairy	44	52	50	50	52	55	59	65	62	62
Electricity	100	113	120	116	117	112	123	126	136	132
Net feed made, purchased, cropped	511	583	588	401	420	525	619	648	721	834
Stock grazing	220	305	380	315	258	340	401	404	380	422
Support block lease	38	10	11	17	14	12	9	20	13	6
Fertiliser (incl Nitrogen)	164	159	163	140	141	154	169	189	178	211
Irrigation	7	14	16	30	19	15	34	42	34	31
Regrassing	17	22	19	19	18	22	28	24	27	33
Weed & pest	11	11	12	10	15	14	13	14	15	14
Vehicles & fuel	193	197	180	150	174	181	190	190	191	222
Repairs & maintenance	70	95	78	68	78	85	84	81	115	103
Freight & general	62	69	66	51	50	57	53	65	69	77
Administration	87	94	94	88	87	86	104	105	102	106
Insurance	32	31	32	37	32	36	35	39	44	49
ACC	30	31	25	23	22	22	26	17	36	39
Rates	7	5	9	4	4	2	4	5	3	4
Farm working expenses	2,405	2,623	2,679	2,251	2,282	2,596	2,983	3,051	3,229	3,509
Cash operating surplus	876	1,578	1,041	86	1,269	1,234	1,410	1,598	2,131	2,466
ADJUSTMENTS:										
Plus value of change in dairy livestock	581	550	242	231	128	240	54	215	-2	222
Less labour adjustment	542	537	587	552	546	588	529	573	652	722
Plus feed inventory adjustment	-3	12	1	13	-4	14	16	0	18	7
Less owned support block adjustment	24	5	9	5	4	2	2	3	4	7
Less depreciation	169	170	191	176	148	180	175	187	203	203
Net adjustments	-157	-150	-544	-488	-573	-516	-635	-549	-843	-703
OPERATING CASH & NON-CASH:										
Dairy gross farm revenue	3,862	4,751	3,963	2,568	3,679	4,070	4,447	4,864	5,357	6,198
Dairy operating expenses	3,143	3,323	3,466	2,971	2,983	3,352	3,673	3,815	4,070	4,434
Dairy operating profit	719	1,427	497	-403	696	718	775	1,050	1,287	1,764

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

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
PHYSICAL CHARACTERISTICS:										
Number of herds	92	114	111	109	113	108	122	124	108	87
Effective hectares	137.9	128.0	132.0	133.3	132.0	137.2	151.3	144.1	140.0	139.6
Peak cows milked	394	367	383	379	372	391	452	431	424	422
Stocking rate (cows/ha)	2.9	2.9	2.9	2.8	2.8	2.8	3.0	3.0	3.0	3.0
Kg milksolids sold	141,062	138,532	151,044	144,587	143,685	147,143	184,909	175,656	182,030	171,282
Milksolids sold per hectare	1,023	1,082	1,144	1,085	1,089	1,072	1,222	1,219	1,300	1,227
Milksolids sold per cow	358	377	394	381	386	376	410	408	429	406
PAYOUT RECEIVED: \$/kg MS sold	3.13	3.76	2.88	1.88	2.82	3.21	3.17	3.45	3.65	4.54
DAIRY CASH INCOME \$:										
Milk sales (net of dairy levies)	3.13	3.76	2.88	1.88	2.82	3.21	3.17	3.45	3.65	4.54
Net livestock sales (sales - purchases)	0.06	0.10	0.36	0.25	0.42	0.34	0.41	0.34	0.44	0.31
Other dairy cash income	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.03	0.02
Net dairy cash income	3.21	3.88	3.25	2.15	3.26	3.57	3.59	3.82	4.12	4.87
CASH FARM WORKING EXPENSES:										
Wages	0.41	0.37	0.35	0.34	0.36	0.42	0.45	0.44	0.44	0.48
Animal health	0.23	0.25	0.23	0.20	0.22	0.23	0.23	0.23	0.24	0.29
Breeding & herd improvement	0.15	0.15	0.15	0.14	0.14	0.16	0.16	0.17	0.17	0.18
Farm dairy	0.04	0.05	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Electricity	0.10	0.10	0.10	0.11	0.11	0.10	0.10	0.10	0.10	0.11
Net feed made, purchased, cropped	0.50	0.54	0.51	0.37	0.39	0.49	0.51	0.53	0.55	0.68
Stock grazing	0.21	0.28	0.33	0.29	0.24	0.32	0.33	0.33	0.29	0.34
Support block lease	0.04	0.01	0.01	0.02	0.01	0.01	0.01	0.02	0.01	0.01
Fertiliser (incl Nitrogen)	0.16	0.15	0.14	0.13	0.13	0.14	0.14	0.15	0.14	0.17
Irrigation	0.01	0.01	0.01	0.03	0.02	0.01	0.03	0.03	0.03	0.03
Regrassing	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03
Weed & pest	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Vehicles & fuel	0.19	0.18	0.16	0.14	0.16	0.17	0.16	0.16	0.15	0.18
Repairs & maintenance	0.07	0.09	0.07	0.06	0.07	0.08	0.07	0.07	0.09	0.08
Freight & general	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.05	0.05	0.06
Administration	0.09	0.09	0.08	0.08	0.08	0.08	0.09	0.09	0.08	0.09
Insurance	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04
ACC	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.01	0.03	0.03
Rates	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Farm working expenses	2.35	2.42	2.34	2.08	2.10	2.42	2.44	2.50	2.48	2.86
Cash operating surplus	0.86	1.46	0.91	0.08	1.17	1.15	1.15	1.31	1.64	2.01
ADJUSTMENTS:										
Plus value of change in dairy livestock	0.57	0.51	0.21	0.21	0.12	0.22	0.04	0.18	0.00	0.18
Less labour adjustment	0.53	0.50	0.51	0.51	0.50	0.55	0.43	0.47	0.50	0.59
Plus feed inventory adjustment	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.00	0.01	0.01
Less owned support block adjustment	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Less depreciation	0.16	0.16	0.17	0.16	0.14	0.17	0.14	0.15	0.16	0.17
Net adjustments	-0.15	-0.14	-0.48	-0.45	-0.53	-0.48	-0.52	-0.45	-0.65	-0.57
OPERATING CASH & NON-CASH:										
Dairy gross farm revenue	3.77	4.39	3.46	2.37	3.38	3.79	3.64	3.99	4.12	5.05
Dairy operating expenses	3.07	3.07	3.03	2.74	2.74	3.13	3.00	3.13	3.13	3.61
Dairy operating profit	0.70	1.32	0.43	-0.37	0.64	0.67	0.63	0.86	0.99	1.44

Table 13.5: Cashflow

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
PHYSICAL CHARACTERISTICS:										
Number of herds	92	114	111	109	113	108	122	124	108	87
Effective hectares	137.9	128.0	132.0	133.3	132.0	137.2	151.3	144.1	140.0	139.6
Peak cows milked	394	367	383	379	372	391	452	431	424	422
Stocking rate (cows/ha)	2.9	2.9	2.9	2.8	2.8	2.8	3.0	3.0	3.0	3.0
Kg milksolids sold	141,062	138,532	151,044	144,587	143,685	147,143	184,909	175,656	182,030	171,282
Milksolids sold per hectare	1,023	1,082	1,144	1,085	1,089	1,072	1,222	1,219	1,300	1,227
Milksolids sold per cow	358	377	394	381	386	376	410	408	429	406
PAYOUT RECEIVED: \$/kg MS sold	3.13	3.76	2.88	1.88	2.82	3.21	3.17	3.45	3.65	4.54
CASHFLOW										
Net dairy cash income	452,375	537,700	491,091	311,521	468,708	525,451	664,600	670,136	750,282	834,048
Farm working expenses	331,640	335,742	353,672	300,088	301,168	356,128	451,327	439,763	451,984	489,795
Cash operating surplus	120,735	201,958	137,419	11,433	167,540	169,323	213,273	230,372	298,298	344,252
DISCRETIONARY CASH										
Less rent (excl support block)	4,385	3,401	5,154	1,407	1,047	2,320	827	1,220	438	214
Less interest	33,043	34,599	31,805	37,949	34,629	31,626	36,976	27,516	21,389	19,725
Less tax	27,351	29,237	25,101	5,492	6,220	24,199	30,109	39,336	60,010	79,532
Plus net non-dairy cash income	139	2,036	2,511	2,243	1,798	1,996	2,659	-1,380	5,060	906
Discretionary cash	56,095	136,757	77,870	-31,172	127,442	113,174	148,021	171,895	230,033	258,608
OTHER CASH INCOME										
Plus net off-farm income	4,244	3,989	3,817	4,546	2,281	4,071	5,230	10,975	8,513	12,921
Plus introduced funds	8,480	13,155	24,197	26,601	12,583	14,806	-19,006	-10,255	27,709	-9,120
Plus income equalisation	4,325	-2,621	-6,091	5,707	1,412	0	470	0	596	0
Cash available for living and growth	73,144	151,280	99,793	5,682	143,718	132,051	134,715	161,640	258,338	249,488
OTHER CASH EXPENDITURE										
Less net capital transactions	70,590	60,379	89,030	26,407	36,654	49,540	113,811	57,631	119,380	84,090
less net debt	-40,067	-973	-50,721	37,011	17,644	20,730	-33,643	8,192	20,070	60,025
less net drawings	72,999	72,813	83,335	56,461	57,721	74,517	67,169	65,458	76,247	79,739
Cash surplus/deficit	-30,378	19,061	-21,851	-114,197	31,699	-12,736	-12,622	41,334	51,154	38,556
CASHFLOW PER KG MILKSOLIDS SOLD										
Net dairy cash income	3.21	3.88	3.25	2.15	3.26	3.57	3.59	3.82	4.12	4.87
Farm working expenses	2.35	2.42	2.34	2.08	2.10	2.42	2.44	2.50	2.48	2.86
Cash operating surplus	0.86	1.46	0.91	0.08	1.17	1.15	1.15	1.31	1.64	2.01
DISCRETIONARY CASH PER KG MILKSOLIDS SOLD										
Less rent (excl support block)	0.03	0.02	0.03	0.01	0.01	0.02	0.00	0.01	0.00	0.00
Less interest	0.23	0.25	0.21	0.26	0.24	0.21	0.20	0.16	0.12	0.12
Less tax	0.19	0.21	0.17	0.04	0.04	0.16	0.16	0.22	0.33	0.46
Plus net non-dairy cash income	0.00	0.01	0.02	0.02	0.01	0.01	0.01	-0.01	0.03	0.01
Discretionary cash	0.40	0.99	0.52	-0.22	0.89	0.77	0.80	0.98	1.26	1.51
OTHER CASH INCOME PER KG MILKSOLIDS SOLD										
Plus net off-farm income	0.03	0.03	0.03	0.03	0.02	0.03	0.03	0.06	0.05	0.08
Plus introduced funds	0.06	0.09	0.16	0.18	0.09	0.10	-0.10	-0.06	0.15	-0.05
Plus income equalisation	0.03	-0.02	-0.04	0.04	0.01	0.00	0.00	0.00	0.00	0.00
Cash available for living and growth	0.52	1.09	0.66	0.04	1.00	0.90	0.73	0.92	1.42	1.46
OTHER CASH EXPENDITURE PER KG MILKSOLIDS SOLD										
Less net capital transactions	0.50	0.44	0.59	0.18	0.26	0.34	0.62	0.33	0.66	0.49
Less net debt	-0.28	-0.01	-0.34	0.26	0.12	0.14	-0.18	0.05	0.11	0.35
Less net drawings	0.52	0.53	0.55	0.39	0.40	0.51	0.36	0.37	0.42	0.47
Cash surplus/deficit	-0.22	0.14	-0.14	-0.79	0.22	-0.09	-0.07	0.24	0.28	0.23

Table 13.6: Capital Structure and Wealth Creation

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
PHYSICAL CHARACTERISTICS:										
Number of herds	92	114	111	109	113	108	122	124	108	87
Effective hectares	137.9	128.0	132.0	133.3	132.0	137.2	151.3	144.1	140.0	139.6
Peak cows milked	394	367	383	379	372	391	452	431	424	422
Stocking rate (cows/ha)	2.9	2.9	2.9	2.8	2.8	2.8	3.0	3.0	3.0	3.0
Kg milksolids sold	141,062	138,532	151,044	144,587	143,685	147,143	184,909	175,656	182,030	171,282
Milksolids sold per hectare	1,023	1,082	1,144	1,085	1,089	1,072	1,222	1,219	1,300	1,227
Milksolids sold per cow	358	377	394	381	386	376	410	408	429	406
PAYOUT RECEIVED: \$/kg MS sold	3.13	3.76	2.88	1.88	2.82	3.21	3.17	3.45	3.65	4.54
DAIRY ASSETS at OPEN										
Land & buildings	86,836	15,098	30,040	11,402	18,684	11,326	4,691	12,128	27,005	39,147
Plant, machinery and vehicles	117,383	108,099	126,212	125,820	117,301	128,521	140,793	137,363	150,045	143,249
Livestock	948,782	763,980	845,693	691,128	569,288	691,303	790,098	731,432	748,526	720,584
Investments (excl non-dairy)	12,323	9,835	14,950	7,629	15,904	7,852	5,442	15,611	16,788	14,974
Current assets	106,625	82,670	138,435	103,524	46,993	95,392	116,653	93,939	134,284	148,911
Total dairy assets at open	1,271,949	979,682	1,155,330	939,503	768,170	934,394	1,057,677	990,474	1,076,649	1,066,865
Plus non-dairy assets	111,848	148,952	126,234	152,207	195,254	136,930	177,130	298,734	226,427	237,755
Total assets	1,383,797	1,128,634	1,281,564	1,091,710	963,424	1,071,324	1,234,807	1,289,208	1,303,076	1,304,621
LIABILITIES at OPEN										
Term liabilities	473,652	513,263	456,746	552,001	599,319	581,994	665,150	569,206	549,938	517,017
Current liabilities	96,334	97,513	88,015	95,703	89,844	73,944	107,777	104,477	102,998	79,044
Total liabilities	569,986	610,776	544,761	647,704	689,163	655,938	772,928	673,683	652,936	596,061
Owners equity at open	813,811	517,858	736,803	444,006	274,261	415,386	461,880	615,525	650,141	708,560
DAIRY ASSETS at CLOSE										
Land & buildings	95,068	15,631	45,015	10,361	19,483	11,326	14,637	31,423	54,315	39,268
Plant, machinery and vehicles	129,332	132,115	126,025	121,846	125,203	140,605	141,864	142,025	163,965	167,274
Livestock	887,135	870,676	731,576	594,679	734,331	667,438	787,504	766,899	752,807	837,179
Investments (excl non-dairy)	13,086	11,543	17,568	7,796	23,409	8,439	10,920	16,278	17,935	15,121
Current assets	83,659	115,486	114,664	87,303	69,448	98,324	92,277	112,605	161,046	195,556
Total dairy assets at close	1,208,280	1,145,451	1,034,848	821,985	971,874	926,132	1,047,203	1,069,230	1,150,067	1,254,398
plus Non-dairy assets	144,476	165,597	172,672	163,079	203,511	146,603	245,321	298,988	272,411	272,055
Total assets	1,352,756	1,311,048	1,207,520	985,064	1,175,385	1,072,735	1,292,524	1,368,218	1,422,479	1,526,452
LIABILITIES at CLOSE										
Term liabilities	513,719	514,236	507,467	589,012	581,675	561,264	698,793	561,014	529,868	456,992
Current liabilities	103,746	111,268	86,095	119,657	80,600	89,612	97,455	94,284	86,486	100,252
Total liabilities	617,465	625,504	593,562	708,669	662,275	650,876	796,248	655,298	616,353	557,244
Owners equity at close	735,291	685,544	613,958	276,395	513,110	421,859	496,276	712,919	806,125	969,209
EQUITY										
Growth in equity	-78,520	167,686	-122,845	-167,611	238,849	6,473	34,397	97,394	155,984	260,649
Growth in equity from profit	43,782	118,099	4,979	-73,991	69,859	53,694	70,311	112,985	127,784	182,517
Growth in equity from capital	-122,302	49,587	-127,824	-93,620	168,990	-47,221	-35,914	-15,536	28,259	78,156
Growth in equity %	-9.6%	32.4%	-16.7%	-37.7%	87.1%	1.6%	7.4%	15.8%	24.0%	36.8%
Closing debt to asset %	42.1%	42.7%	43.8%	69.2%	53.6%	56.7%	61.6%	47.9%	43.3%	36.5%
Closing term liabilities per kg MS	3.64	3.71	3.36	4.07	4.05	3.81	3.78	3.19	2.91	2.67

Table 13.7: Returns

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
PHYSICAL CHARACTERISTICS:										
Number of herds	92	114	111	109	113	108	122	124	108	87
Effective hectares	137.9	128.0	132.0	133.3	132.0	137.2	151.3	144.1	140.0	139.6
Peak cows milked	394	367	383	379	372	391	452	431	424	422
Stocking rate (cows/ha)	2.9	2.9	2.9	2.8	2.8	2.8	3.0	3.0	3.0	3.0
Kg milksolids sold	141,062	138,532	151,044	144,587	143,685	147,143	184,909	175,656	182,030	171,282
Milksolids sold per hectare	1,023	1,082	1,144	1,085	1,089	1,072	1,222	1,219	1,300	1,227
Milksolids sold per cow	358	377	394	381	386	376	410	408	429	406
PAYOUT RECEIVED: \$/kg MS sold	3.13	3.76	2.88	1.88	2.82	3.21	3.17	3.45	3.65	4.54
RETURN on DAIRY ASSETS %										
Dairy operating profit	99,142	182,709	65,599	-53,678	91,877	98,570	117,177	151,293	180,220	246,175
Plus owned support block adjustment	3,315	685	1,245	695	508	251	299	479	611	1,010
Less rent	4,385	3,401	5,154	1,407	1,047	2,320	827	1,220	438	214
Net return from dairy	98,072	179,993	61,690	-54,390	91,338	96,501	116,649	150,552	180,393	246,971
Total dairy assets (less current) at open	1,165,324	897,012	1,016,895	835,979	721,177	839,002	941,025	896,535	942,365	917,954
Operating return on dairy assets %	8.4%	20.1%	6.1%	-6.5%	12.7%	11.5%	12.4%	16.8%	19.1%	26.9%
TOTAL RETURN ON ASSETS %										
Net return from dairy	98,072	179,993	61,690	-54,390	91,338	96,501	116,649	150,552	180,393	246,971
Plus net non-dairy profit	445	2,052	2,671	2,203	2,387	2,758	2,615	1,209	5,284	844
Plus change in capital value	-158,797	18,825	-171,303	-147,670	135,959	-84,007	82,092	-31,459	-27,117	60,109
Total return	-60,280	200,870	-106,942	-199,857	229,684	15,252	201,356	120,302	158,560	307,924
Total assets (less current) at open	1,277,172	1,045,964	1,143,129	988,186	916,431	975,932	1,118,155	1,289,208	1,303,076	1,304,621
Total return on assets %	-4.7%	19.2%	-9.4%	-20.2%	25.1%	1.6%	18.0%	9.3%	12.2%	23.6%
TOTAL RETURN ON EQUITY %										
Total return	-60,280	200,870	-106,942	-199,857	229,684	15,252	201,356	120,302	158,560	307,924
Plus net off-farm income	4,244	3,989	3,817	4,546	2,281	4,071	5,230	10,975	8,513	12,921
Less interest	33,043	34,599	31,805	37,949	34,629	31,626	36,976	27,516	21,389	19,725
Total return for equity	-89,187	170,239	-134,838	-233,264	197,355	-12,206	169,610	103,761	145,684	301,120
Equity at open	813,811	517,858	736,803	444,006	274,261	415,386	461,880	615,525	650,141	708,560
Total return on equity %	-11.0%	32.9%	-18.3%	-52.5%	72.0%	-2.9%	36.7%	16.9%	22.4%	42.5%

