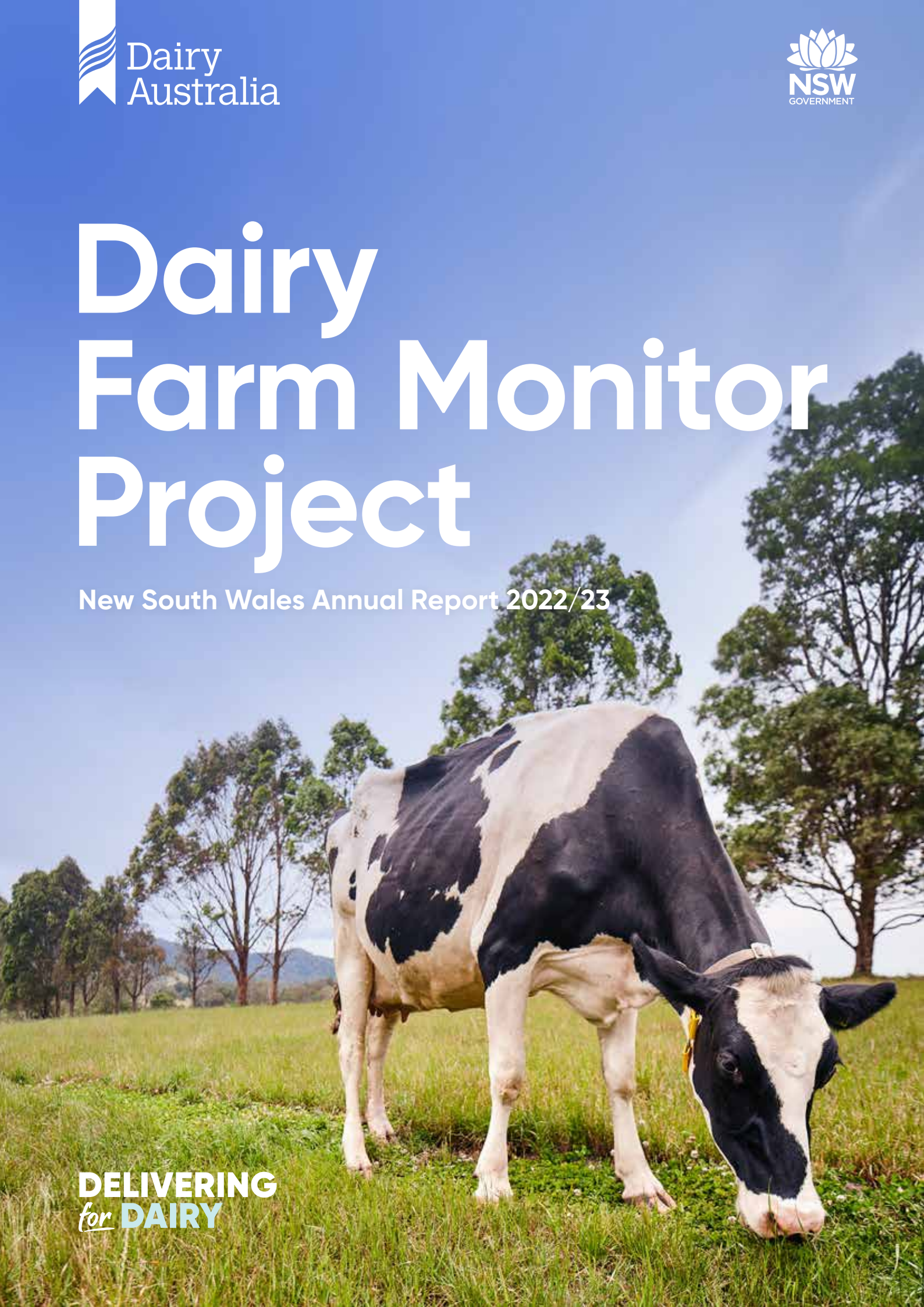
Dairy Australia

NSW GOVERNMENT

Dairy Farm Monitor Project

New South Wales Annual Report 2022/23



DELIVERING *for* DAIRY

Acknowledgements

Participants

To continuing and returning participants and those new to the project, thank you for your participation, including all your efforts in supplying data for the 2023 Dairy Farm Monitor Project.

Project participants were selected based on a distribution of farm size, feeding system, herd size and geographical location within each region and results should not be viewed as a representation of the entire New South Wales dairy farm population.

Report

The report was prepared by Sheena Carter, Development Officer (Farm Business Management) and Zita Ritchie, Development Officer with the NSW Department of Primary Industries (NSW DPI) in conjunction with Dairy Australia.

Contributors / Data collectors

Julie Dart (North Coast Land Services); Alicia Richters (Dairy NSW); contractors Kerry Kempton, Cameron Smith and Tom Farran (Farmanco), Brian Crockart (Agribusiness Solutions), Rob Cooper, Andrew Ellem (A.E. Consultancy), Anetta Williams, Daniel Armstrong (RMCG) and, Fiona Smith (F. Smith Agribusiness Consulting).

NSW Department of Primary Industries Staff: Juan Gargiulo, Zita Ritchie, Blake Cheer and Sheena Carter.

These people collected farm data and provided feedback and validation to ensure the accuracy and integrity of the information.

The diligent work of Dairy Australia's consultant analyst Fiona Smith, who conducted data checking, validation and analysis is much appreciated.

Industry Partners

The Dairy Farm Monitor Project is a collaboration between NSW DPI and Dairy Australia. Now in its twelfth year, the project provides industry and government with farm-level data to inform targeted strategy and decision making.

Appendix Tables

The appendices at the end of this report provide detailed metrics on the physical and financial performance and efficiency for individual participants.

Further information

Sheena Carter
Development Officer – Dairy Farm Business Management
NSW Department of Primary Industries
c/- Hunter LLS Office
2 Flemington Drive
Scone NSW 2337
sheena.carter@dpi.nsw.gov.au

Helen Quinn
Program Manager – Farm Business Management
Dairy Australia
Level 3, HWT Tower
40 City Road, Southbank, Victoria 3006
helen.quinn@dairyaustralia.com.au

Contents

Executive Summary

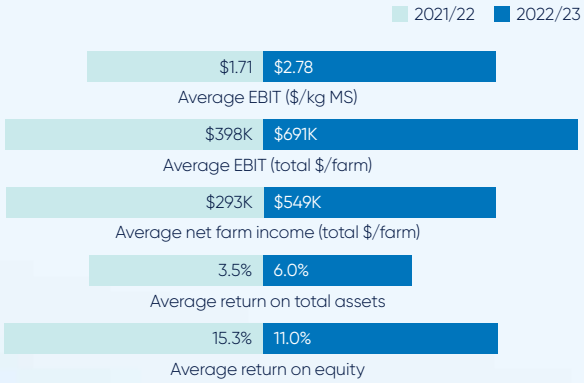
In 2022/23 the average NSW Farm Monitor profitability increased on the previous year, being the highest in the 12 years of the project (accounting for inflation).

The milk price increased to $11.43 per kilograms of milk solids ($/kg MS), however purchased feed and agistment costs were much higher than 2021/22, reflective of the continuation of very wet conditions experienced throughout the State.

The continued wet conditions and flooding, particularly in the first half of the year, throughout much of NSW, impacted pasture consumption, fodder conservation and feed quality on many farms.

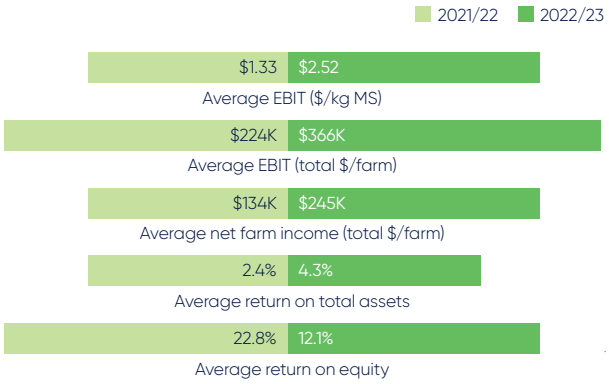
Overhead costs were impacted by a trend to increasing labour usage on farm, at higher cost, and an increase in the cost of depreciation as more farms invested in on farm infrastructure and equipment.

New South Wales



A continuation of challenging seasonal conditions from 2021/22 dominated the first half of 2022/23 with flooding and significant wet periods impacting the majority of the State. This impacted homegrown feed availability and quality on the milking area, with lower quantities consumed. Government support for farmers in affected Local Government Areas (LGAs) via Special Disaster Grants and Transport Subsidies was instrumental in assisting many farms manage the reduced availability of homegrown feed as well as repair damaged farm infrastructure. Despite a slightly lower livestock trading profit and much lower 'other farm income' (generally feed sales), strong milk prices resulted in high gross farm incomes – the highest in the 12 years of DFMP in NSW. Interest and lease costs increased as a result of higher interest rates but also through increased borrowings for on farm investments and more equipment purchases.

The North

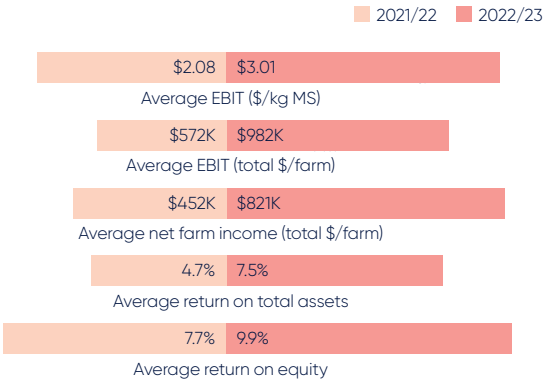


The North farm participants received the highest average milk price in 12 years, resulting in the highest gross farm income. This more than offset the much lower 'other farm income' seen this year (comprised of feed and water sales, contracting income or other activities related to the dairy business). The challenging seasonal conditions led to higher purchased feed and agistment costs, even after accounting for government grants used to support additional feed purchases. Profitability (average EBIT per kilogram of milk solids) was the highest seen in the last 12 years (accounting for inflation).

Timing of flooding and wet conditions meant many were unable to conserve fodder, or stored silage/hay was lost and coming into autumn, sowing was delayed, or impossible. Consequently, there was heavy reliance on purchased fodder in much of the region to replace homegrown feed sources. Feed costs increased as a result, but the extent of the increase measured has been tempered due to government grants which are netted off the relevant feed purchases.

Herd and shed costs remained relatively stable compared to the previous year, noting that herd costs had increased by 14 per cent in the previous year predominantly as a result of herd health issues due to wet conditions. Increases in overhead costs were due to an increase in total labour costs, largely driven by more imputed labour cost. Of note is the increase in depreciation, up 13 per cent on the previous year. This increase has been impacted by the purchase of more plant and equipment and infrastructure developments on farm. For farms that purchase second hand machinery, this was typically at higher prices compared to what has been seen historically, due to supply and demand issues. Repairs and maintenance costs increased, but due to the availability of government grants provided to assist flood and wet weather affected businesses, the true increase isn't captured in the data due to it being netted off the relevant expense such as laneway repair or fencing repair, where appropriate.

The South



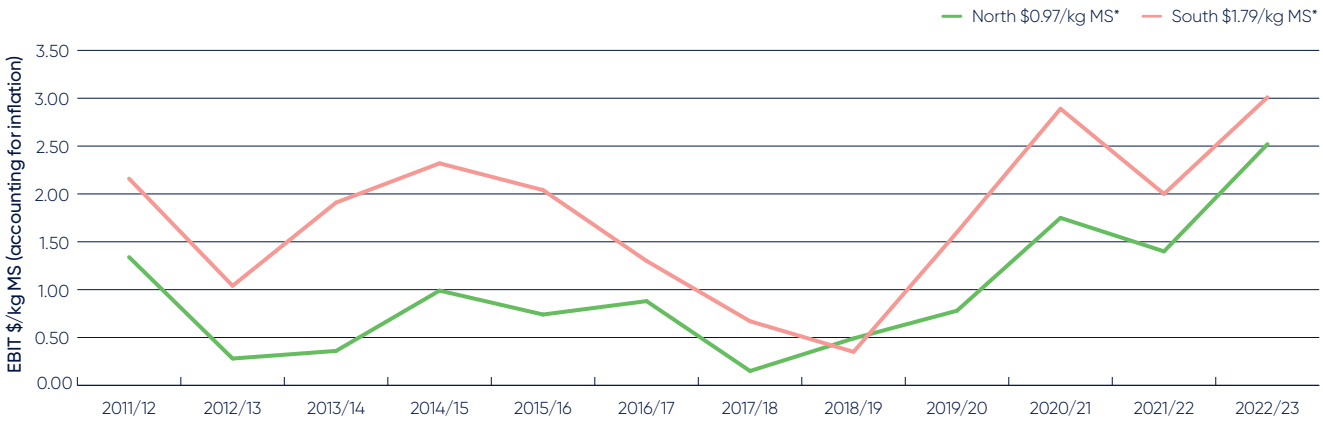
The South participants received the highest milk price in 12 years, resulting in the highest gross farm income. Farm profitability (average EBIT per kilogram of milk solids) was the highest in 12 years of the project (accounting for inflation).

Flooding occurred in October in many areas along with prolonged wet conditions, similar to the north. The strong milk incomes outweighed the slightly lower livestock trading profit and much lower 'other farm income' reflective of the case in the north.

Increases in herd, shed, purchased feed and homegrown feed costs compared to the previous year saw an increase in variable costs for the participant farms. The average herd size has impacted this with the majority of the 2021/22 farms increasing average milker number but also the addition of new farms impacting on average herd size for the group. These costs combined with greater expenditure on overheads such as paid labour saw the highest total costs in 12 years.

How does 2022/23 compare?

Historical Profitability



*Long term average value

Average profit (per kg milk solids) for each region in 2022/23 was above the long-term average for the respective regions.

Strong profit results per farm (average $691,162) across the state, were above the 12 year long-term average of $293,756.

Milk Price

Milk price increased twenty-five per cent (nominal) on average from 2021/22. Milk income contributed approximately 90 per cent of gross farm income outweighing declines seen in livestock trading and other farm income.

New South Wales ↑ 25%
to $11.43/kg MS

The North ↑ 25%
to $11.97/kg MS

The South ↑ 26%
to $10.94/kg MS

Expectations for profit in 2023-24

Participant farmers were generally optimistic in their outlook for farm business returns in the coming 12 months. Participants in the South were the most optimistic about better returns in 2022/23 (58%), with the North farmers not as optimistic (47%). Seasonal conditions continue to be identified by participants as the greatest risk to their business followed by input costs and labour.

Greenhouse gas emissions

The median carbon footprint for New South Wales dairy farm participants was 2,583 tonnes of carbon dioxide equivalents per farm in 2022/23. The marginal increase in total farm emissions compared to last year was largely due to an increase in the pre-farm emissions. This was impacted by increased fertiliser use due to softening prices and increased electricity and fuel usage on farm for irrigation and a change in methodology to account for fuel usage by contractors on farm for activities such as fodder conserved and pasture renovation.

Part One: State Overview

State-wide, average profitability in New South Wales was positive and above the 12 year long-term average. Strong prices received for milk along with Government Grants made available in declared natural disaster areas due to flooding, enabled farm businesses to manage the impact of very wet conditions and higher costs.

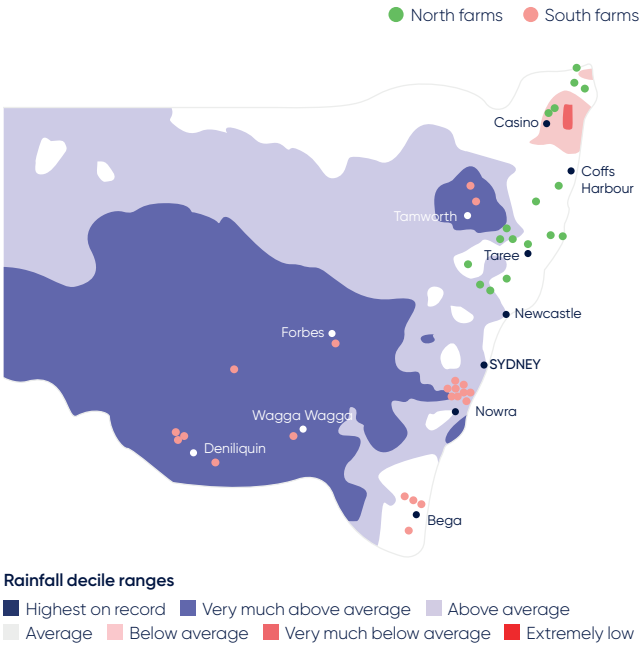
Flooding and wet conditions dominated the first half of the financial year across the State. Critical Producer Grants and Natural Disaster Transport Subsidies helped business continuity on many farms. This support enabled repair of infrastructure such as laneways, fences, irrigation pumps etc and enabled businesses to offset a portion of the increased reliance on purchased feed in many instances that replaced homegrown feed.

In general, the second half of the year saw less rainfall, particularly in the far south coast and northern parts of the state, although there were instances of large falls of rain on the south coast and the mid coast region during autumn.

Dairying in New South Wales

There were approximately **466** dairy farm businesses in NSW that produced **989.9 million litres** or **12.2 per cent** of Australia's national milk production in 2022/23.

Dairy Farm Monitor Project farm locations and rainfall in 2022/23



In 2022/23 farm profitability for the state has been influenced by:

↑25%
in average milk price to **$11.43/kg MS**

↑6%
in herd costs to **$0.50/kg MS**

↑3%
in shed costs to **$0.31/kg MS**

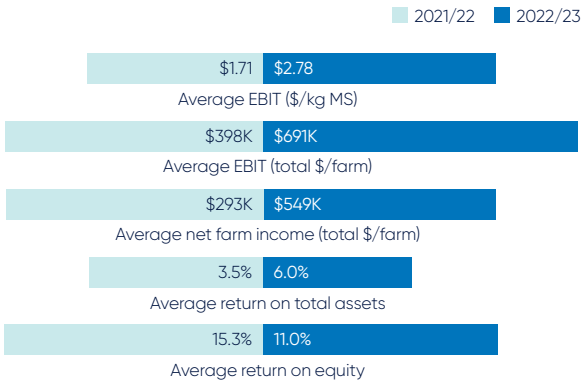
↑19%
in total feed costs to **$5.03/kg MS**

↑7%
in overhead costs to **$4.04/kg MS**

Profitability

Increased costs across the state in all areas of the business reduced the benefit of positive livestock trading conditions and a higher milk price for the season. Extreme and prolonged wet conditions across much of the state impacted profitability. The state-wide average EBIT per farm was the highest on record, accounting for inflation.

In 2022/23, 97 per cent of all NSW participants had a positive profit (35 out of 36).



Physical parameters and seasonal conditions

Wet conditions dominated the first half of the financial year with the majority of farms receiving above long-term average rainfall, with many locations across the State including the inland region, experiencing flooding. Whilst seasonal conditions improved for many in the second half of the year, the northeast and far south coast started to feel the impacts of a rain shortfall.

The floods impacted farm infrastructure and the ability to grow and harvest pasture and/or crops, with the quality and quantity of conserved fodder also impacted in many areas.

A cooler start to the spring/summer period also impacted pasture growth rates and responses to nitrogen.

As per the 2021/22 year, the proportion of homegrown feed in the diet declined on average.

NSW pasture based dairy production

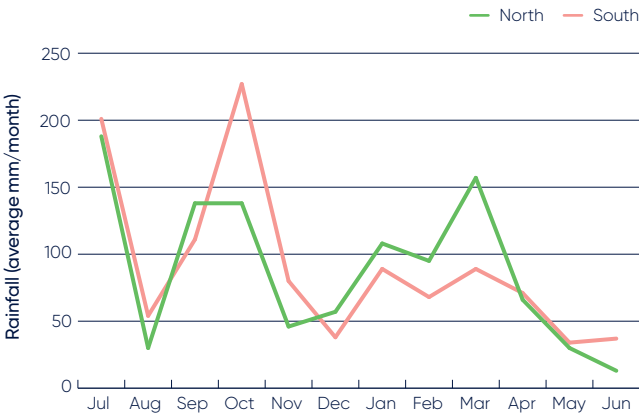
Dairying in NSW is predominantly pasture based. In the north, it is spread along the coastal and hinterland regions and in irrigated inland river valleys. Farms in the north are generally characterised as having moderate to high rainfall, limited irrigation, and a kikuyu/annual ryegrass pasture base with some use of summer forage crops. In the south farms are located along the coast and inland river systems. They are generally characterised by lower rainfall, mainly irrigated perennial and annual pastures, greater use of forage crops, larger herds and bigger farms.

Whilst this grouping reflects general similarities among farm systems and influences on milk pricing across NSW, there is a wide range of farm characteristics within each group and there is a trend towards increasing intensification across farm systems in response to the impact of extreme variation in climatic conditions.

Rainfall

Wet conditions influenced the physical and financial performance in each of the regions. The preceding conditions as well as the conditions prevalent in a particular month influence feed availability and conditions to harvest pastures and crops as well as their timely renovation or sowing.

Figure 1 Monthly rainfall 2022/23



Significant and extreme rainfall events in the first half of the year (Figure 1) provided challenges for harvesting pasture either by direct grazing or for fodder conservation in the north and south. In many instances it meant loss of a fodder crop in the paddock or loss of stored fodder due to flooding. Access to paddocks for grazing was limited in some regions due to the prolonged wet. Flooding and continued rainfall impacted animal health issues such as lameness and mastitis as well as farm infrastructure such as laneways and fences.

The rainfall deciles map on page 6 shows dairying regions in NSW experienced 'very much below average' to 'very much above average' annual rainfall illustrating the variability in seasonal conditions across the State within the year.

Feed consumption and harvest

Challenging conditions and lower homegrown feed availability in each region, saw the average tonnes of homegrown feed continue the declining trend seen since 2020/21 with the impact of multiple wet years. This year pasture removed through grazing and conservation declined by 0.4 t DM/ha across the state compared to 2021/22 (Figure 2). Similar to the previous year, many farms supplemented dairy herds with additional concentrates and fodder (at relatively higher prices) to fill feed deficits.

Feeding system

Moderate to high bail feeding systems were the most common feeding system in 2022/23 (Figure 3). While all feeding systems are represented within the group of farms, there is an increasing trend in NSW to farmers investigating and transitioning towards more intensive feeding systems, particularly in the south/inland regions. This year all the total mixed ration (TMR) farms were located in the south. Eleven of the seventeen north farms were moderate to high bail systems, with one low bail and five partial mixed ration systems. The south has no farms in the dataset with a low bail feeding system with twelve using a moderate-high bale system and a combined four using a partial mixed ratio or hybrid system and 3 using a total mixed ration system.

Information on feeding systems was first collected in 2020/21 and the purpose is to capture the intensification of dairy feeding systems in NSW over time. The type of feeding system employed reflects a longer-term decision made by the business operator to manage a certain type of feeding system, rather than a short term one to manage adverse seasonal conditions in a given year, i.e., wet soils management.

Fertiliser application

Total nutrient application on the milking area increased marginally on the 2021/22 year which was a very wet year with extremely high fertiliser prices. This was facilitated by a softening of fertiliser prices as the year progressed and an easing of wet conditions in the second half of the year. The level of nutrient applied on some individual farms may seem comparatively high. This is generally a result of wet conditions where farmers have made a strategic decision to rejuvenate pasture and re-establish homegrown pasture as quickly and effectively as possible.

In comparison to the previous year, Figure 4 shows that in 2022/23:

- Nitrogen applied was 188 kg/ha, a 9 per cent increase
- Phosphorous applied was 24 kg/ha, a 33 per cent increase
- Potassium applied was 29 kg/ha, a 26 per cent increase
- Sulphur applied was 22 kg/ha, a 22 per cent increase

Figure 2 Estimated tonnes of homegrown feed removed

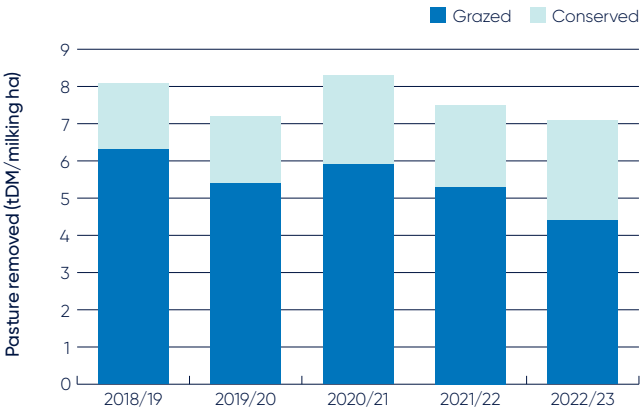


Figure 3 Type of feeding systems

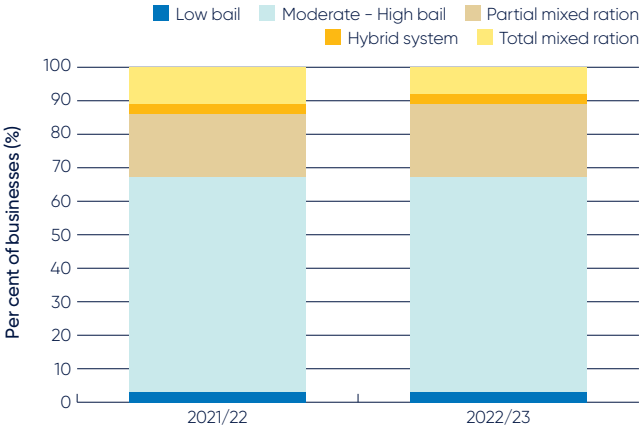


Figure 4 Nutrient application

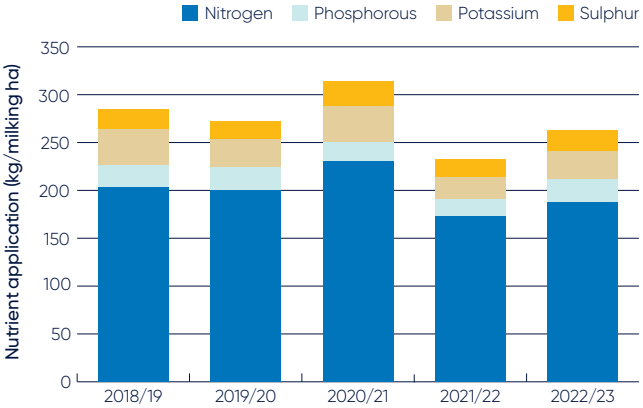
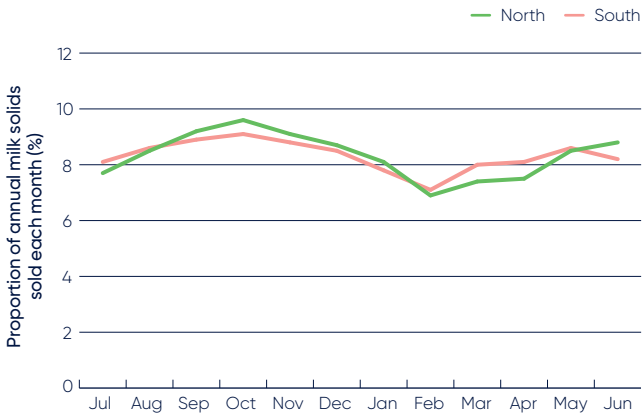


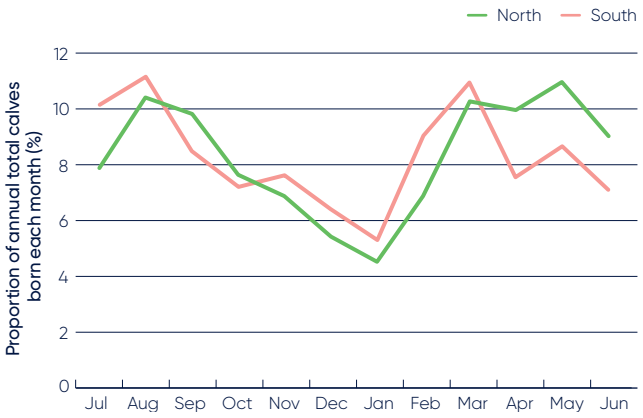
Figure 5 Monthly distribution of milk sold



Milk solids sold

Monthly distribution of milk sold across the two regions in NSW reflects a flatter milk supply requirement required by processors for the liquid milk market (Figure 5). Production across the two regions is very similar across the year. Spring production was proportionately lower than the previous year in both regions, impacted by wet conditions, however late autumn/early winter production was higher than in the previous year, driven by factors such as season and milk price signals.

Figure 6 Monthly distribution of calving



Calving pattern

Calving pattern for each region is shown in Figure 6. It reflects that most herds in NSW calve year-round, with slightly more calving occurring during the Spring and Autumn periods (related to feed availability). There is slightly less calving in the hotter summer period, which is becoming a strategic and conscious decision on some farms.

Interestingly, while the proportion of calves born in May was 2-3 per cent higher in the north and south relative to the 2021/22 year, there was a noted decline in the proportion born in June in both regions, likely a result of wet conditions in October 2022.


3101

Whole farm analysis

On average, farm profitability at a state-wide level increased in 2022/23 - reflected in a higher average Earnings Before Interest and Tax (EBIT) in both regions. EBIT was positive on 35 out of the 36 participating farms (97%).

Average milk price (nominal) amongst participant farms increased by 25 per cent and was the highest on record in 12 years of NSW DFMP, at $11.43/kgMS. Livestock trading profit and 'other farm income' declined relative to 2021/22, however the higher milk price resulted in a higher average gross farm income.

State-wide, variable costs increased by 17 per cent primarily due to feed costs (purchased feed and agistment), with overhead costs higher by 7 per cent, however there is considerable variation between the regions in these increases.

Physical parameters

Number of milkers (hd)	2021/22	2022/23
State	375	415
North	312	298
South	437	520

WUE (t DM/100mm/ha)	2021/22	2022/23
State	0.4	0.5
North	0.3	0.5
South	0.6	0.5

Usable area (ha)	2021/22	2022/23
State	381	382
North	365	291
South	398	461

Milking cows per usable ha	2021/22	2022/23
State	1.3	1.3
North	1.2	1.3
South	1.3	1.3

Milk solids sold (kg MS/cow)	2021/22	2022/23
State	518	511
North	461	456
South	575	561

Milk solids sold (kg MS/ha)	2021/22	2022/23
State	644	661
North	557	609
South	731	708

Homegrown feed as % of ME consumed	2021/22	2022/23
State	55	49%
North	58	51%
South	51	48%

Labour efficiency (cows/FTE)	2021/22	2022/23
State	71	72
North	64	67
South	78	77

Labour efficiency (kg MS/FTE)	2021/22	2022/23
State	36,747	37,430
North	29,378	30,283
South	44,115	43,825

Financial parameters

Income $/kg MS	2021/22	2022/23
Milk income (net)		
State	9.13	11.43
North	9.58	11.97
South	8.68	10.94
Livestock trading profit and other income		
State	1.35	1.23
North	1.48	1.35
South	1.22	1.14
Gross farm income		
State	10.48	12.66
North	11.06	13.32
South	9.90	12.08

Costs $/kg MS	2021/22	2022/23
Variable Costs		
State	5.01	5.85
North	5.46	6.21
South	4.56	5.52
Overhead costs		
State	3.76	4.04
North	4.27	4.58
South	3.26	3.54
Earnings before interest and tax		
State	1.71	2.78
North	1.33	2.52
South	2.08	3.01

Earnings before interest and tax

In 2022/23 the increase in average farm profitability (measured by earnings before interest and tax, EBIT) was predominantly influenced by the higher milk price. Widespread flooding and wet conditions in the first half of the financial year impacted homegrown feed availability and quality. Support via grants enabled businesses to replace lost feed however there was still a 19 per cent increase in total feed costs (Figure 7).

Return on total assets

A positive return on total assets (ROTA) was recorded for 35 of the 36 participants (Figure 8). In 2022/23 average ROTA increased to 6.0 per cent mainly due to the higher EBIT driven by higher milk price.

Return on Equity

A wide range in return on equity (ROE) performance was observed across the regions, with 33 of the 36 participants achieving a positive ROE. Average ROE was 11 per cent in 2022/23 down from 15.3 per cent in 2021/22.

Business structure will impact return on equity and in the NSW DFMP dataset there are a number of farms that operate with significant amounts of leased assets that can drive a very high ROE.

On average, dairy businesses had a lower equity level (72%) in 2022/23, compared to 74 per cent equity in 2021/22.

Figure 7 Distribution of farms by EBIT

Figure 8 Distribution of farms by ROTA

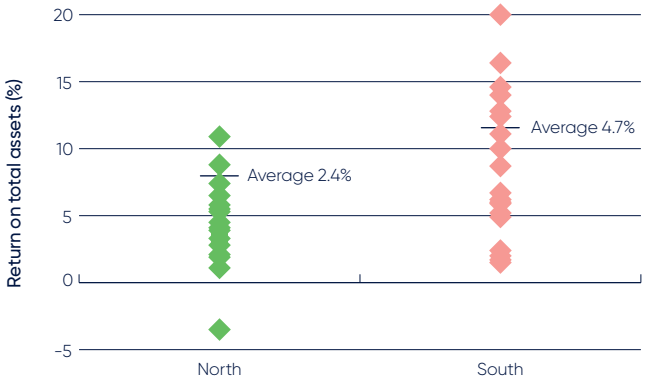
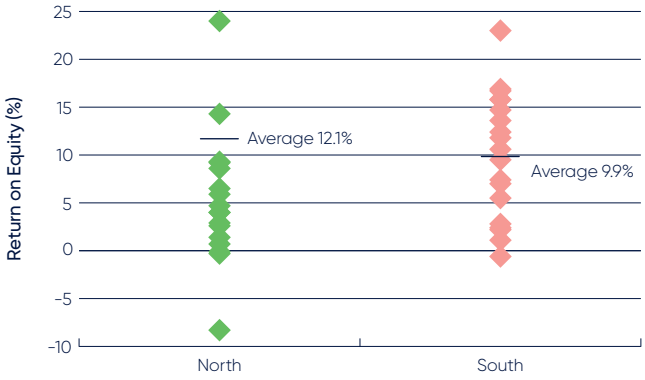


Figure 9 Distribution of farms by ROE



** One farm in the North operates with all leased assets and has a very high ROE. Dot point is not represented on graph due to scaling*

Part Two:
The North

Performance

Dairying in the North

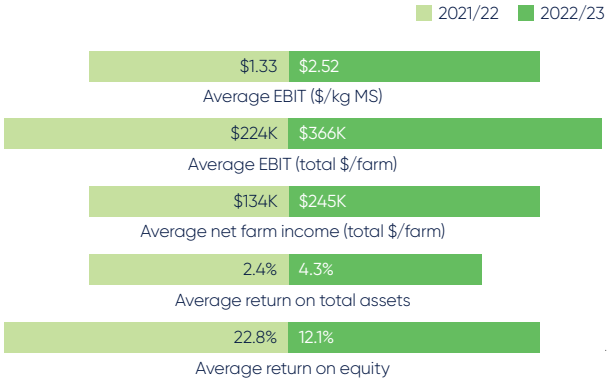
There were 17 participating farms in the North dataset, down from 18 the year before. Seasonal conditions in the 2022/23 year were again, challenging due to a very wet first half of the financial year, cooler spring conditions and then in some locations, significantly reduced rainfall. This was on the back of a very wet 2021/22 year. These events resulted in increased feed costs due to more purchased feed in the diet and at higher feed prices relative to 2021/22. Infrasturucture damage (laneways, fences etc) was also an issue on many farms. Of note, impacts on farm saw a continued decliine in the North Coast region's milk supply with a 10.8 per cent decline in annual production (Dairy Australia – Milk Production Report). April to June saw an improvement in milk supply relative to the same time the previous year. Government grants assisted many farms purchase fodder and undertake repairs and maintenance due to the flooding.

Physical farm characteristics

The average herd size of the North dataset decreased slightly to 298 cows and milk produced per cow declined marginally from 461kgMS/cow to 456 kgMS/cow. Farms were dependant on more imported feed relative to the previous year due to the conditions.

Average herd size	Milk solids sold	Homegrown feed
↓4%	↓1%	↓12%
298 cows	456 kg MS/cow	51% of metabolisable energy consumed

In 2022/23, 16 of the 17 participants recorded a positive return on total assets.



Farm profitability was influenced by:

↑25%
in average milk price to **$11.97/kg MS**

↓2%
in herd and shed costs to **$0.91/kg MS**

↑17%
in total feed costs to **$5.30/kg MS**

↑7%
in total overhead costs to **$4.58/kg MS**

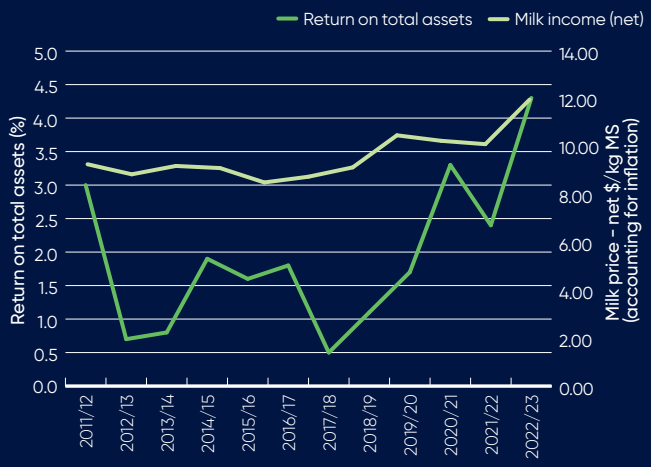
↓8%
in total homegrown feed (tDM/milking ha) due to wet conditions and flood impacts

↑ 0.2 tDM/cow
in average supplements* fed (total 3.7 tDM/cow) with no increase to average purchased concentrate fed per cow

Highest total costs
(variable and overhead) in 12 years of DFMP

** Supplements fed on milking area and includes all feeds that are not directly grazed feed (purchased feeds and homegrown concentrate, silage or hay).*

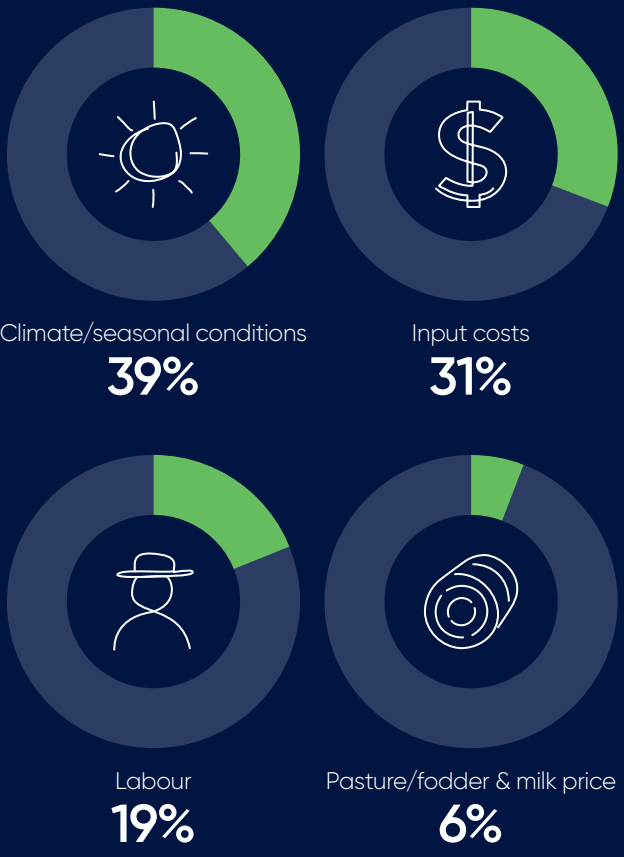
Return on total assets and milk price



Future expectations 2023-24

Of the participant farms in the North, 76 per cent expect returns to improve or remain stable. The remaining farmers are expecting declining returns.

Concerns as reported by farm businesses:



Climate/seasonal conditions
39%

Input costs
31%

Labour
19%

Pasture/fodder & milk price
6%

Whole farm analysis

Gross farm income (nominal) increased from the previous year due to higher milk income.

Increased use of purchased feed to manage challenging seasonal conditions and lower homegrown feed production across the year.

Increased costs, particularly, feed and labour costs and depreciation impacted farm profitability.

Gross farm income

Higher average gross farm income (nominal) was recorded in 2022/23 than the previous year. When accounting for inflation, it is the highest for the North over the 12 years of the DFMP. The key driver was the higher milk price.

Variable costs

Variable costs increased by $0.75/kg MS, with higher total feed costs being the largest component.

Total feed costs increased by $0.76/kg MS. This was driven by a higher average cost on a $/tDM basis and a slight increase in the proportion of purchased feed in the herd diet. On a $/kgMS basis the cost of purchased fodder and agistment increased 28 per cent. Grants provided to flood and wet weather affected farmers have been netted off feed costs where applicable, consistent with DFMP methodology.

Fertiliser use on the milking area increased on the previous year as conditions allowed and fertiliser prices softened. This saw the total average fertiliser cost increase by 15 per cent to $0.78/kgMS.

By the end of the year, the value of feed inventory had increased relative to that of the previous year. As this feed is not used in the production of milk for the year, it is reflected as a negative cost, coming off total feed costs and is also reflected as an asset in the balance sheet.

Herd costs remained stable and shed costs saw a slight decline on a $/kgMS basis, due to lower dairy supply costs. Energy efficient technology (mostly solar) has been adopted on some farms to mitigate increasing grid energy costs, which will potentially impact shed power costs.

Overhead costs

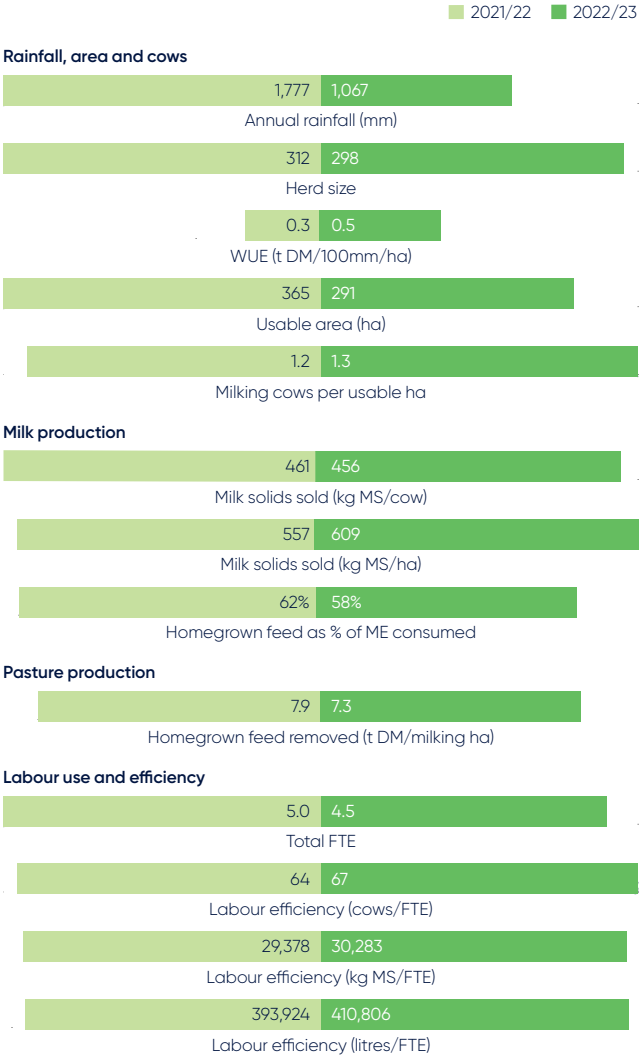
Total overhead costs increased on average by 7 per cent in the North in 2022/23.

Repairs and maintenance costs increased only slightly on the previous year, noting that grants enabled many flood affected farmers to cover the cost of abnormal repairs and maintenance. Where farmers have received grants for flood damage and this has been spent on R&M, this has been netted off the cost, consistent with DFMP methodology.

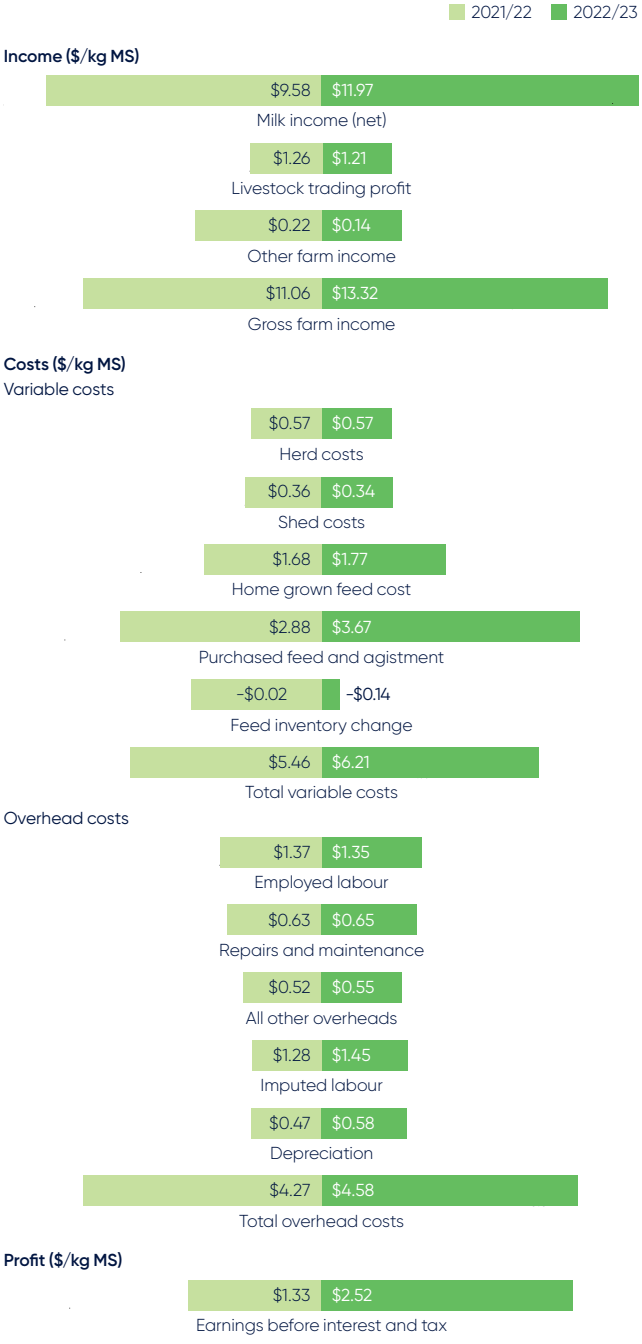
The cost of imputed labour increased on a $/kgMS basis. The number of full-time labour units decreased slightly (0.5FTE) with employed labour dropping from an average of 3.3FTE to 2.7 and imputed labour increasing marginally across participant farms from 1.7 to 1.8FTE.

The non-cash cost of depreciation saw a 25 per cent increase on the previous year. This is a result of farms purchasing more equipment and investing in on farm infrastructure of significant value such as feedpads. The increase in equipment purchases has been driven by numerous factors including previous tax incentives such as the instant asset write off and higher on farm profitability. Supply chain issues in recent years have seen an increase in the purchase price of equipment which has also driven higher pricing for second hand equipment.

Physical parameters



Financial parameters



Earnings before interest and tax

In 2022/23, 16 of the 17 participants in the North had a positive EBIT (Figure 10). Average EBIT per farm (total dollars) was the highest in the 12 years of the DFMP, accounting for inflation. Average EBIT ($/kg MS) was higher year-on-year, and again the highest on record, accounting for inflation.

Return on total assets and equity

Average ROTA increased to 4.3 per cent in 2022/23 from 2.4 per cent 2021/22. The higher returns were a function of a higher total EBIT.

Average ROE in 2022/23 declined relative to the previous year to 12.1 per cent. Three farms had a negative ROE. This was either a result of having a negative EBIT or due to finance costs (interest and lease costs) being higher than the EBIT generated.

Equity levels increased on 13 of the 17 farms during the last 12 months.

With the cost of financing lower than the returns from accessing additional assets (e.g., land, dairy upgrades, and major infrastructure), 8 of the 17 participants recorded higher ROE than ROTA (Figure 11). These farmers have been able to grow their business.

Figure 10 Average EBIT per kg ms – North

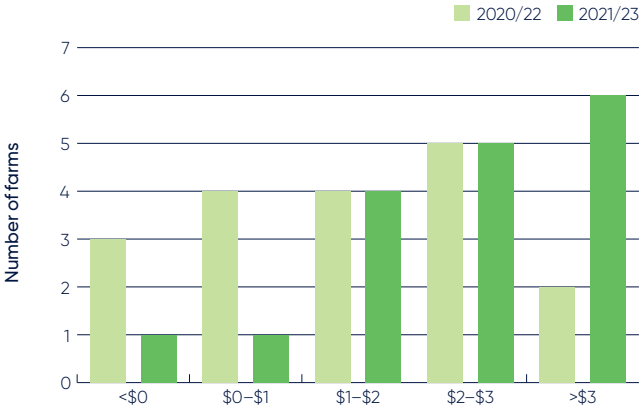
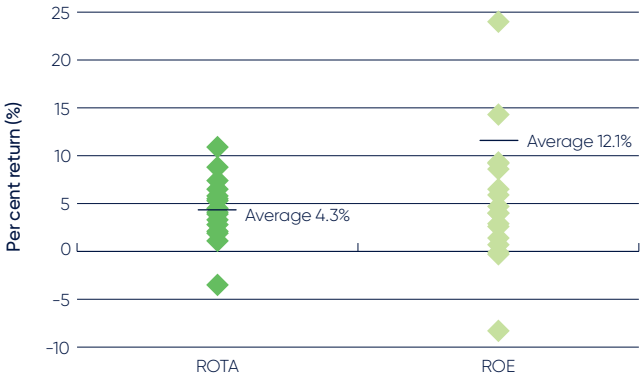


Figure 11 2022/23 average returns – North



Note: One farm operates with all leased assets and has a very high ROE. Dot point is not represented on graph due to scaling.

Feed consumption and fertiliser

Feed consumption and pasture harvested

Direct grazing on the milking area (on average) reduced by around 0.7 t DM/milking ha. The amount of pasture conserved increased by 0.1 tDM/milking ha compared to the previous year, consequently the total tonnes of dry matter harvested on the milking area decreased by 0.6 tDM/ha (Figure 12).

With the North experiencing a very wet first half of the year, many farms were unable to conserve fodder or graze pastures as planned. This resulted in the lowest quantity of pasture removed from the milking platform in the last five years, which includes severe drought years.

On average, these challenging conditions saw an increase in the use of purchased hay and silage. As a proportion of the diet, homegrown feed (grazed and conserved pasture) accounted for 51 per cent of the metabolisable energy consumed, lower than the previous year's average of 58 per cent.

Feeding system

This year 11 farms (65%) in the North employed a moderate to high bail feeding system with 5 farms (29%) operating a partial mixed ration (PM) system, with one low bail system (Figure 13).

Fertiliser

The amount of fertiliser applied on the milking area (Figure 14) was slightly higher than the previous year primarily driven by the use of more phosphorus, potassium and sulphur, with nitrogen application very similar to 2021/22.

Figure 12 Average homegrown feed removed – North

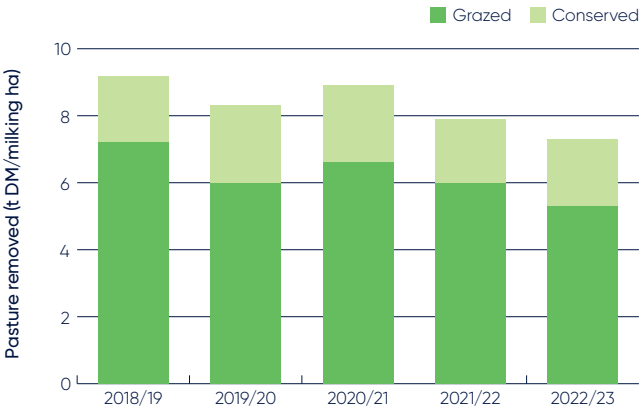


Figure 13 Feeding system types - North

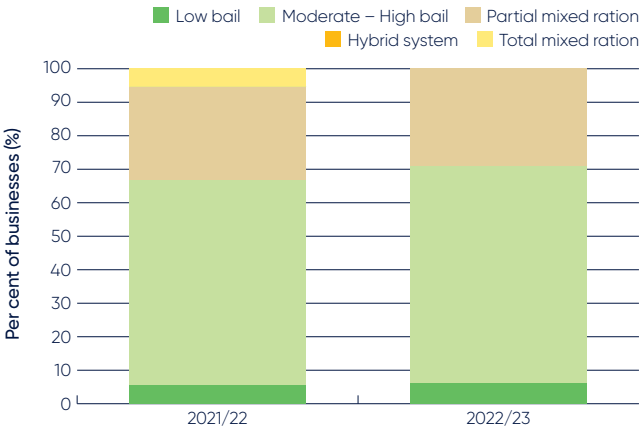
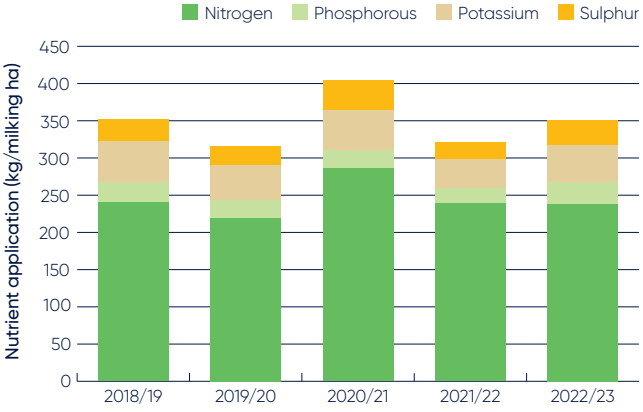


Figure 14 Average nutrient application – North



Part Three:
The South

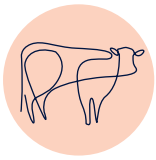
Performance

Dairying in the South

There were 19 participating farms in the South dataset, up from 18 the year before. Seasonal conditions in the 2022/23 year were extremely challenging due to large rainfall events in spring and autumn including flooding in many areas and prolonged wet periods on the back of a very wet 2021/22 year. The exception to this was the far south coast region which by the end of the year was experiencing a very dry autumn and early winter. The timing of these events and duration meant fodder conservation and pasture/crop sowing was impacted, with some businesses requiring more purchased fodder to meet the feed deficit. Infrastructure damage (laneways, fences etc) as a result of flooding was also an issue of significance on many farms. Government grants assisted many farms purchase fodder and undertake repairs and maintenance due to the flooding.

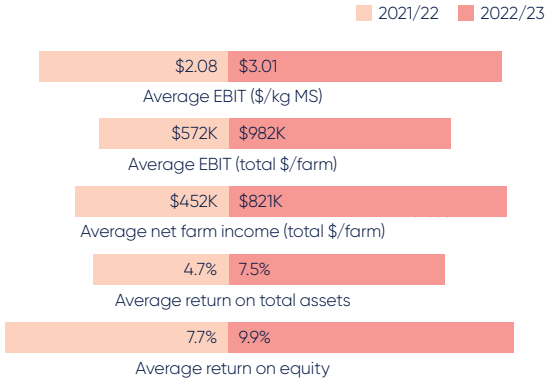
Physical farm characteristics

The average herd size in the dataset increased to 520 cows and milk produced per cow declined slightly going from 575 to 561 kgMS/cow. On average more feed was imported than in the previous year.



Average herd size	Milk solids sold	Homegrown feed
↑ 19%	↓ -2%	↓ -7%
520 cows	561 kg MS/cow	48% of metabolisable energy consumed

In 2022/23, all participants (19 out of 19) recorded a positive return on total assets



In 2022/23 farm profitability has been influenced by:

↑26%
in average milk price to **$10.94/kg MS**

↑18%
in herd and shed costs to **$0.72/kg MS**

↑21%
in total feed costs to **$4.80/kg MS**

↑9%
in total overhead costs to **$3.54/kg MS**

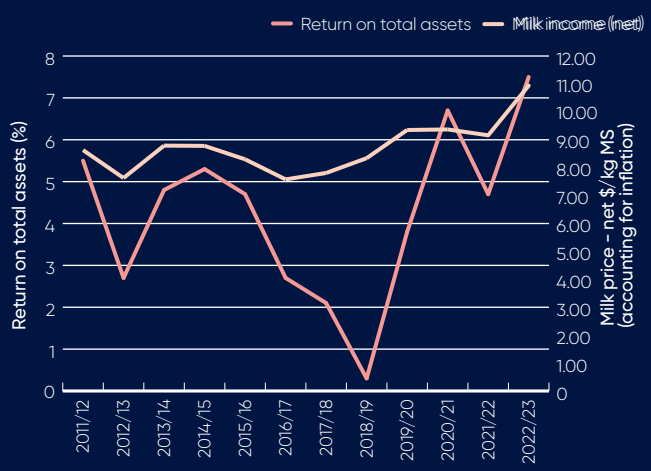
↓18%
in total homegrown feed (tDM/milking ha) due to wet conditions and flood impacts

↑ 0.4 tDM/cow
in average supplements* fed (total 5.7 tDM/cow) with no increase to average purchased concentrate fed per cow

Highest total costs
(variable and overhead) in 12 years of DFMP

** Supplements fed on milking area and includes all feeds that are not directly grazed feed (purchased feeds and homegrown concentrate, silage or hay).*

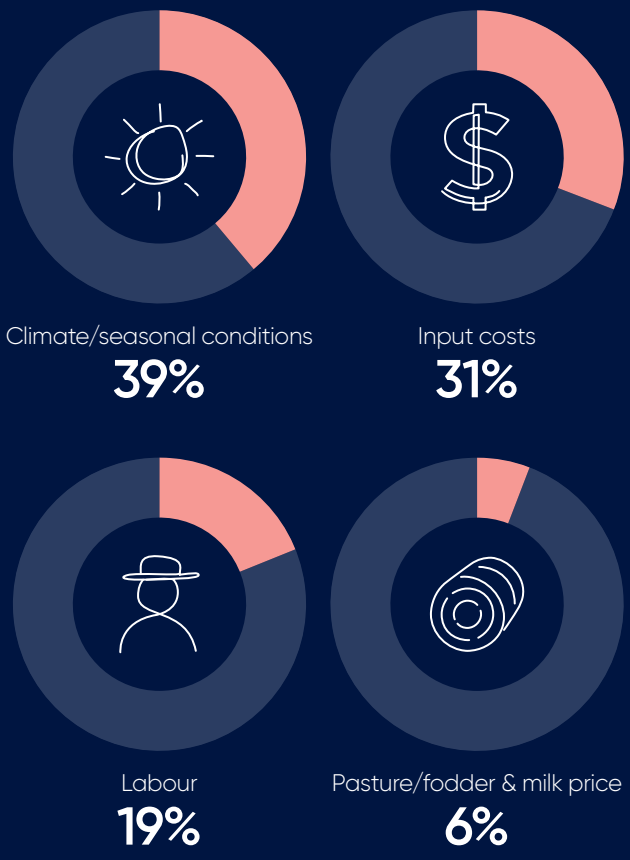
Return on total assets and milk price



Future expectations 2022/23

74 per cent of farmers expect business returns to improve or remain stable with 26 per cent expecting a decline in returns.

Concerns as reported by farm businesses:



Whole farm analysis

Gross farm income increased in the South from the previous year due to a higher milk price. Livestock trading and 'other farm income' declined relative to the 2021/22 year.

Homegrown and purchased feed and agistment costs increased on the 2021/22 year on a $/kgMS basis with the increase in total feed costs for the year impacting on profitability.

Highest total costs (variable and overhead) in 12 years in 2022/23 were more than offset by the increased milk price resulting in the highest profits historically seen in the south.

Gross farm income

Higher income was recorded in 2022/23 than the previous year and was the highest on record in the 12 year history of DFMP ($/kg MS), accounting for inflation. This was due to increased milk income.

Variable costs

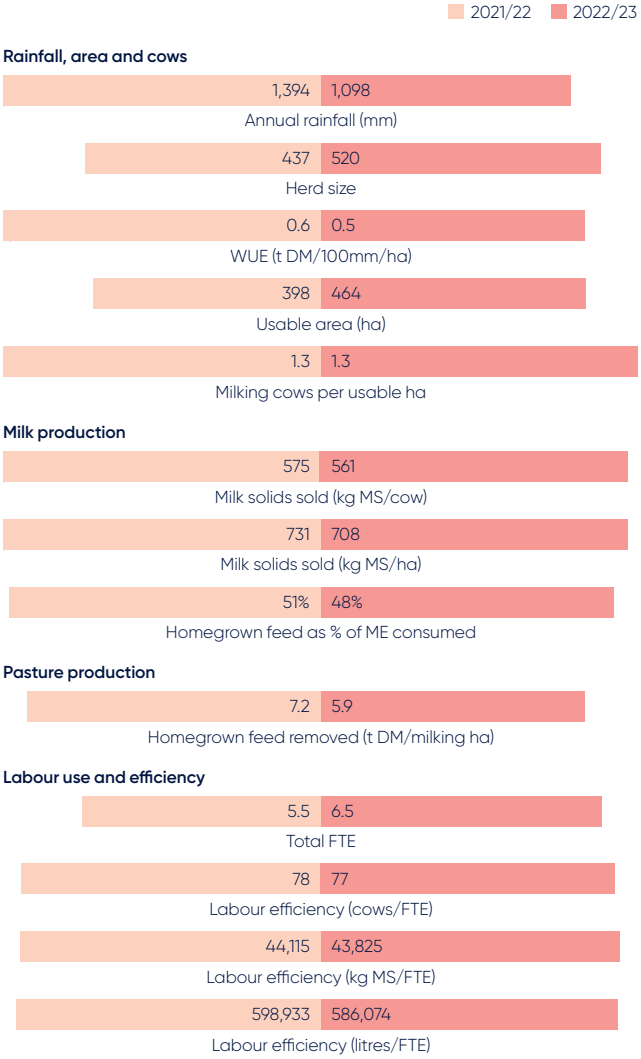
Higher purchased feed and agistment costs were the main reason for the increased variable costs in 2022/23 (a $0.60/kg MS increase from 2021/22), with higher homegrown feed costs contributing an extra $0.18/kg MS on the previous year. On average, there was only slightly more purchased feed fed per cow (concentrates, hay, silage and 'other feed'), however the average per unit price of the purchased feeds (particularly concentrates) increased the average cost per kg MS.

The amount of fertiliser applied increased relative to the 2021/22 year, most noticeable with higher nitrogen applications. Other factors increasing the cost of homegrown feed this year included general increases in the cost of irrigation and fuel and oil.

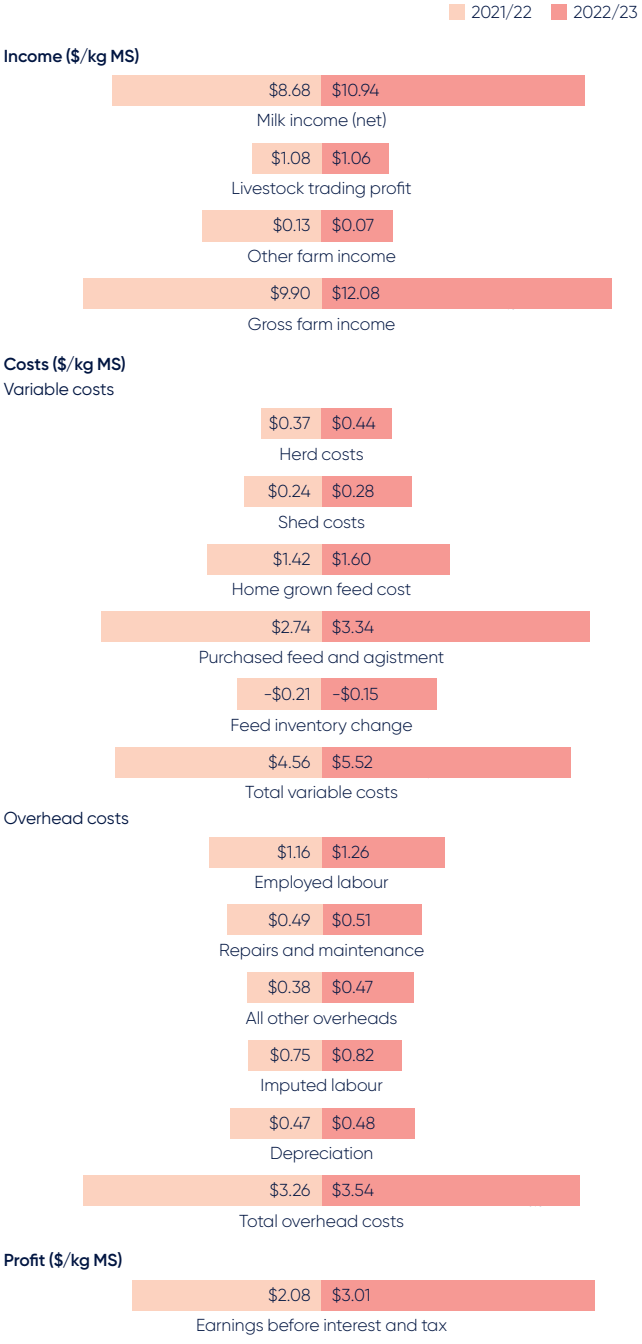
Fodder conservation and use was mixed in the South in 2022/23. Eight of the eleven farms used their fodder reserves to manage the challenging seasonal conditions, while 11 farms were able to build reserves over the course of the year.

There were slightly higher costs for AI and herd testing with the continued increase in use of genomics and sexed semen. Shed costs increased on average, being a mixture of power and dairy supplies. Energy efficient technology (mostly solar) has been adopted on some farms to mitigate increasing grid energy costs.

Physical parameters



Financial parameters



Overhead costs

Increased spending on employed and imputed labour (non-cash cost) of a combined $0.17/kg MS saw total labour costs rise by 9 per cent to $2.08/kgMS.

Repairs and maintenance costs increased only slightly on the previous year, noting that grants enabled many flood affected farmers to cover the cost of abnormal repairs and maintenance. Where farmers have received grants for flood damage and this has been spent on R&M, this has been netted off the cost, consistent with DFMP methodology.

Earnings before interest and tax

In 2022/23, average EBIT (per farm) was the highest in the 12 years of NSW DFMP (accounting for inflation), with all 19 businesses generating a profit.

The improvement in farm performance is illustrated in Figure 15. Compared to the 2021/22 year, there were 14 farms of the 19 farms that were highly profitable, with an EBIT greater than $2.00/kgMS. This compares to 10 farms out of 18 in the 2021/22 year.

Return on total assets and equity

The higher EBIT performance, contributed to the higher ROTA in 2022/23

This year saw a marginal decline in equity percentage to 72 per cent from 73 per cent in 2021/22. Overall, there was an increase in the total dollar value of farm equity, largely due to an increase in the value of total assets owned. This was partly offset by an increase in plant and equipment loans.

The cost of financing was lower than the returns from accessing the additional assets (e.g., land), and 16 of the 19 participants recorded higher ROE than ROTA (Figure 16). These farmers have been able to grow their business.

Figure 15 Average EBIT per kg ms – South

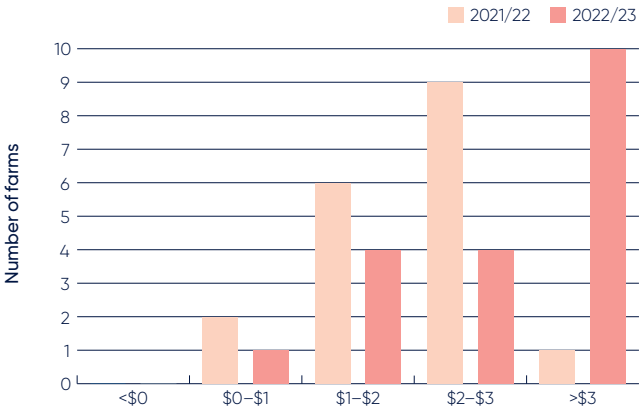
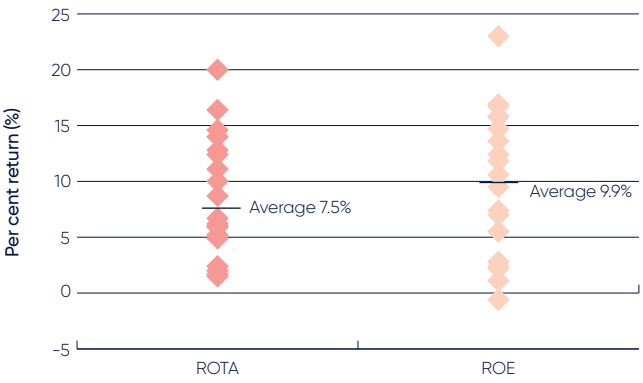


Figure 16 2022/23 Average returns – South



Feed consumption and fertiliser

Feed consumption and pasture harvested

Farms in the South show a wide range of feeding systems. In 2022/23, directly grazed pasture was not the main source of metabolizable energy on all farms in this region with twenty-one percent of farms operating a more intensive feeding system, being hybrid or total mixed ration (TMR) systems. Only 7 farms had 50 per cent or more of their energy sourced from directly grazed pasture.

Direct grazing on the milking area, on average reduced by 1.1 tDM/ha and the amount of pasture conserved reduced by 0.2 tDM/milking ha. Consequently, the total tonnes of dry matter harvested from the milking area decreased by 1.3 tDM//ha (Figure 17).

As a proportion of the diet, homegrown feed (grazed and conserved pasture) accounted for 48 per cent of the metabolisable energy consumed, compared to 51 per cent in the previous year.

This region covers a large area (Murray, Riverina, Far South Coast, South Coast and Central Inland areas) which often experience very different seasonal conditions. Following on from the wet end to the previous financial year, continued wet conditions were seen across a lot of the region. Early spring then saw significant falls of rain that caused widespread flooding, resulting in loss of pasture and crops and consequently less directly grazed and/or conserved feed on many farms. Farmers in the south coast region then received more heavy rain during autumn, however those farms in the far south coast region experienced the opposite, with a dramatic decline in rainfall and conditions turning very dry heading into winter.

Feeding system

Moderate to high bail was the dominant feeding system (12 farms) of surveyed farms. The remainder of the farms were a mix of partial mixed ration (16%), hybrid (5%) and total mixed ration (16%). The majority of these more intensive feeding systems are in the inland regions of the south (Figure 18) where intensification is seen as an option to reduce both climatic volatility as well as water pricing challenges.

Fertiliser

The amount of fertiliser applied per hectare (Figure 19) increased by 27 per cent on the 2021/22 year. However, it was still low relative to earlier years as a result of the wet conditions. Following the return to less wet conditions in the second half of the year, there was opportunity to apply fertiliser on many farms as the cost of this also started to soften from the very high prices seen in the preceding season.

Figure 17 Average homegrown feed removed – South

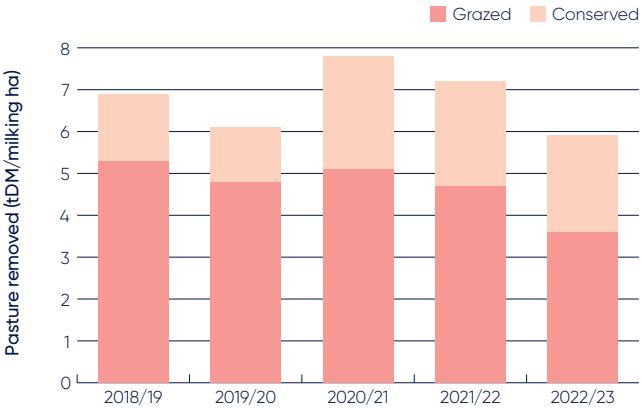


Figure 18 Feeding system types – South

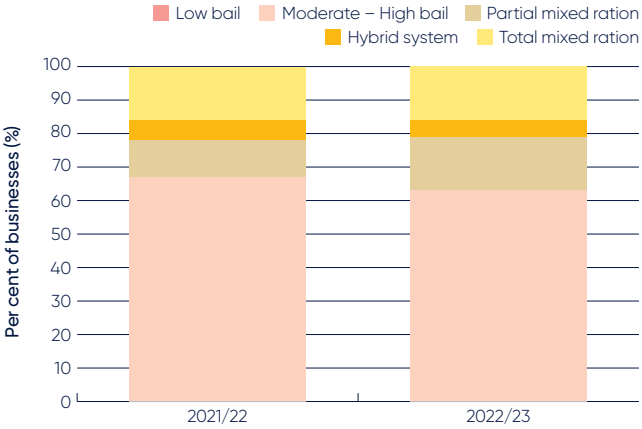
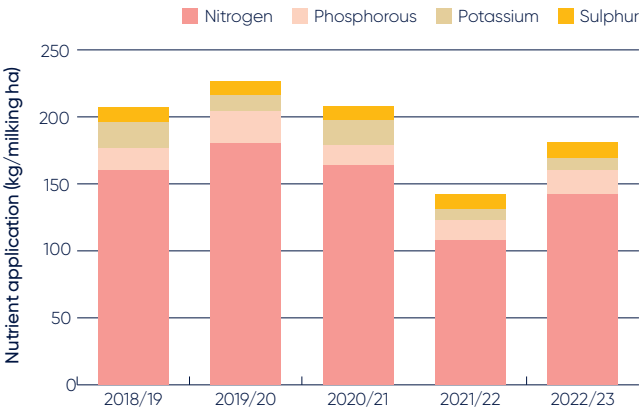


Figure 19 Average nutrient application – South



Part Four: Business Confidence

Participant farmers were confident in their outlook for farm business returns in the coming 12 months (2023-24).

More respondents in the North expected milk price to increase than in the South, However, the majority of farmers in both regions expect price to remain stable.

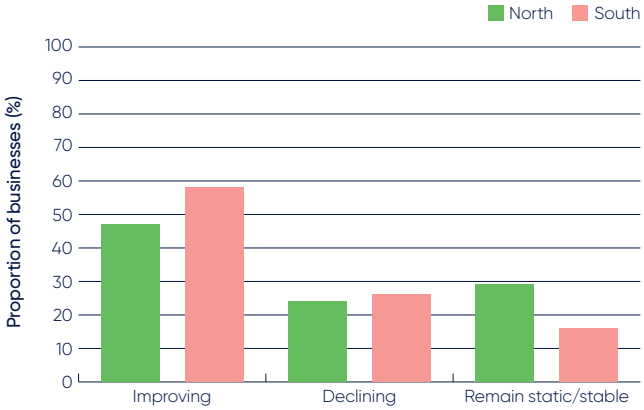
Following a challenging 2022/23 year, the majority of farmers expect to increase milk production with only four of the 36 expecting to decrease production.

In 2023-24 costs were expected to increase across purchased feed, irrigation and labour.

Expectations for business profit 2023-24

The participant survey considers different aspects of farming, from climate outlook to expectations about market conditions for dairy products. While expectations for business profit in the coming year were generally positive, there were slight regional differences (Figure 20). Farms in the north were less optimistic than those in the south, likely to be influenced by the number of consecutive years of very challenging conditions, with extreme dry and wet impacting both business performance and farmer capacity to deal with repeated events.

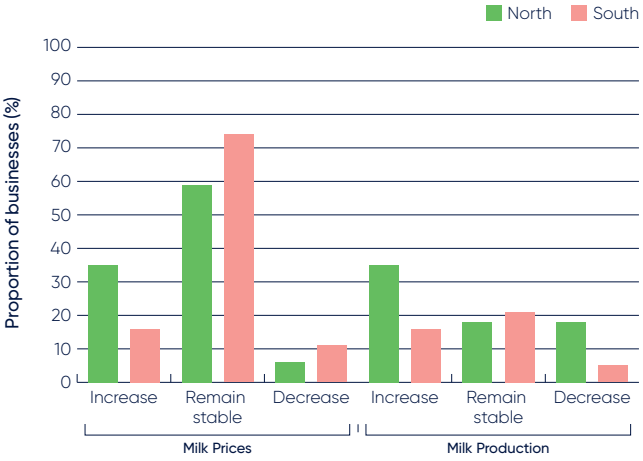
Figure 20 Expected change to farm business profit in 2023-24



Price and production expectations - milk

Participants were confident in their outlook for milk price, and milk production for 2023-24. This is mainly due to the timing of milk price announcements (1 June), with farmers having more informed choices on their milk factory at the time of the DFMP survey (July/August 2023). The majority of respondents were expecting milk price to remain stable or increase., with farmers in the north more optimistic about increasing prices than those in the south (Figure 21). A small number of farmers in each region were anticipating a decrease. The majority of farmers in both regions were expecting to increase milk production (North 65% and South 74%). This increase in milk production is possibly as a result of an improvement in seasons as well as strong milk prices and incentives from milk companies for farmers to increase production. Three farmers in the north and one in the south expect milk production to decrease.

Figure 21 Producer expectations of milk prices and production in 2023-24

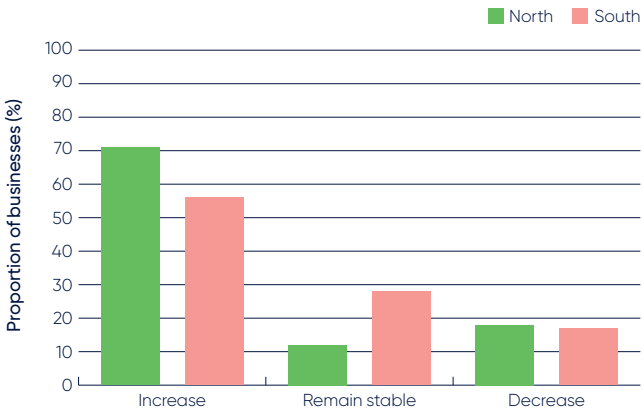


Production expectations - fodder

The expectations for fodder production in 2023-24 were more positive in the North, however, the majority of farmers in the south also expected an increase in fodder production. When looked at in the context of the challenging 2022/23 year where fodder production was severely impacted, this again perhaps reflects optimism towards a return to better seasons during the year. There were a similar number of farms in the north and south that expected declining fodder production. These farms were experiencing drier times at the time of the survey which may have influenced their thinking. (Figure 22).

Despite farmer intentions, as was seen in 2021/22 and 2022/23, the ability for farmers to reach their goals of increasing fodder is highly seasonal dependent.

Figure 22 Producer expectations of fodder production in 2022/23

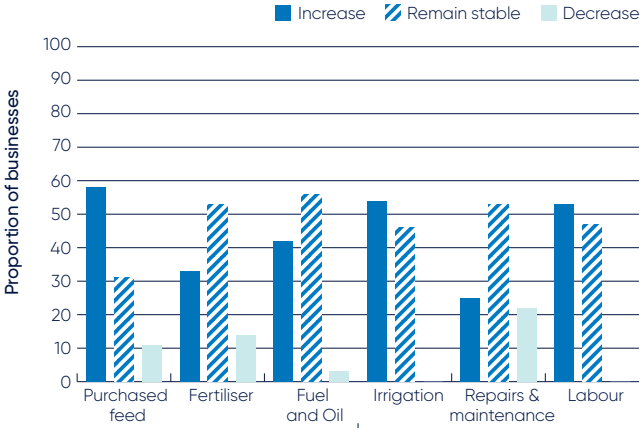


Cost expectations

The cost category that was expected to be the most likely to increase in 2023/24 was purchased feed (Figure 23). Based on the timing of the survey this response is unsurprising due to many experiencing drier seasonal conditions and anticipating reliance on more purchased feed. Cost increases are also expected for labour, although 47 per cent of farmers are expecting labour costs to remain stable. Most irrigated farms expect to see an increase in costs in 2023/24, again reflective of seasonal conditions at the time of the survey.

The results this year indicate a view that business costs may have started to settle for fertiliser, fuel and oil and repairs and maintenance.

Figure 23 Producer expectations of costs for the dairy industry in 2023/24



Comments from participants

Consolidation of business operations was mentioned by a number of farmers this year, following the challenges of numerous floods. Climatic impacts were also listed as concerns with some looking to intensify operations to respond while others were looking at milking less cows and producing more from them and growing more homegrown feed as part of the diet. Comments were also made around the impact that climatic conditions have on business costs.

Succession planning was a common thread as well as several farmers flagging an exit from the industry in the coming years. On the flip side, there were farmers looking to invest back into the business with infrastructure upgrades and the purchase of more land.

Labour challenges continue to be raised with respect to costs, availability, and suitability of staff.

Debt reduction was listed as a priority by some farms and others had concerns around increasing interest rates.

The loss of farms impacting the ability to attract service providers was raised again this year.

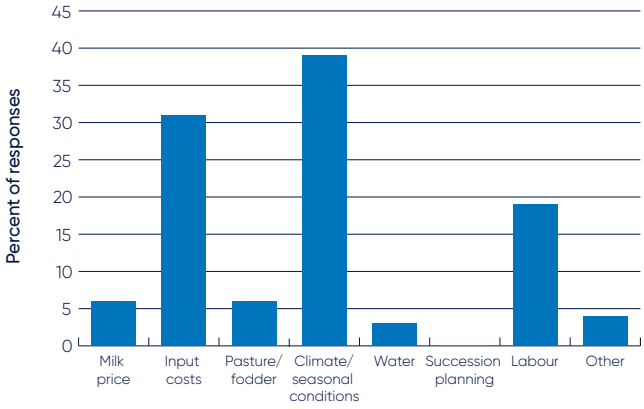
Issues of importance to dairy businesses

Participants were asked to rank issues based on the level of importance to their business – with a ranking of (1) being most important and (8) being least important. The results are shown in Figure 24 for the short-term issues and Figure 25 for medium term issues.

Short term issues - Next 12 months

Seasonal conditions were again ranked as the most important issue, reflective of another very challenging and wet year faced across the State as well as a drier end to the year for farmers in the far south coast and northern part of the state. However, the percentage of businesses ranking this as the number one issue declined to 39 per cent from 47 per cent in 2021/22. Input costs and labour were again ranked second and third respectively. The concern for input costs as an issue increased to 31 per cent from 25 per cent last year and labour increased marginally to 19 per cent of respondents up from 17 per cent in 2021/22.

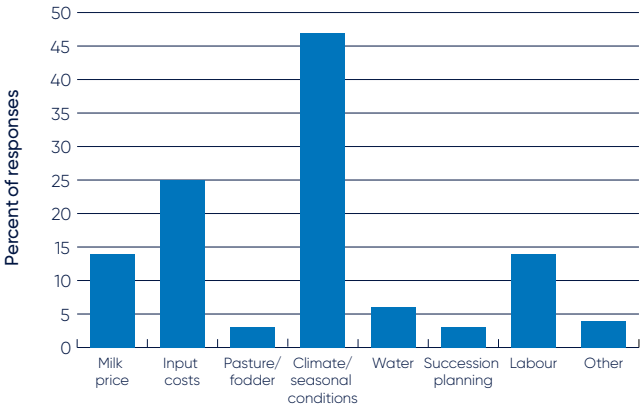
Figure 24 Major issues for individual businesses – 12-month outlook



Medium to long term issues - Next five years

The ranking order for concerns over the medium term (five years) has changed since last year. Climate and seasonal conditions now rank higher than input costs and labour, which were equal highest last year. This is a result of repeated extreme weather events. Input costs are now ranked second highest (25%) followed by labour and milk price which are equally seen as the third most important issue, with only 14 per cent of farmers concerned about these.

Figure 25 Major issues for individual businesses – 5-year outlook



Part Five: 2022/23 Greenhouse Gas Emissions

The median carbon footprint for New South Wales was 2,583 tonnes of carbon dioxide equivalents (t CO_2-e) per farm in 2022/23.

Changes in net farm emissions for NSW dairy farms in 2022/23 can be attributed to changes in the data capture process and increases across all emissions sources on farm.

Emissions intensity was 0.99 t CO_2-e/t FPCM remaining similar to the previous year.

Methane from cow rumination (enteric) accounted for 60 per cent of on-farm emissions (median).

Total emissions

In 2022/23, the median carbon footprint (net GHG emissions) for NSW participants was estimated to be 2,583 t CO_2-e/farm (Figure 26). Prior to 2020/21 median farm GHG emissions had been trending upwards, mostly due to larger herd sizes and greater milk production per farm. Since 2020/21 there was a change in data capture including carbon sequestration in trees and in 2022/23 user defined inputs for manure management were captured rather than utilising state defaults, accounting for some of the variation in total farm emissions.

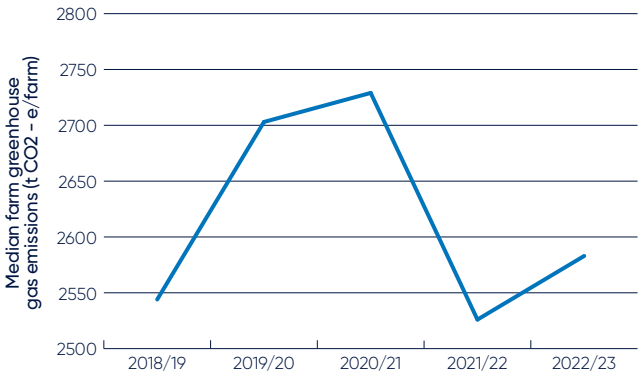
In 2022/23, there was a slight increase in farm emissions largely due to an increase in pre-farm emissions (fertiliser manufacture, production of purchased fodder, grain and concentrates), nitrous oxide emissions (gas produced from wastes - dung/urine, applied fertiliser and effluent ponds), carbon dioxide emissions from fossil fuel consumption (electricity, petrochemicals and/or fuel from contractors).

The softening of fertiliser prices likely resulted in an increase in fertiliser use compared to 2021/22 but still lower than previous years, largely due to the wet seasonal conditions experienced across the state.

The separation of the urea component of fertiliser blends and increase in fertiliser use as prices softened combined with increased electricity use across farms contributed to an increase in farm emissions. The change in data capture in 2022/23 to include an estimate for the fuel used by contractors on farm for activities such as fodder conservation and sowing has also contributed to the increase.

Enteric methane also increased slightly on the previous year accounting for approximately 60 per cent of emissions and is sensitive to changes in livestock weights and numbers on individual farms.

Figure 26 Estimated median farm GHG emissions between 2018/19 and 2022/23 (CO_2 equivalent)



Emissions intensity

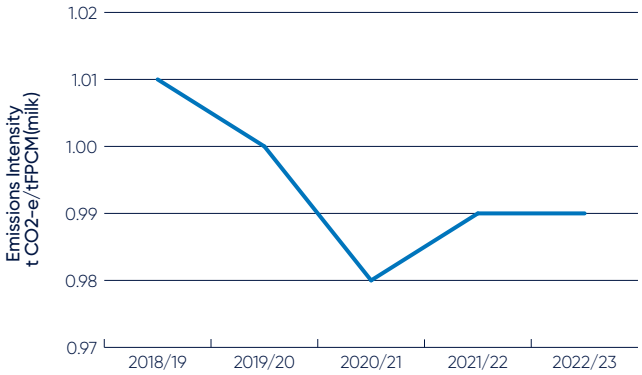
The emissions intensity allocated to milk production (once meat production is considered), remains similar to the previous year at 0.99 t CO_2-e/t FPCM and has fluctuated slightly over the years but has decreased since 2018-19 (Figure 27 and Table 1). Emissions intensity is calculated by dividing total emissions by the amount of fat and protein corrected milk (FPCM); standard of 4.0 per cent fat and 3.3 per cent protein. Regional and farm variation was also observed over this period.

Table 1 Estimated average GHG emissions and intensity between 2018/19 and 2022/23 (CO_2 equivalent)

Emission source	Units	2018/19	2019/20	2020/21	2021/22	2022/23*
Sample size		**32**	**35**	**41**	**36**	**36**
Methane	t CO_2-e/farm	1,774	1,859	1,793	1,820	1,887
Pre-farm	t CO_2-e/farm	288	363	324	304	361
Nitrous oxide	t CO_2-e/farm	279	298	302	285	311
Carbon dioxide	t CO_2-e/farm	216	230	251	190	231
Tree carbon	t CO_2-e/farm	N/A	N/A	N/A	0	-14
Net GHG emissions	t CO_2-e/farm	2,544	2,703	2,729	2,526	2,583
Emissions intensity	t CO_2-e/FPCM (milk)	1.01	1.00	0.98	0.99	0.99
Emissions intensity	t CO_2-e/t MS (milk)	14.4	14.3	13.9	14.0	13.9
Emissions intensity	t CO_2-e/kg lwt (meat)	4.5	4.4	4.3	4.5	4.6

* In 2022/23 greater detail was collected about manure management at the dairy and feeding areas, fuel usage by contractors and trees, meaning historical data may not be comparable.

Figure 27 Estimated median farm GHG emissions between 2018/19 and 2022/23 (CO_2 equivalent)



The data

The median GHG emissions have been provided as the data is not symmetrically distributed. When the data are skewed, the median is more useful because the average will be distorted by outliers. These median values reflect the profiles of the participating farms in the project.

Changes to the emission accounting framework in 2021/22 included new factors for methane, nitrous oxide, fertiliser, purchased feeds, electricity and fuel. The scope considered other livestock on dairy farms (dairy beef) and the allocated proportion of GHG to meat production. Carbon capture and storage from trees was recorded. Data from all five years was analysed using the 2021/22 accounting framework. In 2022/23 additional information was captured for manure management on all farms where previously state based defaults had been allocated to this area. Participant farms also needed to estimate the fuel usage by contractors on farm.

Note

Greenhouse gas emission estimates are calculated using the **Australian Dairy Carbon Calculator** embedded within DairyBase.

Part Six: How does 2022/23 compare?

Higher milk prices in 2022/23 helped buffer impacts of higher costs. Most famers that were in affected Local Government Areas impacted by flooding and severe wet conditions received grants that assisted them to deal with the abnormal disruptions to their business including loss of pasture and crop production, animal health issues and significant damage to equipment and infrastructure.

Strong profit results per farm (average $691,162) across the state, were well above the 12 year long-term average of $293,756.

The strong EBIT resulted in a higher return on total assets in both regions, averaging 6.0 per cent across all 36 farms.

The North

Farm profit (EBIT) in the North in 2022/23 was the highest seen (accounting for inflation) since the start of the DFMP in 2011/12 (Figure 28). Average EBIT was $366,314 in 2022/23, compared to the long-term average of $161,957. Net farm income was $244,606 in 2022/23, compared to the long-term average of $59,150. Once interest and lease costs were deducted from EBIT, three farms had a negative net farm income.

Average ROTA was 4.3 per cent in 2022/23, increasing from 2.4 per cent the previous year (Figure 29), which is the highest in the last 12 years. The average ROE in the North decreased to 12.1 per cent in 2022/23 from 22.8 per cent in 2021/22, with a number of farms having a negative ROE due to finance costs not being adequately covered by the EBIT generated. Business structure also impacts ROE, which is seen with businesses that have a high proportion of leased assets. The north results are impacted with a farm operating with a large proportion of assets as leased assets.

Figure 28 Farm profitability between 2011/12 and 2022/23 – the North

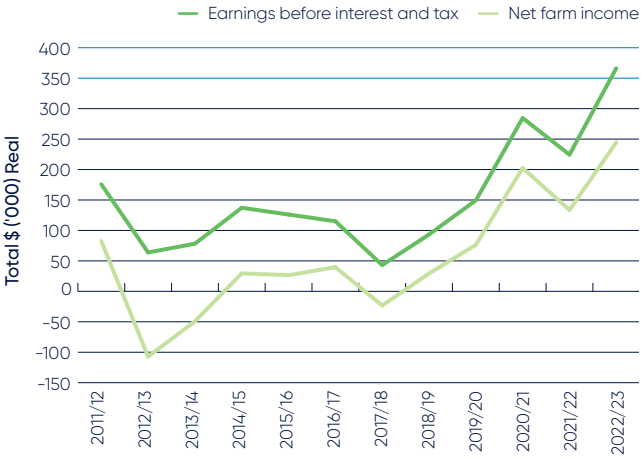
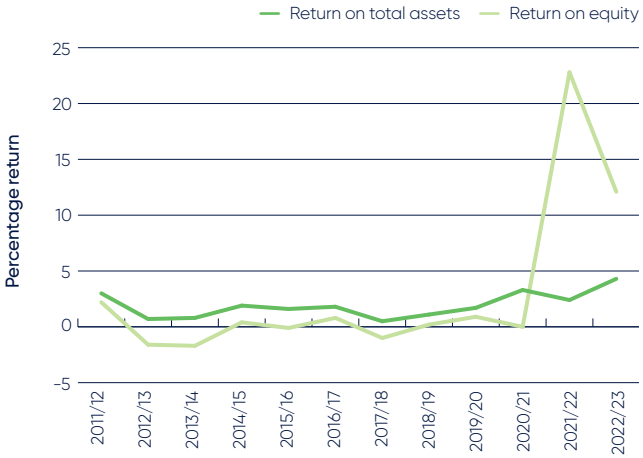


Figure 29 Whole farm performance between 2011/12 and 2022/23 – the North



The South

Farm profit (EBIT) in the South in 2022/23 was the highest (accounting for inflation) since the start of the DFMP in 2011/12 (Figure 30). Average EBIT was $981,815 in 2022/23, compared to the long-term average of $434,021. Net farm income was $820,509 in 2022/23, compared to the long-term average of $292,617.

Average ROTA was 7.5 per cent in 2022/23, increasing from 4.7 per cent the previous year (Figure 31), compared to the long-term average of 4.2 per cent. The average ROE in the South increased to 9.9 per cent in 2022/23 from 7.7 per cent in 2021/22, compared to the long-term average of 4.9 per cent.

Figure 30 Farm profitability between 2011/12 and 2022/23 – the South

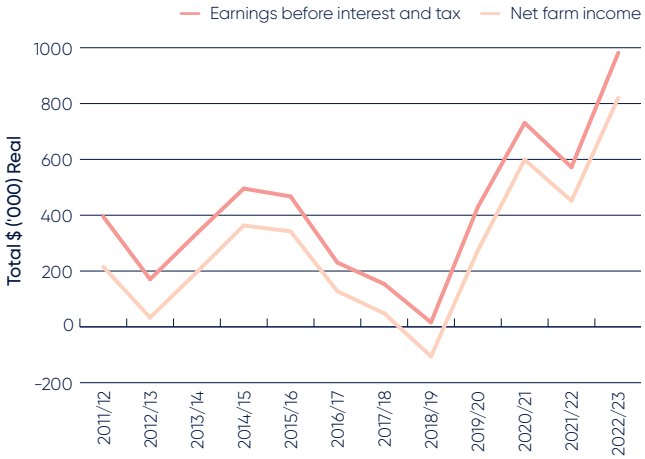
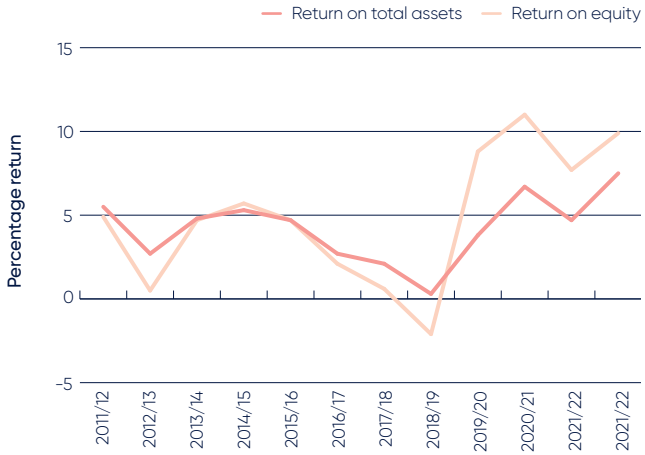


Figure 31 Whole farm performance between 2011-12 and 2022/23 – the South



Appendices

Appendix A Statewide summary tables

Table A1 Main financial indicators

	Milk income (net)	All other income	Gross farm income	Total variable costs	Total overhead costs	Cost structure (variable costs/total costs)	Earnings Before Interest & Tax	Return on total assets (excl. capital apprec.)	Interest & lease charges	Debt servicing ratio	Net farm income	Return on equity
	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	%	$/kg MS	%	$/kg MS	% of income	$/kg MS	%
Average	11.43	1.24	12.66	5.85	4.04	59	2.78	6.0	0.73	6	2.05	11.0
Top 25%	10.65	1.51	12.16	4.83	3.05	61	4.27	12.3	0.29	3	3.98	15.2

Table A2 Physical information

	Total usable area	Milking area	Total water use efficiency	Number of milking cows	Milking cows per usable area	Milk sold	Milk sold	Fat	Protein
	ha	ha	tDM/100mm/ha	hd	hd/ha	kg MS/cow	kg MS/ha	%	%
Average	382	139	0.5	415	1.3	511	661	4.1	3.3
Top 25%	546	241	0.6	583	1.1	574	645	4.3	3.4

	Estimated grazed pasture**	Estimated conserved feed**	Home grown feed as % of ME consumed	Nitrogen application**	Phosphorous application**	Potassium application**	Sulphur application**	Labour efficiency	Labour efficiency
	t DM/ha	t DM/ha	% of ME	kg/ha	kg/ha	kg/ha	kg/ha	hd/FTE	kg MS/FTE
Average	4.4	2.7	49	188	24	29	22	72	37,430
Top 25%	4.2	4.6	56	166	19	16	18	88	51,208

**on milking area

Table A3 Purchased feed

	Purchased feed per milker	Concentrate price	Silage price	Hay price	Other feed price	Average purchased feed price	Percent of total energy imported
	t DM/hd	$/t DM	$/t DM	$/t DM	$/t DM	$/t DM	% of ME
Average	3.8	520	397	349	333	456	51
Top 25%	3.4	521	460	303	222	472	44

Calculation of average price of silage, hay and other feed excludes zero values.

Table A4 Variable costs

	AI and herd test	Animal health	Calf rearing	Shed power	Dairy supplies	Total herd and shed costs	Fertiliser	Irrigation	Hay and silage making
	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS
Average	0.18	0.23	0.09	0.15	0.16	0.82	0.67	0.10	0.29
Top 25%	0.13	0.16	0.04	0.11	0.10	0.54	0.71	0.15	0.40

	Fuel and oil	Pasture improvement/ cropping	Other feed costs	Fodder purchases	Grain/ concentrates/ other	Agistment costs	Feed and water inventory change	Total feed costs	Total variable costs
	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS
Average	0.26	0.37	0.03	0.62	2.77	0.09	(0.15)	5.03	5.85
Top 25%	0.21	0.34	0.01	0.42	2.28	0.12	(0.36)	4.29	4.83

Table A5 Overhead costs

	Rates	Farm Insurance	Motor Vehicle Expenses	Repairs and maintenance	Other overheads	Employed labour	Total cash overheads	Depreciation	Imputed owner/ operator & family labour	Total overheads
	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS
Average	0.07	0.15	0.06	0.58	0.23	1.30	2.39	0.53	1.12	4.04
Top 25%	0.05	0.13	0.04	0.48	0.18	1.00	1.89	0.35	0.81	3.05

Table A6 Variable costs – percentage

	AI and herd test	Animal health	Calf rearing	Shed power	Dairy supplies	Total herd and shed costs	Fertiliser	Irrigation	Hay and silage making
	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs
Average	1.9	2.3	0.9	1.5	1.6	8.2	7.0	1.1	3.2
Top 25%	1.7	2.1	0.5	1.4	1.3	6.9	9.3	2.2	5.4

	Fuel and oil	Pasture improvement/ cropping	Other feed costs	Fodder purchases	Grain/ concentrates/ other	Agistment costs	Feed and water inventory change	Total feed costs	Total variable costs
	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs
Average	2.6	3.9	0.3	5.9	27.9	0.9	-1.7	51.1	59.3
Top 25%	2.8	4.5	0.2	5.2	28.4	1.5	-5.3	54.3	61.3

Table A7 Overhead costs – percentage

	Rates	Farm Insurance	Motor Vehicle Expenses	Repairs and maintenance	Other	Employed labour	Total cash overheads	Depreciation	Imputed owner/ operator & family labour	Total
	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs
Average	0.7	1.5	0.6	5.9	2.3	13.4	24.3	5.3	11.1	40.7
Top 25%*	0.7	1.6	0.6	6.4	2.2	12.8	24.3	4.5	10.0	38.7

Table A8 Capital structure

Farm assets				
	Land value	Land value	Permanent water value	Permanent water value
	$/ha	$/cow	$/ha	$/cow
Average	19,509	15,001	2,358	1,868
Top 25%	11,403	10,527	2,024	1,736

Other farm assets (per usable hectare)				
Plant and equipment	Livestock	Hay and grain	Other assets	Total assets
$/ha	$/ha	$/ha	$/ha	$/ha
2,415	1,924	546	702	29,030
1,946	1,803	877	697	20,740

Liabilities	
Liabilities per usable hectare	Liabilities per milking cow
$/ha	$/cow
7,520	6,147
3,609	3,199

Equity	
Equity per usable hectare	Average equity
$/ha	%
21,719	72
17,131	82

Calculation of average values of land, water asset and equity excludes zero values

Table A9 Historical data – average farm income, costs and profit per kilogram of milk solids

	Income				Variable costs							
	Milk income (net)		Gross farm income		Herd costs		Shed costs		Feed costs		Total variable costs	
Year	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)
2011/12	6.88	8.95	7.76	10.09	0.33	0.43	0.27	0.35	3.02	3.92	3.62	4.71
2012/13	6.43	8.14	7.20	9.11	0.33	0.42	0.28	0.36	3.18	4.02	3.79	4.80
2013/14	7.15	8.83	8.00	9.88	0.31	0.38	0.30	0.37	3.46	4.27	4.06	5.01
2014/15	7.46	9.00	8.44	10.18	0.32	0.39	0.29	0.35	3.55	4.28	4.16	5.02
2015/16	7.34	8.74	8.23	9.80	0.35	0.41	0.27	0.32	3.33	3.97	3.94	4.69
2016/17	6.89	8.05	7.94	9.28	0.38	0.44	0.26	0.31	3.27	3.82	3.91	4.57
2017/18	7.27	8.34	8.00	9.18	0.36	0.42	0.28	0.33	3.89	4.46	4.53	5.20
2018/19	7.74	8.77	8.68	9.83	0.31	0.35	0.31	0.35	4.49	5.09	5.11	5.79
2019/20	8.88	9.93	9.85	11.01	0.37	0.41	0.28	0.31	4.79	5.36	5.44	6.08
2020/21	8.94	9.85	10.12	11.15	0.42	0.46	0.29	0.32	3.92	4.32	4.63	5.10
2021/22	9.13	9.63	10.48	11.06	0.47	0.50	0.30	0.32	4.24	4.47	5.01	5.29
2022/23	11.43	11.43	12.66	12.66	0.50	0.50	0.31	0.31	5.03	5.03	5.85	5.85
Average		**9.14**		**10.27**		**0.43**		**0.33**		**4.42**		**5.18**

Note: 'Real' dollar values are the nominal values converted to 2021/22 dollar equivalents by the consumer price index (CPI) to allow for inflation. From 2016/17 Gross farm income does not include feed inventory changes and changes to the value of carry-over water. These are included in feed costs.
[Does this need updating? Removing?]

Table A9 (continued)

	Overhead costs						Profit							
	Cash overhead costs		Non-cash overhead costs		Total overhead costs		Earnings before interest and tax		Interest and lease charges		Net farm income			
Year	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Return on total assets (%)	Return on equity (%)
2011/12	1.56	2.03	1.24	1.61	2.80	3.64	1.34	1.74	0.59	0.76	0.75	0.98	4.3	3.6
2012/13	1.71	2.16	1.19	1.51	2.90	3.67	0.51	0.65	0.62	0.78	(0.10)	(0.13)	1.7	-0.5
2013/14	1.80	2.22	1.25	1.54	3.05	3.76	0.88	1.09	0.62	0.77	0.26	0.32	2.6	1.3
2014/15	1.71	2.06	1.25	1.51	2.96	3.57	1.32	1.59	0.60	0.72	0.72	0.87	3.5	2.8
2015/16	1.75	2.08	1.41	1.68	3.16	3.76	1.12	1.33	0.54	0.64	0.58	0.69	3.0	2.1
2016/17	1.80	2.10	1.31	1.53	3.11	3.64	0.92	1.08	0.51	0.60	0.41	0.48	2.2	1.4
2017/18	1.70	1.95	1.44	1.65	3.14	3.60	0.33	0.38	0.51	0.59	(0.18)	(0.21)	1.2	-0.3
2018/19	1.88	2.13	1.32	1.49	3.19	3.62	0.38	0.42	0.54	0.61	(0.16)	(0.18)	0.7	-0.8
2019/20	1.98	2.22	1.37	1.53	3.35	3.75	1.05	1.17	0.59	0.66	0.46	0.51	2.7	4.7
2020/21	2.05	2.26	1.37	1.51	3.43	3.78	2.07	2.28	0.57	0.63	1.50	1.65	4.9	7.0
2021/22	2.28	2.41	1.48	1.56	3.76	3.97	1.71	1.80	0.57	0.60	1.14	1.20	3.5	15.3
2022/23	2.39	2.39	1.65	1.65	4.04	4.04	2.78	2.78	0.73	0.73	2.05	2.05	6.0	11.0
Average		**2.17**		**1.56**		**3.73**		**1.36**		**0.67**		**0.69**	**3.0**	**4.0**

Table A10 Historical data – average farm physical information

	Total usable area	Milking area	Total water use efficiency	Number of milking cows	Milking cows per useable area	Milk sold	Milk sold	Estimated grazed pasture*	Estimated conserved feed*	Home grown feed as % of ME consumed	Concentrate price	
Year	ha	ha	t DM/ 100mm/ ha	hd	hd/ ha	kg MS/ cow	kg MS/ ha	t DM/ ha	t DM/ ha	% of ME	Nominal ($/t DM)	Real ($/t DM)
2011/12	300	133	0.49	375	1.4	478	663	6.4	1.3	57	304	395
2012/13	329	140	0.55	349	1.2	492	608	6.9	1.3	56	323	409
2013/14	301	119	0.60	309	1.1	504	569	6.0	1.1	57	412	509
2014/15	287	128	0.51	338	1.2	506	602	6.5	1.8	58	413	498
2015/16	287	126	0.55	351	1.3	504	618	6.2	2.1	55	392	467
2016/17	263	120	0.56	326	1.3	498	646	6.9	1.6	59	357	417
2017/18	251	118	0.67	337	1.4	488	683	6.0	1.6	56	423	485
2018/19	342	144	0.74	373	1.3	491	610	6.3	1.8	60	567	643
2019/20	365	143	0.57	384	1.2	512	625	5.4	1.8	51	555	620
2020/21	365	135	0.46	371	1.3	522	649	5.9	2.4	57	456	502
2021/22	381	139	0.43	375	1.3	518	644	5.3	2.4	55	454	478
2022/23	382	139	0.52	415	1.3	511	661	4.4	2.7	49	520	520
Average	**321**	**132**	**0.55**	**359**	**1.3**	**502**	**631**	**6.0**	**1.8**	**56**		**495**

*From 2006/07 to 2010/11 estimated grazed pasture and conserved feed was calculated per usable hectare
From 2011/12 estimated grazed pasture and conserved feed was calculated per hectare of milking area

Appendix B North summary tables

Table B1 Main financial indicators

Farm number	Milk income (net)	All other income	Gross farm income	Total variable costs	Total overhead costs	Cost structure (variable costs /total costs)	Earnings Before Interest & Tax	Return on assets (excl. capital apprec.)	Interest & lease charges	Debt servicing ratio	Net farm income	Return on equity
	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	%	$/kg MS	%	$/kg MS	% of income	$/kg MS	%
NN0002	11.72	2.08	13.80	4.19	4.51	48	5.10	8.8	0.07	1	5.03	9.3
NN0005	12.04	1.11	13.15	4.96	5.18	49	3.01	6.5	-	0	3.01	6.5
NN0021	10.92	0.51	11.44	4.84	3.87	56	2.73	3.9	0.07	1	2.66	4.0
NN0023	11.21	1.13	12.34	4.53	5.68	44	2.14	2.8	0.23	2	1.91	2.6
NN0024	12.08	3.66	15.74	6.85	3.81	64	5.08	10.9	0.14	1	4.93	14.3
NN0027	12.77	0.82	13.60	7.72	4.23	65	1.65	4.1	0.33	2	1.33	4.7
NN0030	12.33	1.40	13.72	7.40	4.41	63	1.91	3.3	1.57	11	0.34	1.4
NN0031	12.25	0.63	12.87	6.02	4.15	59	2.70	7.4	0.26	2	2.44	8.6
NN0032	12.63	1.19	13.83	5.87	4.47	57	3.49	4.5	1.91	14	1.58	4.0
NN0036	11.94	1.36	13.30	7.10	3.85	65	2.36	3.6	1.37	10	0.99	2.9
NN0037	13.59	0.32	13.91	5.62	4.94	53	3.34	5.5	0.75	5	2.59	9.2
NN0038	11.92	1.18	13.10	8.39	6.39	57	(1.68)	-3.5	0.80	6	(2.47)	-8.3
NN0040	12.24	1.54	13.78	7.23	5.66	56	0.89	1.1	0.92	7	(0.03)	-0.1
NN0041	11.10	1.14	12.24	5.78	5.21	53	1.25	1.9	1.37	11	(0.11)	-0.3
NN0042	11.49	0.83	12.32	6.92	4.39	61	1.01	2.1	0.80	6	0.22	0.7
NN0043	11.20	2.15	13.35	3.81	3.83	50	5.71	5.8	1.37	10	4.34	140.6
NN0044	11.98	1.93	13.91	8.37	3.36	71	2.18	5.3	1.25	9	0.93	5.9
Average	11.97	1.35	13.32	6.21	4.58	57	2.52	4.3	0.78	0.06	1.75	12.1

Table B2 Physical information

Farm number	Total usable area	Milking area	Total water use efficiency	Number of milking cows	Milking cows per usable area	Milk sold	Milk sold	Fat	Protein
	ha	ha	tDM/100mm/ha	hd	hd/ha	kg MS/cow	kg MS/ha	%	%
NN0002	116	50	0.33	101	0.87	493	429	3.8	3.1
NN0005	193	80	1.06	313	1.62	456	740	4.1	3.3
NN0021	88	60	0.53	145	1.65	464	765	4.8	3.7
NN0023	85	36	0.56	106	1.25	443	552	4.0	3.2
NN0024	271	120	0.54	258	0.95	542	516	3.8	3.2
NN0027	317	93	0.23	378	1.19	566	674	4.2	3.3
NN0030	135	60	0.29	253	1.87	428	802	4.1	3.3
NN0031	302	180	0.47	503	1.67	443	738	4.7	3.5
NN0032	1,455	450	0.38	791	0.54	481	262	3.4	3.2
NN0036	250	55	0.32	260	1.04	467	486	3.9	3.2
NN0037	280	92	0.34	342	1.22	419	511	3.8	3.1
NN0038	122	49	0.27	138	1.13	498	563	3.8	3.2
NN0040	291	102	0.30	297	1.02	429	439	4.0	3.3
NN0041	218	61	0.37	200	0.92	413	379	4.7	3.7
NN0042	125	73	1.62	296	2.37	383	906	4.3	3.2
NN0043	600	430	0.42	380	0.63	358	227	4.2	3.3
NN0044	102	74	0.41	300	2.94	462	1,359	3.8	3.2
Average	**291**	**121**	**0.50**	**298**	**1.35**	**456**	**609**	**4.1**	**3.3**

Table B2 (continued)

Farm number	Estimated grazed pasture**	Estimated conserved feed**	Home grown feed as % of ME consumed	Nitrogen application**	Phosphorous application**	Potassium application**	Sulphur application**	Labour efficiency	Labour efficiency
	t DM/ha	t DM/ha	% of ME	kg/ha	kg/ha	kg/ha	kg/ha	hd/FTE	kg MS/FTE
NN0002	5.9	0.8	66	287	31	84	52	55	27,036
NN0005	8.0	2.9	60	410	94	140	35	55	25,024
NN0021	2.4	5.4	47	128	7	43	21	81	37,386
NN0023	9.6	2.1	69	186	10	33	62	52	22,853
NN0024	6.9	2.6	56	302	28	43	38	75	40,823
NN0027	3.1	2.8	34	381	31	7	23	59	33,332
NN0030	4.1	0.6	38	189	25	28	19	62	26,431
NN0031	5.3	1.8	63	129	6	3	-	79	34,782
NN0032	2.0	1.4	64	97	3	50	6	65	31,367
NN0036	6.8	0.0	49	295	22	135	65	65	30,370
NN0037	9.5	0.1	55	316	10	27	36	53	22,058
NN0038	2.3	0.0	26	112	46	65	22	41	20,640
NN0040	3.1	1.6	30	230	17	68	42	80	34,154
NN0041	4.6	2.3	49	337	1	10	8	70	28,989
NN0042	6.8	4.3	48	303	26	28	7	92	35,069
NN0043	4.3	0.6	86	232	142	77	56	86	30,775
NN0044	4.5	0.9	20	117	-	23	68	73	33,724
Average	**5.3**	**2.0**	**51**	**238**	**29**	**51**	**33**	**67**	**30,283**

**on milking area
Calculation of the average for conserved feed excludes zero values

Table B3 Purchased feed

Farm number	Purchased feed per milker	Concentrate price	Silage price	Hay price	Other feed price	Average purchased feed price	Percent of total energy imported
	t DM/hd	$/t DM	$/t DM	$/t DM	$/t DM	$/t DM	% of ME
NN0002	2.2	521	-	-	-	521	34
NN0005	2.6	214	608	473	-	277	40
NN0021	3.5	381	-	-	-	381	53
NN0023	2.2	425	-	477	-	440	31
NN0024	4.0	556	-	455	-	541	44
NN0027	5.2	536	-	512	690	560	66
NN0030	3.7	713	96	375	284	538	62
NN0031	2.1	628	-	825	749	632	37
NN0032	3.2	505	-	278	-	479	36
NN0036	3.9	675	472	353	-	482	51
NN0037	3.6	537	301	222	-	403	45
NN0038	5.7	745	702	531	254	621	74
NN0040	4.6	549	229	558	212	392	70
NN0041	3.0	674	-	351	76	448	51
NN0042	3.4	502	431	270	-	393	52
NN0043	1.0	475	-	326	-	461	14
NN0044	5.5	623	470	361	-	481	80
Average	**3.5**	**545**	**414**	**424**	**378**	**474**	**49**

Calculation of average price of silage, hay and other feed excludes zero values

Table B4 Variable costs

Farm number	AI and herd test	Animal health	Calf rearing	Shed power	Dairy supplies	Total herd and shed costs	Fertiliser	Irrigation	Hay and silage making
	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS
NN0002	0.14	0.12	0.02	0.14	0.12	0.54	0.88	0.07	0.03
NN0005	0.24	0.27	0.01	0.12	0.14	0.78	1.07	0.22	0.28
NN0021	0.26	0.29	0.08	0.18	0.20	1.01	0.04	0.20	0.19
NN0023	0.21	0.21	-	0.10	0.23	0.75	0.57	0.10	0.21
NN0024	0.17	0.29	0.03	0.16	0.11	0.75	0.78	0.03	0.44
NN0027	0.04	0.30	0.04	0.09	0.14	0.61	1.07	0.12	0.11
NN0030	0.04	0.24	0.16	0.12	0.19	0.76	0.72	-	0.18
NN0031	0.13	0.26	0.14	0.17	0.21	0.91	1.07	0.01	0.08
NN0032	0.13	0.38	0.05	0.11	0.24	0.91	0.82	0.01	0.20
NN0036	0.19	0.39	0.47	0.15	0.20	1.42	0.75	0.03	0.23
NN0037	0.22	0.28	0.08	0.20	0.10	0.89	0.74	0.00	0.08
NN0038	0.49	0.23	0.29	0.10	0.15	1.26	0.46	0.04	0.28
NN0040	0.34	0.30	0.11	0.10	0.16	1.00	1.32	0.05	0.19
NN0041	0.19	0.16	0.33	0.19	0.10	0.98	0.73	0.24	0.25
NN0042	0.17	0.28	0.02	0.39	0.40	1.25	1.37	0.08	0.54
NN0043	0.11	0.15	0.04	0.33	0.12	0.76	0.46	0.07	0.30
NN0044	0.22	0.26	0.11	0.09	0.24	0.91	0.39	0.15	0.09
Average	**0.19**	**0.26**	**0.12**	**0.16**	**0.18**	**0.91**	**0.78**	**0.09**	**0.22**

Farm number	Fuel and oil	Pasture improvement/ cropping	Other feed costs	Fodder purchases	Grain/ concentrates/ other	Agistment costs	Feed and water inventory change	Total feed costs	Total variable costs
	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS
NN0002	0.15	0.13	-	-	2.33	0.06	0.00	3.64	4.19
NN0005	0.17	0.64	-	0.72	0.72	-	0.36	4.17	4.96
NN0021	0.40	0.12	-	-	2.67	-	0.20	3.83	4.84
NN0023	0.24	0.44	-	0.60	1.36	-	0.26	3.78	4.53
NN0024	0.27	0.43	-	0.53	3.64	-	(0.01)	6.10	6.85
NN0027	0.32	0.57	-	0.71	4.48	-	(0.26)	7.11	7.72
NN0030	0.23	0.28	0.41	0.71	4.26	-	(0.15)	6.64	7.40
NN0031	0.43	0.54	0.00	0.08	2.90	-	(0.00)	5.11	6.02
NN0032	0.33	0.81	-	0.21	2.88	-	(0.30)	4.96	5.87
NN0036	0.28	0.48	-	1.11	2.89	-	(0.10)	5.68	7.10
NN0037	0.21	0.25	0.01	0.79	2.92	-	(0.28)	4.73	5.62
NN0038	0.16	0.25	-	2.80	3.97	-	(0.84)	7.13	8.39
NN0040	0.39	0.67	-	0.86	3.48	-	(0.74)	6.23	7.23
NN0041	0.32	0.24	-	-	3.30	-	(0.27)	4.79	5.78
NN0042	0.31	0.34	-	0.12	3.15	-	(0.24)	5.67	6.92
NN0043	0.07	0.80	0.08	0.08	1.21	-	(0.02)	3.05	3.81
NN0044	0.12	0.29	0.05	2.40	3.33	0.62	-	7.45	8.37
Average	**0.26**	**0.43**	**0.03**	**0.69**	**2.91**	**0.04**	**(0.14)**	**5.30**	**6.21**

Table B5 Overhead costs

Farm number	Rates	Farm Insurance	Motor Vehicle Expenses	Repairs and maintenance	Other overheads	Employed labour	Total cash overheads	Depreciation	Imputed owner/ operator & family labour	Total overheads
	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS
NN0002	0.11	0.31	0.06	0.30	0.25	1.00	2.03	0.60	1.88	4.51
NN0005	0.07	0.13	0.07	1.01	0.12	2.34	3.73	0.54	0.92	5.18
NN0021	0.07	0.21	0.05	0.64	0.11	0.70	1.78	0.80	1.28	3.87
NN0023	0.14	0.19	0.03	0.75	0.31	0.09	1.50	0.47	3.70	5.68
NN0024	0.05	0.22	0.04	0.38	0.28	1.59	2.57	0.61	0.63	3.81
NN0027	0.07	0.16	0.09	0.36	0.29	1.58	2.55	0.72	0.96	4.23
NN0030	0.14	0.11	0.01	0.55	0.10	0.85	1.75	0.83	1.83	4.41
NN0031	0.05	0.10	0.05	0.58	0.16	1.84	2.78	0.69	0.68	4.15
NN0032	0.16	0.12	0.05	0.88	0.16	2.11	3.48	0.51	0.49	4.47
NN0036	0.10	0.16	0.07	0.55	0.06	1.53	2.47	0.42	0.96	3.85
NN0037	0.06	0.13	0.08	0.22	0.30	2.29	3.07	0.49	1.38	4.94
NN0038	0.21	0.14	0.18	0.61	0.63	1.45	3.21	0.76	2.41	6.39
NN0040	0.13	0.29	0.20	1.02	0.36	1.65	3.65	1.01	1.00	5.66
NN0041	0.09	0.17	0.06	1.30	0.17	0.59	2.38	0.53	2.30	5.21
NN0042	0.00	0.16	0.01	0.93	0.17	0.30	1.56	0.70	2.13	4.39
NN0043	-	0.08	0.07	0.45	0.26	1.96	2.82	0.10	0.90	3.83
NN0044	0.06	0.11	0.05	0.47	0.18	1.09	1.97	0.14	1.26	3.36
Average	**0.09**	**0.16**	**0.07**	**0.65**	**0.23**	**1.35**	**2.55**	**0.58**	**1.45**	**4.58**

Table B6 Variable costs – percentage

Farm number	AI and herd test	Animal health	Calf rearing	Shed power	Dairy supplies	Total herd and shed costs	Fertiliser	Irrigation	Hay and silage making
	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs
NN0002	1.6	1.4	0.2	1.6	1.4	6.3	10.1	0.8	0.4
NN0005	2.4	2.6	0.1	1.2	1.4	7.7	10.6	2.2	2.8
NN0021	2.9	3.3	1.0	2.0	2.4	11.6	0.5	2.3	2.2
NN0023	2.1	2.1	0.0	1.0	2.3	7.4	5.5	1.0	2.0
NN0024	1.6	2.7	0.2	1.5	1.1	7.1	7.3	0.3	4.1
NN0027	0.3	2.5	0.3	0.7	1.1	5.1	9.0	1.0	0.9
NN0030	0.3	2.1	1.4	1.0	1.6	6.4	6.1	0.0	1.5
NN0031	1.3	2.6	1.4	1.7	2.1	9.0	10.5	0.1	0.8
NN0032	1.3	3.7	0.5	1.0	2.3	8.8	7.9	0.1	1.9
NN0036	1.8	3.6	4.3	1.4	1.9	12.9	6.9	0.3	2.1
NN0037	2.1	2.7	0.7	1.9	1.0	8.4	7.0	0.0	0.8
NN0038	3.3	1.5	2.0	0.7	1.0	8.5	3.1	0.3	1.9
NN0040	2.6	2.4	0.8	0.8	1.2	7.8	10.2	0.4	1.4
NN0041	1.7	1.5	3.0	1.7	0.9	8.9	6.6	2.2	2.2
NN0042	1.5	2.5	0.2	3.4	3.5	11.1	12.1	0.7	4.8
NN0043	1.5	2.0	0.6	4.3	1.6	9.9	6.0	1.0	3.9
NN0044	1.9	2.2	0.9	0.8	2.0	7.8	3.3	1.3	0.8
Average	**1.8**	**2.4**	**1.0**	**1.6**	**1.7**	**8.5**	**7.2**	**0.8**	**2.0**

Table B6 (continued)

Farm number	Fuel and oil	Pasture improvement/ cropping	Other feed costs	Fodder purchases	Grain/ concentrates/ other	Agistment costs	Feed and water inventory change	Total feed costs	Total variable costs
	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs
NN0002	1.7	1.5	0.0	0.0	26.8	0.7	0.0	41.9	48.1
NN0005	1.7	6.3	0.0	7.1	7.1	0.0	3.5	41.2	48.9
NN0021	4.6	1.4	0.0	0.0	30.6	0.0	2.3	43.9	55.6
NN0023	2.4	4.3	0.0	5.8	13.3	0.0	2.6	37.0	44.4
NN0024	2.5	4.0	0.0	5.0	34.1	0.0	-0.1	57.2	64.3
NN0027	2.7	4.7	0.0	5.9	37.5	0.0	-2.2	59.6	64.6
NN0030	1.9	2.4	3.5	6.0	36.1	0.0	-1.2	56.2	62.6
NN0031	4.2	5.3	0.0	0.7	28.5	0.0	0.0	50.2	59.2
NN0032	3.2	7.8	0.0	2.0	27.9	0.0	-2.9	48.0	56.7
NN0036	2.6	4.4	0.0	10.1	26.4	0.0	-0.9	51.9	64.8
NN0037	2.0	2.3	0.1	7.5	27.6	0.0	-2.7	44.8	53.2
NN0038	1.1	1.7	0.0	19.0	26.9	0.0	-5.7	48.2	56.8
NN0040	3.0	5.2	0.0	6.7	27.0	0.0	-5.7	48.3	56.1
NN0041	2.9	2.2	0.0	0.0	30.1	0.0	-2.5	43.6	52.6
NN0042	2.8	3.0	0.0	1.1	27.9	0.0	-2.1	50.1	61.2
NN0043	0.9	10.5	1.1	1.1	15.8	0.0	-0.3	40.0	49.9
NN0044	1.0	2.5	0.4	20.5	28.4	5.3	0.0	63.5	71.3
Average	**2.4**	**4.1**	**0.3**	**5.8**	**26.6**	**0.4**	**-1.1**	**48.6**	**57.1**

Table B7 Overhead costs – percentage

Farm number	Rates	Farm Insurance	Motor Vehicle Expenses	Repairs and maintenance	Other	Employed labour	Total cash overheads	Depreciation	Imputed owner/ operator & family labour	Total
	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs
NN0002	1.2	3.6	0.7	3.5	2.8	11.5	23.4	6.9	21.6	51.9
NN0005	0.7	1.3	0.7	9.9	1.2	23.1	36.8	5.3	9.0	51.1
NN0021	0.8	2.4	0.6	7.4	1.3	8.0	20.5	9.2	14.7	44.4
NN0023	1.3	1.9	0.3	7.3	3.0	0.8	14.7	4.7	36.3	55.6
NN0024	0.5	2.1	0.4	3.5	2.6	15.0	24.1	5.7	5.9	35.7
NN0027	0.5	1.3	0.8	3.0	2.4	13.2	21.3	6.0	8.0	35.4
NN0030	1.2	0.9	0.1	4.6	0.8	7.2	14.8	7.0	15.5	37.4
NN0031	0.5	1.0	0.5	5.7	1.6	18.1	27.3	6.8	6.7	40.8
NN0032	1.5	1.1	0.5	8.5	1.5	20.4	33.6	4.9	4.7	43.3
NN0036	0.9	1.5	0.6	5.0	0.6	13.9	22.5	3.9	8.8	35.2
NN0037	0.6	1.2	0.7	2.1	2.8	21.6	29.1	4.6	13.1	46.8
NN0038	1.4	0.9	1.2	4.1	4.3	9.8	21.7	5.2	16.3	43.2
NN0040	1.0	2.2	1.6	7.9	2.8	12.8	28.3	7.8	7.7	43.9
NN0041	0.9	1.5	0.5	11.9	1.5	5.4	21.7	4.8	20.9	47.4
NN0042	0.0	1.4	0.1	8.2	1.5	2.7	13.8	6.2	18.8	38.8
NN0043	0.0	1.0	0.9	5.9	3.4	25.7	36.9	1.4	11.8	50.1
NN0044	0.5	1.0	0.5	4.0	1.5	9.3	16.8	1.2	10.7	28.7
Average	**0.8**	**1.6**	**0.6**	**6.0**	**2.1**	**12.8**	**24.0**	**5.4**	**13.6**	**42.9**

Table B8 Capital structure

Farm assets				
	Land value	Land value	Permanent water value	Permanent water value
	$/ha	$/cow	$/ha	$/cow
Average	20,337	16,318	1,054	680

Other farm assets (per usable hectare)				
Plant and equipment	Livestock	Hay and grain	Other assets	Total assets
$/ha	$/ha	$/ha	$/ha	$/ha
2,298	1,748	331	638	28,849

Liabilities	
Liabilities per usable hectare	Liabilities per milking cow
$/ha	$/cow
7,170	5,632

Equity	
Equity per usable hectare	Average equity
$/ha	%
21,678	73

Calculation of average values of land,water asset and equity excludes zero values

Table B9 Historical data – average farm income, costs and profit per kilogram of milk solids

	Income				Variable costs							
	Milk income (net)		Gross farm income		Herd costs		Shed costs		Feed costs		Total variable costs	
Year	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)
2011/12	7.13	9.27	8.04	10.46	0.35	0.45	0.29	0.38	3.17	4.12	3.81	4.96
2012/13	6.83	8.64	7.46	9.44	0.33	0.42	0.32	0.41	3.34	4.23	4	5.06
2013/14	7.17	8.85	8.01	9.89	0.30	0.37	0.37	0.46	3.68	4.55	4.35	5.37
2014/15	7.62	9.20	8.61	10.39	0.35	0.42	0.36	0.43	3.78	4.56	4.48	5.41
2015/16	7.65	9.11	8.46	10.08	0.34	0.41	0.31	0.37	3.61	4.30	4.26	5.07
2016/17	7.28	8.51	8.25	9.64	0.35	0.41	0.31	0.36	3.46	4.04	4.12	4.82
2017/18	7.62	8.74	8.39	9.63	0.38	0.44	0.33	0.38	4.09	4.69	4.79	5.50
2018/19	8.07	9.14	9.16	10.37	0.33	0.37	0.35	0.40	4.45	5.04	5.13	5.81
2019/20	9.37	10.47	10.35	11.57	0.43	0.48	0.32	0.36	4.91	5.48	5.65	6.32
2020/21	9.31	10.25	10.63	11.71	0.50	0.55	0.33	0.36	4.33	4.77	5.15	5.67
2021/22	9.58	10.11	11.06	11.67	0.57	0.60	0.36	0.38	4.54	4.79	5.46	5.76
2022/23	11.97	11.97	13.32	13.32	0.57	0.57	0.34	0.34	5.30	5.30	6.21	6.21
Average		**9.52**		**10.68**		**0.46**		**0.39**		**4.66**		**5.50**

	Overhead costs						Profit							
	Cash overhead costs		Non-cash overhead costs		Total overhead costs		Earnings before interest and tax		Interest and lease charges		Net farm income			
Year	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Return on total assets (%)	Return on equity (%)
2011/12	1.76	2.30	1.44	1.87	3.20	4.16	1.03	1.34	0.45	0.58	0.58	0.75	3.0	2.2
2012/13	2.01	2.55	1.26	1.59	3.25	4.11	0.22	0.28	0.58	0.73	-0.36	(0.46)	0.7	-1.6
2013/14	2.02	2.50	1.34	1.65	3.36	4.15	0.29	0.36	0.64	0.78	-0.34	(0.42)	0.8	-1.7
2014/15	1.87	2.25	1.45	1.75	3.31	3.99	0.82	0.99	0.63	0.76	0.19	0.23	1.9	0.4
2015/16	1.96	2.34	1.62	1.93	3.58	4.26	0.62	0.74	0.53	0.63	0.09	0.11	1.6	-0.1
2016/17	1.92	2.24	1.46	1.71	3.38	3.95	0.75	0.88	0.52	0.60	0.23	0.27	1.8	0.8
2017/18	1.86	2.13	1.61	1.85	3.46	3.97	0.13	0.15	0.46	0.53	-0.33	(0.38)	0.5	-1.0
2018/19	2.16	2.45	1.43	1.62	3.59	4.07	0.43	0.49	0.47	0.54	-0.04	(0.04)	1.1	0.2
2019/20	2.18	2.43	1.82	2.04	4.00	4.47	0.69	0.78	0.50	0.56	0.19	0.21	1.7	0.9
2020/21	2.24	2.47	1.64	1.81	3.90	4.30	1.59	1.75	0.53	0.58	1.06	1.17	3.3	0.0
2021/22	2.52	2.66	1.75	1.84	4.27	4.50	1.33	1.40	0.55	0.58	0.78	0.83	2.4	22.8
2022/23	2.55	2.55	2.04	2.04	4.58	4.58	2.52	2.52	0.78	0.78	1.75	1.75	4.3	12.1
Average		**2.41**		**1.81**		**4.21**		**0.97**		**0.64**		**0.33**	**1.9**	**2.9**

Note: 'Real' dollar values are the nominal values converted to 2022/23 dollar equivalents by the consumer price index (CPI) to allow for inflation. From 2016/17 Gross farm income does not include feed inventory changes and changes to the value of carry-over water. These are included in feed costs.

Table B10 Historical data – average farm physical information

	Total usable area	Milking area	Total water use efficiency	Number of milking cows	Milking cows per useable area	Milk sold	Milk sold	Estimated grazed pasture*	Estimated conserved feed*	Home grown feed as % of ME consumed	Concentrate price	
Year	ha	ha	t DM/ 100mm/ ha	hd	hd/ ha	kg MS/ cow	kg MS/ ha	t DM/ ha	t DM/ ha	% of ME	Nominal ($/t DM)	Real ($/t DM)
2011/12	250	109	0.45	300	1.3	461	598	5.90	1.8	62	307	399
2012/13	335	130	0.49	361	1.3	460	615	7.4	1.4	59	335	424
2013/14	231	102	0.59	272	1.2	471	590	5.8	1.2	60	444	548
2014/15	215	95	0.48	259	1.3	477	606	6.4	1.8	59	434	524
2015/16	210	95	0.53	289	1.4	463	636	5.9	2.3	52	401	478
2016/17	188	88	0.49	259	1.4	477	680	7.2	1.5	62	376	440
2017/18	188	94	0.60	288	1.5	459	698	7.1	1.6	57	442	507
2018/19	299	108	0.68	328	1.3	443	580	7.2	2.0	64	581	658
2019/20	314	106	0.50	309	1.2	472	579	6.0	2.3	55	586	655
2020/21	291	121	0.50	298	1.3	456	609	5.3	2.0	55.0	545	600
2021/22	321	117	0.36	309	1.3	474	596	6.6	2.2	62	497	524
2022/23	365	118	0.31	312	1	461	557	6.0	1.9	58	464	464
Average	**267**	**107**	**0.50**	**299**	**1.3**	**464**	**612**	**6.4**	**1.8**	**59**		**523**

*From 2006/07 to 2010/11 estimated grazed pasture and conserved feed was calculated per usable hectare
From 2011/12 estimated grazed pasture and conserved feed was calculated per hectare of milking area

Appendix C South summary tables

Table C1 Main financial indicators

Farm number	Milk income (net)	All other income	Gross farm income	Total variable costs	Total overhead costs	Cost structure (variable costs /total costs)	Earnings Before Interest & Tax	Return on assets (excl. capital apprec.)	Interest & lease charges	Debt servicing ratio	Net farm income	Return on equity
	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	%	$/kg MS	%	$/kg MS	% of income	$/kg MS	%
SN0002	11.80	1.75	13.54	6.78	5.11	57	1.66	2.0	0.79	6	0.86	2.2
SN0006	11.32	2.52	13.84	5.85	4.90	54	3.08	4.9	0.76	5	2.32	7.0
SN0009	11.05	(0.13)	10.92	6.54	4.17	61	0.21	0.2	0.65	6	(0.44)	-0.6
SN0012	11.40	0.43	11.83	5.52	3.63	60	2.69	6.7	0.86	7	1.82	7.4
SN0014	10.00	0.77	10.78	5.11	2.60	66	3.07	11.1	0.33	3	2.74	13.6
SN0021	9.82	1.16	10.98	3.22	2.52	56	5.24	16.4	0.00	0	5.23	16.7
SN0023	11.08	1.88	12.96	5.78	2.80	67	4.37	10.0	0.38	3	3.99	11.8
SN0024	11.69	0.71	12.40	5.04	2.94	63	4.42	5.9	1.69	14	2.73	14.7
SN0028	10.48	0.70	11.18	4.99	2.41	67	3.78	12.8	0.14	1	3.64	15.8
SN0031	12.48	0.43	12.91	6.61	3.85	63	2.45	5.2	1.08	8	1.37	5.5
SN0033	10.52	1.53	12.06	5.64	3.72	60	2.70	6.2	1.14	9	1.57	9.5
SN0034	11.92	0.26	12.19	6.38	3.88	62	1.93	1.5	0.59	5	1.34	2.8
SN0036	10.62	0.97	11.58	3.94	3.61	52	4.04	14.6	0.32	3	3.72	16.9
SN0037	10.75	1.15	11.90	5.88	4.15	59	1.87	2.4	1.47	12	0.39	1.1
SN0038	11.36	0.70	12.05	6.30	4.34	59	1.42	1.7	0.57	5	0.85	2.4
SN0039	12.58	2.49	15.07	5.81	5.17	53	4.09	6.0	0.47	3	3.63	10.6
SN0040	10.25	1.19	11.44	4.45	3.38	57	3.61	12.4	0.50	4	3.11	15.8
SN0041	9.77	1.21	10.98	4.95	1.85	73	4.18	14.0	0.75	7	3.43	23.0
SN0042	9.05	1.78	10.83	6.19	2.32	73	2.32	8.7	0.50	5	1.83	12.4
Average	**10.94**	**1.13**	**12.08**	**5.52**	**3.54**	**61**	**3.01**	**7.5**	**0.68**	**6**	**2.32**	**9.9**

Table C2 Physical information

Farm number	Total usable area	Milking area	Total water use efficiency	Number of milking cows	Milking cows per usable area	Milk sold	Milk sold	Fat	Protein
	ha	ha	tDM/100mm/ha	hd	hd/ha	kg MS/cow	kg MS/ha	%	%
SN0002	311	95	0.1	370	1.2	585	696	4.1	3.4
SN0006	325	65	0.4	270	0.8	466	387	3.9	3.1
SN0009	229	20	0.5	315	1.4	480	660	4.2	3.3
SN0012	362	101	0.3	370	1.0	564	576	3.6	3.3
SN0014	392	80	0.6	430	1.1	681	747	4.5	3.5
SN0021	1,726	679	0.7	1,639	0.9	494	470	5.1	4.0
SN0023	145	82	0.6	160	1.1	595	657	3.9	3.3
SN0024	446	140	0.1	300	0.7	533	359	3.7	3.2
SN0028	748	748	0.9	1,100	1.5	598	880	4.6	3.6
SN0031	708	1	0.2	570	0.8	584	470	3.9	3.1
SN0033	391	174	0.5	355	0.9	589	534	3.9	3.4
SN0034	269	138	0.2	535	2.0	529	1,050	3.7	3.0
SN0036	190	130	0.9	360	1.9	528	1,000	4.0	3.3
SN0037	128	75	0.2	240	1.9	472	884	3.4	3.2
SN0038	103	63	0.3	235	2.3	585	1,335	3.8	3.2
SN0039	274	75	1.0	403	1.5	458	674	3.8	3.1
SN0040	510	277	0.6	430	0.8	550	464	4.3	3.4
SN0041	817	1	0.6	767	0.9	683	641	4.5	3.5
SN0042	733	1	1.2	1,033	1.4	692	975	4.1	3.3
Average	**464**	**155**	**0.5**	**520**	**1.3**	**561**	**708**	**4.1**	**3.3**

Table C2 (continued)

Farm number	Estimated grazed pasture**	Estimated conserved feed**	Home grown feed as % of ME consumed	Nitrogen application**	Phosphorous application**	Potassium application**	Sulphur application**	Labour efficiency	Labour efficiency
	t DM/ha	t DM/ha	% of ME	kg/ha	kg/ha	kg/ha	kg/ha	hd/FTE	kg MS/FTE
SN0002	5.0	-	25	143	-	47	19	58	33,651
SN0006	4.3	5.7	49	141	22	-	20	51	23,647
SN0009	0.4	3.8	30	108	58	-	4	65	31,420
SN0012	5.9	1.2	39	107	39	-	31	64	36,207
SN0014	3.5	14.1	41	213	13	-	10	101	68,681
SN0021	5.9	-	80	203	11	-	1	142	70,067
SN0023	5.3	2.1	63	196	43	-	54	89	53,225
SN0024	4.0	1.0	48	280	19	-	1	92	48,955
SN0028	1.4	6.6	44	171	27	12	7	82	49,165
SN0031	0.1	-	50	-	-	-	-	64	37,641
SN0033	4.0	2.1	61	185	35	22	11	59	34,572
SN0034	4.2	0.6	30	197	7	3	-	73	38,414
SN0036	5.8	5.4	53	108	14	3	2	68	36,100
SN0037	5.2	0.3	37	162	16	13	16	68	32,146
SN0038	6.5	-	29	335	22	17	6	53	30,937
SN0039	3.4	-	68	139	26	45	47	54	24,651
SN0040	3.1	0.3	49	12	1	0	-	66	36,296
SN0041	0.0	-	55	-	-	-	-	116	79,478
SN0042	0.0	-	60	-	-	-	-	97	67,414
Average	**3.6**	**2.3**	**48**	**142**	**18**	**9**	**12**	**77**	**43,825**

**on milking area
Calculation of the average for conserved feed excludes zero values

Table C3 Purchased feed

Farm number	Purchased feed per milker	Concentrate price	Silage price	Hay price	Other feed price	Average purchased feed price	Percent of total energy imported
	t DM/hd	$/t DM	$/t DM	$/t DM	$/t DM	$/t DM	% of ME
SN0002	6.0	474	-	437	549	467	75
SN0006	4.0	453	-	222	-	393	51
SN0009	5.9	519	210	251	100	351	70
SN0012	4.6	457	269	290	-	413	61
SN0014	5.4	559	240	280	-	455	59
SN0021	1.1	417	-	-	-	417	20
SN0023	2.7	654	-	313	-	579	37
SN0024	3.9	438	363	299	-	399	52
SN0028	4.7	472	276	276	115	368	56
SN0031	3.8	420	-	-	-	486	50
SN0033	3.0	493	-	-	-	493	39
SN0034	5.4	416	-	410	299	394	70
SN0036	3.1	494	-	300	-	475	47
SN0037	4.5	539	364	209	-	444	63
SN0038	5.6	434	456	243	-	362	71
SN0039	2.2	644	-	118	429	554	32
SN0040	3.7	474	864	375	-	463	51
SN0041	3.5	543	-	119	329	426	45
SN0042	4.2	548	-	302	245	445	40
Average	**4.1**	**497**	**160**	**234**	**109**	**441**	**52**

Calculation of average price of silage, hay and other feed excludes zero values

Table C4 Variable costs

Farm number	AI and herd test	Animal health	Calf rearing	Shed power	Dairy supplies	Total herd and shed costs	Fertiliser	Irrigation	Hay and silage making
	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS
SN0002	0.08	0.22	0.12	0.14	0.39	0.94	0.30	0.02	0.10
SN0006	0.18	0.28	0.00	0.19	0.15	0.81	0.47	0.09	0.77
SN0009	0.23	0.21	0.02	0.13	0.17	0.76	0.14	0.03	0.43
SN0012	0.18	0.22	0.02	0.21	0.04	0.66	0.40	0.11	0.09
SN0014	0.18	0.14	0.06	0.07	0.12	0.57	0.80	0.06	0.72
SN0021	0.08	0.09	0.01	0.13	0.10	0.40	1.08	0.38	0.35
SN0023	0.16	0.07	-	0.14	0.18	0.56	1.03	0.04	0.30
SN0024	0.28	0.21	0.23	0.10	0.08	0.89	0.56	-	0.11
SN0028	0.11	0.28	0.10	0.09	0.03	0.61	0.73	0.21	0.66
SN0031	0.21	0.22	0.06	0.12	0.09	0.70	0.20	0.06	0.43
SN0033	0.25	0.17	0.04	0.14	0.13	0.73	0.70	0.20	0.26
SN0034	0.18	0.31	0.15	0.21	0.22	1.07	0.43	0.00	0.22
SN0036	0.13	0.15	0.02	0.06	0.07	0.44	0.34	0.23	0.32
SN0037	0.09	0.14	0.05	0.12	0.14	0.54	0.43	-	0.10
SN0038	0.08	0.26	0.15	0.18	0.13	0.80	0.82	-	0.17
SN0039	0.56	0.24	0.13	0.14	0.36	1.42	0.62	0.12	0.50
SN0040	0.09	0.18	0.01	0.10	0.10	0.48	0.22	0.08	0.03
SN0041	0.12	0.16	0.09	0.10	0.07	0.54	0.53	0.28	0.76
SN0042	0.13	0.19	0.15	0.21	0.27	0.95	0.93	0.15	0.56
Average	**0.17**	**0.20**	**0.07**	**0.14**	**0.15**	**0.73**	**0.56**	**0.11**	**0.36**

Farm number	Fuel and oil	Pasture improvement/ cropping	Other feed costs	Fodder purchases	Grain/ concentrates/ other	Agistment costs	Feed and water inventory change	Total feed costs	Total variable costs
	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS
SN0002	0.41	0.02	-	1.03	4.03	0.16	(0.23)	5.84	6.78
SN0006	0.28	0.22	-	0.51	2.94	-	(0.23)	5.05	5.85
SN0009	0.33	0.16	-	1.51	3.01	-	0.17	5.78	6.54
SN0012	0.28	0.23	-	0.56	2.95	0.15	0.09	4.85	5.52
SN0014	0.30	0.33	-	0.45	2.00	0.15	(0.28)	4.54	5.11
SN0021	0.22	0.58	-	-	0.95	-	(0.78)	2.82	3.22
SN0023	0.08	0.41	-	0.33	2.44	0.39	0.18	5.22	5.78
SN0024	0.07	0.39	-	1.11	2.45	-	(0.54)	4.15	5.04
SN0028	0.21	0.16	-	1.16	2.36	-	(1.10)	4.38	4.99
SN0031	0.38	0.20	0.10	-	3.28	-	1.27	5.91	6.61
SN0033	0.31	0.19	0.10	-	2.39	-	0.76	4.91	5.64
SN0034	0.14	0.37	0.09	0.78	3.20	0.09	(0.01)	5.31	6.38
SN0036	0.16	0.19	-	0.17	2.58	0.36	(0.85)	3.50	3.94
SN0037	0.11	0.39	-	0.60	3.65	0.03	0.03	5.34	5.88
SN0038	0.24	0.42	-	0.96	2.52	0.30	0.06	5.50	6.30
SN0039	0.41	0.29	-	0.09	2.81	0.59	(1.05)	4.39	5.81
SN0040	0.22	0.17	0.11	1.07	2.10	-	(0.03)	3.98	4.45
SN0041	0.33	0.63	-	0.05	2.10	0.14	(0.38)	4.41	4.95
SN0042	0.30	0.66	-	0.04	2.55	0.02	0.05	5.23	6.19
Average	**0.25**	**0.32**	**0.02**	**0.55**	**2.65**	**0.13**	**(0.15)**	**4.80**	**5.52**

Table C5 Overhead costs

Farm number	Rates	Farm Insurance	Motor Vehicle Expenses	Repairs and maintenance	Other overheads	Employed labour	Total cash overheads	Depreciation	Imputed owner/ operator & family labour	Total overheads
	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS
SN0002	0.16	0.16	0.04	0.98	0.17	0.75	2.26	0.98	1.87	5.11
SN0006	0.04	0.27	0.10	0.19	0.36	2.52	3.47	0.67	0.77	4.90
SN0009	0.05	0.15	0.10	0.62	0.12	1.54	2.58	0.69	0.90	4.17
SN0012	0.03	0.11	0.08	0.48	0.19	1.29	2.19	0.78	0.66	3.63
SN0014	0.03	0.14	0.07	0.60	0.18	0.79	1.81	0.32	0.46	2.60
SN0021	0.03	0.07	0.05	0.62	0.09	0.94	1.80	0.45	0.26	2.52
SN0023	0.07	0.13	0.11	0.57	0.17	0.15	1.20	0.14	1.46	2.80
SN0024	0.08	0.13	0.04	0.42	0.12	0.79	1.58	0.64	0.72	2.94
SN0028	0.01	0.04	0.02	0.50	0.09	1.48	2.14	0.28	-	2.41
SN0031	0.05	0.15	0.05	0.47	0.20	1.83	2.75	0.79	0.30	3.85
SN0033	0.01	0.21	0.00	0.19	0.15	1.71	2.28	0.59	0.84	3.72
SN0034	0.04	0.09	0.06	0.71	0.33	2.09	3.32	0.12	0.45	3.88
SN0036	0.08	0.08	0.04	0.65	0.12	1.11	2.09	0.38	1.14	3.61
SN0037	0.18	0.15	0.05	0.62	0.27	0.85	2.12	0.38	1.64	4.15
SN0038	0.08	0.13	0.04	0.58	0.35	1.59	2.77	0.66	0.90	4.34
SN0039	0.08	0.17	0.07	0.57	0.63	1.66	3.18	0.49	1.50	5.17
SN0040	0.06	0.11	0.02	0.33	0.15	1.36	2.02	0.29	1.07	3.38
SN0041	0.03	0.10	0.01	0.40	0.26	0.54	1.33	0.10	0.41	1.85
SN0042	0.02	0.07	0.09	0.26	0.28	0.99	1.70	0.38	0.24	2.32
Average	**0.06**	**0.13**	**0.05**	**0.51**	**0.22**	**1.26**	**2.24**	**0.48**	**0.82**	**3.54**

Table C6 Variable costs – percentage

Farm number	AI and herd test	Animal health	Calf rearing	Shed power	Dairy supplies	Total herd and shed costs	Fertiliser	Irrigation	Hay and silage making
	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs
SN0002	0.6	1.8	1.0	1.2	3.2	7.9	2.5	0.2	0.9
SN0006	1.7	2.6	0.0	1.8	1.4	7.5	4.3	0.8	7.2
SN0009	2.2	2.0	0.2	1.2	1.6	7.1	1.3	0.3	4.0
SN0012	1.9	2.4	0.2	2.3	0.4	7.2	4.4	1.2	1.0
SN0014	2.4	1.9	0.8	0.9	1.5	7.4	10.4	0.8	9.3
SN0021	1.4	1.5	0.1	2.3	1.8	7.1	18.7	6.6	6.1
SN0023	1.9	0.8	0.0	1.7	2.2	6.5	12.1	0.5	3.5
SN0024	3.5	2.6	2.8	1.2	1.0	11.2	7.0	0.0	1.4
SN0028	1.5	3.7	1.4	1.2	0.4	8.2	9.8	2.8	8.9
SN0031	2.0	2.1	0.5	1.1	0.8	6.7	1.9	0.6	4.1
SN0033	2.6	1.8	0.4	1.5	1.4	7.8	7.5	2.1	2.8
SN0034	1.8	3.0	1.4	2.0	2.1	10.4	4.2	0.0	2.2
SN0036	1.8	1.9	0.2	0.8	1.0	5.8	4.5	3.1	4.3
SN0037	0.9	1.4	0.5	1.2	1.4	5.4	4.3	0.0	1.0
SN0038	0.8	2.5	1.4	1.7	1.2	7.5	7.7	0.0	1.6
SN0039	5.1	2.1	1.1	1.2	3.3	12.9	5.7	1.1	4.5
SN0040	1.1	2.2	0.1	1.3	1.3	6.1	2.9	1.0	0.4
SN0041	1.8	2.3	1.3	1.5	1.0	8.0	7.7	4.2	11.2
SN0042	1.6	2.3	1.7	2.4	3.2	11.2	10.9	1.7	6.5
Average	**1.9**	**2.2**	**0.8**	**1.5**	**1.6**	**8.0**	**6.7**	**1.4**	**4.3**

Table C6 (continued)

Farm number	Fuel and oil	Pasture improvement/ cropping	Other feed costs	Fodder purchases	Grain/ concentrates/ other	Agistment costs	Feed and water inventory change	Total feed costs	Total variable costs
	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs
SN0002	3.4	0.2	0.0	8.7	33.9	1.3	-1.9	49.2	57.0
SN0006	2.6	2.1	0.0	4.7	27.3	0.0	-2.1	46.9	54.4
SN0009	3.1	1.5	0.0	14.1	28.1	0.0	1.6	54.0	61.1
SN0012	3.1	2.5	0.0	6.1	32.3	1.6	0.9	53.1	60.3
SN0014	3.9	4.3	0.0	5.9	26.0	1.9	-3.6	58.9	66.3
SN0021	3.8	10.2	0.0	0.0	16.6	0.0	-13.7	49.1	56.1
SN0023	1.0	4.8	0.0	3.8	28.5	4.6	2.1	60.8	67.4
SN0024	0.9	4.8	0.0	13.9	30.7	0.0	-6.8	51.9	63.1
SN0028	2.8	2.2	0.0	15.7	31.9	0.0	-14.9	59.2	67.4
SN0031	3.7	1.9	0.9	0.0	31.3	0.0	12.1	56.5	63.2
SN0033	3.3	2.0	1.0	0.0	25.5	0.0	8.1	52.5	60.3
SN0034	1.4	3.6	0.9	7.6	31.2	0.9	-0.1	51.8	62.2
SN0036	2.1	2.5	0.0	2.2	34.2	4.7	-11.3	46.4	52.2
SN0037	1.1	3.9	0.0	6.0	36.4	0.3	0.3	53.3	58.7
SN0038	2.3	4.0	0.0	9.0	23.7	2.9	0.6	51.7	59.2
SN0039	3.7	2.7	0.0	0.9	25.6	5.4	-9.5	40.0	52.9
SN0040	2.8	2.2	1.4	13.7	26.8	0.0	-0.4	50.8	56.9
SN0041	4.8	9.2	0.0	0.8	31.0	2.0	-5.6	64.8	72.8
SN0042	4	8	0	0	30	0	1	61	73
Average	**2.8**	**3.8**	**0.2**	**6.0**	**29.0**	**1.4**	**-2.3**	**53.3**	**61.3**

Table C7 Overhead costs – percentage

Farm number	Rates	Farm Insurance	Motor Vehicle Expenses	Repairs and maintenance	Other	Employed labour	Total cash overheads	Depreciation	Imputed owner/ operator & family labour	Total
	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs
SN0002	1	1	0	8	1	6	19	8	16	43
SN0006	0	3	1	2	3	23	32	6	7	46
SN0009	0	1	1	6	1	14	24	6	8	39
SN0012	0	1	1	5	2	14	24	9	7	40
SN0014	0	2	1	8	2	10	23	4	6	34
SN0021	1	1	1	11	1	16	31	8	5	44
SN0023	1	2	1	7	2	2	14	2	17	33
SN0024	1	2	0	5	2	10	20	8	9	37
SN0028	0	1	0	7	1	20	29	4	0	33
SN0031	0	1	0	5	2	18	26	8	3	37
SN0033	0	2	0	2	2	18	24	6	9	40
SN0034	0	1	1	7	3	20	32	1	4	38
SN0036	1	1	1	9	2	15	28	5	15	48
SN0037	2	2	1	6	3	8	21	4	16	41
SN0038	1	1	0	5	3	15	26	6	8	41
SN0039	1	2	1	5	6	15	29	4	14	47
SN0040	1	1	0	4	2	17	26	4	14	43
SN0041	0	1	0	6	4	8	20	2	6	27
SN0042	0	1	1	3	3	12	20	4	3	27
Average	**1**	**1**	**1**	**6**	**2**	**14**	**25**	**5**	**9**	**39**

Table C8 Capital structure

Farm assets				
	Land value	Land value	Permanent water value	Permanent water value
	$/ha	$/cow	$/ha	$/cow
Average	18,768	14,038	2,409	2,045

Other farm assets (per usable hectare)				
Plant and equipment	Livestock	Hay and grain	Other assets	Total assets
$/ha	$/ha	$/ha	$/ha	$/ha
2,520	2,082	726	537	29,193

Liabilities	
Liabilities per usable hectare	Liabilities per milking cow
$/ha	$/cow
7,437	6,284

Equity	
Equity per usable hectare	Average equity
$/ha	%
21,756	72

Calculation of average values of land, water asset and equity excludes zero values

Table C9 Historical data – average farm income, costs and profit per kilogram of milk solids

	Income				Variable costs							
	Milk income (net)		Gross farm income		Herd costs		Shed costs		Feed costs		Total variable costs	
Year	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)
2011/12	6.64	8.63	7.48	9.73	0.31	0.41	0.25	0.32	2.86	3.72	3.42	4.45
2012/13	6.03	7.63	6.95	8.79	0.32	0.41	0.24	0.30	3.01	3.81	3.57	4.52
2013/14	7.12	8.79	7.98	9.85	0.32	0.39	0.21	0.26	3.20	3.95	3.73	4.60
2014/15	7.28	8.78	8.25	9.96	0.30	0.36	0.21	0.26	3.28	3.96	3.79	4.57
2015/16	6.97	8.30	7.94	9.46	0.35	0.42	0.21	0.25	3.01	3.59	3.57	4.25
2016/17	6.48	7.58	7.62	8.91	0.40	0.47	0.22	0.25	3.07	3.59	3.68	4.30
2017/18	6.81	7.81	7.49	8.59	0.34	0.40	0.23	0.26	3.63	4.16	4.20	4.82
2018/19	7.37	8.34	8.14	9.22	0.30	0.34	0.26	0.29	4.54	5.14	5.10	5.77
2019/20	8.36	9.35	9.32	10.41	0.31	0.34	0.24	0.26	4.67	5.22	5.22	5.83
2020/21	8.51	9.37	9.53	10.50	0.33	0.36	0.24	0.26	3.46	3.81	4.03	4.44
2021/22	8.68	9.16	9.90	10.44	0.37	0.39	0.24	0.25	3.95	4.17	4.56	4.81
2022/23	10.94	10.94	12.08	12.08	0.44	0.44	0.28	0.28	4.80	4.80	5.52	5.52
Average		**8.73**		**9.83**		**0.39**		**0.27**		**4.16**		**4.82**

	Overhead costs						Profit							
	Cash overhead costs		Non-cash overhead costs		Total overhead costs		Earnings before interest and tax		Interest and lease charges		Net farm income			
Year	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Return on total assets (%)	Return on equity (%)
2011/12	1.35	1.76	1.05	1.37	2.40	3.12	1.66	2.16	0.73	0.94	0.93	1.21	5.5	4.9
2012/13	1.44	1.82	1.12	1.42	2.56	3.24	0.82	1.04	0.66	0.83	0.16	0.20	2.7	0.5
2013/14	1.54	1.90	1.16	1.43	2.70	3.33	1.55	1.91	0.61	0.76	0.94	1.16	4.8	4.7
2014/15	1.52	1.83	1.02	1.23	2.54	3.07	1.92	2.32	0.56	0.67	1.36	1.65	5.3	5.7
2015/16	1.49	1.77	1.17	1.39	2.66	3.17	1.71	2.04	0.55	0.66	1.16	1.38	4.7	4.7
2016/17	1.67	1.95	1.16	1.36	2.83	3.31	1.11	1.30	0.51	0.60	0.60	0.70	2.7	2.1
2017/18	1.49	1.71	1.22	1.40	2.71	3.11	0.58	0.67	0.58	0.67	0.00	0.00	2.1	0.6
2018/19	1.55	1.76	1.19	1.35	2.74	3.10	0.31	0.35	0.61	0.69	-0.30	0.34	0.3	-2.1
2019/20	1.78	1.99	0.89	1.00	2.67	2.99	1.43	1.60	0.68	0.77	0.74	0.83	3.8	8.8
2020/21	1.84	2.03	1.05	1.16	2.88	3.17	2.62	2.89	0.61	0.67	2.01	2.21	6.7	11.0
2021/22	2.04	2.15	1.22	1.29	3.26	3.44	2.08	2.20	0.59	0.63	1.49	1.57	4.7	7.7
2022/23	2.24	2.24	1.30	1.30	3.54	3.54	3.01	3.01	0.68	0.68	2.32	2.32	7.5	9.9
Average		**1.91**		**1.31**		**3.22**		**1.79**		**0.71**		**1.07**	**4.2**	**4.9**

Note: 'Real' dollar values are the nominal values converted to 2022/23 dollar equivalents by the consumer price index (CPI) to allow for inflation. From 2016/17 Gross farm income does not include feed inventory changes and changes to the value of carry-over water. These are included in feed costs.

Table C10 Historical data – average farm physical information

	Total usable area	Milking area	Total water use efficiency	Number of milking cows	Milking cows per useable area	Milk sold	Milk sold	Estimated grazed pasture*	Estimated conserved feed*	Home grown feed as % of ME consumed	Concentrate price	
Year	ha	ha	t DM/ 100mm/ ha	hd	hd/ ha	kg MS/ cow	kg MS/ ha	t DM/ ha	t DM/ ha	% of ME	Nominal ($/t DM)	Real ($/t DM)
2011/12	351	156	0.54	450	1.5	495	728	6.8	0.9	52	301	370
2012/13	323	151	0.61	337	1.1	523	601	6.5	1.2	55	311	372
2013/14	381	139	0.60	350	1.0	541	546	6.2	1.0	54	377	439
2014/15	372	165	0.56	430	1.1	540	597	6.7	1.8	57	389	443
2015/16	379	164	0.57	425	1.1	552	597	6.5	1.9	57	382	430
2016/17	343	153	0.63	396	1.2	520	611	6.5	1.7	57	336	371
2017/18	333	149	0.75	401	1.3	526	665	5.6	1.6	55	398	432
2018/19	390	184	0.80	424	1.2	546	643	5.3	1.6	56	552	591
2019/20	419	181	0.65	463	1.2	555	673	4.8	1.3	57	522	552
2020/21	416	156	0.58	442	1.3	578	710	5.1	2.7	52	408	425
2021/22	398	160	0.55	437	1.3	575	731	4.7	2.5	51	443	443
2022/23	464	155	0.53	520	1.3	561	708	3.6	2.3	48	497	497
Average	**381**	**159**	**0.61**	**423**	**1.2**	**543**	**651**	**5.7**	**1.7**	**54**		**471**

*From 2006/07 to 2010/11 estimated grazed pasture and conserved feed was calculated per usable hectare
From 2011/12 estimated grazed pasture and conserved feed was calculated per hectare of milking area

Appendix D Glossary of terms, abbreviations and standard values

All other farm income	Income to the farm from all sources except milk. Includes livestock trading profit, dividends, interest payments received, and rent from farm houses.
Allocation	Water that is actually available to use or trade in any given year, including new allocations and carryover. Previously known as temporary water. Full allocation means irrigators receive 100% of their HRWS.
Allocation trade	The transfer of a volume of allocation water between a seller and buyer. Water is traded within a current irrigation season. Previously this was known as trading of temporary water entitlement and some irrigators still use this term.
Appreciation	An increase in the value of an asset in the market, often only applicable to land value.
Asset	Anything managed by the farm, whether it is owned or not. Assets include owned land and buildings, leased land, plant and machinery, fixtures and fittings, trading stock, farm investments (i.e., Farm Management Deposits), debtors, and cash.
Cash overheads	All fixed costs that have a cash cost to the business. Includes all overhead costs except imputed labour costs and depreciation.
Cost structure	Variable costs as a percentage of total costs, where total costs equal variable costs plus overhead costs.
Concentrates	Refers to feeds with a concentrated source of energy such as grains, pellets and other grain mixes.
Debt servicing ratio	Interest and lease costs as a percentage of gross farm income.
Depreciation	Decrease in value over time of capital asset, usually as a result of using the asset. Depreciation is a non-cash cost of the business but reduces the book value of the asset and is therefore a cost.
Earnings before interest and tax (EBIT)	Gross income minus total variable and total overhead costs.
Employed labour cost	Cash cost of any paid employee, including on-costs such as superannuation and Workcover.
Equity	Total assets minus total liabilities. Equal to the total value of capital invested in the farm business by the owner/operator(s).
Equity per cent	Total equity as a percentage of the total assets owned. The proportion of the total assets owned by the business.
Feed costs	Cost of fertiliser, irrigation (including effluent), hay and silage making, fuel and oil, pasture improvement, fodder purchases, grain/ concentrates, agistment and lease costs associated with any of the above costs, and feed inventory change.
Feed inventory change	An estimate of the feed on hand at the start and end of the financial year to capture feed used in the production of milk and livestock.
Finance costs	See interest and lease costs.
Full time equivalent (FTE)	Standardised labour unit. Equal to 2,400 hours a year. Calculated as 48 hours a week for 50 weeks a year.
Grazed pasture	Calculated using the back-calculation approach. Grazed pasture is calculated as the difference between total metabolisable energy required by livestock over the year and amount of metabolisable energy available from other sources (hay, silage, grain, and concentrates). Total metabolisable energy required by livestock is a factor of age, weight, growth rate, pregnancy, and lactation requirements, walking distance to shed, terrain and number of animals. Total metabolisable energy available is the sum of metabolisable energy from all feed sources except pasture, calculated as (weight (kg) x dry matter content (DM per cent) x metabolisable energy (MJ/kg DM)).
Gross farm income	Farm income including milk sales, livestock trading and other income such as income from grants and rebates.
Gross margin	Gross farm income minus total variable costs.
Herd costs	Cost of artificial insemination (AI) and herd tests, animal health and calf rearing.
Imputed	An estimated amount introduced into economic management analysis to allow reasonable comparisons between years and between other businesses.
Imputed labour cost	An allocated allowance for the cost of owner/operator, family, and sharefarmer time in the business.
Interest and lease costs	Total interest plus total lease costs paid.
Labour cost	Cost of the labour resource on farm. Includes both imputed and employed labour costs.
Labour efficiency	FTEs per cow and per kg MS. Measures productivity of the total labour resources in the business.
Liability	Money owed to someone else, e.g., family or a financial institute such as a bank.
Livestock trading profit	An estimate of the annual contribution to gross farm income by accounting for the changes in the number and value of livestock during the year. It is calculated as the trading income from sales minus purchases, plus changes in the value and number of livestock on hand at the start and end of the year, and accounting for births and deaths.
Milk income	Income from the sale of milk. This is net of compulsory levies and charges.
Milking area	The area of land grazed by milking cows to produce milk.
Net farm income	Earnings before interest and tax (EBIT) minus interest and lease costs. The amount of profit available for capital investment, loan principal repayments and tax.
Nominal terms	Dollar values or interest rates that include an inflation component.

Number of milkers	Total number of cows milked for at least three months.
Other income	Income to the farm from other farm owned assets and farm business related external sources. Includes milk factory dividends, interest payments received, and rent from farm cottages.
Overhead costs	All fixed costs incurred by the farm business that do not vary with the level of production. These include cash overhead costs such as employed labour and noncash costs such as imputed owner-operator labour, family labour and depreciation of plant and equipment. It excludes interest, lease costs, capital expenditure, principal repayments, drawings, and tax.
Real terms	Dollar values or interest rates that have no inflation component.
Return on equity (ROE)	Net farm income divided by the value of total equity.
Return on total assets (ROTA)	Earnings before interest and tax divided by the value of total assets under management, including owned and leased land.
Shed costs	Cost of shed power and dairy supplies such as filter socks, rubberware, vacuum pump oil etc.
Top 25%	Regional or State average for the Top 25% of participant farms ranked by return on total assets; can also be referred to as the top group, top performers within a region or the state.
Total income	See gross farm income.
Total usable area	Total hectares managed minus the area of land which is of little or no value for livestock production e.g., house and shed area.
Total water use efficiency	Homegrown feed consumed or harvested per 100 mm water 'applied' (rainfall and irrigation) to the usable hectares on the farm.
Variable costs	All costs that vary with the size of production in the enterprise e.g., herd, shed and feed costs (including feed and water inventory change).
Water inventory change	An estimate of the values irrigation water on hand at the start and end of the financial year to capture water used in the production of pasture and crops.

Feeding Systems:	
Low bail	Low bail is defined by the one-tonne annual cap of grain or concentrates fed in the dairy bail – i.e. cows are fed up to one tonne of grain and concentrate in the dairy at milking time throughout lactation and livestock graze pasture all year round.
Moderate – High bail	The level of grain or concentrate fed in the bail is more significant than one tonne per annum, and livestock graze pasture all year round.
Partial mixed ration	In the partial mixed ration (PMR) system, livestock animals graze on pasture for most of the year, if not all of the year, while being fed a PMR on a feed pad.
Hybrid system	Hybrid systems are classified as grazing pasture for fewer than nine months of the year while feeding a partial mixed ration on a feed pad with grain or concentrates.
Total mixed ration	A total mixed ration or TMR is classified by zero-grazing, where cows are contained and fed a TMR throughout the year.

List of abbreviations

AI	Artificial insemination
CH_4	Methane
CO_2	Carbon dioxide
CO_2-e	Carbon dioxide equivalent
CoP	Cost of production
DFMP	Dairy Farm Monitor Project
DM	Dry matter of feed stuffs
DJPR	Department of Jobs, Precincts and Resources, Victoria
EBIT	Earnings before interest and tax
FPCM	Fat and protein corrected milk
FTE	Full time equivalent
ha	Hectare(s)
hd	Head
HRWS	High Reliability Water Shares
kg	Kilograms
LRWS	Low Reliability Water Shares.
ME	Metabolisable energy (MJ/kg DM)
MJ	Megajoules of energy
ML	Megalitres
mm	Millimetres. 1 mm is equivalent to 4 points or 1/25th of an inch of rainfall
MS	Milk solids (protein and fat)
N_2O	Nitrous oxide
Q1	First quartile, i.e., the value of which one quarter, or 25%, of data in that range is less than the average
Q3	Third quartile, i.e., the value of which one quarter, or 25%, of data in that range is greater than the average
ROTA	Return on total assets
ROE	Return on equity
t	Tonne = 1,000 kg

Standard values

Pasture consumption

The pasture consumption calculation assumes 11 ME for homegrown feed.

Livestock values

The standard vales used to estimate the inventory values of livestock were determined by breed and liveweight. Example values for Friesians were:

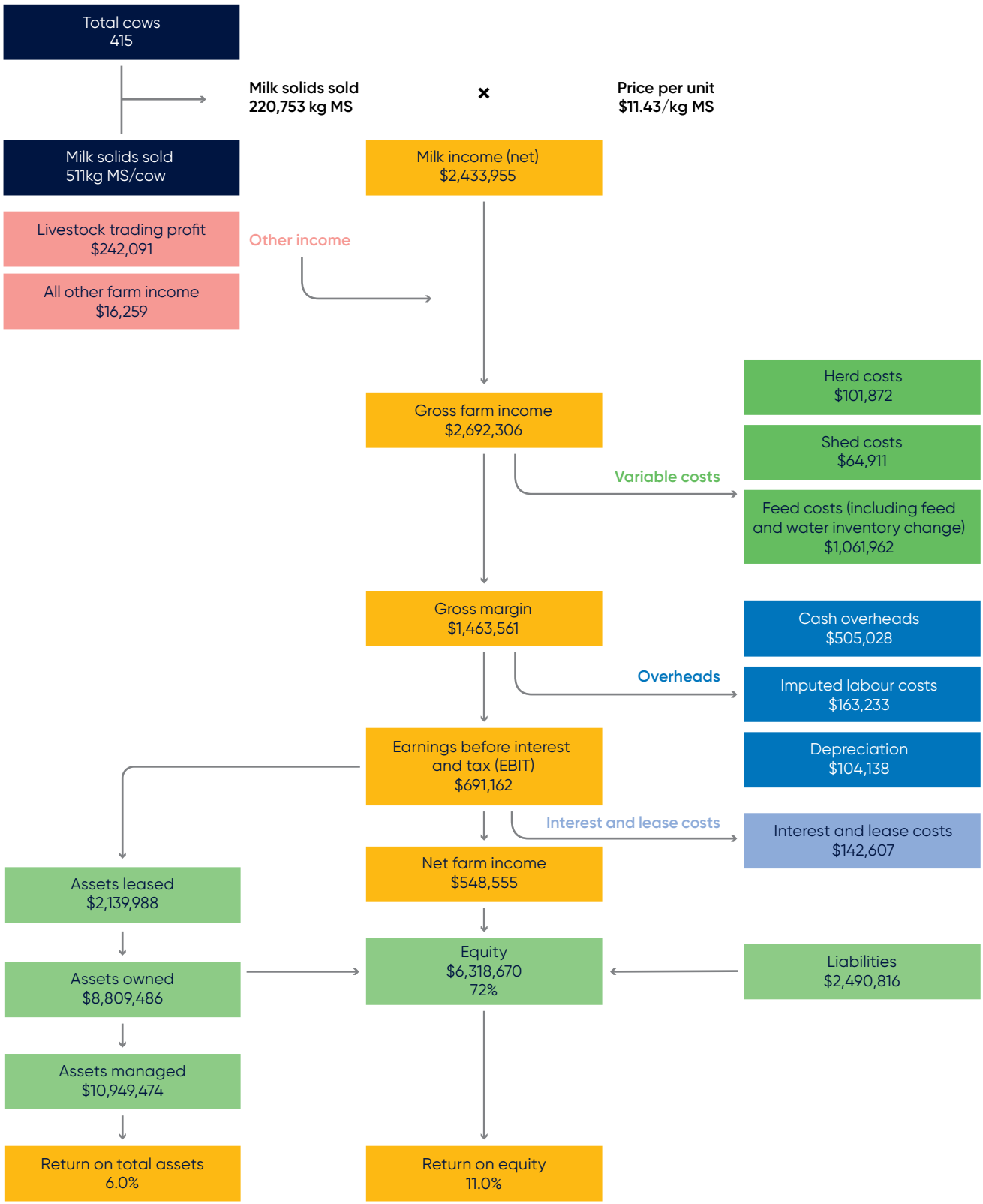
Category	Opening value ($/hd)	Closing value ($/hd)
Mature cows (550kg)	2,200	2,200
2-year-old heifers	1,650	2,200
1-year old heifers	825	1,650
21/22 calves		825
Mature bulls	3,300	3,300

Imputed owner/operator and family labour

In 2022/23, the imputed owner/operator and family labour rate was $36/hr based on a full time equivalent (FTE) working 48 hours/week for 50 weeks of the year.

Dairy Farm Monitor Project Map State average data
2022/23

All 36 farms



Acknowledgement
Dairy Australia acknowledges the funding from levy payers and contribution by Commonwealth Government.

ISSN 2206-0014

Dairy Australia Limited ABN 60 105 227 987
Level 3, HWT Tower
40 City Road, Southbank Vic 3006 Australia
T +61 3 9694 3777 F +61 3 9694 3701
E enquiries@dairyaustralia.com.au
dairyaustralia.com.au

5540 | Dec 2023