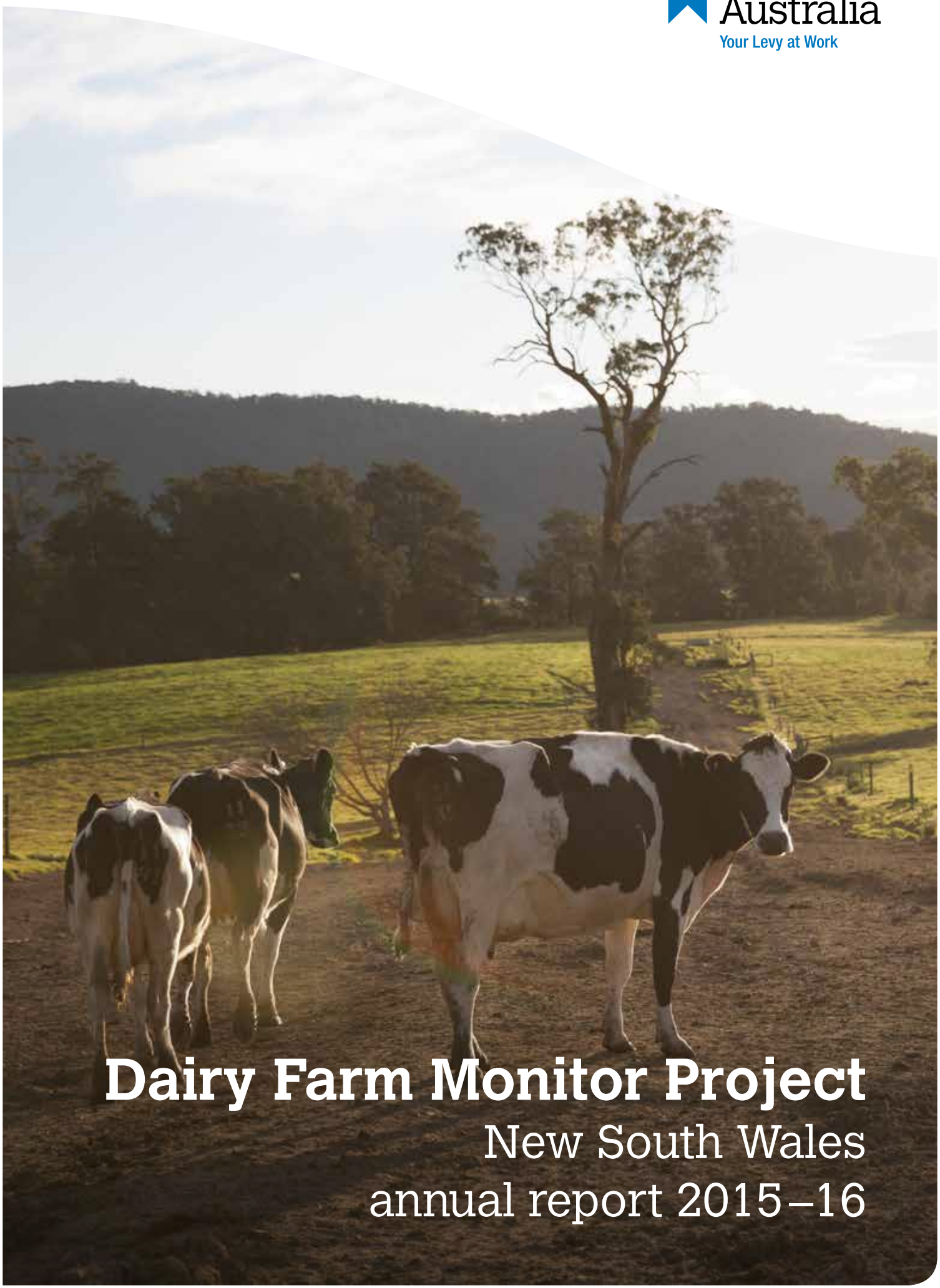
Dairy Australia
Your Levy at Work



Dairy Farm Monitor Project

New South Wales annual report 2015–16

Acknowledgements

The cooperation, patience and goodwill of the farmers who willingly supplied their farm information, either for the first time or the fifth consecutive year, are gratefully acknowledged.

The project is conducted by NSW Department of Primary Industries, managed by Kerry Kempton, Technical Specialist Dairy. The success of the project was made possible this year through the contributions of Julie Dart & Brendan O'Brien from North Coast Local Land Services; Hayden Kingston from South East Local Land Services; contractors Sheena Carter, Lloyd Davies and Katina Trout; and Nicolas Lyons, Peter Havrlant and Emma Oke, Dairy Development and Education Officers with NSW DPI. These people collected farm data and provided feedback and validation to ensure the accuracy and integrity of the information.

The diligent work of Agriculture Victoria's Natalie Nelson, Olive Montecillo and Claire Waterman, who conducted the data analysis and continued to be actively involved in the report through to its publication, is much appreciated.

This report has been produced by Kerry Kempton, in conjunction with Agriculture Victoria and Dairy Australia.

This document is also available in PDF format on the internet at dairyaustralia.com.au/dairyfarmmonitor.

Further information regarding the NSW Dairy Farm Monitor Project may be obtained from:

Kerry Kempton
Technical Specialist Dairy
NSW Department of Primary Industries
Tocal Agricultural Centre
Paterson NSW 2421
Phone: 02 4939 8945
kerry.kempton@dpi.nsw.gov.au

Natalie Nelson
Farm Business Economist
Agriculture Victoira
1301 Hazeldean Road
Ellinbank VIC 3821
Phone: 03 5624 2235
natalie.nelson@ecodev.vic.gov.au

ISSN 2206-0014

NSW GOVERNMENT Department of Primary Industries

AGRICULTURE VICTORIA

Contents

List of figures and tables

How to read this report

This section explains the calculations used and the data presented throughout this report. The purpose of the different sections of the report is also discussed.

This report is presented in the following sections:

- Summary
- Farm monitor method
- Statewide overview
- North region overview
- South region overview
- Business confidence survey
- Greenhouse gas emissions report
- Historical analysis
- Appendices

Participants were selected for the project in order to represent a distribution of farm sizes, herd sizes and geographical locations within each region. The results presented in this report do not represent population averages as the participant farms were not selected using random population sampling.

The report presents visual descriptions of the data for the 2015–16 year. Data are presented for individual farms, as regional financial averages and for the regional top 25% of farms ranked by return on assets (RoA). The presented averages should not be considered averages for the population of farms in a given region due to the small sample size and these farms not being randomly selected.

The top 25% of farms are presented as striped bars in the regional overview figures. Return on assets is the determinate used to identify the top 25% of producers as it provides an assessment of the performance of the whole farm irrespective of differences in location and production system.

The Q1–Q3 data range for key indicators are also presented to provide an indication of the variation in the data. The Q1 value is the quartile 1 value, that is, the value of which one quarter (25%) of data in that range is less than the average. The Q3 value is the quartile 3 value that is the value of which one quarter (25%) of data in that range is greater than the average. Therefore the middle 50% of data resides between the Q1–Q3 data range. Given the differences in variation in the regional data, we do not recommend comparing one region to another.

This report often refers to the group of participating farms in a given region by their regional name;

- The 19 participating farms in the Northern NSW region are referred to as ‘North’.
- The 16 participating farms in the Southern NSW region are referred to as ‘South’.

The appendices include detailed data tables, a list of abbreviations, a glossary of terms and a list of standard values used.

Milk production data is presented in kilograms of milk solids (fat + protein) as most farmers are paid based on milk solids production.

The report focuses on measures on a per kilogram of milk solids basis, with occasional reference to measures on a cents per litre, per hectare or per cow basis. The appendix tables contain the majority of financial information on a per kilogram of milk solids basis.

Percentage differences are calculated as [(new value – original value)/ original value]. For example ‘costs went from $80/ha to $120/ha, a 50% increase’; [{(120-80)/80} x (100/1)] = [(40/80) x 100] = 0.5 x 100 = 50%, unless otherwise stated.

The top 25% consists of five farms from the North, four farms from the South and nine farms on a statewide basis. The nine farms in the statewide top 25% are taken by considering all 35 as the one sample and not from combining the top farms from each region.

Any reference to ‘last year’ refers to the 2014–15 Dairy Farm Monitor Project report. Price and cost comparisons between years are nominal unless otherwise stated. It should be noted that not all of the participants from 2014–15 are in the 2015–16 report, as there were two farms drop out of this year’s dataset. It is important to bear this in mind when comparing datasets between years. Reference is made at the start of each regional chapter on which farms are new to or have left the project.

Please note that text explaining terms may be repeated within the different chapters.

What's new in 2015–16?

The Dairy Farm Monitor Report for 2015–16 includes a number of changes since last year's report. The most significant highlights are:

- The standard value for imputed owner operator and family labour was revised from $25/hr to $28/hr to reflect industry rates and inflation.
- The standard value for livestock used to calculate livestock trading profit and asset values was revised to reflect market rates and inflation. For example a mature cow increased from $1,100/head to $1,500/head across all participant farms.
- The cost of production calculation was revised to articulate the cost of production on a cash basis, cash plus non-cash basis and also to identify the impact of inventory change on cost of production. This also now aligns with the reporting in Dairy Australia's DairyBase. The regional chapters detail the cost of production calculation.
- The standard values used to estimate the value of livestock, irrigation and the imputed operators allowance for labour and management are detailed in Appendix D.
- The method of estimating Australia's dairy industry greenhouse gas emissions, the national greenhouse gas inventory (NGGI), was altered to reflect new research outcomes and align with international guidelines. The global warming potential (GWP) of the main three gases was altered, and pre-farm gate emissions sources are now considered.

Keep an eye on the project website for further reports and updates on the project at dairyaustralia.com.au/dairyfarmmonitor

Summary

Summary

In 2015–16 data collected and analysed from 35 farms across New South Wales showed profits declined slightly on last year to 3% return on assets, which was predominantly driven by a 2% decline in milk price. Seasonal conditions were variable across the state, being drier than average in a number of regions, particularly in autumn, before turning wet in June. Costs of production were similar to the previous year, however profitability decreased across most farms. Average whole farm earnings before interest and tax was $250,775, a 5% decrease from $264,888 in 2014–15.

The NSW dairy industry performed strongly again in 2015–16, with milk production holding steady on the previous year at 1.165 billion litres.

There was only a small reduction in average whole farm earnings before interest and tax (EBIT) from $264,888 in 2014–15 to $250,775 per farm this year. Average return on assets also reduced to 3.0% in 2015–16 from 3.5% last year. Return on equity also decreased to 2.1% after recording 2.8% last year. Of the 35 farms involved in the study this year, 28 farms (80%) recorded a positive return on assets and 24 recorded a positive return on equity.

Milk price in 2015–16 was down on average by 2% on the previous year, from $7.46 to $7.34/kg MS. South farms had a 4% decrease to average $6.97/kg MS for the year, mainly due to the influence of the Victorian industry situation. Milk price in the North held steady, on the back of strong competition for milk to meet the demands of the NSW and Southern Queensland liquid milk market.

Seasonal conditions in 2015–16 were favourable in the first half of the year in most regions, with good spring and summer growing conditions. However, conditions turned very dry from February through to May, accentuating the autumn feed gap. Widespread rainfall fell across the state from early June, and conditions in inland and southern parts of NSW have remained wet over the winter of 2016.

The variable season is reflected in an increase in the amount of fodder conserved on farms due to the favourable spring, but this was offset by lower pasture grazed, likely due to the dry autumn. Half of the farms increased fodder reserves and half decreased.

Whilst this year there was decline in farm profits across the state, there was also again a clear difference in profit between the farms in the two groups.

The North

Across the North, most farms experienced good conditions in spring, with dry conditions in autumn resulting in close to average rainfall for the year. Milk prices remained very similar at $7.65/kg MS (55 c/l). The average cost of production (including inventory change) was also very similar to the year before, at $7.76 /kg MS for the North. Farms fed a little more purchased feed per cow but paid less for it, with concentrates averaging $401 per tonne of dry matter (t DM) on average for 2015–16.

Although milk price remained relatively stable in the North, average whole farm earnings before interest and tax (EBIT) decreased a little to $112,135 per farm compared to $120,427 in 2014–15. Average return on assets also dropped from 1.9% in 2014–15 to 1.6% in 2015–16. Fourteen of the 19 farms in this group recorded a positive return on assets and equity.

The South

Most of the South region experienced reasonably good seasonal conditions throughout 2015–16, apart from the dry autumn, with close to average rainfall throughout the year.

Milk prices decreased by around 4% over the previous year to $6.97/kg MS. Those farmers closer to the Murray region faced a larger drop in milk price later in the year.

Cost of production decreased slightly in 2015–16, with lower prices for purchased feed, and farmers responding to the drop in milk price. Overall this led to a decrease in EBIT to an average of $415,409 per farm this year, down 5% on the previous year. All but two of the 16 farms recorded positive return on assets, with the average for the group decreasing to 4.7%, down from 5.3% in 2014–15.

Farmer confidence

Nearly half of the farmers in the South region expect the milk price and their business returns to decrease in 2016–17, with the other half expecting no change. Despite that, 60% of South farmers expressed intentions to increase milk production next year and 40% no change.

In the North, 50% were expecting an increase or no change to milk price and business returns. Intentions around increasing milk production in the North were mixed.

The major concerns facing farmers for 2016–17 were declining milk price (24% of the responses compared to only 9% last year); and the related issues of financial viability; managing feed supply; and labour availability and management (14% of responses).

With the dissipation of the El Niño effect, and the return to good rainfall late in the year, seasonal conditions were lower down the list of concerns this year.

The top three longer term concerns identified were: Milk price volatility and the impact on profitability and cash flow; Retirement and succession planning and whether to grow or exit; and Labour management and achieving a work: life balance.

Historical analysis

A historical analysis over the past five years of the project showed that 2015–16 had the first downward trend in EBIT and return on assets since 2012–13.

Farm monitor method

Farm monitor method

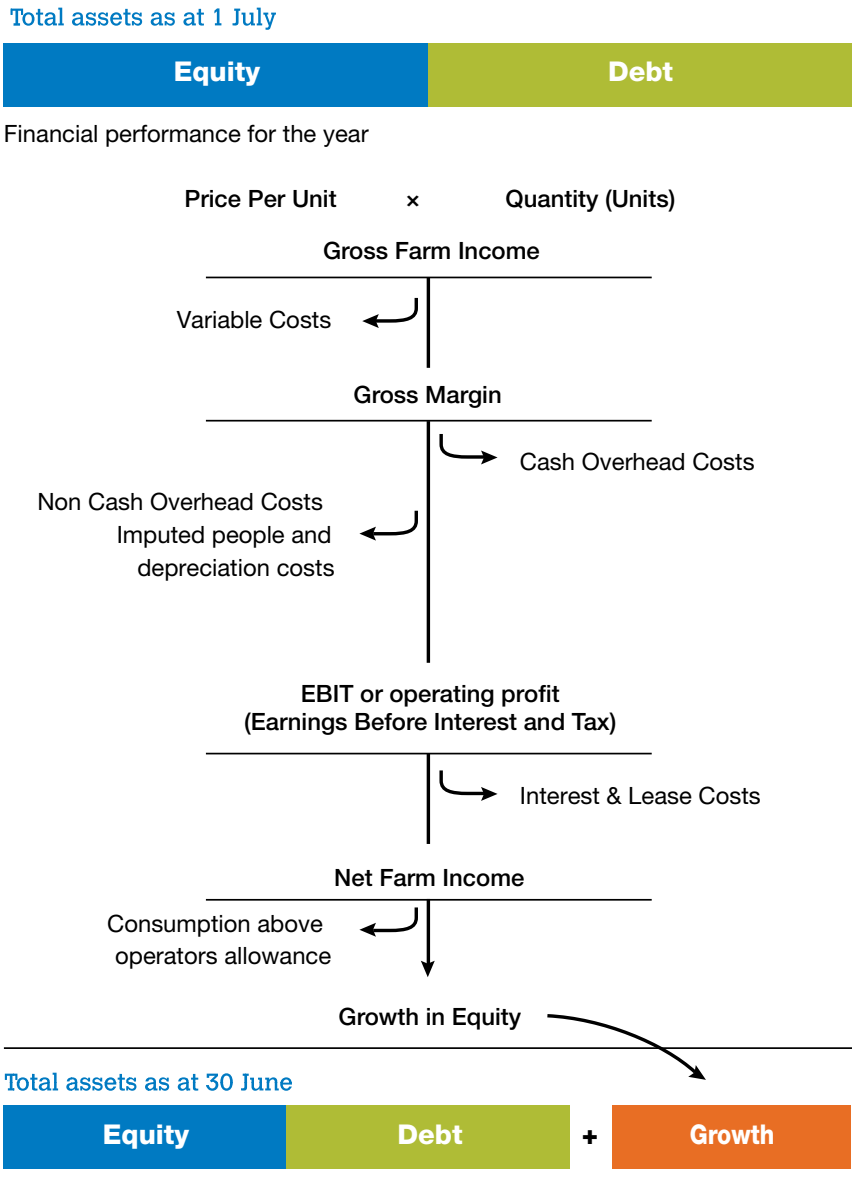
This chapter explains the method used in the Dairy Farm Monitor Project (DFMP) and defines the key terms used.

The method employed to generate the profitability and productivity data was adapted from that described in The Farming Game (Malcolm et al. 2005) and is consistent with previous Dairy Farm Monitor Project (DFMP) reports. Readers should be aware that not all benchmarking programs use the same method or terms for farm financial reporting. The allocation of items such as lease costs, overhead costs or imputed labour costs against the farm enterprises varies between financial benchmarking programs. Standard dollar values for items such as stock and feed on hand and imputed labour rates may also vary. For this reason, the results from different benchmarking programs should be compared with caution.

Figure 1 demonstrates how the different farm business economic terms fit together and are calculated. This has been adapted from an initial diagram developed by Bill Malcolm. The diagram shows the different profitability measures as costs are deducted from gross farm income. Growth is achieved by investing in assets which generate income. These assets can be owned with equity (one's own capital) or debt (borrowed capital). The amount of growth is dependent on the maximisation of income and minimisation of costs, or cost efficiency relative to income generation.

The performance of all participants in the project using this method is shown in Figure 2. Production and economic data are both displayed to indicate how the terms are calculated and how they in turn fit together.

Figure 1 Dairy farm monitor project method



Gross farm income

The farming business generates a gross farm income which is the sum of milk cash income (net), livestock trading profit, feed inventory change or other sources such as milk share dividends. The main source of income is from milk, which is calculated by multiplying price received per unit by the number of units. For example, dollars per kilogram milk solids multiplied by kilograms of milk solids produced. Subtracting certain costs from total income gives different profitability measures.

Variable costs

Variable costs are the costs specific to an enterprise, such as herd, shed and feed costs. These costs vary in relation to the size of the enterprise. Subtracting variable costs for the dairy enterprise only from gross farm income, gives the gross margin. Gross margins are a common method for comparing between similar enterprises and are commonly used in broad acre cropping and livestock enterprises. Gross margins are not generally referred to in economic analysis of dairy farming businesses due to the specific infrastructure investment required to operate a dairy farm making it less desirable to switch enterprise.

Overhead costs

Overhead costs are costs not directly related to an enterprise as they are expenses incurred through the general operating of the business. The DFMP separates overheads into cash and non-cash overheads, to distinguish between different cash flows within the business. Cash overheads include rates, insurance, and repairs and maintenance. Non-cash overheads include costs that are not actual cash receipts or expenditure; for example the amount of depreciation on a piece of equipment. Imputed operators' allowance for labour and management is also a non-cash overhead that must be costed and deducted from income if a realistic estimate of costs, profit and the return on the capital of the business is to be obtained.

Earnings before interest and tax

Earnings before interest and tax (EBIT) are calculated by subtracting variable and overhead costs from gross farm income. Earnings before interest and tax is sometimes referred to as operating profit and is the return from all the capital used in the business.

Net farm income

Net farm income is EBIT minus interest and lease costs and is the reward to the farmer's own capital. Interest and lease costs are viewed as financing expenses, either for borrowed money or leased land that is being utilised.

Net farm income is then used to pay tax and what is remaining is net profit or surplus and therefore growth, which can be invested into the business to expand the equity base, either by direct reinvestment or the payment of debt.

Return on assets and return on equity

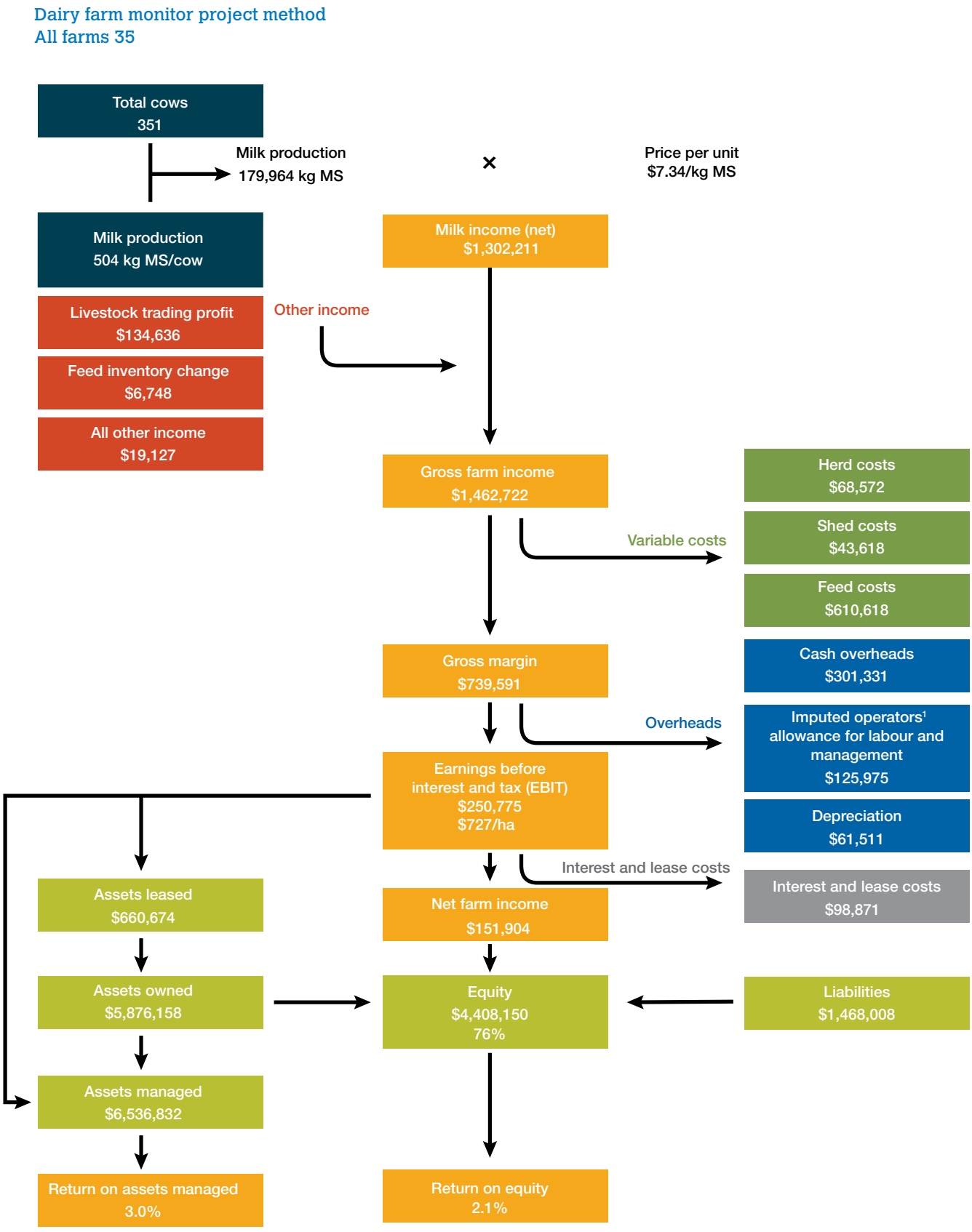
Two commonly used economic indicators of whole farm performance are return on assets (RoA) and return on equity (RoE). They measure the return to their respective capital base.

Return on assets indicates the overall earning of the total farm assets, irrespective of capital structure of the business. It is EBIT expressed as a percentage of the total assets under management in the farm business, including the value of leased assets. Return on assets is sometimes referred to as return on capital.

Earnings before interest and tax expressed as a return on total assets is the return from farming. There is also a further return to the asset from any increase in the value of the assets over the year, such as land value. If land value goes up 5% over the year, this is added to the return from farming to give total return to the investment. This return to total assets can be compared with the performance of alternative investments with similar risk in the economy. In Figure 1, total assets are visually represented by debt and equity. The debt: equity ratio or equity percent of total capital varies depending on the detail of individual farm business and the situation of the owners, including their attitude towards risk.

Return on equity measures the owner's rate of return on their own capital investment in the business. It is net farm income expressed as a percentage of total equity (one's own capital). The DFMP reports RoE with and without capital appreciation. This is to distinguish between productivity gains (RoE without capital appreciation) and capital gains (RoE with capital appreciation). The RoE including capital appreciation is reported in Appendix Table 1 for each region.

Figure 2 Dairy farm monitor project method profit map – state average 2015–16 data[1]



[1] *Profit map adapted from Queensland Dairy Accounting Scheme - 2010 with permission from Ray Murphy, Department of Agriculture, Fisheries and Forestry, Queensland.*

Statewide overview

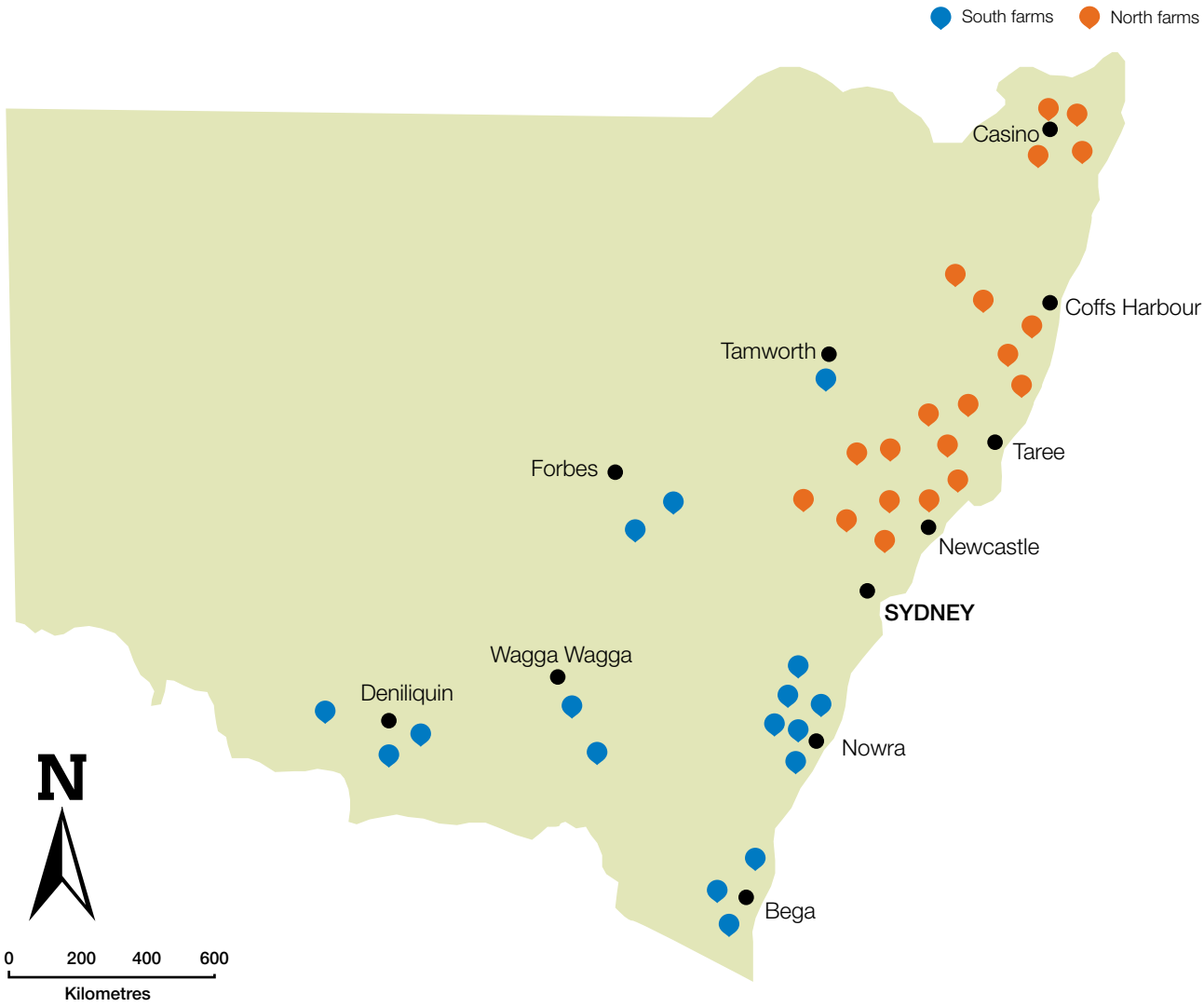
Statewide overview

This section of the report presents the average performance and the range of physical and financial indicators for all 35 participant farms across New South Wales from the North and the South regions.

Farms in the North region range in location from the Queensland border to the Hunter Valley along the coast and hinterland. They are generally characterised as having moderate to high rainfall, limited irrigation, a kikuyu/annual ryegrass pasture base with some use of summer forage crops. The Southern group includes farms along the coast from Sydney to the Bega valley, and farms from the inland river systems of NSW, including the Central West and Riverina regions.

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 the influences on milk pricing across NSW, there is a wide range of farm characteristics within each group. The approximate location of the participating farms is shown in Figure 3.

Figure 3 Distribution of participant farms in 2015–16 across New South Wales



2015–16 Seasonal conditions

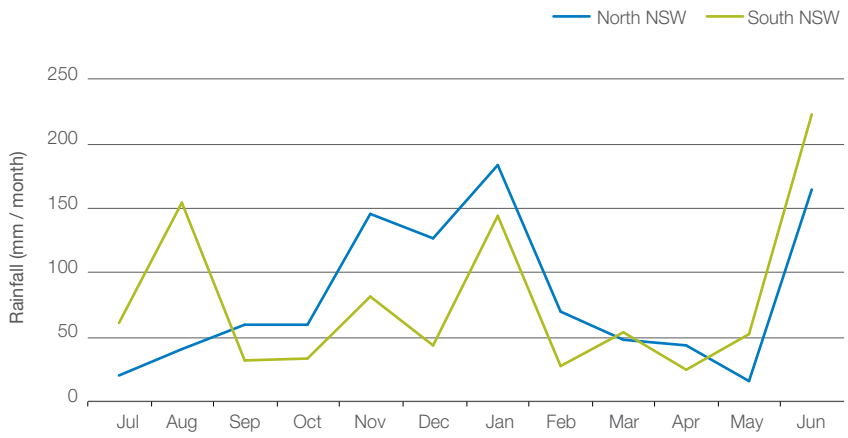
Seasonal conditions in 2015–16 were generally favourable in the first half of the year in most areas, with good spring and summer growing conditions.

However, conditions turned very dry from February through to May, resulting in poor pasture growth in autumn, and making it difficult to establish annual winter pasture. Good widespread rainfall fell across the state from early June, and conditions for inland and southern parts of NSW have remained quite wet over the winter of 2016. This created different challenges for dairy farmers in managing home grown fodder, depending on location. Yearly rainfall was generally close to long term average for the year across most farms.

The regional sections provide more detail on the 2015–16 seasonal conditions.

Figure 4 shows the average monthly rainfall pattern in 2015–16 and the differences between the regions.

Figure 4 2015–16 Monthly rainfall



Whole farm analysis

In 2015–16 farms in the South had larger herd size, farm size and higher milk solids per cow and per labour unit than the North farms. The North farms received a higher average milk price than the South.

There were no new farms in the sample this year, with two previous participants choosing not to participate this year, leaving 35 farms in the project in 2015–16. This year saw an increase in average herd size across the state, to 351 cows. This was mainly due to an increase of 30 cows per farm in the North, while the South decreased a little.

The slightly below average rainfall across the state lowered the average water use (irrigation plus rainfall) to 1,092 mm compared to last year's (irrigation + rainfall) average of 1,130 mm. There were favourable conditions in spring and summer promoting good pasture growth, but dry conditions in autumn in many areas led to delays to autumn sowings. Good widespread rains were received from June onwards through winter, boosting inland water storages and grain crops.

Total usable area was very similar across the sample group this year to the previous year, as was milk solids (MS) sold per cow across both regions. Stocking rate per usable hectare increased slightly, as did milk sold in kg MS per hectare, up from 602 kg MS/ha to 618 kg MS/ha. Labour efficiency per kg MS decreased a little across the state, with the North declining and the South increasing by small amounts.

Milk price in 2015–16 was down on average by 2% on the previous year, from $7.46/kg MS to $7.34/kg MS. The decrease was mostly felt in the South farms, with a 4% decrease to an average of $6.97/kg MS for the year. Milk price in the North held fairly steady.

Table 1 presents the average of some farm characteristics for the state and for each region. Further details can be found in the Appendix (Table 2) for each region.

Table 1 Farm physical data – State overview

Farm physical parameters	Statewide	North	South
Number of farms in sample	35	19	16
Herd size (max no. cows milked for at least 3 months)	351	289	425
Annual rainfall 2015–16 (mm)	956	977	931
Water used (irrigation + rainfall) (mm/ha)	1,092	1,139	1,036
Total usable area (hectares)	287	210	379
Stocking rate (milking cows per usable hectare)	1.3	1.4	1.1
Milk sold (kg MS/cow)	504	463	552
Milk sold (kg MS/ha)	618	636	597
Milk price received ($/kg MS)	$7.34	$7.65	$6.97
People productivity (milkers/FTE)	74	68	81
People productivity (kg MS/FTE)	36,999	31,290	43,779

Farm financial performance

Figure 5 provides a visual representation of the average farm financial performance. The blue colours represent income per kilogram of milk solids (kg MS) added vertically to provide gross farm income. From gross farm income, the green variable costs can be subtracted to give the dark green gross margin values. From the gross margin orange overhead costs can be subtracted to provide the (bottom) orange earnings before interest and tax. The legend for Figure 5 and the values for category can be found in Table 2.

Gross farm income

Gross farm income includes all farm income from milk sales, change in inventories of livestick, feed and water allocation, or cash income from livestock trading. Income from sources such as milk share dividends is included as other farm income.

While Figure 5 shows how much milk income dominates gross income, other sources are still important to the farm business. Across the state, income from sources other than milk accounted for 11% of gross farm income, similar to last year. There was an increase in livestock trading profit across both groups in 2015–16, partly due to a change in the values of livestock applied this year, and partly due to an increase in prices for cull cattle. A number of farms retained more bull calves this year, in response to the higher beef prices.

There was some variation in gross income per kilogram of milk solids between the two regions, mainly due to differences in milk price. The average state milk price was $7.34/kg MS, a 2% decrease from last year. Average milk price in the North was $7.65/kg MS and in the South it was $6.97/kg MS.

Variable costs

Variable costs are costs directly associated with production. Examples include animal health, contract services, supplementary feeding, agistment and pasture costs. Figure 5 shows the largest cost was purchased feed and agistment (seen as mid green).

Total feed costs, including home grown feed, purchased feed and agistment, accounted for 85% of total variable costs on average for the state, which equated to $3.33/kg MS. See Appendix Table 6 for a breakdown of variable costs as a percentage of total (variable plus overhead) costs in each region.

The gross margin is equal to gross farm income minus total variable costs. While commonly used to compare enterprises that have a similar capital structure like sheep or beef, it can be a useful measure in dairy to analyse changes on farm that do not require capital investment.

The statewide average gross margin was $4.28/kg MS, which was the same as 2014–15.

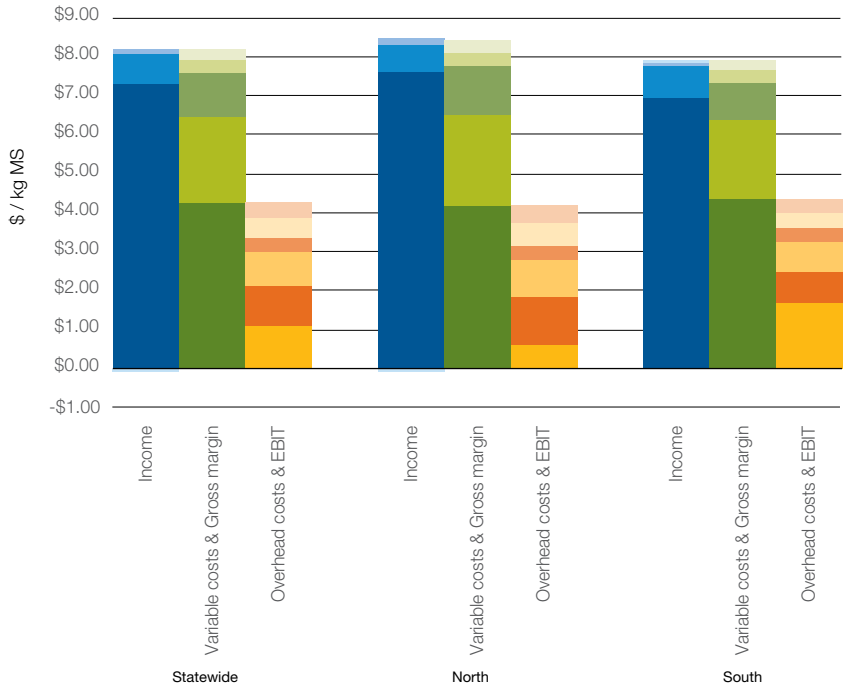
Overhead costs

Overhead costs are relatively unresponsive to small changes in the scale of operation of a business. Examples include depreciation, administration, repairs and maintenance and labour. Imputed labour cost is an estimate of the cost of the time spent in the business by people with a share in the business such as the owner, the owner's family or a sharefarmer who owns assets in the business. The imputed labour cost is calculated as $28 per hour of imputed labour performed by the owner operator, family members or sharefarmers with assets. This figure has increased from the standard figure of $25 per hour last year, to better reflect industry wage rates.

The average total overhead costs this year was $3.16/kg MS compared with $2.96/kg MS in 2014–15. Both the North and South participant farms increased overhead costs this year on average, mainly due to higher imputed labour cost.

Table 2 shows that in 2015–16 the North had higher average variable costs as well as higher average overhead costs on a per kilogram of milk solids basis compared to the South, similar to last year.

Figure 5 Average farm financial performance per kilogram of milk solids



See Table 2 for the legend on Figure 5

Table 2 Average farm financial performance per of kilogram milk solids and cents per litre – Statewide

	Farm income and cost category	Statewide		North		South	
	Income	**kg MS**	**c/l**	**kg MS**	**c/l**	**kg MS**	**c/l**
	Feed inventory change	$0.00	0.0	–$0.05	–0.3	$0.05	0.4
	Other farm income	$0.12	0.9	$0.15	1.1	$0.08	0.6
	Livestock trading profit	$0.77	5.6	$0.71	5.1	$0.84	6.2
	Milk income (net)	$7.34	53.2	$7.65	55.1	$6.97	50.9
	Total income	**$8.23**	**59.7**	**$8.46**	**61.0**	**$7.94**	**58.2**
	Variable costs						
	Shed cost	$0.27	1.9	$0.31	2.2	$0.21	1.5
	Herd cost	$0.35	2.5	$0.34	2.5	$0.35	2.5
	Home grown feed cost	$1.13	8.3	$1.27	9.2	$0.96	7.2
	Purchased feed and agistment	$2.20	15.8	$2.33	16.6	$2.05	14.8
	Total variable costs	**$3.94**	**28.5**	**$4.26**	**30.6**	**$3.57**	**26.1**
	Gross margin						
	per kilogram of milk solids	**$4.28**	**31.2**	**$4.20**	**30.5**	**$4.37**	**32.0**
	Overhead costs						
	All other overheads	$0.39	2.9	$0.45	3.2	$0.33	2.4
	Repairs and maintenance	$0.49	3.5	$0.58	4.2	$0.38	2.8
	Depreciation	$0.38	2.7	$0.38	2.7	$0.37	2.8
	Employed labour	$0.87	6.3	$0.94	6.7	$0.79	5.7
	Imputed labour	$1.04	7.5	$1.24	9.0	$0.79	5.8
	Total overhead costs	**$3.16**	**23.0**	**$3.58**	**25.9**	**$2.66**	**19.5**
	Earnings before interest and tax						
	per kilogram of milk solids	**$1.12**	**8.2**	**$0.62**	**4.6**	**$1.72**	**12.5**

Earnings before interest and tax

Earnings before interest and tax (EBIT) are the gross farm income, less variable costs and overhead costs including non-cash costs. As EBIT excludes tax and interest and lease costs, it can be used to analyse the operational efficiency of the whole farm business.

Average EBIT was 15% lower across the state this year at $1.12/kg MS compared to $1.32/kg MS in 2014–15 (Figure 6). An decrease in EBIT occurred across both regions from $0.82/kg MS to $0.62/kg MS in the North, and from $1.91/kg MS to $1.72/kg MS in the South.

Figures 18 and 28 in the regional sections present the EBIT of sample farms this year alongside the respective previous year's (2014–15) regional average.

Return on assets and equity

Return on assets (RoA) is the EBIT expressed as a percentage of total farm assets under management and hence is an indicator of the earning power of total assets, irrespective of capital structure. Similarly, it can be considered as an indicator of the overall efficiency of use of the resources that are involved in a given production system and not elsewhere in the economy.

The average RoA for participants across the state was 3.0%, down from last year's 3.5%. The RoA ranged from –2.1 % to 13.5% (Figure 7 and Appendix Tables B1 and C1). Five farms in the North and two in the South recorded a negative EBIT and therefore a negative RoA in 2015–16.

Return on equity (RoE) is the net farm income (earnings before interest and tax less interest and lease charges) expressed as a percentage of owner's equity. Items not accounted for in net farm income are capital expenditure, principal loan repayments and tax. Return on equity is a measure of the owners' rate of return on their investment.

The average RoE for the 35 farms was 2.1% in 2015–16, down from 2.8% last year, with a large range from –8.2% to 20.6% (Figure 8).

Further discussion of return on assets and return on equity occur in the risk section below and later in the regional chapters. Appendix Tables B1 and C1 present all the return on assets and return on equity for the participant farms for each region.

Figure 6 Average earnings before interest and tax per kilogram of milk solids sold

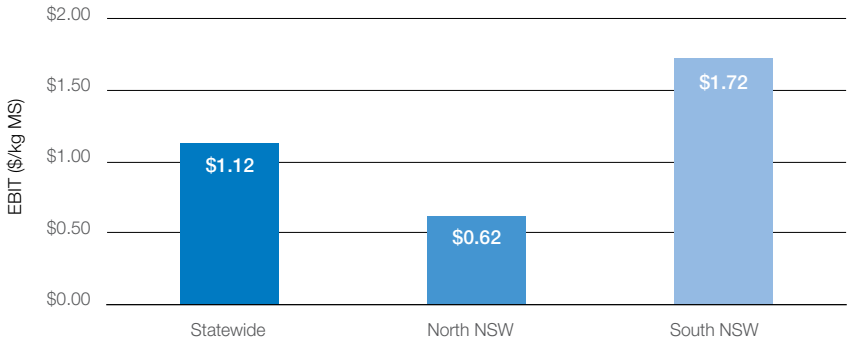


Figure 7 Distribution of farms by return on assets

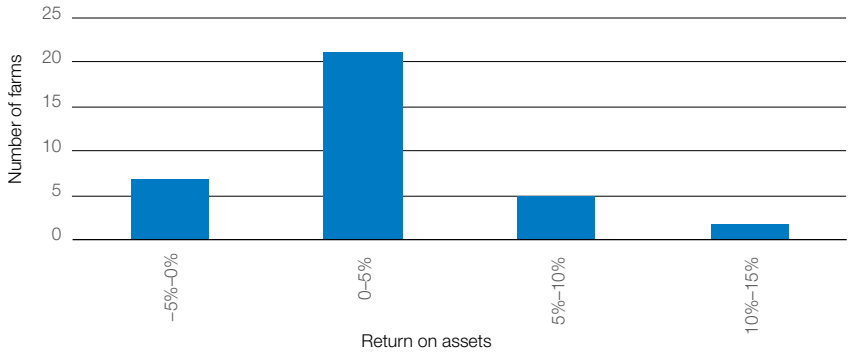


Figure 8 Distribution of farms by return on equity

Risk

"Risk is conventionally classified into two types: business risk and financial risk. Business risk is the risk any business faces regardless of how it is financed. It comes from production and price risk, uncertainty and variability. 'Business risk' refers to variable yields of crops, reproduction rates, disease outbreaks, climatic variability, unexpected changes in markets and prices, fluctuations in inflation and interest rates, and personal mishap.…' Financial risk' derives from the proportion of other people's money that is used in the business relative to the proportion of owner-operator's capital…"[2]

Table 3 presents some key risk indicators. Refer to Appendix D for the definition of terms used in Table 3. The indicators in Table 3 can also be found in Appendix Table A1 for the state and in Appendix Tables B1 and C1 for each region.

Exposure to risk in business is entirely rational if not unavoidable. It is through managing risk that greater profits can be made. It is also the case that by accepting a level of risk in one area of business, a greater risk in another area can be avoided.

Using the example of feed sources, dairy farmers are generally better at dairy farming than they are at grain production. Thus by allowing someone who is experienced in producing grain to supply them, they lessen the production and other business risks as well as the financial risks they would have exposed themselves to by including extensive cropping in their own business. The trade-off is that they are in turn exposed to price and supply risks. The trade-off between perceived risk and expected profitability will dictate the level of risk a given individual is willing to take. It then holds that in regions where risk is higher, less risk is taken. While in good times this will result in lower returns, in more challenging times it will lessen the losses.

This year, all farms in the NSW Dairy Farm Monitor project sourced at least some of their metabolisable energy (ME) from imported feeds and are therefore somewhat exposed to fluctuations in prices and supply in the market for feed. In 2015–16 on average, North farms sourced a larger proportion of their diet from imported feed compared to 2014–15, up from 41% to 48%. South farms remained unchanged in the proportion of purchased feed.

This year there was effectively no change in equity levels across the state with an average of 76%. Caution should be exercised when comparing equity between years as there has been a change of farms in the sample year on year.

The cost structure ratio provides variable costs as a proportion of total costs. A lower ratio implies that overhead costs comprised a greater proportion of total costs which in turn indicates less flexibility in the business. Table 3 shows that across the state for every $1.00 spent, $0.56 was used to cover variable costs, however it is worth noting that cost structure varies between regions and farms. One hundred minus this percentage gives the proportion of total costs that are overhead costs.

The debt servicing ratio shows interest and lease costs, as a proportion of gross farm income, reported as a percentage. The ratio of 6% this year is slightly lower than last year. It indicates that on average farms repaid $0.06 of every dollar of gross farm income to their creditors. Average debt per cow decreased on last year.

The benefit of taking risks and borrowing money can be seen when farm incomes yield a higher return on equity than on their return on assets. In 2015–16, 12 of the 35 (or 34%) of participant farms received a return on equity greater than their return on assets.

The higher the risk indicator (or lower with equity %) in Table 3, the greater the exposure to the risk of a shock in those areas of the business. Further, the data in Appendix Tables 4 and 5 are in cost per kilograms of milk solids sold. This data set is best used as risk indictors, given it is measured against the product produced and sold currently and not the capital invested.

[2] *Malcolm, L.R., Makeham, J.P. and Wright, V. (2005), The Farming Game, Agricultural Management and Marketing, Cambridge University Press, New York. p180University Press, New York. p180.*

Table 3 Risk indicators – statewide and by region

	Statewide	North	South
Cost structure (proportion of total costs that are variable costs)	56%	54%	57%
Debt servicing ratio (percentage of income as finance costs)	6%	6%	7%
Debt per cow	$4,117	$3,671	$4,647
Equity percentage (ownership of total assets managed)	76%	78%	73%
Percentage of feed imported (as a % of total ME)	45%	48%	43%

Physical measures

Feed consumption

The contribution of different feed sources to the total metabolisable energy (ME) consumed on the farm is presented in Figure 9. This includes feed consumed by dry cows and young stock.

A cow's diet can consist of grazed pasture, harvested forage, crops, concentrates and other imported feeds.

In the North farms, grazed pasture made up 43% of the diet in cows and concentrates 38%. In the South farms it was 46% from pasture and 34% of the diet coming from concentrates. Farms in both regions also sourced around 20% of ME from hay and silage.

Appendix Table 3 provides further information on purchased feed.

The average estimated home grown feed consumed per milking hectare is shown in Figure 10. Both Figures 9 and 10 were estimated using Victorian DEDJTR's Pasture Consumption Calculator, which is also available online at http://dairypastureconsumptioncalculator.com.au. Initially, this involves a calculation based on the total ME required on the farm, determined by stock numbers on the farm, liveweight, average distance stock walk to and from the dairy and milk production. Metabolisable energy imported from other feed sources is subtracted from the total farm ME requirements over the year to estimate for total ME produced on farm, divided into grazed and conserved feed depending on the quantity of fodder production recorded.

Total home grown feed consumed (by direct grazing plus conservation) in 2015–16 was very similar to 2014–15 across both regions, although fodder conserved was higher and direct grazing lower. The North directly grazed 5.9 t DM/ha, and conserved 2.3 t DM/ha. The South consumed an average of 6.5 t DM/ha of direct grazed pasture and conserved 1.9 t DM/ha.

Appendix Table 2 gives estimates of quantity of home grown feed consumed per milking hectare of sample farms across the state. The graph in Figure 10 accounts only for the consumption of pasture that occurred on the milking area whether by milking, dry or young stock.

Several of the farms in the project grew fodder crops for silage or grain on the non-milking area. These tonnages were calculated as part of the total feed produced on the farm usable area, but may not be captured as home grown feed consumed on the milking area. So some farms may appear as low consumers of pasture by direct grazing, but may actually grow and consume large tonnages of fodder over the whole farm or usable area.

Figure 9 Sources of whole farm metabolisable energy

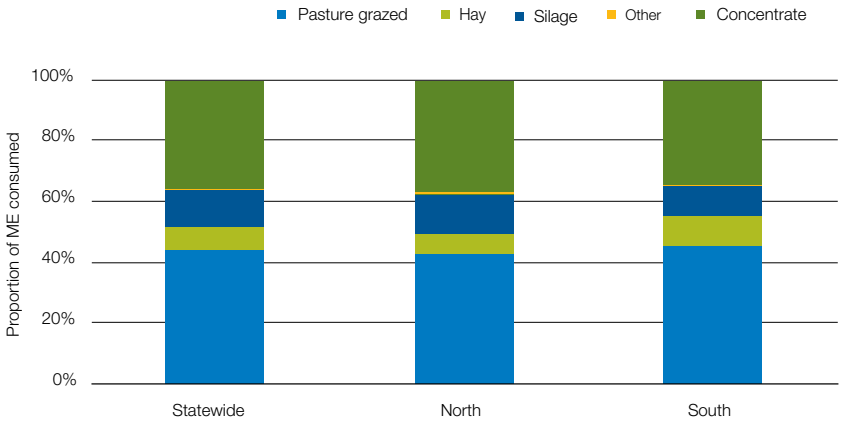
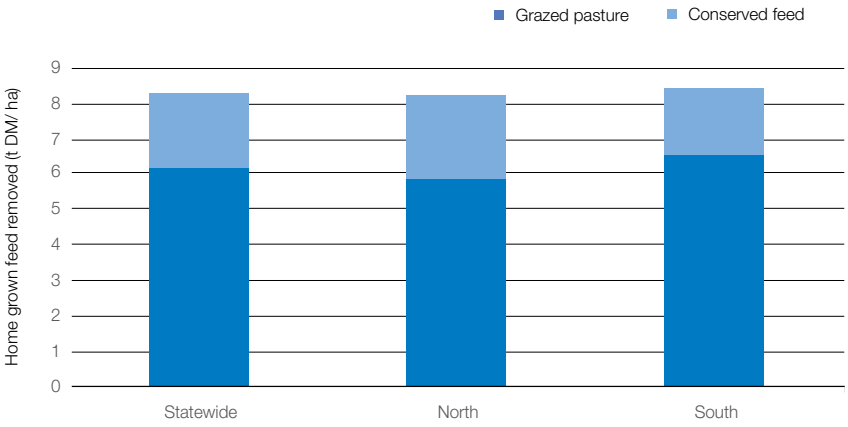


Figure 10 Estimated tonnes of home grown feed consumed per milking hectare



Fertiliser application

Application of nutrients in 2015–16 did not vary greatly in either region from the previous year. Average fertiliser usage for the State was: nitrogen at 111 kg/ha, phosphorus 12 kg/ha, potassium at 20 kg/ha, and sulphur at 13 kg/ha (Figure 11).

It should be noted that water availability, pasture species, soil type, pasture management, seasonal variation in response rates to fertilisers, variations in long-term fertiliser strategies plus other factors will all influence pasture growth and fertiliser application strategies. These particular strategies are not captured as part of this project.

Appendix Table 2 provides further information on fertiliser application for each region.

Milk sold

Average distribution of monthly milk sold across both regions of NSW reflects the trend towards a flatter milk supply required by processors for the liquid milk market. While production is very similar for most of the year it can be seen that this year farms in the North produced more of their milk in the spring period than farms in the South (Figure 12).

The North in 2015–16 had a drop in production in autumn relative to the South, reflective of the very dry conditions for farms in that region.

Figure 11 Nutrient application per hectare

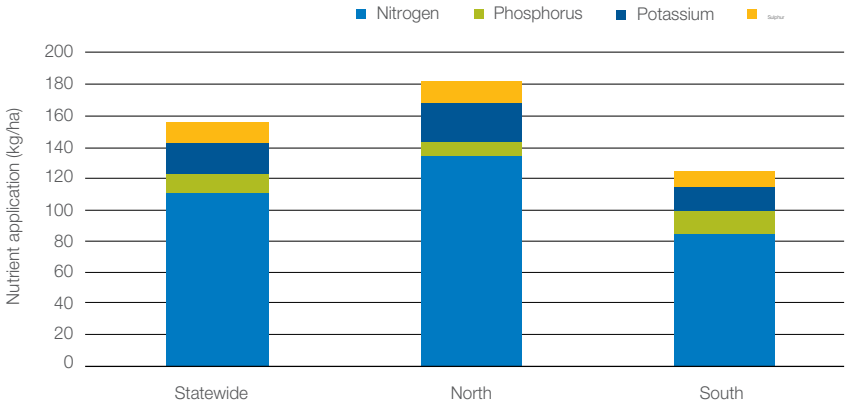
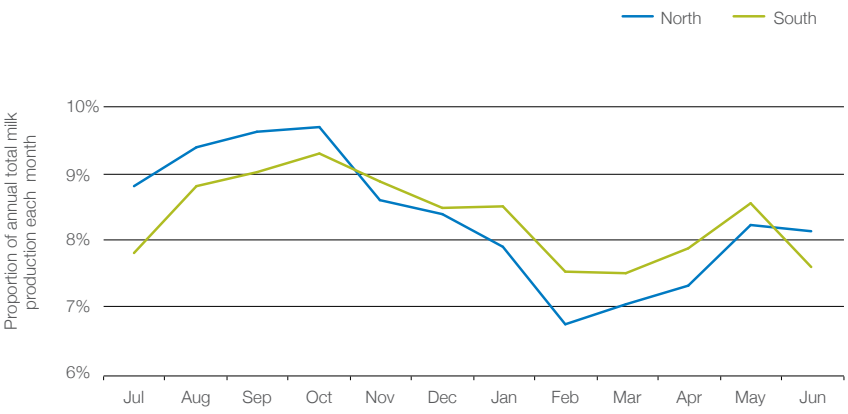


Figure 12 Monthly distribution of milk solids sold

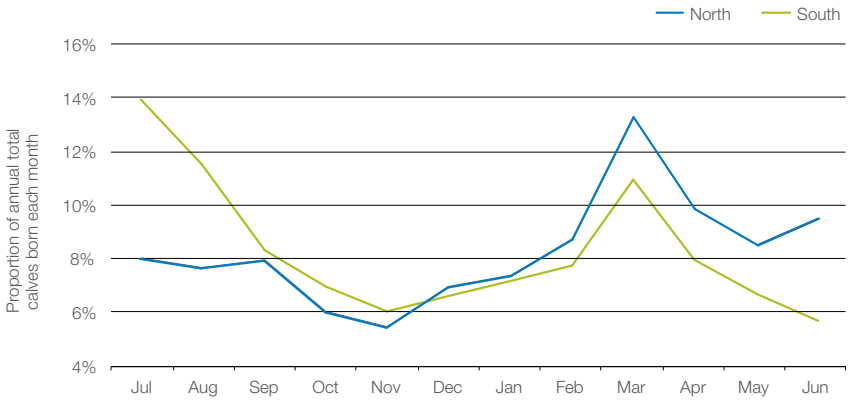


Calving pattern

In order to achieve the milk production curve shown in Figure 12, cows need to be calving all year round, and this is evident in the graph of monthly calving pattern in Figure 13. The South farms this year showed a peak calving period in spring and another smaller peak in autumn. The North farms showed an autumn peak calving period.

Calving occurs throughout the hotter summer months in both regions.

Figure 13 Monthly distribution of calves born



The North

The North

There were no new farms in the North group this year, however one farm dropped out. Please refer to page 3 for notes on the presentation of data.

2015–16 Seasonal conditions

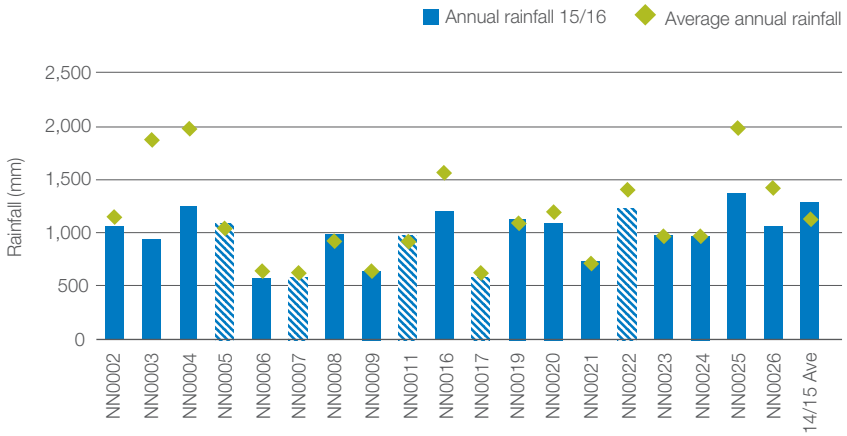
2015–16 was a drier year than the previous one, particularly on the North coast of NSW where some farms had well below average rainfall. The year began with average winter rainfall and temperatures, but an early spring turned dry before good rain fell in late spring and over summer. Conditions then turned dry with below average rainfall and hot conditions in autumn, making pasture establishment for annual winter species difficult. The dry spell broke in late May, with good rain in June. Some northern coastal regions experienced flooding in June and disruption to dairy operations.

Participant dairy farmers in the North received an average milk price of $7.65/kg MS sold this year, almost exactly the same as the previous year.

Good prices were received for cull cattle, thus improving the cash flow position for some farmers.

The drier season as shown in Figure 14 for some led to a decrease in fodder inventory, with average feed inventory change down to $0.05/kg MS. Fodder inventory changes varied, with 11 of the 19 North farms using up their reserved fodder, and the other eight accumulating some fodder over the year. The average cost of concentrates this year was $401/t DM, down from $434/t DM last year. North farmers fed about the same purchased feed per milker at 2.4 t DM/head. Eleven of the 19 North farms purchased hay in 2015–16, at an average price of $327/t DM, which was lower than the previous year's price of $388/t DM.

Figure 14 2015–16 annual rainfall and long term average rainfall – North



The top 25% as ranked by return on assets are shown as the striped bars in all graphs.

Whole farm analysis

Key whole farm physical parameters for the North are presented below in Table 4. The Q1 – Q3 range shows the band in which the middle 50% of farms for each parameter sit.

The top 25% of farms (ranked by return on assets) were within the middle 50% of the group for most physical parameters except for usable hectares and labour efficiency. The top 25% performers produced 10% more milk solids per hectare than the average of 636 kg MS/ha. However, the top performers were close to average on milk solids sold per cow at 474 kg MS/cow. Labour efficiency ranged from approximately 25,000 to 35,000 kg MS/full time equivalent (kg MS/FTE). This indicates that some used labour more efficiently than others.

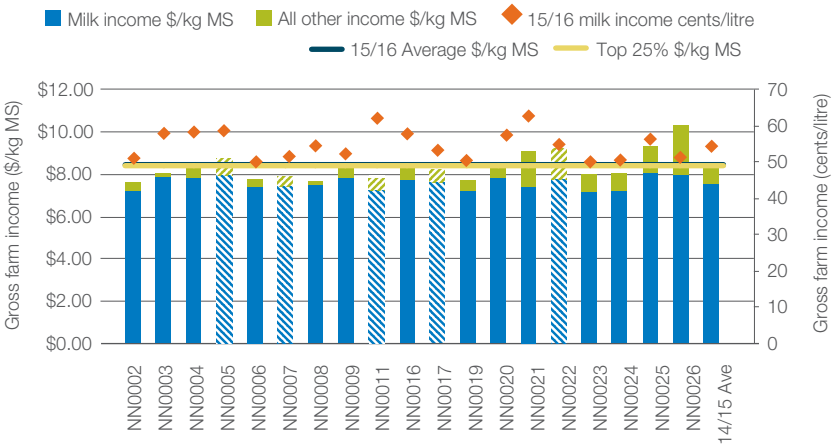
Table 4 Farm physical data – North

Farm physical parameters	North average	Q1 to Q3 range	Top 25% average
Annual rainfall 15–16 (mm)	977	846–1,118	897
Water used (irrigation + rainfall) (mm/ha)	1,139	979–1,282	1,149
Total usable area (hectares)	210	105–244	292
Milking cows per usable hectare	1.4	1.0–1.7	1.5
Milk sold (kg MS/cow)	463	429–511	474
Milk sold (kg MS/ha)	636	491–764	703
Home grown feed as % of ME consumed	52%	45%–57%	57%
Labour efficiency (milking cows/FTE)	68	60–77	76
Labour efficiency (kg MS/FTE)	31,290	25,792– 34,806	35,784

Gross farm income

Gross farm income includes all farm income, whether that is income from milk sales, changes in inventories of stock or feed, or cash income from livestock trading. The average gross farm income of $8.46/kg MS included milk income ($7.65/kg MS) plus all other income associated with the dairy business operation ($0.82/kg MS). Figure 15 shows this year's average gross farm income was 2% lower than last year's average. Given the milk price received was stable, other farm income decreased by $0.17/kg MS from last year.

Figure 15 Gross farm income per kilogram of milk solids – North



Milk solids sold

Figure 16 shows the kilograms of milk solids sold per usable hectare for each farm. Average milk solids sold per hectare increased this year to 636 kg MS/ha (8,831 litres/ha), shown as the green line in Figure 16. The range this year was between 354 kg MS/ha and 1,165 kg MS/ha (5,006 litres/ha to 17,108 litres/ha).

The region's top 25% of performers on a return on assets basis are represented by the striped pale blue bars in Figure 16. The blue line shows the top 25% average of 703 kgs MS/ha, which was 10% higher than the average for the North. This suggests that this year there is a correlation between milk solids sold per hectare and return on assets.

Average milk solids sold per cow were lower than last year, at 463 kg MS/cow, with a range of 303 kg MS/cow to 548 kg MS/cow.

Variable costs

Variable costs include herd, shed and feed costs. On average, variable costs decreased in 2015–16 to $4.26/kg MS (30.6 c/l), down from $4.48/kg MS last year. Variable costs ranged widely from $2.94/kg MS to $5.61/kg MS (21 to 38 c/l) for farms in the North, shown as the red bars in Figure 17. Home-grown plus purchased feed costs were clearly the major variable costs (refer to Table 5) accounting for 58% of total cash production costs.

A breakdown of variable costs for the individual businesses on a dollar per kilogram of milk solids sold basis is shown in Appendix Table B4.

Overhead costs

Overhead costs are those that do not vary greatly with the level of production. The Dairy Farm Monitor Project includes cash overheads such as employed labour, rates and insurance as well as non-cash costs such as imputed owner operator and family labour and depreciation of plant and equipment. The overhead costs this year ranged from $2.57/kg MS to $5.09/kg MS (shown as blue bars in Figure 17).

The average overhead costs for 2015–16 were higher than the previous year at $3.58/kg MS (25.9 c/l).

Farms that regularly perform well do so by keeping overhead costs low and managing variable costs according to the season. This year, all farms in the top 25% had lower than average overhead costs. These farms also managed to keep variable costs in-check this year.

The main overhead cost category is labour, both employed and imputed; followed by depreciation and repairs and maintenance. This year the standard value for imputed labour for farm owners, family members and sharefarmers has been increased to $28/hr for all hours worked. The percentage breakdown of the individual totals expressed as percentages is presented in Appendix Table B6.

Cost of production

Cost of production in Table 5 indicates all the cost involved in producing a kilogram of milk solids, and maintaining the liveweight of the livestock. It is calculated as variable costs plus overhead costs (cash and non-cash) and accounts for changes in fodder and livestock inventory. A reduction in feed inventory becomes a cost to the business and indicates that home grown fodder reserves were used to produce milk and maintain the herd over the year.

Table 5 shows that the average cost of production increased this year to $7.76/kg MS (55.9 c/l) from $7.55 in 2014–15. The top 25% of farms kept their costs lower than average at $6.78/kg MS (50 c/l).

The increase in cost of production was largely due to higher imputed labour costs due to a change in the imputed labour rate.

Figure 16 Milk solids sold per hectare – North

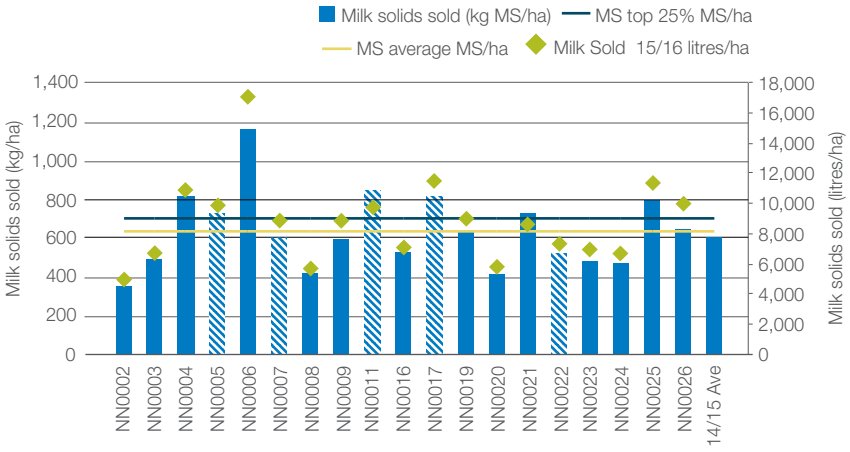


Figure 17 Whole farm variable and overhead costs per kilogram of milk solids – North

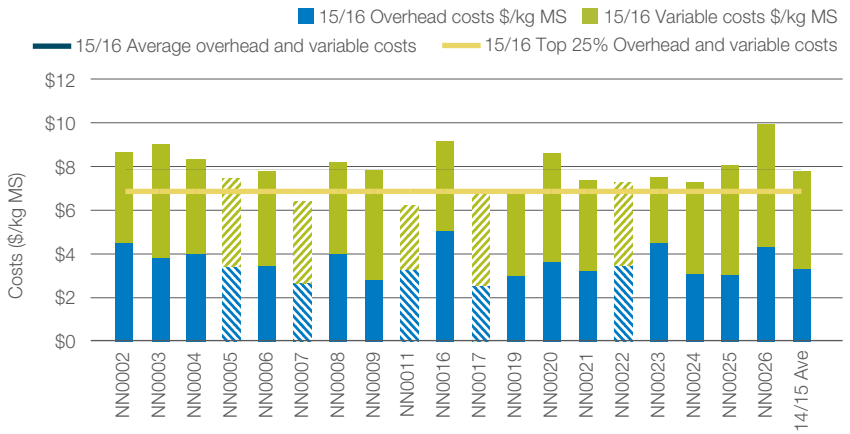


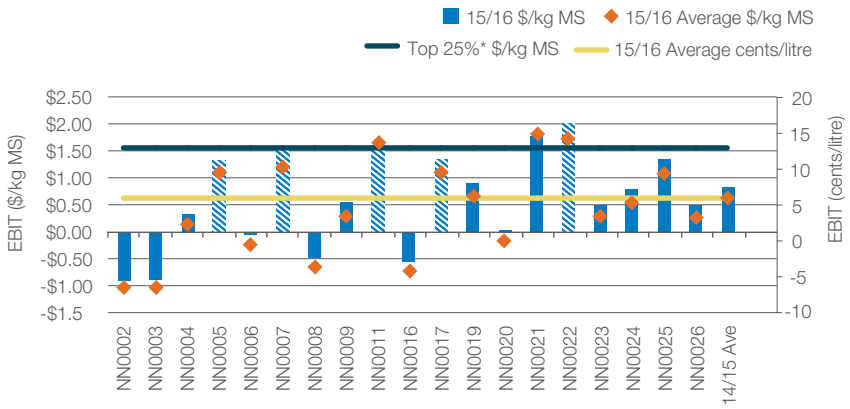
Table 5 Cost of production – North

Farm costs	North average		Q1 to Q3 range	Top 25% average	
	$/kg MS	c/l	$/kg MS	$/kg MS	c/l
Variable costs					
Herd costs	$0.34	2.5	$0.22–$0.42	$0.30	2.3
Shed costs	$0.31	2.2	$0.25–$0.33	$0.24	1.8
Purchased feed and agistment	$2.33	16.6	$1.94–$2.65	$2.12	15.3
Home grown feed cost	$1.27	9.2	$1.04–$1.42	$1.12	8.3
Total variable costs	**$4.26**	**30.6**	**$3.96–$4.65**	**$3.78**	**27.7**
Overhead costs					
Employed labour cost	$0.94	6.7	$0.45–$1.11	$1.01	7.3
Repairs and maintenance	$0.58	4.2	$0.39–$0.67	$0.48	3.5
All other overheads	$0.45	3.2	$0.28–$0.53	$0.40	3.0
Total cash overheads	**$1.96**	**14.2**	**$1.53–$2.27**	**$1.89**	**13.8**
Cash cost of production ($/kg MS)	**$6.22**	**44.7**	**$5.84–$6.48**	**$5.67**	**41.5**
Depreciation	$0.38	2.7	$0.28–$0.42	$0.30	2.3
Imputed labour costs	$1.24	9.0	$0.85–$1.58	$0.89	6.8
Non-cash overheads	**$1.62**	**11.7**	**$1.19–$2.02**	**$1.19**	**9.0**
Cost of production without inventory changes ($/kg MS)	**$7.84**	**56.5**	**$7.29–$8.47**	**$6.86**	**50.6**
Inventory change					
+/- feed inventory change	$0.05	0.3	–$0.04–$0.15	$0.01	0.0
+/- livestock inventory change – purchase	–$0.13	-0.9	–$0.43–$0.18	*-$0.08*	–0.5
Cost of production with inventory change ($/kg MS)	**$7.76**	**55.9**	**$7.02–$8.55**	**$6.79**	**50.1**

Earnings before interest and tax

Earnings before interest and tax (EBIT) is derived from gross farm income less variable and overhead costs, including imputed labour and depreciation. Figure 18 shows a wide range in EBIT across the North farms, from –$0.91/kg MS to $2.02/kg MS sold. The average EBIT across farms this year declined to $0.62/kg MS (4.6 c/l), however the top 25% farms recording an average of $1.57/kg MS (11.6 c/l). This compares to an average EBIT of $0.82/kg MS compared to $2.22/kg MS for the top 25% in 2014–15. Businesses in the top 25% are shown by the striped blue bars and demonstrate that having a high EBIT $/kg MS has mostly translated into a higher return on assets this year, as seen when comparing Figures 18 and 19.

Figure 18 Whole farm earnings before interest and tax per kilogram of milk solid – North



Return on assets and equity

Return on assets is the EBIT expressed as a percentage of total assets under management. It is an indicator of the overall earning power of total assets, irrespective of capital structure. Figures 19 and 20 were calculated excluding capital appreciation. For return on equity including capital appreciation refer to Appendix Table B1.

The return on assets was slightly down for participant farms this year, with an average of 1.6%, down from 1.9% in the previous year. Six farms had a negative or zero return on assets, with the top 25% achieving an average of 4.2% (Figure 19).

Return on equity is the net farm income expressed as a percentage of owner's equity. It is a measure of the owner's rate of return on investment. The average was –0.1% compared with 0.4 % last year. There was a wide range of return on equity reflecting the various capital structures of businesses in the North. This year the top 25% performers achieved an average of 3.9% return on equity (Figure 20).

Figure 19 Return on assets – North

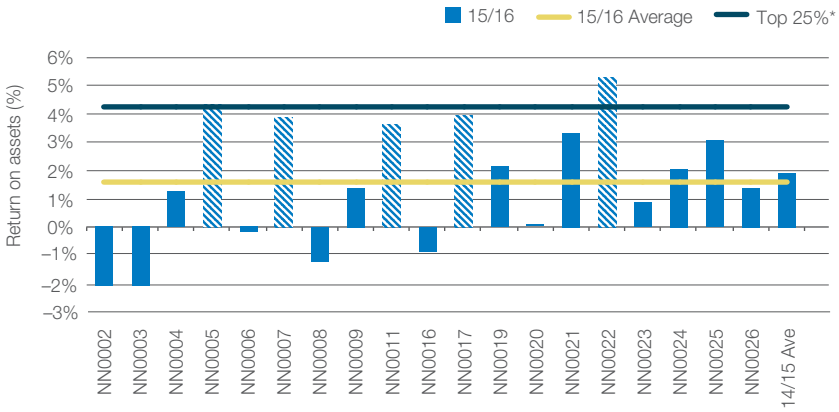
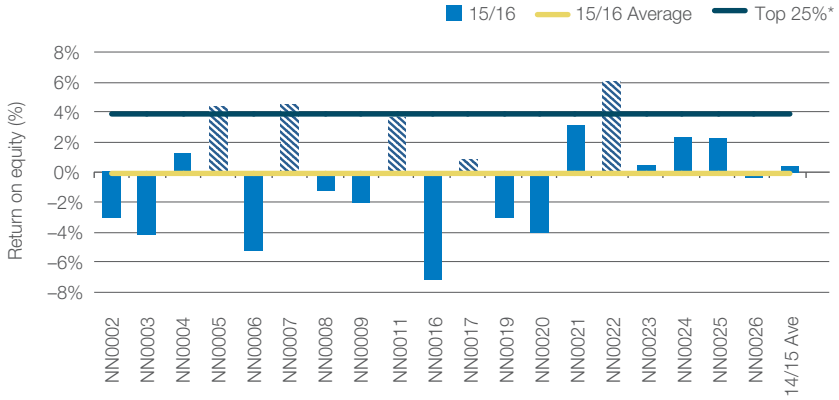


Figure 20 Return on equity – North



Feed consumption and fertiliser

Farms in the North operate with a wide range of feeding systems, and although directly grazed pasture was the main source of metabolisable energy on the majority of the farms in this region, the amount of pasture in the diet was lower than the previous year.

Feed consumption

The relative contribution of each feed type to the metabolisable energy (ME) consumption on each farm is shown in Figure 21. The broad range of different sources of ME used on individual farms is evident. Grazed pasture supplied 50% or more of ME consumed on only seven of the 19 farms, with the average being 43%, and the range was between 12% and 62%. The portion of the ME consumed derived from concentrates increased this year, to an average across the group of 38%, up from 33%. This did not have an impact on purchased feed costs per kg MS, as the cost of concentrate was lower per tonne.

All participant farms fed silage as part of their ME consumed with the range of between 3% and 43%, higher than the previous year on average. Hay accounted for 7% of ME consumed on average.

This combination of less pasture, more silage and more concentrates reflects the variable pasture growing conditions and drier season on many North farms.

Figure 22 shows the estimated home grown feed consumed per milking hectare for farms in the North.

Total pasture harvested for the North on average was 8.3 t DM/ha, very similar to the previous year, however the amount directly grazed was down and the amount conserved was higher. This included an average of 5.9 t DM/ha directly grazed and 2.3 t DM/ha conserved.

Grazed pasture consumption was estimated by using a back calculation method. It should be noted that there can be a number of sources of error in this method including incorrect estimation of liveweight, amounts of fodder and concentrates fed, ME concentration of fodder and concentrate, ME concentration of pasture, wastage of feed and associative effects between feeds when they are digested by the animal. Comparing pasture consumption estimated using the back calculation method between farms can lead to incorrect conclusions due to errors in each farm's estimate and it is best to compare pasture consumption on the same farm over time using the same method of estimation.

More details on how pasture consumption was calculated can be found in Part One – Statewide or in Appendix D.

Figure 21 Sources of whole farm metabolisable energy – North

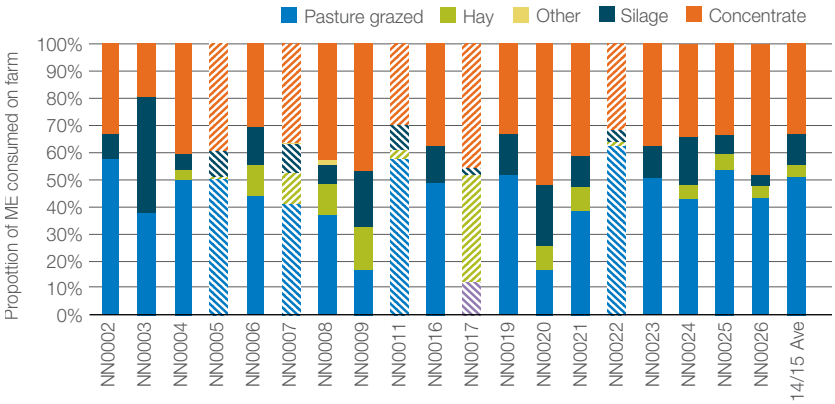
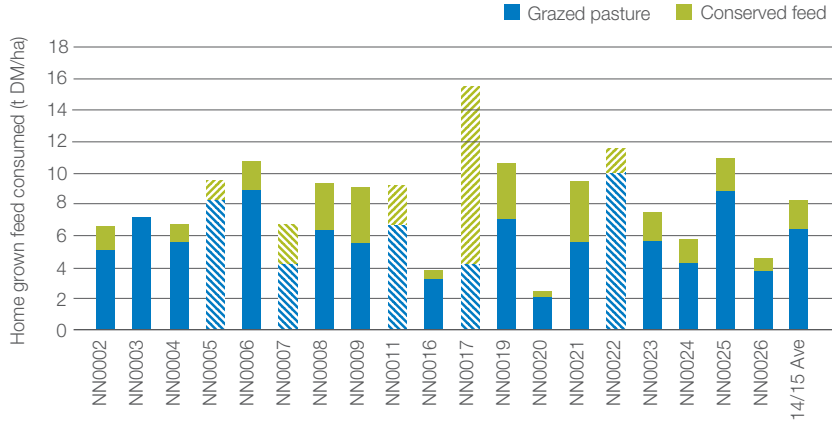


Figure 22 Estimated tonnes of home grown feed consumed per milking hectare – North



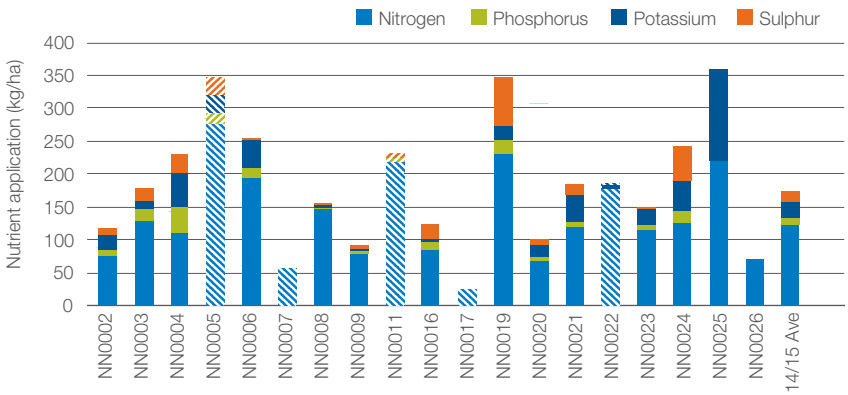
Fertiliser application

All farms in the North applied some fertiliser to their crops and pasture.

Farms in the North applied a higher level of use of nitrogen and potassium in 2015–16, but decreased their use of phosphorus and sulphur compared to last year.

Average nitrogen use was 134 kg/ha, phosphorus 9 kg/ha, potassium 24 kg/ha and 14 kg/ha of sulphur this year (Figure 23).

Figure 23 Nutrient application per hectare – North



The South

The South

2015–16 Seasonal conditions

Most of the South experienced reasonably good seasonal conditions throughout 2015–16, with close to average rainfall for inland farms, and above average for the coastal South farms throughout the year. Summer and autumn were generally drier inland with lower pasture growth rates, however good rains arrived in late autumn and winter.

Most participant farms received close to or above their long term average rainfall this year although this was characterised by a drier than normal autumn and a wet winter (Figure 24).

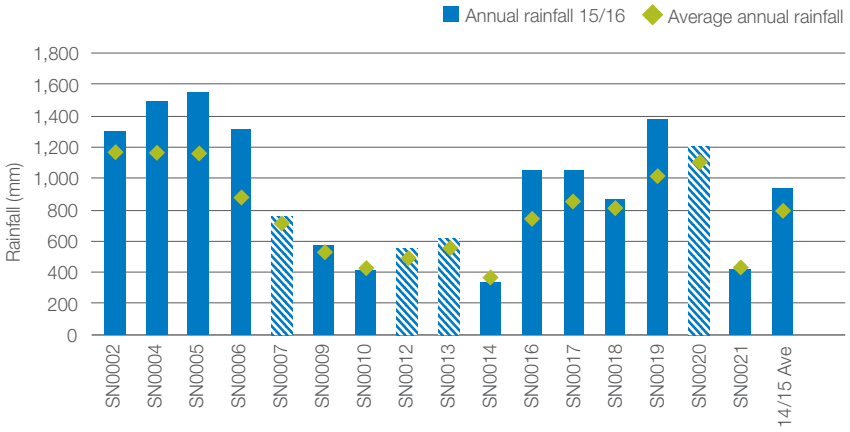
Participant dairy farmers in the South received an average milk price of $6.97/kg MS sold (50.9 c/l) this year, 4% lower than last year's average milk price of $7.28/kg MS.

Good prices were received for cull cattle which helped improve the cash flow position for some farmers.

The variable season saw some accumulation of fodder conserved in the South this year. Fodder inventory changes were positive on eight out of the 16 South farms, meaning these farmers had more feed on hand at the end of the year than they did at the beginning.

The average cost of concentrates this year was $382/t DM. South farmers fed less purchased feed per milker at 2.7 t DM/head compared to 2.8 t DM/head in the previous year. Twelve of the 16 South farms purchased hay in 2015–16, at an average price of $292/t DM.

Figure 24 2015–16 Annual rainfall and long term average rainfall – South



The top 25% as ranked by return on assets are shown as the striped bars in all graphs.

Whole farm analysis

The key whole farm physical parameters for the South are presented in Table 6. The Q1–Q3 range shows the band in which the middle 50% of farms for each parameter sit.

The physical characteristics of the top 25% of farms (ranked by return on assets) generally lie within the middle 50% of the South group.

The key characteristics where the top 25% have higher performance were labour efficiency (both on a per cow and per kg MS basis) and kilograms of milk solids sold per hectare (kg MS/ha).

The farm size was larger than average for the top 25% this year.

Table 6 Farm physical data – South

Farm physical parameters	South average	Q1 to Q3 range	Top 25% average
Annual rainfall 2015–16 (mm)	931	568–1,306	783
Water used (irrigation + rainfall) (mm/ha)	1,036	693–1,338	874
Total usable area (hectares)	379	271–399	459
Milking cows per usable hectares	1.1	0.9–1.2	1.2
Milk sold (kg MS/cow)	552	495–613	560
Milk sold (kg MS/ha)	597	486–624	695
Home grown feed as % of ME consumed	57%	51%–61%	60%
Labour efficiency (milking cows/FTE)	81	60–98	103
Labour efficiency (kg MS/FTE)	43,779	32,329–50,710	55,887

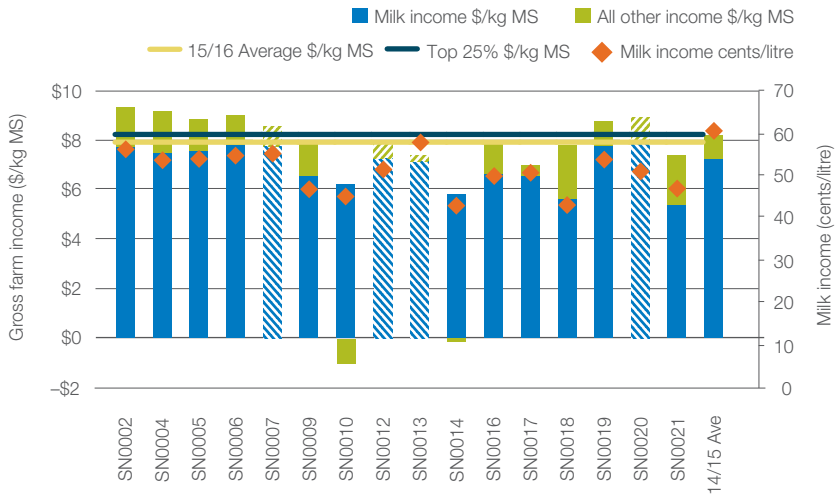
Gross farm income

Gross farm income includes all farm income from milk sales, cash income from livestock trading, and income from other sources such as milk factory shares, interest from bank accounts and rebates or grants. Changes in inventories of stock or feed are also accounted for in gross farm income. For farms in the Murray Darling Basin irrigation areas, carry over water inventory change is also included in other income.

Figure 25 shows that gross farm income in the South ranged from $5.22/kg MS to $9.38/kg MS with an average of $7.94/kg MS (60 c/l). This was an decrease from last year's average gross farm income primarily due to an drop in milk price. Average milk price was $6.97/kg MS, and ranged from $5.36/kg MS to $7.93/kg MS.

Of the four farms that were in the top 25% for return on assets this year, three received higher gross income than the average. This suggests that higher gross income did translate to high profitability for those farms, as well as other factors of the business.

Figure 25 Gross farm income per kilogram of milk solids – South



Milk solids sold

There was a large variation in the amount of milk solids sold per hectare with a range of 296 kg MS/ha to 1,099 kg MS/ha (3,764 litres/ha to 15,909 litres/ha) reported.

The top 25% farms achieved 695 kg MS/ha (9,992 l/ha) in the South compared to the regional average of at 597 kg MS/ha (Figure 26).

The average milk solids sold per cow were higher than last year, at 552 kg MS/cow, with a range between 450 kg MS/cow and 626 kg MS/cow.

Variable costs

Figure 27 shows the breakdown of whole farm costs as variable and overhead costs per kg MS. Variable costs include herd, shed and feed costs. Variable costs (green bars) for the South region ranged from $2.24/kg MS to $4.66/kg MS, with an average of $3.57/kg MS (30 c/l). This was lower than last year's average of $3.79/kg MS. Feed costs were the major variable cost on South farms, accounting for 49% of total costs. Feed costs were $3.01/kg MS (22 c/l) this year, down from $3.28/kg MS last year.

The percentage breakdown of the variable costs can be found in Appendix Table C6.

Overhead costs

The calculation of overhead costs in the Dairy Farm Monitor project consists of cash and non-cash costs to the dairy business. Examples of cash overheads include rates, insurance and employed labour, and non-cash overheads including depreciation and imputed owner/operator and family labour.

Figure 27 further highlights the variation in overhead costs per kilogram of milk solids (blue bars) between participant farms, values ranging from $1.51/kg MS to $3.79/kg MS. The top 25% recorded lower overhead costs at $2.04/kg MS compared to the regional average of $2.66/kg MS (20 c/l), which was lower than last year.

The major overhead cost to the average South farm was labour, which included both employed and imputed (owner/operator) labour. Labour costs accounted for 25% of total costs (without inventory change). Imputed labour cost increased this year because of an increase in the hourly rate, rather than an increase in hours worked. Repairs and maintenance and depreciation are the other two major overhead cost categories.

Cost of production

Cost of production in Table 7 indicates all the cost involved in producing a kilogram of milk solids, and maintaining the liveweight of the livestock. It is calculated as variable costs plus overhead costs (cash and non-cash) and accounts for changes in fodder and livestock inventory. A reduction in feed inventory becomes a cost to the business and indicates that home grown fodder reserves were used to produce milk and maintain the herd over the year.

Table 7 shows the average cost of production was $6.09/kg MS (44.6 c/l), a slight decrease from last year, with the top 25% of farms lower at $5.13/kg MS (36.4 c/l). The variable costs were lower this year, but that was offset by higher overhead costs.

Figure 26 Milk solids sold per hectare – South

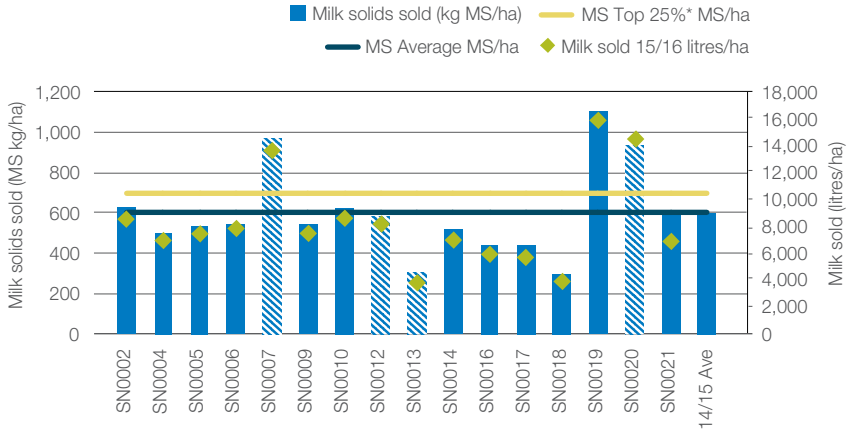


Figure 27 Whole farm variable and overhead costs per kilogram of milk solids – South

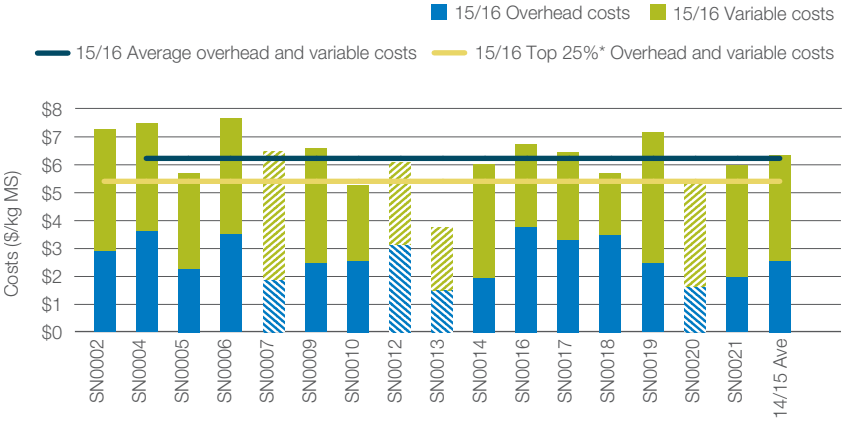


Table 7 Cost of production – South

Farm costs	South average		Q1 to Q3 range	Top 25% average	
	$/kg MS	c/l	$/kg MS	$/kg MS	c/l
Variable costs					
Herd costs	$0.35	2.5	$0.26–$0.46	$0.35	2.4
Shed costs	$0.21	1.5	$0.15–$0.28	$0.23	1.6
Purchased feed and agistment	$2.05	14.8	$1.62–$2.54	$2.06	14.6
Home grown feed costs	$0.96	7.2	$0.64–$1.05	$0.73	5.2
Total variable costs	**$3.57**	**26.1**	**$2.95–$4.11**	**$3.37**	**23.9**
Overhead costs					
Employed labour cost	$0.79	5.7	$0.63–$0.91	$0.70	4.9
Repairs and maintenance	$0.38	2.8	$0.23–$0.50	$0.30	2.1
All other overheads	$0.33	2.4	$0.23–$0.39	$0.25	1.8
Total cash overheads	**$1.49**	**10.9**	**$1.27–$1.66**	**$1.26**	**8.9**
Cash cost of production ($/kg MS)	**$5.06**	**37.0**	**$4.55–$5.68**	**$4.62**	**32.8**
Depreciation	$0.37	2.8	$0.28–$0.43	$0.27	2.0
Imputed labour costs	$0.79	5.8	$0.57–$1.17	$0.51	3.7
Non-cash overheads	**$1.17**	**8.6**	**$0.83–$1.62**	**$0.78**	**5.7**
Cost of production without inventory changes ($/kg MS)	**$6.23**	**45.6**	**$5.70–$6.84**	**$5.41**	**38.4**
Inventory change					
+/– feed inventory change	–$0.05	–0.4	–$0.14–$0.11	–$0.01	–0.1
+/– livestock inventory change – purchase	–$0.09	–0.7	–$0.30–$0.20	–$0.27	–1.9
Cost of production with inventory change ($/kg MS)	**$6.09**	**44.6**	**$5.65–$6.65**	**$5.13**	**36.4**

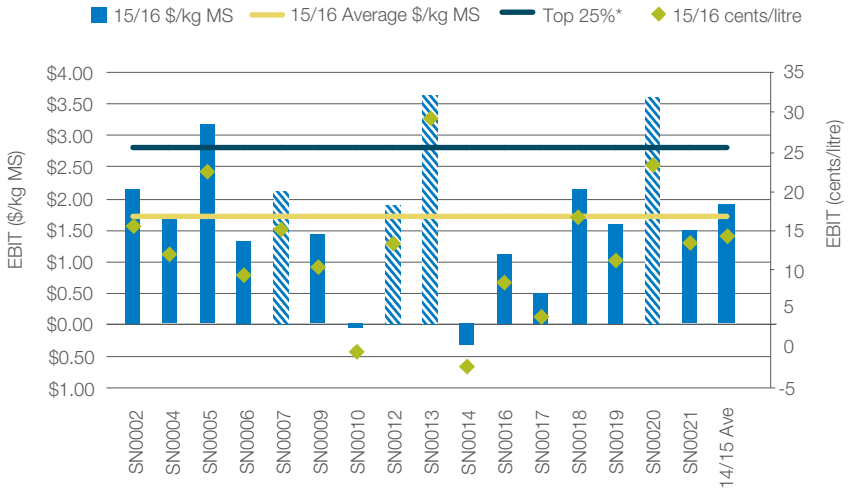
Earnings before interest and tax

Earnings before interest and tax (EBIT) is the return from all the capital invested in the business and calculated by subtracting variable and overhead costs, including imputed labour costs and depreciation from gross income.

On average, EBIT per kg MS decreased from $1.91/kg MS in 2014–15 to $1.72/kg MS (12.5 c/l) in 2015–16 (Figure 28). The lower EBIT was a result of a decrease in gross farm income due to the lower milk price and a similar cost of production.

The strength of the top 25% performers was highlighted with an average EBIT of $2.81/kg MS, which was better than the previous year of $2.40/kg MS.

Figure 28 Whole farm earnings before interest and tax per kilogram of milk solids – South



Return on assets and equity

Return on assets is EBIT expressed as a percentage of total assets under management. It is an indicator of the overall earning power of total assets, irrespective of capital structure. Return on equity is a measure of the owner's rate of return on investment. It is calculated as EBIT minus interest and lease costs expressed as a percentage of owner's equity. Figures 29 and 30 were calculated excluding capital appreciation. For return on equity including capital appreciation, as well as individual farm results, refer to Appendix Table C1.

The return on assets for the South region ranged from –2.0% to 13.5%, with a decrease in the average from 5.3% last year to 4.7% in 2015–16. The top 25% achieved an average of 10.5% return on assets.

Land value is a major component of the value of the assets under management, and it is worth noting that there is a huge variation in market values for land in the South region. Farm locations include the Southern Highlands close to Sydney as well as the Southern Riverina region where land values have been separated from water entitlement and are relatively low.

This year's return on equity had an average value of 4.7% recorded for the South, which was a decrease from an average of 5.7% last year. All but two farms recorded a positive return on equity with individual farm variation shown in Figure 30.

The average return on equity of the top 25% of farms was 14.0% in 2015–16, which was similar to the level reported in 2014–15.

Figure 29 Return on assets– South

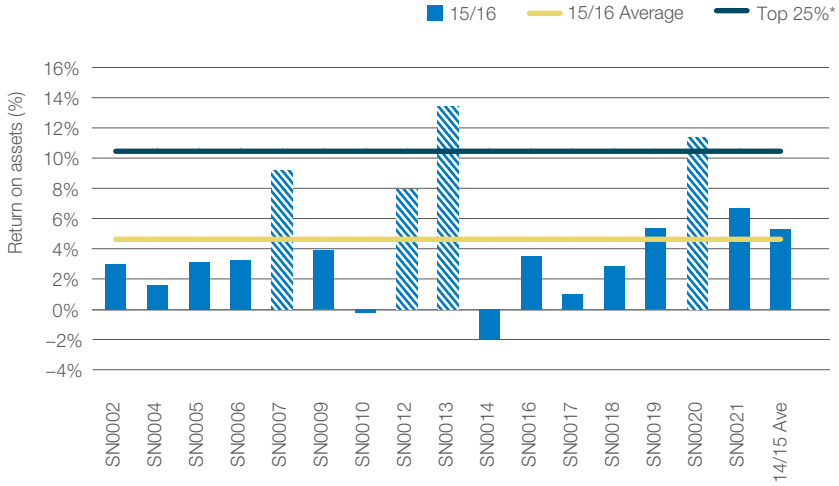
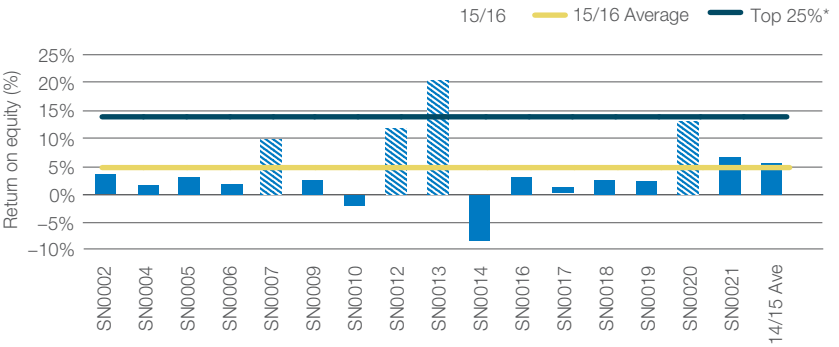


Figure 30 Return on equity – South



Feed consumption and fertiliser

South farms sourced 46% of their metabolisable energy from directly grazed pasture, lower than for the previous year. Concentrates provided about one-third, while conserved feed made up 19% of metabolisable energy consumed on farm in 2015–16.

Feed consumption

Figure 31 shows the relative contribution of each feed type to the ME consumption on farm. The contribution of grazed pasture as a proportion of ME consumed on farm (46%) was lower than the previous year (49%).

Concentrates were the most used supplement contributing to one-third of total ME consumed. The proportion of concentrate feeding remained similar to the previous year as did concentrate prices.

The contribution of both silage and hay was higher with silage at 10% of total ME consumed and hay at 9% of total ME consumed. This is a reflection of the drier conditions in autumn.

Home grown feed consumption is shown in Figure 32. The average total pasture harvested (grazed and conserved) from the milking area was 8.4 t DM/ha, very similar to that harvested in 2014–15. The amount of pasture consumed as grazed feed on the milking area this year was of 6.5 t DM/ha, with conserved feed on average of 1.9 t DM/ha in 2015–16.

This graph only shows pasture and fodder consumed on the milking area. It does not include fodder grown and conserved on the non-milking area. A number of farms grew fodder crops for silage or hay that were additional sources of home grown feed that are not reflected in Figure 32.

It should be noted that there can be a number of sources of error in the method used to calculate home pasture consumption including incorrect estimation of liveweight, amounts of fodder and concentrates fed, ME concentration of fodder and concentrate, ME concentration of pasture, wastage of feed and associative effects between feeds when they are digested by the animal. Comparing pasture consumption estimated using the back calculation method between farms can lead to incorrect conclusions due to errors in each farm's estimate and it is best to compare pasture consumption on the same farm over time using the same method of estimation.

Figure 31 Sources of whole farm metabolisable energy – South

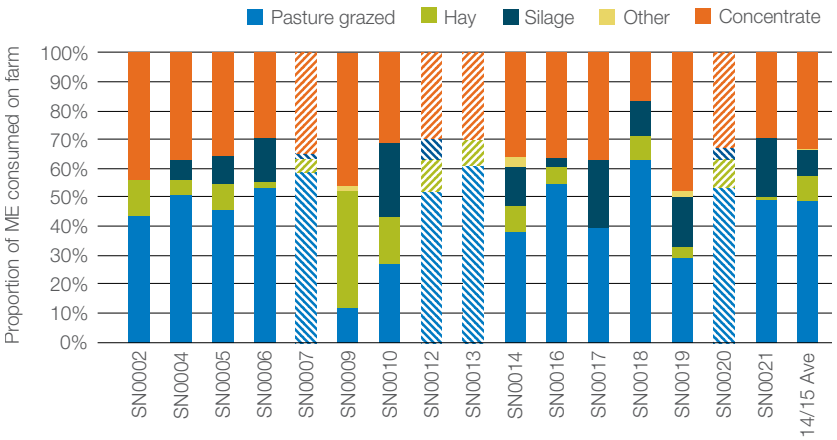
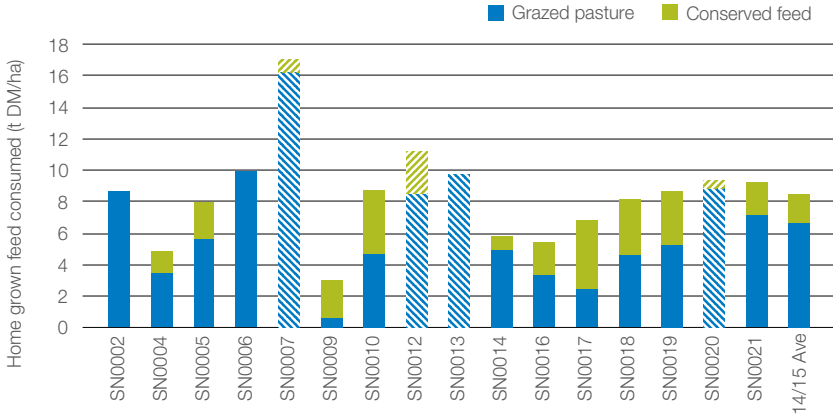


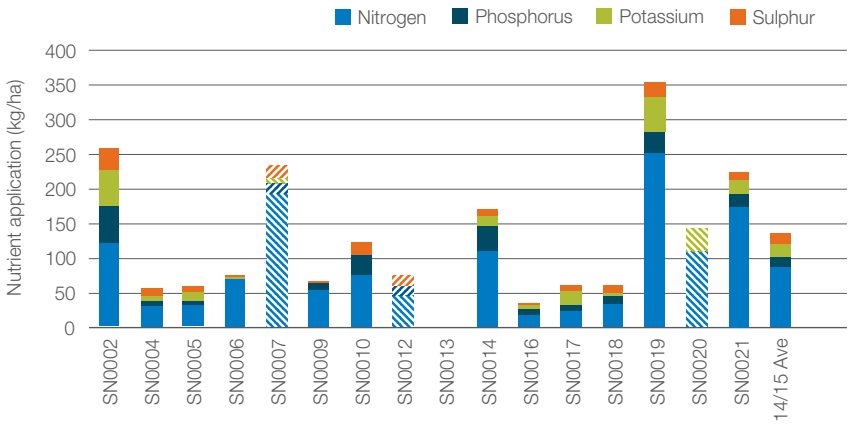
Figure 32 Estimated tonnes of home grown feed consumed per milking hectare – South



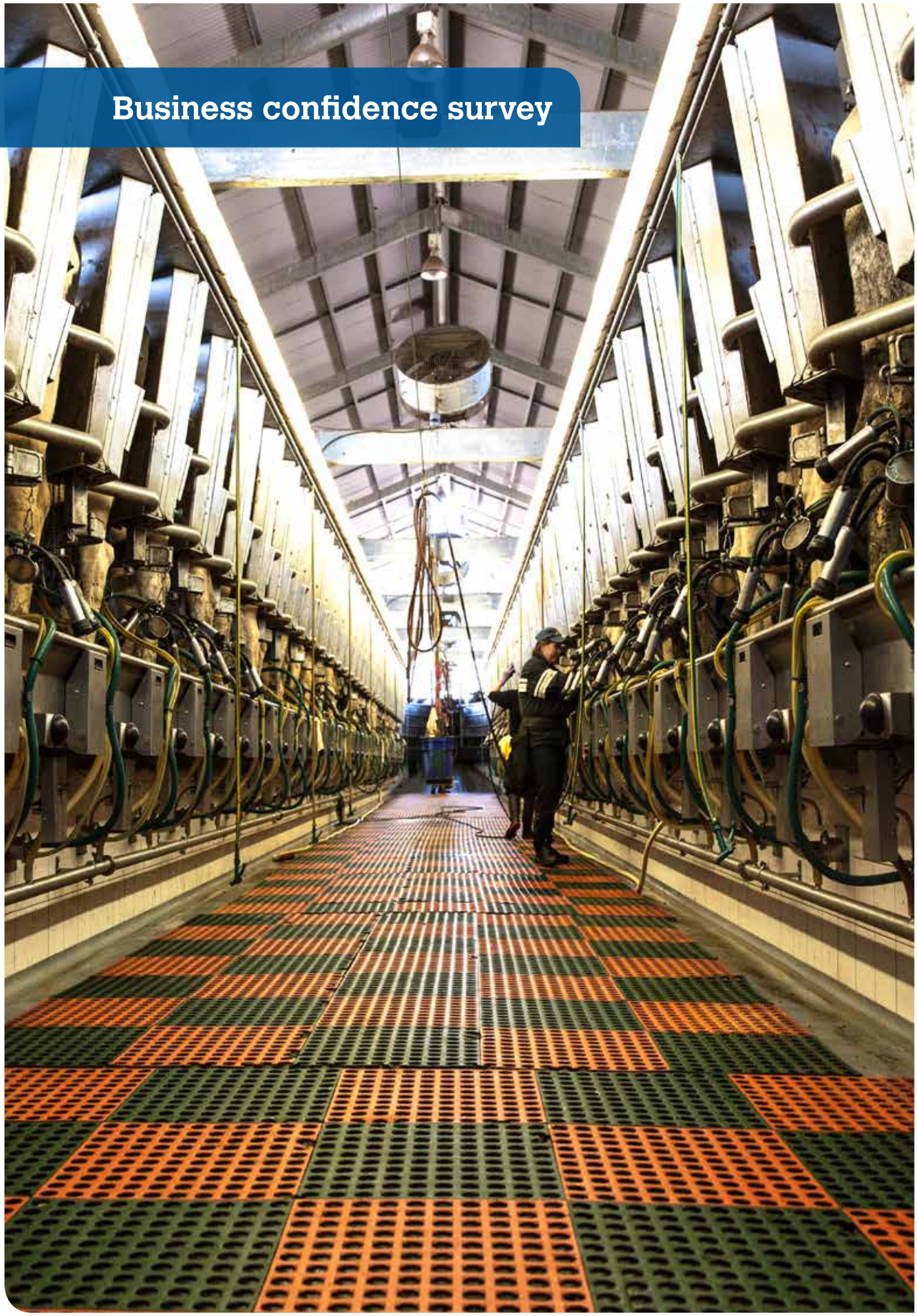
Fertiliser application

The proportion of nutrients in fertiliser applied per hectare on farm in 2015–16 is shown in Figure 33. Total average nutrients applied for the year were slightly lower than 2014–15. Average rates of nitrogen fertiliser 84 kg/ha, with phosphorus 16 kg/ha, potassium 15 kg/ha and sulphur 10 kg/ha. As in previous years, SN0013 did not apply fertiliser in 2015–16 .The individual values relating to Figure 33 can be found in Appendix Table C2.

Figure 33 Nutrient application per hectare – South



Business confidence survey



Expectations and issues

Responses to this business confidence survey were made in July and August 2016 with regard to the 2016–17 financial year and the next five years to 2020–2021.

Expectations for business returns

Following lower average profits in the 2015–16 year, and the challenges affecting the dairy market place in south eastern Australia, farmers' expectations for the coming season were generally negative. Less than 20% of farmers in the North, and no farmers in the South expected an improvement in business returns.

Responses to the survey were made with consideration to all aspects of farming, including climate and market conditions for all products bought and sold.

While expectations of the coming year were spread across categories, there were regional differences, as shown in Figure 34.

Around 75% of the participants in the North had an expectation of no change or a deterioration in farm business returns in 2016–17. In the South, 50% of participants expected no change, 25% expected deteriorating conditions, and 25% were not sure.

Price and production expectations – milk

Expectations about milk price in 2016–17 were also different between the regions. In the North 50% were expecting an increase or no change, while 55% of South farmers were expecting no change and 45% a decrease. Despite that, 60% of South farmers expressed intentions to increase milk production next year and 40% no change. In the North, intentions around increasing milk production were spread across all possibilities, as shown in Figure 35.

Figure 34 Expected change to farm business returns in 2016–17

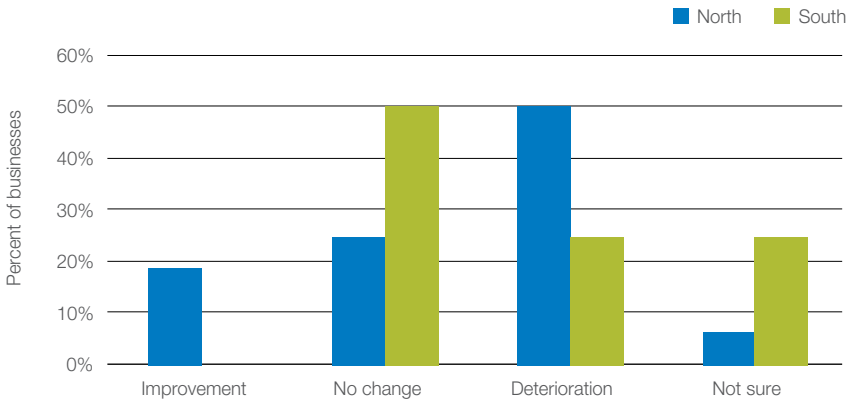
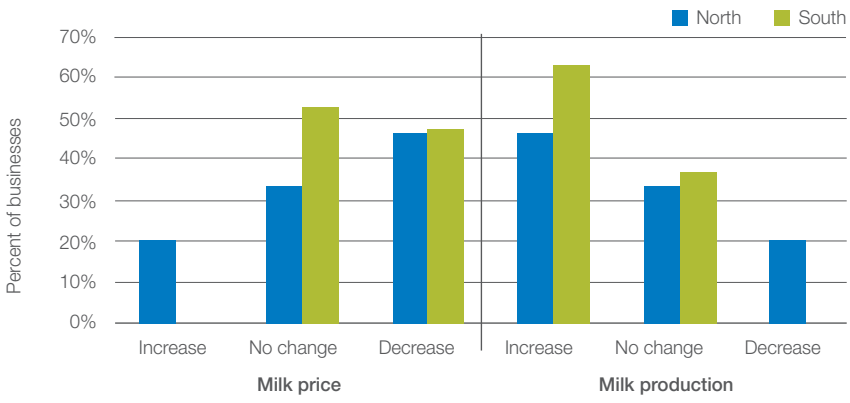


Figure 35 Producer expectations of prices and production of milk in 2016–17



Price and production expectations – fodder

The majority of participating farmers in both regions expected fodder prices to remain stable or decrease in 2016–17 (Figure 36). Most South respondents indicated that they expected fodder production to increase in the coming year, while opinions were again mixed in the North.

A number of participants commented on seasonal variability becoming more common, and the concern of a wetter than average winter and the impact it may have on the grain harvest and the ability to conserve fodder in spring.

Cost expectations

Data presented in Figure 37 below represent the expectations of costs for the dairy industry.

The majority of farmers in all categories expected input costs to remain unchanged in the year ahead, or increase. Over 60% of the farmers across the state were not expecting changes to repairs and maintenance costs, fuel and oil and labour costs for their farm.

Among the irrigators, only 15% predicted an increase in irrigation costs to their business, with over 70% expecting no change.

Figure 36 Producer expectations of prices and production of fodder in 2016–17

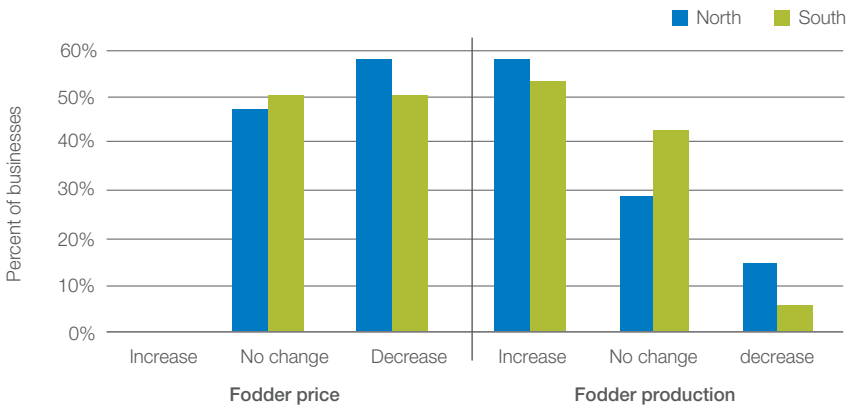
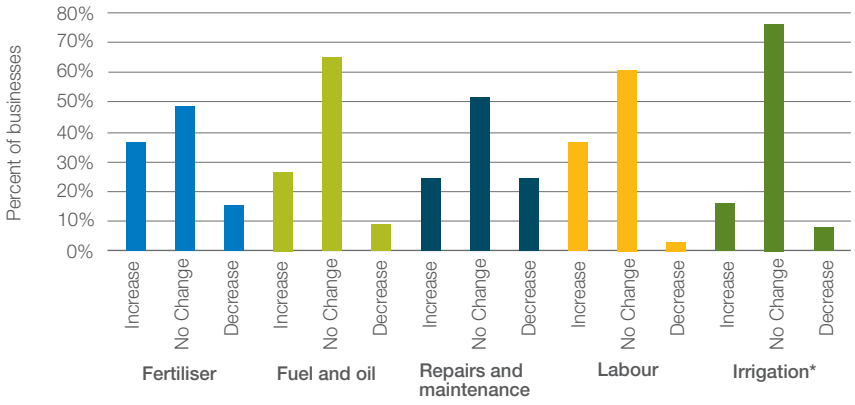


Figure 37 Producer expectations of costs for the dairy industry in 2016–17



Major issues in the dairy industry – the next 12 months

Figure 38 provides a summary of the ten key issues identified by participants for the coming 12 months. A total of 70 responses were recorded from 34 farms, with one farm not responding.

The major concerns facing participants for 2016–17 were related to declining milk price (24% of the responses compared to only 9% last year); and the related issues of financial viability and managing feed supply. Also again high on the list of concerns was labour availability and management (14% of responses).

With the dissipation of the El Niño effect, and the return to good rainfall late in the year, seasonal conditions were lower down the list of concerns this year.

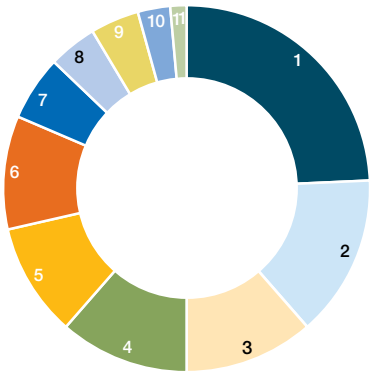


Figure 38 Major issues for individual businesses – 12 year outlook

1 Milk price **24%**
2 Labour **14%**
3 Feed management **11%**
4 Financial sustainability/profitability **11%**
5 Herd management **10%**
6 Seasonal conditions **10%**
7 Farm development and expansion **6%**
8 Economic and political environment **4%**
9 Succession and retirement **4%**
10 Regional infrastructure **3%**
11 Work-life balance **1%**

Major issues in the dairy industry – the next 5 years

Participants identified fourteen key issues for their business over the next five years (Figure 39). A total of 57 responses were recorded from 34 farms.

The top three major concerns identified by participants were:

- Milk price: volatility in the global markets; impact on profitability and cash flow
- Retirement and succession planning: age, process of succession, family issues; whether to grow or exit
- Labour: availability, management, quality, work: life balance

The other concerns included:

- Profitability: milk price and input costs; how to maintain viability; limited returns to invest in capital improvement; keeping margins; rising costs and managing costs - impact on profitability
- Cash flow and debt management: farm debt reduction; cost of finance
- Business growth: capital investment to grow and stay competitive;
- Competing land uses: urban encroachment; land subdivision; mining and gas explorations; short supply of land for expansion; expensive land

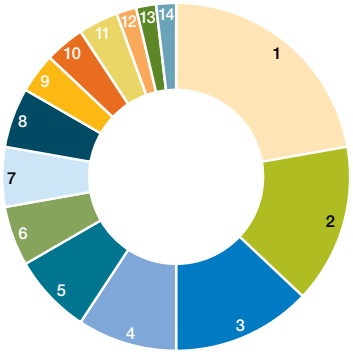


Figure 39 Major issues for individual businesses – 5 year outlook

1 Milk price and volatility **22%**
2 Succession and retirement **15%**
3 Labour **13%**
4 Land availability/Urban encroachment **9%**
5 Work-life balance **7%**
6 Equity and debt **6%**
7 Farm development and expansion **6%**
8 Input costs and volatility **6%**
9 Climate variability **4%**
10 Ecomonic and political environment **4%**
11 Financial sustainability/survival **4%**
12 Feed/fodder production and management **2%**
13 Water **2%**
14 Infrastructure **2%**

Greenhouse gas emissions

2015–16 Greenhouse gas emissions

This year there were changes in the method of estimating greenhouse gas emissions which allowed for pre farm-gate embedded emissions thereby increasing total emissions and therefore emissions intensity. The average level of emission from participating farms was 14.6 t CO_2-e/t MS in 2015–16, similar to last year's 14.7 t CO_2-e/t MS, when the new calculation was applied to last year's data.

Carbon dioxide equivalents (CO_2-e) are used to standardise the greenhouse potentials from different gases. The Global Warming Potential (GWP) is the index used to convert relevant non-carbon dioxide gases to a carbon dioxide equivalent. This is calculated by multiplying the quantity of each gas by its GWP. All of the data in this section is in CO_2-e tonnes and expressed per tonne of milk solids produced (CO_2-e/t MS).

In 2016 the method of estimating Australia's dairy industry greenhouse gas emissions (NGGI) altered to reflect new research outcomes and align with international guidelines. The GWP for the three gases that are discussed in this report have altered from 1: 21: 310 (CO_2: CH_4: N_2O) in 2014–15 to 1: 25: 298 (CO_2: CH_4: N_2O) in 2015–16. This means that one CO_2-e tonne equates to 40 kg of methane (CH_4) and 3.4 kg of nitrous oxide (N_2O). Other changes have included a decrease in the proportion of waste (dung and urine) deposited onto pastures while the milking herd graze, resulting in an increase in waste CH_4 and N_2O emissions along with some changes to the emission factors for N_2O emissions from nitrogen fertiliser and animal waste.

In addition, the estimation of greenhouse gas emissions now include a pre-farm gate emission source. This is the greenhouse gases emitted with the manufacturing of fertilisers and the production of purchased fodder, grain and concentrates. The result of these changes with the NGGI method and inclusion of pre-farm gate emissions will be an increase in emissions intensity of around 22%. This percentage increase will vary between farms and across regions.

The distribution of different emissions for 2015–16 is shown in Figure 40. Greenhouse gas emissions per tonne of milk solids produced ranged from 11.5 t CO_2-e/t MS to 18.7 t CO_2-e/t MS with an average emission level of 14.6 t CO_2-e/t MS. The percentage breakdown for emissions in 2015–16 was 65% for CH_4, 24% for CO_2, and 11% for N_2O emissions.

Methane was identified as the main greenhouse gas emitted from dairy farms, accounting for 65%, or 9.5 t CO_2-e/t MS, of all greenhouse emissions. There are two main sources of CH_4 emissions on farm: ruminant digestion and anaerobic digestion in effluent management systems. Methane produced from ruminant digestion is known as enteric CH_4 and was the major source of emissions from all farms in this report, with an average of 56% of total emissions. Methane from effluent ponds accounted for 9% of total emissions on average across the state in 2015–16.

The most efficient strategy to reduce enteric CH_4 production is manipulating the diet by increasing the feed quality through improved pastures or supplementation with particular concentrates.

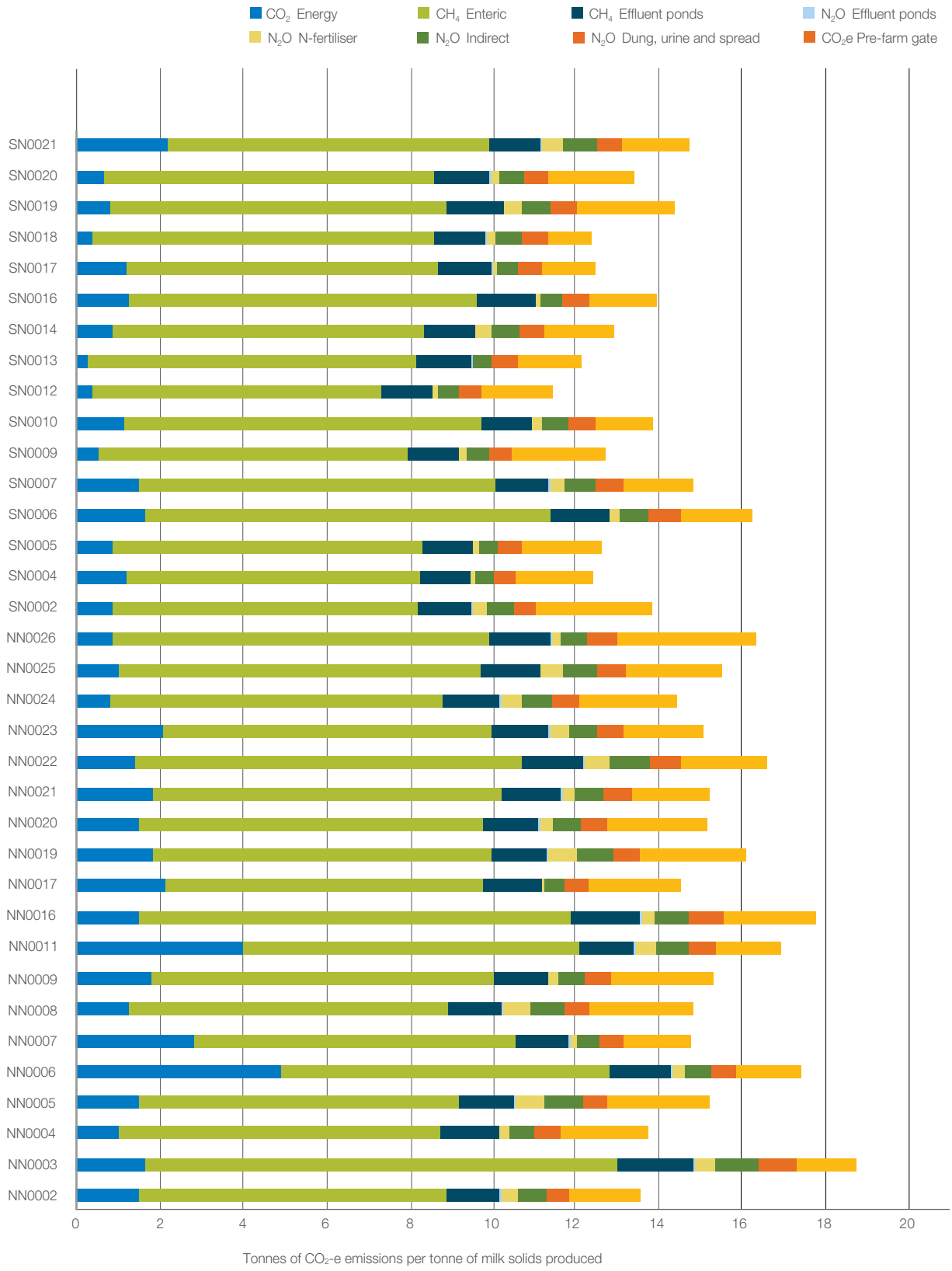
The second main greenhouse gas emission was CO_2 being produced primarily from fossil fuel consumption as either electricity or petrochemicals. The NGGI calculates carbon emissions from both pre-farm gates and on-farm sources. Carbon dioxide accounted for 24% of total emissions (3.5 t CO_2-e/t MS); 14% from pre-farm gates sources and 10% from on-farm energy sources. Output levels were highly dependent on the source of electricity used with all farms using brown coal generated electricity, except for two farms which source their electricity from renewable sources. There are a number of technologies available to improve energy efficiency in the dairy while reducing electricity costs.

The third main greenhouse gas emission was nitrous oxide, accounting for 11% of total emissions or 1.6 t CO_2-e/t MS. Nitrous oxide emissions on dairy farms are primarily derived from direct emissions; including nitrogen fertiliser application, effluent management systems, and animal excreta (dung and urine), as well as indirect emissions such as from ammonia and nitrate loss in soils.

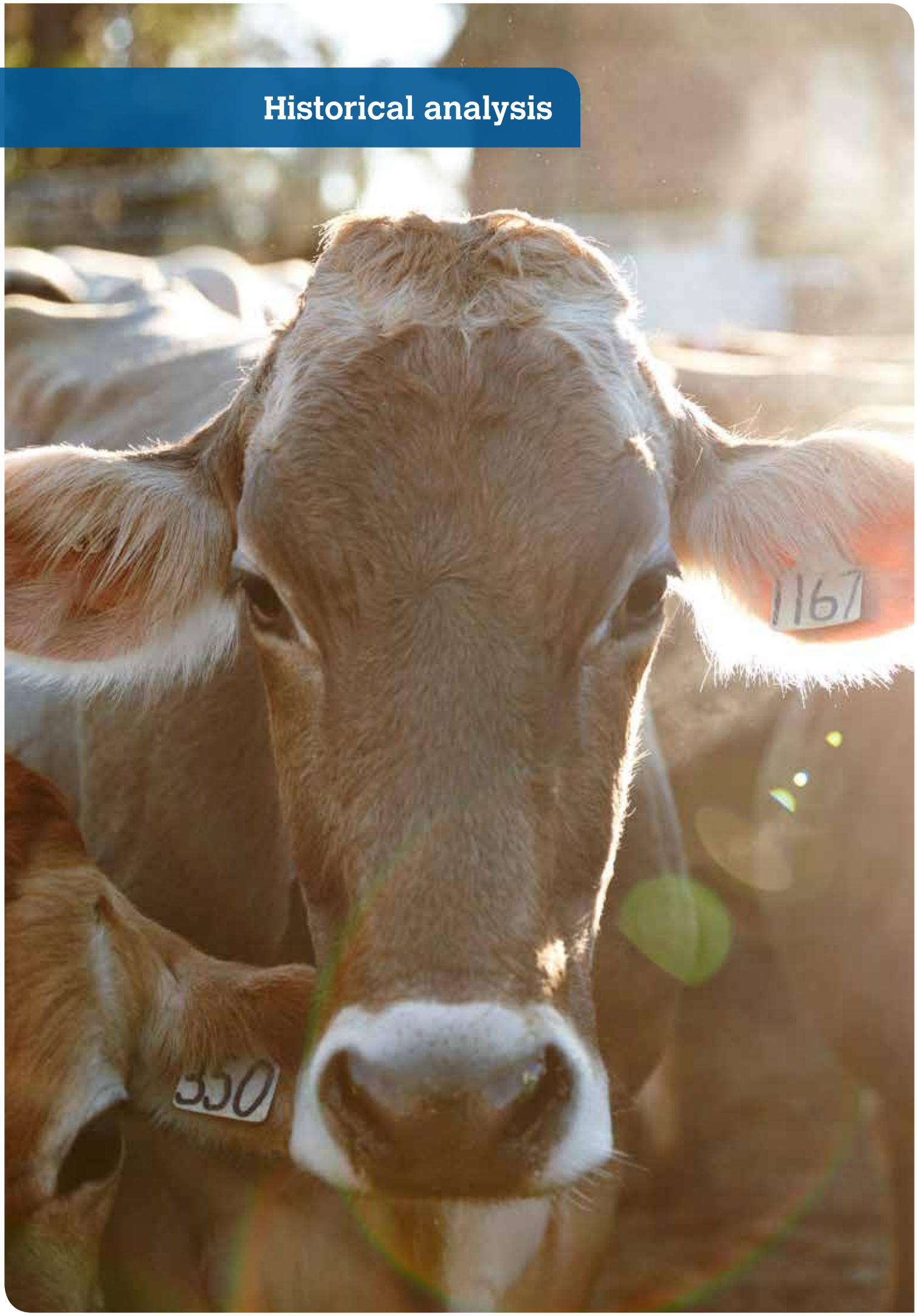
Nitrous oxide emissions from fertiliser accounted for 2% of total emissions, effluent ponds accounted for 0.2% and excreta accounted for 4%. Nitrous oxide from indirect emissions was 5%. Nitrous oxide emissions are highest in warm, waterlogged soils with readily available nitrogen. Over application of nitrogen, high stocking intensity and flood irrigation are all potential causes of increased nitrogen loss as N_2O. Strategic fertiliser management practices can reduce N_2O emissions and improve nitrogen efficiency.

There is a growing importance to understand and monitor greenhouse gas emissions, and these are likely to become more important into the future. To find detailed information on the Australian National Greenhouse Gas Inventory, strategies for reducing greenhouse gasses and more details on sources of greenhouse gases on dairy farms visit the Australian Department of the Environment's website at environment.gov.au/climate-change

Figure 40 2015–16 Greenhouse gas emissions per tonne of milk solids produced (CO_2 equivalent)



Historical analysis



Historical analysis

This section compares the performance of participant farms in the Dairy Farm Monitor Project over the past five years. The historical analysis compares the trends in farm performance within and between the two regions. While figures are adjusted for inflation to allow comparison between years it should be noted that the same farms do not participate each year and care needs be taken when comparing the performance across years. The number of farms in the project has grown from 28 in 2011–12 to 37 in 2014–15, and back to 35 in 2015–16.

Over the five year history of the project in NSW, profitability has varied considerably. The highest returns were in the first and fourth years, and the lowest in the second year, with marginal improvement in the third year. This trend is common to both the North and South regions; however the farms in the South have had higher profitability in all five years since 2011–12. The data for the historical analysis can be found in Appendix Tables 9 and 10 for the state and each region.

The North

The graphs below show the trends in profits and returns over the past five years. The five-year average for return on assets (Figure 41) for the North is 1.6%, with a range of 0.7% to 3.0%. The average return on equity was- 0.2%, with a range of –1.7% to 2.2%.

Figure 42 shows the trend in earnings before interest and tax (EBIT) and in net farm income. The difference between EBIT and net farm income is interest and lease costs. The five-year average for EBIT for North farms was $100,391/farm, with a range of $56,450/farm to $154,656/farm. This equates to an average EBIT of $0.62/kg MS sold, with a range of $0.23/kg MS to $1.11/kg MS.

For net farm income, for two out of the five years the average was negative, meaning many farms made a loss after covering their cost of debt servicing and leasing. The average net farm income over the five years was –$9,788/farm.

In 2012–13 farm profitability fell with the milk price declining year-on-year and due to the rise in input costs. The milk prices improved in 2013–14, but farmers were still recovering from the difficult previous year so profits were again relatively low.

Profit and returns were stronger in the 2014–15, with higher milk prices and favourable seasonal conditions.

The 2015–16 year saw a stable milk price in the North, but higher production costs led to a lower level of profit.

A return on assets becomes a lesser return on equity when the rate of interest on loans or lease on leased capital is greater than the return from the additional assets managed. This has not been the case in the North for the five years, with return on equity being consistently lower than return on assets.

Figure 41 Historical whole farm performance – North

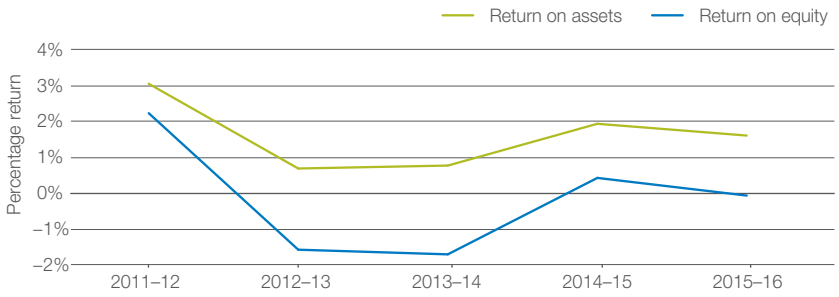
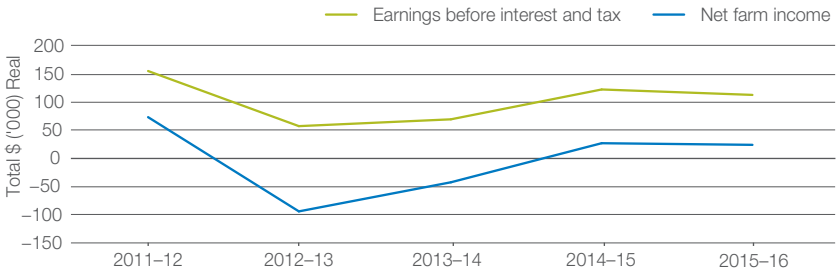


Figure 42 Historical farm profitability (real $) – North



The South

The graphs below show the trends in profits and returns over the past five years. The five-year average for return on assets (Figure 43) for the South is 5.0%, with a range of 2.7% to 6.8%; and for return on equity the average was 4.1%, with a range of 0.5% to 5.7%.

Figure 44 shows the trend in earnings before interest and tax (EBIT) and in net farm income (NFI). The difference between EBIT and net income is interest and lease costs. The five year average for EBIT for South farms was $308,112, with a range of $150,822 to $439,191 per farm. This equates to an average of $1.58/kg MS sold, with a range of $0.86/kg MS to $1.93/kg MS.

As experienced in the North, in 2012–13 farm profitability fell with the milk price declining and input costs rising. The milk prices improved in 2013–14, but farmers were still recovering from the difficult previous year so profits were again relatively low.

Profit and returns were stronger in the 2014–15, with higher milk prices and favourable seasonal conditions.

In 2015–16 a decline in milk prices was obversed in the South, whilst only a small change to cost of production, leading to lower profit per farm. However, average return on assets for the South farms at 6.8%, was the highest of the five year history of the project.

Figure 43 Historical whole farm performance – South

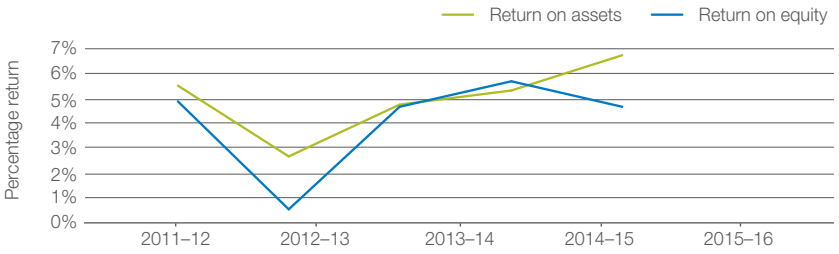
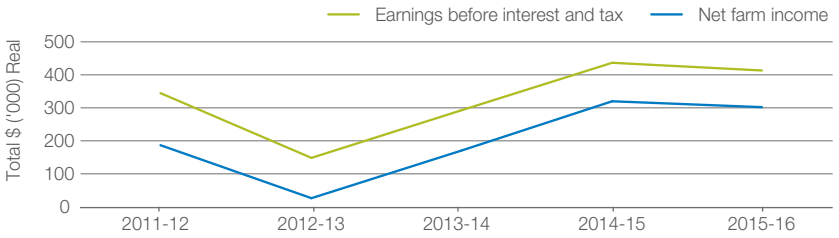


Figure 44 Historical farm profitability (real $) – South



Regional comparison

Profitability performance of the two regions over the last five years is compared in Figures 45 to 48.

In 2015–16 both regions experienced a small downturn in profit level compared to the previous year. In comparison 2012–13 was the year with lowest returns.

The South has performed well over time, and for total earnings before interest and tax in real terms the South's performance had surpassed that of the North for each of the five years. This region has also received a lower milk price than the North each year in the history of the project, reflecting the influence of the Victorian milk market. In contrast, the majority of the milk from the North is used for liquid domestic milk supply in both NSW and Southeast Queensland.

Despite the lower milk price, the South farms have generated a higher EBIT, higher return on assets and higher return on equity each year than the North farms. This is because the cost of production in the South is consistently lower than the North.

Figure 45 Regional historical earnings before interest and tax (real $)

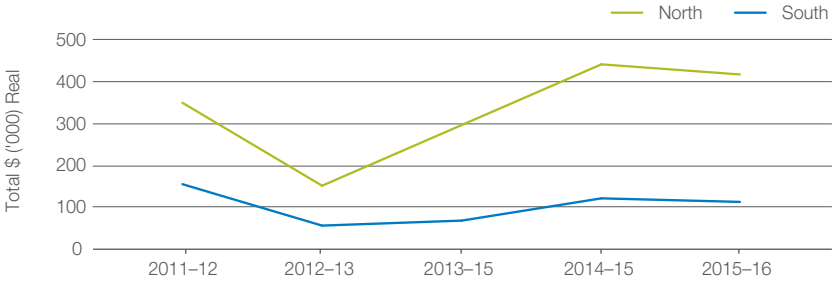


Figure 46 Regional historical net farm income (real $)

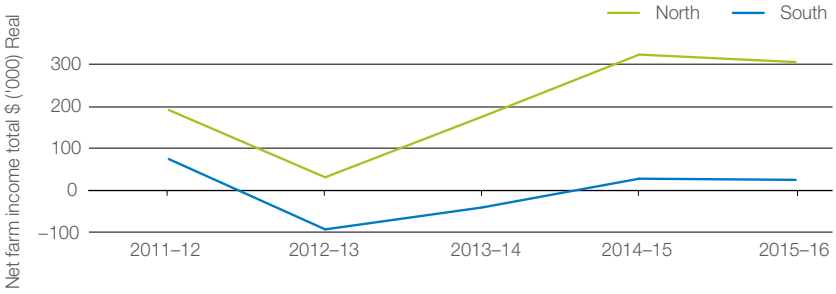


Figure 47 Regional historical return on assets)

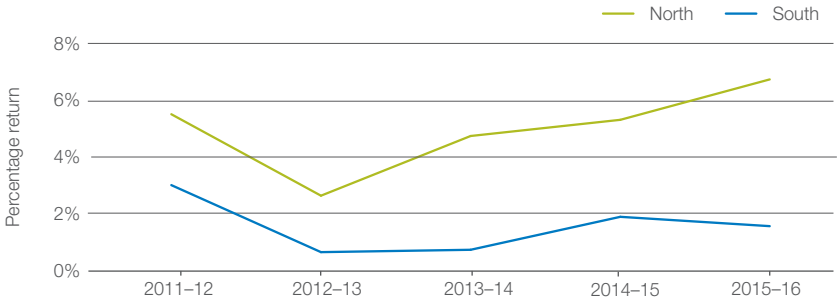
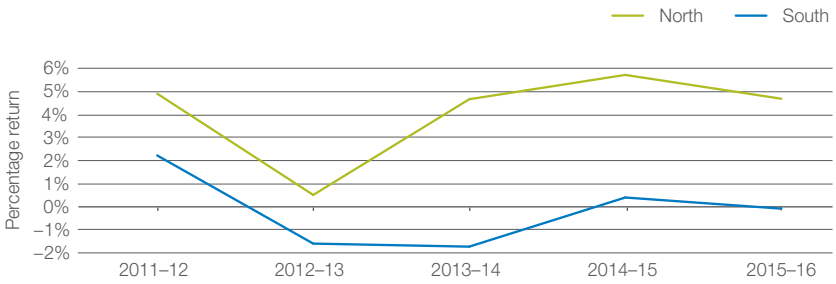


Figure 48 Regional historical return on equity



Appendices

Appendix A **Statewide summary tables**

Table A1 Main financial indicators – Statewide

Farm number	Milk income (net)	All other income	Gross farm income	Total variable costs	Total over-head costs	Cost structure (variable costs/ total costs)	Earnings before interest and tax	Return on assets (exc. capital apprec.)	Interest and lease charges	Debt servic-ing ratio	Net farm income	Return on equity	Return on equity (inc. capital apprec.)
	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	%	$/kg MS	%	$/kg MS	% of income	$/kg MS	%	%
Average	$7.34	$0.89	$8.23	$3.94	$3.16	56%	$1.12	3.0%	$0.54	6%	$0.58	2.1%	1.6%
Top 25%	$7.42	$0.97	$8.39	$3.82	$2.45	61%	$2.12	7.5%	$0.61	7%	$1.51	8.5%	8.1%

Table A2 Physical information – Statewide

Farm number	Total usable area	Milking area	Water used	Number of milking cows	Milking cows per usable area	Milk sold	Milk sold	Fat	Protein
	ha	ha	mm/ha	hd	hd/ha	kg MS/ cow	kg MS/ha	%	%
Average	287	126	1,092	351	1.3	504	618	4.0%	3.3%
Top 25%	449	175	1,026	633	1.4	510	728	4.0%	3.3%

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
Average	6.2	2.1	55%	111.3	12.2	20.0	12.5	74	36,999
Top 25%	8.7	2.6	57%	139.7	10.5	16.2	9.7	97	49,035

*on milking area

Table A3 Purchased feed – Statewide

Farm number	Purchased feed per milker	Concentrate price	Silage price	Hay price	Other feed price	Average purchased feed price	Average ME of purchased feed	Average purchased feed price	Percent of total energy imported
	t DM/hd	$/t DM	$/t DM	$/t DM	$/t DM	$/t DM	MJ ME/kg	c/MJ	% of ME
Average	2.6	$392	$51	$203	$101	$382	12.2	3.2	45%
Top 25%	2.7	$356				$346	12.1	3.0	43%

Table A4 Variable costs – Statewide

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
Average	$0.13	$0.17	$0.05	$0.12	$0.14	$0.61	$0.38	$0.20	$0.18
Top 25%	$0.11	$0.16	$0.06	$0.10	$0.14	$0.57	$0.31	$0.30	$0.16

Farm number	Fuel and oil	Pasture improvement/ cropping	Other feed costs	Fodder purchases	Grain/ concentrates/ other	Agistment costs	Total feed costs	Total variable costs
	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS
Average	$0.12	$0.24	$0.09	$0.24	$1.80	$0.08	$3.33	$3.94
Top 25%	$0.10	$0.22	$0.12	$0.32	$1.61	$0.10	$3.24	$3.82

Table A5 Overhead costs – Statewide

Farm number	Rates	Registration and insurance	Farm insurance	Repairs and maintenance	Bank charges	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	$/kg MS
Average	$0.07	$0.04	$0.09	$0.49	$0.03	$0.17	$0.87	$1.75	$0.38	$1.04	$3.16
Top 25%	$0.05	$0.04	$0.05	$0.40	$0.02	$0.15	$0.92	$1.63	$0.29	$0.53	$2.45

Table A6 Variable costs % – Statewide

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
Average	1.8%	2.4%	0.7%	1.7%	2.0%	8.6%	5.3%	2.4%	2.5%
Top 25%	1.7%	2.4%	1.0%	1.6%	2.3%	9.0%	4.7%	3.5%	2.5%

Farm number	Fuel and oil	Pasture improvement/ cropping	Other feed costs	Fodder purchases	Grain/ concentrates/ other	Agistment costs	Total feed costs	Total variable costs
	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs
Average	1.6%	3.4%	1.3%	3.5%	25.3%	1.0%	47.2%	55.8%
Top 25%	1.6%	3.4%	1.8%	5.6%	25.9%	1.4%	52.1%	61.1%

Table A7 Overhead costs – Statewide

Farm number	Rates	Registration and insurance	Farm insurance	Repairs and maintenance	Bank charges	Other overheads	Employed labour	Total cash overheads	Depreciation	Imputed owner/ operator & family labour	Total overheads
	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs
Average	1.0%	0.6%	1.3%	6.7%	0.4%	2.3%	12.3%	24.5%	5.4%	14.4%	44.2%
Top 25%	0.8%	0.6%	0.9%	6.1%	0.3%	2.4%	14.1%	25.2%	4.7%	9.0%	38.9%

Table A8 Capital structure – Statewide

Farm Assets				
	Land value	Land value	Permanent water value	Permanent water value
	$/ha	$/cow	$/ha	$/cow
Average	$18,760	$12,982	$1,698	$1,346
Top 25%	$15,058	$7,937	$1,649	$1,023

Other farm assets (per usable hectare)				
Plant and equipment	Livestock	Hay and grain	Other assets	Total assets
$/ha	$/ha	$/ha	$/ha	$/ha
$2,181	$2,858	$282	$325	$22,160
$2,002	$3,044	$346	$777	$19,309

Liabilities		Equity	
Liabilities per usable hectare	Liabilities per milking cow	Equity per usable hectare	Average equity
$/ha	$/cow	$/ha	%
$5,203	$4,117	$16,957	76%
$6,027	$4,146	$13,282	69%

Table A9 Historical data – Statewide
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	$7.44	$7.76	$8.39	$0.33	$0.36	$0.27	$0.29	$3.02	$3.26	$3.62	$3.91
2012–13	$6.43	$6.79	$7.20	$7.61	$0.33	$0.35	$0.28	$0.30	$3.18	$3.35	$3.79	$4.00
2013–14	$7.15	$7.33	$8.00	$8.20	$0.31	$0.31	$0.30	$0.31	$3.46	$3.54	$4.06	$4.16
2014–15	$7.46	$7.54	$8.44	$8.53	$0.32	$0.33	$0.29	$0.30	$3.55	$3.58	$4.16	$4.20
2015–16	$7.34	$7.34	$8.23	$8.23	$0.35	$0.35	$0.27	$0.27	$3.33	$3.33	$3.94	$3.94
Average		**$7.29**		**$8.19**		**$0.34**		**$0.29**		**$3.42**		**$4.04**

Note: 'Real' dollar values are the nominal values converted to 2015–16 dollar equivalents by the consumer price index (CPI) to allow for inflation

Table A9 Historical data – Statewide (continued)
Average farm income, costs and profit per kilogram of milk solids

	Overhead costs						Profit							
	Cash overhead costs		Non-cash overhead costs		Total overhead costs		Earnings before interest & tax		Interest & 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 assets	Return on equity
2011–12	$1.56	$1.69	$1.24	$1.35	$2.80	$3.03	$1.34	$1.45	$0.59	$0.63	$0.75	$0.81	4.3%	3.6%
2012–13	$1.71	$1.81	$1.19	$1.26	$2.90	$3.07	$0.51	$0.54	$0.62	$0.65	–$0.10	–$0.11	1.7%	–0.5%
2013–14	$1.80	$1.84	$1.25	$1.29	$3.05	$3.13	$0.88	$0.91	$0.62	$0.64	$0.26	$0.27	2.6%	1.2%
2014–15	$1.71	$1.73	$1.25	$1.26	$2.96	$2.99	$1.32	$1.33	$0.60	$0.60	$0.72	$0.73	3.5%	2.8%
2015–16	$1.75	$1.75	$1.41	$1.41	$3.16	$3.16	$1.12	$1.12	$0.54	$0.54	$0.58	$0.58	3.0%	2.1%
Average		**$1.76**		**$1.31**		**$3.08**		**$1.07**		**$0.61**		**$0.46**	**3.0%**	**1.8%**

Table A10 Historical data Statewide
Average farm physical information

	Total usable area	Milking area	Water used	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	mm/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	1,270	375	1.4	478	663	6.4	1.3	57%	$304	$329
2012–13	329	140	1,064	349	1.2	492	608	6.9	1.3	56%	$323	$341
2013–14	301	119	876	309	1.1	504	569	6.0	1.1	57%	$412	$422
2014–15	287	128	1268	338	1.2	506	602	6.5	1.8	58%	$413	$417
2015–16	287	126	1092	351	1.3	504	618	6.2	2.1	55%	$392	$392
Average	**301**	**129**	**1,114**	**344**	**1.2**	**496**	**612**	**6.4**	**1.6**	**57%**		**$380**

* 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 – North

Farm number	Milk income (net)	All other income	Gross farm income	Total variable costs	Total over-head costs	Cost structure (variable costs/ total costs)	Earnings before interest and tax	Return on assets (exc. capital apprec.)	Interest and lease charges	Debt servic-ing ratio	Net farm income	Return on equity	Return on equity (inc. capital apprec.)
	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	%	$/kg MS	%	$/kg MS	% of income	$/kg MS	%	%
NN0002	$7.26	$0.45	$7.71	$4.11	$4.51	48%	–$0.91	–2.1%	$0.29	4%	–$1.20	–3.0%	–3.0%
NN0003	$7.92	$0.19	$8.11	$5.18	$3.82	58%	–$0.88	–2.1%	$0.19	2%	–$1.06	–4.2%	–4.2%
NN0004	$7.86	$0.80	$8.67	$4.29	$4.04	51%	$0.34	1.3%	$0.02	0%	$0.32	1.2%	1.2%
NN0005	***$7.99***	***$0.80***	***$8.79***	***$4.05***	***$3.42***	***54%***	***$1.33***	***4.4%***	***$0.00***	***0%***	***$1.33***	***4.4%***	***4.4%***
NN0006	$7.43	$0.35	$7.78	$4.34	$3.49	55%	–$0.04	–0.1%	$0.90	12%	–$0.94	–5.3%	–5.2%
NN0007	***$7.47***	***$0.47***	***$7.94***	***$3.72***	***$2.67***	***58%***	***$1.55***	***3.9%***	***$0.19***	***2%***	***$1.36***	***4.5%***	***4.5%***
NN0008	$7.53	$0.18	$7.71	$4.18	$4.00	51%	–$0.47	–1.2%	$0.00	0%	–$0.47	–1.2%	–1.2%
NN0009	$7.91	$0.48	$8.39	$5.03	$2.83	64%	$0.54	1.4%	$0.98	12%	–$0.44	–2.0%	–2.2%
NN0011	***$7.26***	***$0.58***	***$7.85***	***$2.94***	***$3.30***	***47%***	***$1.61***	***3.6%***	***$0.14***	***2%***	***$1.47***	***3.7%***	***3.7%***
NN0016	$7.78	$0.84	$8.62	$4.07	$5.09	44%	–$0.55	–0.9%	$0.46	5%	–$1.01	–7.1%	–7.3%
NN0017	***$7.67***	***$0.61***	***$8.28***	***$4.36***	***$2.57***	***63%***	***$1.35***	***4.0%***	***$1.23***	***15%***	***$0.12***	***0.8%***	***0.8%***
NN0019	$7.30	$0.52	$7.82	$3.87	$3.03	56%	$0.91	2.1%	$1.33	17%	–$0.42	–3.1%	–3.0%
NN0020	$7.90	$0.73	$8.63	$4.93	$3.68	57%	$0.02	0.0%	$1.44	17%	–$1.41	–4.0%	–3.9%
NN0021	$7.49	$1.69	$9.18	$4.16	$3.23	56%	$1.80	3.3%	$0.31	3%	$1.49	3.1%	3.2%
NN0022	***$7.82***	***$1.49***	***$9.31***	***$3.84***	***$3.45***	***53%***	***$2.02***	***5.3%***	***$0.94***	***10%***	***$1.08***	***6.0%***	***6.2%***
NN0023	$7.24	$0.82	$8.05	$3.06	$4.48	41%	$0.51	0.9%	$0.31	4%	$0.20	0.4%	0.4%
NN0024	$7.31	$0.78	$8.10	$4.18	$3.10	57%	$0.81	2.1%	$0.14	2%	$0.67	2.3%	1.8%
NN0025	$8.13	$1.30	$9.43	$5.01	$3.06	62%	$1.35	3.1%	$0.65	7%	$0.70	2.3%	–4.4%
NN0026	$8.03	$2.41	$10.44	$5.61	$4.34	56%	$0.50	1.4%	$0.58	6%	–$0.08	–0.4%	–0.4%
Average	**$7.65**	**$0.82**	**$8.47**	**$4.26**	**$3.58**	**54%**	**$0.62**	**1.6%**	**$0.53**	**6%**	**$0.09**	**–0.1%**	**–0.4%**
Top 25%*	**$7.64**	**$0.81**	**$8.45**	**$3.78**	**$3.08**	**55%**	**$1.59**	**4.3%**	**$0.50**	**6%**	**$1.09**	**3.9%**	**4.0%**

* The Top 25% are bold and italicised

Table B2 Physical information – North

Farm number	Total usable area	Milking area	Water used	Number of milking cows	Milking cows per usable area	Milk sold	Milk sold	Fat	Protein
	ha	ha	mm/ha	hd	hd/ha	kg MS/ cow	kg MS/ha	%	%
NN0002	108	50	1,099	75	0.7	510	354	3.9%	3.2%
NN0003	248	89	951	407	1.6	303	497	4.0%	3.4%
NN0004	95	80	1,360	175	1.8	447	824	4.1%	3.4%
NN0005	***198***	***80***	***1,192***	***290***	***1.5***	***497***	***728***	***4.1%***	***3.3%***
NN0006	101	87	891	285	2.8	413	1,165	3.7%	3.1%
NN0007	***255***	***160***	***805***	***281***	***1.1***	***548***	***603***	***3.7%***	***3.1%***
NN0008	292	85	1,196	230	0.8	531	418	4.0%	3.3%
NN0009	453	96	764	498	1.1	543	597	3.4%	3.3%
NN0011	***200***	***140***	***1,529***	***373***	***1.9***	***453***	***844***	***4.9%***	***3.8%***
NN0016	114	90	1,206	180	1.6	336	531	4.2%	3.3%
NN0017	***607***	***226***	***918***	***1,077***	***1.8***	***459***	***815***	***3.8%***	***3.2%***
NN0019	197	93	1,446	242	1.2	512	630	3.8%	3.1%
NN0020	212	52	1,117	184	0.9	481	418	3.9%	3.2%
NN0021	88	50	1,263	164	1.9	392	730	4.8%	3.7%
NN0022	***198***	***79***	***1,302***	***250***	***1.3***	***415***	***524***	***3.9%***	***3.2%***
NN0023	85	36	1,158	82	1.0	504	486	3.8%	3.1%
NN0024	239	124	1,007	220	0.9	512	471	3.8%	3.1%
NN0025	236	120	1,374	377	1.6	499	798	3.8%	3.2%
NN0026	68	51	1,068	100	1.5	443	649	3.5%	3.0%
Average	**210**	**95**	**1,139**	**289**	**1.4**	**463**	**636**	**4.0%**	**3.3%**
Top 25%*	**292**	**141**	**1,149**	**454**	**1.5**	**474**	**703**	**4.1%**	**3.3%**

* The Top 25% are bold and italicised

Table B2 Physical information – North (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	5.1	1.4	57%	78.0	6.7	23.4	12.6	47	24,003
NN0003	7.2	0.0	54%	131.2	16.3	14.7	18.6	75	22,665
NN0004	5.6	1.1	53%	110.5	39.8	52.6	29.8	56	25,000
NN0005	***8.3***	***1.2***	***56%***	***277.9***	***17.0***	***27.6***	***26.3***	***66***	***32,742***
NN0006	8.9	1.8	58%	196.2	16.1	40.4	2.3	80	33,126
NN0007	***4.2***	***2.5***	***55%***	***56.8***	***0.0***	***0.0***	***0.0***	***69***	***37,992***
NN0008	6.3	3.0	43%	148.4	1.1	3.6	1.4	64	33,918
NN0009	5.5	3.5	35%	79.2	6.0	1.4	7.7	61	33,035
NN0011	***6.7***	***2.5***	***69%***	***220.9***	***6.4***	***0.0***	***5.5***	***76***	***34,236***
NN0016	3.2	0.6	54%	85.5	12.1	5.5	21.6	75	25,186
NN0017	***4.2***	***11.3***	***40%***	***25.8***	***0.0***	***0.0***	***0.0***	***86***	***39,383***
NN0019	7.1	3.5	62%	233.5	20.3	19.8	73.9	68	35,047
NN0020	2.2	0.2	31%	70.6	4.3	18.8	6.0	79	38,071
NN0021	5.6	3.9	44%	121.4	6.8	42.0	15.2	78	30,376
NN0022	***10.0***	***1.5***	***66%***	***178.8***	***0.0***	***5.6***	***1.0***	***83***	***34,566***
NN0023	5.7	1.8	57%	117.2	7.6	23.5	0.5	52	26,397
NN0024	4.2	1.5	57%	126.6	18.8	44.8	51.5	60	30,732
NN0025	8.9	2.1	56%	221.7	0.0	139.8	0.0	71	35,406
NN0026	3.8	0.7	47%	70.7	0.0	0.0	0.0	51	22,634
Average	**5.8**	**2.4**	**52%**	**134.2**	**9.4**	**24.4**	**14.4**	**68**	**31,290**
Top 25%*	**6.3**	**4.1**	**56%**	**152.0**	**4.7**	**6.6**	**6.6**	**76**	**35,784**

* The Top 25% are bold and italicised

** On milking area

Table B3 Purchased feed – North

Farm number	Purchased feed per milker	Concentrate price	Silage price	Hay price	Other feed price	Average purchased feed price	Average ME of purchased feed	Average purchased feed price	Percent of total energy imported
	t DM/hd	$/t DM	$/t DM	$/t DM	$/t DM	$/t DM	MJ ME/kg	c/MJ	% of ME
NN0002	1.9	$542				$542	12.5	4.4	43%
NN0003	0.8	$471				$471	13.0	3.6	46%
NN0004	2.4	$404	$340	$436		$403	12.1	3.4	47%
NN0005	***1.9***	***$307***				***$307***	***12.9***	***2.4***	***44%***
NN0006	1.6	$487		$283		$472	12.7	3.8	42%
NN0007	***2.8***	***$485***		***$141***	***$1,944***	***$431***	***12.0***	***3.7***	***45%***
NN0008	2.9	$362		$305	$889	$377	12.2	3.2	57%
NN0009	4.1	$383		$301		$367	12.7	3.0	65%
NN0011	***1.5***	***$306***				***$306***	***12.6***	***2.5***	***31%***
NN0016	1.9	$339				$339	12.5	2.7	46%
NN0017	***3.6***	***$336***		***$294***		***$324***	***12.1***	***2.8***	***60%***
NN0019	2.3	$425	$100			$413	12.3	3.4	38%
NN0020	3.4	$392	$782	$431		$393	12.3	3.2	69%
NN0021	1.9	$460				$460	12.5	3.7	56%
NN0022	***2.1***	***$466***		***$427***		***$463***	***12.3***	***3.8***	***34%***
NN0023	2.2	$294				$294	12.5	2.4	43%
NN0024	2.3	$364		$141		$356	12.5	2.9	43%
NN0025	2.7	$412		$505		$422	11.8	3.6	44%
NN0026	4.1	$380	$243	$328		$372	11.2	3.4	53%
Average	**2.4**	**$401**	**$366**	**$327**	**$1,417**	**$395**	**12.3**	**3.3**	**48%**
Top 25%*	**2.4**	**$380**		**$287**	**$1,944**	**$366**	**12.4**	**3.0**	**44%**

* The Top 25% are bold and italicised

Table B4 Variable costs – North

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	$0.12	$0.27	$0.00	$0.14	$0.25	$0.77	$0.52	$0.06	$0.14
NN0003	$0.22	$0.16	$0.16	$0.25	$0.09	$0.88	$0.82	$0.00	$0.49
NN0004	$0.07	$0.13	$0.00	$0.14	$0.11	$0.46	$0.51	$0.01	$0.30
NN0005	***$0.13***	***$0.25***	***$0.00***	***$0.13***	***$0.16***	***$0.67***	***$0.72***	***$0.18***	***$0.33***
NN0006	$0.18	$0.25	$0.01	$0.12	$0.13	$0.70	$0.39	$0.27	$0.10
NN0007	***$0.04***	***$0.16***	***$0.00***	***$0.02***	***$0.11***	***$0.34***	***$0.11***	***$0.42***	***$0.13***
NN0008	$0.15	$0.15	$0.00	$0.05	$0.20	$0.55	$0.47	$0.04	$0.14
NN0009	$0.15	$0.32	$0.00	$0.13	$0.13	$0.74	$0.31	$0.24	$0.20
NN0011	***$0.17***	***$0.14***	***$0.06***	***$0.17***	***$0.09***	***$0.62***	***$0.30***	***$0.56***	***$0.00***
NN0016	$0.00	$0.14	$0.02	$0.21	$0.30	$0.67	$0.57	$0.00	$0.45
NN0017	***$0.16***	***$0.20***	***$0.00***	***$0.13***	***$0.06***	***$0.55***	***$0.03***	***$0.51***	***$0.06***
NN0019	$0.10	$0.13	$0.00	$0.12	$0.14	$0.49	$0.83	$0.13	$0.07
NN0020	$0.02	$0.15	$0.00	$0.35	$0.40	$0.92	$0.50	$0.04	$0.32
NN0021	$0.05	$0.32	$0.01	$0.13	$0.13	$0.63	$0.31	$0.24	$0.22
NN0022	***$0.00***	***$0.19***	***$0.02***	***$0.15***	***$0.16***	***$0.52***	***$0.57***	***$0.04***	***$0.22***
NN0023	$0.19	$0.08	$0.00	$0.17	$0.12	$0.55	$0.48	$0.18	$0.15
NN0024	$0.23	$0.18	$0.03	$0.14	$0.07	$0.66	$0.90	$0.02	$0.31
NN0025	$0.22	$0.22	$0.15	$0.16	$0.23	$0.97	$0.59	$0.02	$0.38
NN0026	$0.24	$0.13	$0.03	$0.14	$0.18	$0.71	$0.21	$0.25	$0.00
Average	**$0.13**	**$0.19**	**$0.03**	**$0.15**	**$0.16**	**$0.65**	**$0.48**	**$0.17**	**$0.21**
Top 25%*	**$0.10**	**$0.19**	**$0.02**	**$0.12**	**$0.11**	**$0.54**	**$0.35**	**$0.34**	**$0.15**

* The Top 25% are bold and italicised

Farm number	Fuel and oil	Pasture improvement/ cropping	Other feed costs	Fodder purchases	Grain/ concentrates/ other	Agistment costs	Total feed costs	Total variable costs
	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS
NN0002	$0.23	$0.22	$0.02	$0.00	$2.10	$0.06	$3.34	$4.11
NN0003	$0.23	$0.73	$0.26	$0.00	$1.19	$0.57	$4.29	$5.18
NN0004	$0.09	$0.47	$0.03	$0.46	$1.84	$0.11	$3.82	$4.29
NN0005	***$0.08***	***$0.33***	***$0.13***	***$0.15***	***$1.47***	***$0.00***	***$3.38***	***$4.05***
NN0006	$0.07	$0.57	$0.02	$0.09	$1.81	$0.31	$3.64	$4.34
NN0007	***$0.06***	***$0.26***	***$0.16***	***$0.13***	***$2.11***	***$0.00***	***$3.38***	***$3.72***
NN0008	$0.02	$0.36	$0.08	$0.26	$2.16	$0.10	$3.62	$4.18
NN0009	$0.16	$0.22	$0.35	$0.48	$2.33	$0.00	$4.29	$5.03
NN0011	***$0.14***	***$0.16***	***$0.11***	***$0.00***	***$1.04***	***$0.00***	***$2.31***	***$2.94***
NN0016	$0.22	$0.19	$0.03	$0.00	$1.94	$0.00	$3.40	$4.07
NN0017	***$0.08***	***$0.14***	***$0.00***	***$0.66***	***$1.84***	***$0.48***	***$3.81***	***$4.36***
NN0019	$0.09	$0.36	$0.03	$0.02	$1.86	$0.00	$3.38	$3.87
NN0020	$0.11	$0.24	$0.00	$0.03	$2.75	$0.03	$4.01	$4.93
NN0021	$0.12	$0.40	$0.01	$0.00	$2.24	$0.00	$3.53	$4.16
NN0022	***$0.12***	***$0.05***	***$0.00***	***$0.15***	***$2.16***	***$0.00***	***$3.32***	***$3.84***
NN0023	$0.11	$0.11	$0.11	$0.00	$1.37	$0.00	$2.51	$3.06
NN0024	$0.12	$0.32	$0.28	$0.04	$1.55	$0.00	$3.53	$4.18
NN0025	$0.14	$0.20	$0.18	$0.47	$2.05	$0.00	$4.04	$5.01
NN0026	$0.13	$0.21	$0.04	$0.93	$3.07	$0.05	$4.89	$5.61
Average	**$0.12**	**$0.29**	**$0.10**	**$0.20**	**$1.94**	**$0.09**	**$3.61**	**$4.26**
Top 25%*	**$0.10**	**$0.19**	**$0.08**	**$0.22**	**$1.73**	**$0.10**	**$3.24**	**$3.78**

* The Top 25% are bold and italicised

Table B5 Overhead costs – North

Farm number	Rates	Registration and insurance	Farm insurance	Repairs and maintenance	Bank charges	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	$/kg MS
NN0002	$0.00	$0.11	$0.23	$0.59	$0.04	$0.27	$1.06	$2.30	$0.53	$1.69	$4.51
NN0003	$0.06	$0.00	$0.09	$0.26	$0.01	$0.26	$1.84	$2.52	$0.15	$1.15	$3.82
NN0004	$0.07	$0.02	$0.05	$1.00	$0.00	$0.10	$0.88	$2.12	$0.28	$1.64	$4.04
NN0005	***$0.04***	***$0.07***	***$0.05***	***$0.55***	***$0.00***	***$0.12***	***$1.43***	***$2.27***	***$0.40***	***$0.75***	***$3.42***
NN0006	$0.03	$0.01	$0.14	$0.68	$0.03	$0.16	$1.05	$2.09	$0.37	$1.02	$3.49
NN0007	***$0.04***	***$0.04***	***$0.08***	***$0.42***	***$0.00***	***$0.06***	***$0.84***	***$1.48***	***$0.20***	***$0.98***	***$2.67***
NN0008	$0.00	$0.12	$0.00	$0.81	$0.00	$0.06	$2.57	$3.56	$0.44	$0.00	$4.00
NN0009	$0.03	$0.02	$0.09	$0.42	$0.04	$0.10	$0.69	$1.39	$0.40	$1.04	$2.83
NN0011	***$0.05***	***$0.02***	***$0.16***	***$0.41***	***$0.29***	***$0.05***	***$0.38***	***$1.36***	***$0.42***	***$1.53***	***$3.30***
NN0016	$0.09	$0.09	$0.08	$1.09	$0.00	$0.72	$0.31	$2.37	$0.42	$2.30	$5.09
NN0017	***$0.03***	***$0.02***	***$0.07***	***$0.35***	***$0.02***	***$0.11***	***$1.48***	***$2.07***	***$0.21***	***$0.29***	***$2.57***
NN0019	$0.03	$0.01	$0.09	$0.37	$0.02	$0.25	$1.17	$1.96	$0.36	$0.72	$3.03
NN0020	$0.10	$0.03	$0.12	$0.64	$0.01	$0.17	$0.51	$1.58	$1.00	$1.11	$3.68
NN0021	$0.06	$0.03	$0.22	$0.60	$0.03	$0.14	$0.38	$1.45	$0.36	$1.42	$3.23
NN0022	***$0.13***	***$0.10***	***$0.00***	***$0.65***	***$0.03***	***$0.42***	***$0.93***	***$2.26***	***$0.28***	***$0.91***	***$3.45***
NN0023	$0.14	$0.00	$0.13	$1.02	$0.00	$0.44	$0.08	$1.81	$0.23	$2.44	$4.48
NN0024	$0.05	$0.01	$0.11	$0.33	$0.03	$0.16	$0.97	$1.67	$0.33	$1.11	$3.10
NN0025	$0.10	$0.07	$0.10	$0.19	$0.01	$0.20	$1.05	$1.73	$0.54	$0.80	$3.06
NN0026	$0.11	$0.05	$0.15	$0.62	$0.03	$0.17	$0.20	$1.33	$0.30	$2.71	$4.34
Average	**$0.06**	**$0.04**	**$0.10**	**$0.58**	**$0.03**	**$0.21**	**$0.94**	**$1.96**	**$0.38**	**$1.24**	**$3.58**
Top 25%*	**$0.06**	**$0.05**	**$0.07**	**$0.48**	**$0.07**	**$0.15**	**$1.01**	**$1.89**	**$0.30**	**$0.89**	**$3.08**

* The Top 25% are bold and italicised

Table B6 Variable costs % – North

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	1.4%	3.1%	0.0%	1.6%	2.9%	9.0%	6.0%	0.7%	1.6%
NN0003	2.5%	1.8%	1.8%	2.8%	1.0%	9.8%	9.1%	0.0%	5.4%
NN0004	0.9%	1.6%	0.0%	1.7%	1.4%	5.6%	6.1%	0.2%	3.6%
NN0005	***1.7%***	***3.4%***	***0.0%***	***1.8%***	***2.1%***	***8.9%***	***9.6%***	***2.4%***	***4.4%***
NN0006	2.3%	3.2%	0.2%	1.6%	1.6%	8.9%	5.0%	3.5%	1.3%
NN0007	***0.7%***	***2.5%***	***0.0%***	***0.4%***	***1.7%***	***5.3%***	***1.7%***	***6.5%***	***2.0%***
NN0008	1.9%	1.8%	0.0%	0.7%	2.4%	6.8%	5.8%	0.5%	1.7%
NN0009	2.0%	4.1%	0.0%	1.7%	1.6%	9.4%	3.9%	3.0%	2.5%
NN0011	***2.7%***	***2.2%***	***1.0%***	***2.8%***	***1.4%***	***10.0%***	***4.8%***	***8.9%***	***0.0%***
NN0016	0.0%	1.5%	0.3%	2.3%	3.3%	7.4%	6.2%	0.0%	5.0%
NN0017	***2.3%***	***2.9%***	***0.0%***	***1.8%***	***0.8%***	***7.9%***	***0.5%***	***7.4%***	***0.9%***
NN0019	1.4%	1.9%	0.0%	1.8%	2.1%	7.2%	12.0%	1.8%	1.0%
NN0020	0.3%	1.7%	0.0%	4.1%	4.6%	10.7%	5.8%	0.4%	3.8%
NN0021	0.6%	4.3%	0.1%	1.8%	1.7%	8.5%	4.2%	3.2%	2.9%
NN0022	***0.0%***	***2.6%***	***0.2%***	***2.1%***	***2.1%***	***7.1%***	***7.9%***	***0.6%***	***3.0%***
NN0023	2.6%	1.0%	0.0%	2.2%	1.5%	7.3%	6.4%	2.4%	2.0%
NN0024	3.1%	2.5%	0.5%	1.9%	1.0%	9.0%	12.4%	0.3%	4.2%
NN0025	2.7%	2.7%	1.8%	2.0%	2.9%	12.1%	7.3%	0.3%	4.7%
NN0026	2.4%	1.3%	0.3%	1.4%	1.8%	7.2%	2.1%	2.6%	0.0%
Average	**1.6%**	**2.4%**	**0.3%**	**1.9%**	**2.0%**	**8.3%**	**6.1%**	**2.4%**	**2.6%**
Top 25%*	**1.5%**	**2.7%**	**0.2%**	**1.8%**	**1.6%**	**7.8%**	**4.9%**	**5.2%**	**2.1%**

* The Top 25% are bold and italicised

Farm number	Fuel and oil	Pasture improvement/ cropping	Other feed costs	Fodder purchases	Grain/ concentrates/ other	Agistment costs	Total feed costs	Total variable costs
	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs
NN0002	2.7%	2.5%	0.2%	0.0%	24.3%	0.7%	38.7%	47.6%
NN0003	2.6%	8.1%	2.9%	0.0%	13.3%	6.3%	47.7%	57.6%
NN0004	1.1%	5.7%	0.4%	5.5%	22.1%	1.3%	45.9%	51.5%
NN0005	***1.0%***	***4.4%***	***1.8%***	***2.0%***	***19.7%***	***0.0%***	***45.3%***	***54.2%***
NN0006	1.0%	7.3%	0.3%	1.1%	23.2%	4.0%	46.5%	55.4%
NN0007	***1.0%***	***4.1%***	***2.5%***	***2.1%***	***33.1%***	***0.1%***	***53.0%***	***58.3%***
NN0008	0.2%	4.4%	0.9%	3.1%	26.4%	1.2%	44.3%	51.0%
NN0009	2.0%	2.9%	4.5%	6.1%	29.7%	0.0%	54.7%	64.0%
NN0011	***2.3%***	***2.6%***	***1.7%***	***0.0%***	***16.7%***	***0.0%***	***37.1%***	***47.1%***
NN0016	2.4%	2.1%	0.3%	0.0%	21.2%	0.0%	37.1%	44.5%
NN0017	***1.2%***	***2.0%***	***0.0%***	***9.6%***	***26.6%***	***6.9%***	***55.0%***	***62.9%***
NN0019	1.3%	5.1%	0.4%	0.2%	27.0%	0.0%	48.9%	56.1%
NN0020	1.2%	2.7%	0.0%	0.3%	32.0%	0.3%	46.5%	57.3%
NN0021	1.6%	5.4%	0.1%	0.0%	30.3%	0.0%	47.8%	56.3%
NN0022	***1.6%***	***0.7%***	***0.0%***	***2.1%***	***29.6%***	***0.0%***	***45.6%***	***52.7%***
NN0023	1.5%	1.5%	1.4%	0.0%	18.1%	0.0%	33.3%	40.6%
NN0024	1.6%	4.4%	3.8%	0.5%	21.2%	0.0%	48.4%	57.4%
NN0025	1.7%	2.5%	2.3%	5.9%	25.4%	0.0%	50.0%	62.1%
NN0026	1.3%	2.1%	0.4%	9.3%	30.9%	0.5%	49.2%	56.4%
Average	**1.5%**	**3.7%**	**1.3%**	**2.5%**	**24.8%**	**1.1%**	**46.1%**	**54.4%**
Top 25%*	**1.4%**	**2.7%**	**1.2%**	**3.2%**	**25.1%**	**1.4%**	**47.2%**	**55.0%**

* The Top 25% are bold and italicised

Table B7 Overhead costs – North

Farm number	Rates	Registration and insurance	Farm insurance	Repairs and maintenance	Bank charges	Other overheads	Employed labour	Total cash overheads	Depreciation	Imputed owner/ operator & family labour	Total overheads
	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs
NN0002	0.0%	1.3%	2.6%	6.9%	0.4%	3.2%	12.3%	26.7%	6.1%	19.6%	52.4%
NN0003	0.7%	0.0%	1.0%	2.8%	0.1%	2.9%	20.5%	28.0%	1.7%	12.7%	42.4%
NN0004	0.8%	0.3%	0.6%	12.0%	0.0%	1.2%	10.5%	25.4%	3.4%	19.7%	48.5%
NN0005	***0.6%***	***0.9%***	***0.6%***	***7.4%***	***0.0%***	***1.6%***	***19.2%***	***30.4%***	***5.3%***	***10.0%***	***45.8%***
NN0006	0.3%	0.1%	1.7%	8.7%	0.4%	2.1%	13.4%	26.7%	4.7%	13.1%	44.6%
NN0007	***0.6%***	***0.7%***	***1.3%***	***6.5%***	***0.0%***	***0.9%***	***13.2%***	***23.2%***	***3.1%***	***15.4%***	***41.7%***
NN0008	0.0%	1.5%	0.0%	9.9%	0.0%	0.7%	31.4%	43.5%	5.4%	0.0%	49.0%
NN0009	0.4%	0.2%	1.2%	5.3%	0.5%	1.3%	8.8%	17.7%	5.1%	13.2%	36.0%
NN0011	***0.8%***	***0.3%***	***2.5%***	***6.6%***	***4.6%***	***0.8%***	***6.2%***	***21.8%***	***6.7%***	***24.5%***	***52.9%***
NN0016	0.9%	0.9%	0.9%	11.9%	0.0%	7.8%	3.4%	25.8%	4.5%	25.2%	55.5%
NN0017	***0.4%***	***0.3%***	***1.0%***	***5.1%***	***0.3%***	***1.5%***	***21.3%***	***29.9%***	***3.0%***	***4.2%***	***37.1%***
NN0019	0.5%	0.2%	1.4%	5.4%	0.3%	3.6%	16.9%	28.3%	5.2%	10.4%	43.9%
NN0020	1.1%	0.3%	1.4%	7.5%	0.1%	2.0%	5.9%	18.3%	11.6%	12.9%	42.7%
NN0021	0.8%	0.4%	2.9%	8.2%	0.3%	1.9%	5.2%	19.6%	4.9%	19.2%	43.7%
NN0022	***1.8%***	***1.4%***	***0.0%***	***8.9%***	***0.4%***	***5.7%***	***12.7%***	***31.0%***	***3.9%***	***12.4%***	***47.3%***
NN0023	1.8%	0.0%	1.7%	13.5%	0.0%	5.9%	1.1%	24.0%	3.0%	32.3%	59.4%
NN0024	0.7%	0.2%	1.5%	4.6%	0.4%	2.2%	13.3%	22.9%	4.5%	15.2%	42.6%
NN0025	1.3%	0.9%	1.2%	2.3%	0.2%	2.5%	13.0%	21.4%	6.7%	9.9%	37.9%
NN0026	1.1%	0.5%	1.5%	6.3%	0.3%	1.7%	2.0%	13.4%	3.0%	27.2%	43.6%
Average	**0.8%**	**0.5%**	**1.3%**	**7.4%**	**0.4%**	**2.6%**	**12.1%**	**25.2%**	**4.8%**	**15.6%**	**45.6%**
Top 25%*	**0.9%**	**0.7%**	**1.1%**	**6.9%**	**1.1%**	**2.1%**	**14.5%**	**27.3%**	**4.4%**	**13.3%**	**45.0%**

* The Top 25% are bold and italicised

Table B8 Capital structure – North

	Farm Assets				Other farm assets (per usable hectare)				
	Land value	Land value	Permanent water value	Permanent water value	Plant and equipment	Livestock	Hay and grain	Other assets	Total assets
	$/ha	$/cow	$/ha	$/cow	$/ha	$/ha	$/ha	$/ha	$/ha
Average	*$18,726*	*$12,198*	*$4,356*	*$2,571*	*$2,330*	*$3,230*	*$232*	*$356*	*$22,975*
*Top 25%**	*$19,774*	*$9,608*	*$7,539*	*$3,549*	*$2,254*	*$3,307*	*$195*	*$735*	*$24,183*

	Liabilities		Equity	
	Liabilities per usable hectare	Liabilities per milking cow	Equity per usable hectare	Average equity
	$/ha	$/cow	$/ha	%
Average	*$5,247*	*$3,671*	*$17,728*	*78%*
*Top 25%**	*$5,104*	*$3,239*	*$19,078*	*78%*

Table B9 Historical data – North
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	$7.71	$8.04	$8.69	$0.35	$0.38	$0.29	$0.32	$3.17	$3.43	$3.81	$4.12
2012–13	$6.83	$7.21	$7.46	$7.88	$0.33	$0.35	$0.32	$0.34	$3.34	$3.53	$4.00	$4.22
2013–14	$7.17	$7.35	$8.01	$8.21	$0.30	$0.30	$0.37	$0.38	$3.68	$3.77	$4.35	$4.46
2014–15	$7.62	$7.70	$8.61	$8.70	$0.35	$0.35	$0.36	$0.36	$3.78	$3.81	$4.48	$4.53
2015–16	$7.65	$7.65	$8.46	$8.46	$0.34	$0.34	$0.31	$0.31	$3.61	$3.61	$4.26	$4.26
Average		**$7.52**		**$8.39**		**$0.34**		**$0.34**		**$3.63**		**$4.32**

Note: 'Real' dollar values are the nominal values converted to 2014–15 dollar equivalents by the consumer price index (CPI) to allow for inflation

Overhead costs							Profit							
	Cash overhead costs		Non-cash overhead costs		Total overhead costs		Earnings before interest & tax		Interest & 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 assets	Return on equity
2011–12	$1.76	$1.91	$1.44	$1.56	$3.20	$3.46	$1.03	$1.11	$0.45	$0.48	$0.58	$0.63	3.0%	2.2%
2012–13	$1.99	$2.10	$1.26	$1.33	$3.25	$3.43	$0.22	$0.23	$0.58	$0.61	–$0.36	–$0.38	0.7%	–1.6%
2013–14	$2.02	$2.08	$1.34	$1.37	$3.36	$3.45	$0.29	$0.30	$0.64	$0.65	–$0.34	–$0.35	0.8%	–1.7%
2014–15	$1.87	$1.89	$1.45	$1.46	$3.31	$3.35	$0.82	$0.83	$0.63	$0.64	$0.19	$0.19	1.9%	0.4%
2015–16	$1.96	$1.96	$1.62	$1.62	$3.58	$3.58	$0.62	$0.62	$0.53	$0.53	$0.09	$0.09	1.6%	–0.1%
Average		**$1.99**		**$1.47**		**$3.45**		**$0.62**		**$0.58**		**$0.03**	**1.6%**	**–0.2%**

Table B10 Historical data – North
Average farm physical information

	Total usable area	Milking area	Water used	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	mm/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	1,398	300	1.3	461	598	5.9	1.8	62%	$307	$332
2012–13	335	130	1,323	361	1.3	460	615	7.4	1.4	58%	$335	$354
2013–14	231	102	974	272	1.2	471	590	5.8	1.2	60%	$444	$455
2014–15	215	95	1,430	259	1.3	477	606	6.4	1.8	59%	$434	$438
2015–16	210	94	1,139	289	1.4	463	636	5.9	2.3	52%	$401	$401
Average	**248**	**106**	**1,253**	**296**	**1.3**	**466**	**609**	**6.3**	**1.7**	**58%**		**$343**

* 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 – South

Farm number	Milk income (net)	All other income	Gross farm income	Total variable costs	Total over-head costs	Cost structure (variable costs/ total costs)	Earnings before interest and tax	Return on assets (exc. capital apprec.)	Interest and lease charges	Debt servic-ing ratio	Net farm income	Return on equity	Return on equity (inc. capital apprec.)
	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	%	$/kg MS	%	$/kg MS	% of inome	$/kg MS	%	%
SN0002	$7.76	$1.63	$9.38	$4.35	$2.89	60%	$2.14	2.9%	$0.98	10.5%	$1.16	3.6%	2.8%
SN0004	$7.51	$1.65	$9.16	$3.85	$3.66	51%	$1.65	1.7%	$0.36	4.0%	$1.29	1.8%	1.8%
SN0005	$7.60	$1.25	$8.85	$3.40	$2.27	60%	$3.18	3.2%	$0.63	7.2%	$2.54	3.3%	–1.0%
SN0006	$7.85	$1.16	$9.01	$4.16	$3.52	54%	$1.33	3.3%	$1.00	11.1%	$0.33	2.0%	2.0%
SN0007	***$7.77***	***$0.80***	***$8.58***	***$4.59***	***$1.88***	***71%***	***$2.11***	***9.2%***	***$0.47***	***5.5%***	***$1.64***	***9.9%***	***7.5%***
SN0009	$6.54	$1.47	$8.01	$4.09	$2.50	62%	$1.42	3.9%	$0.94	11.7%	$0.49	2.5%	0.6%
SN0010	$6.22	–$1.01	$5.22	$2.72	$2.56	52%	–$0.06	–0.3%	$0.28	5.4%	–$0.34	–2.1%	–2.0%
SN0012	***$7.27***	***$0.69***	***$7.96***	***$2.95***	***$3.13***	***49%***	***$1.89***	***8.0%***	***$0.48***	***6.0%***	***$1.41***	***12.0%***	***12.4%***
SN0013	***$7.15***	***$0.24***	***$7.39***	***$2.24***	***$1.51***	***60%***	***$3.64***	***13.5%***	***$0.64***	***8.7%***	***$3.00***	***20.6%***	***20.6%***
SN0014	$5.83	–$0.14	$5.69	$4.07	$1.95	68%	–$0.34	–2.0%	$0.45	7.9%	–$0.78	–8.2%	–8.5%
SN0016	$6.69	$1.15	$7.84	$2.95	$3.79	44%	$1.11	3.6%	$0.34	4.3%	$0.77	3.3%	3.3%
SN0017	$6.60	$0.36	$6.96	$3.18	$3.28	49%	$0.50	1.0%	$0.00	0.0%	$0.50	1.0%	1.0%
SN0018	$5.66	$2.21	$7.88	$2.24	$3.47	39%	$2.17	2.9%	$0.55	6.9%	$1.62	2.7%	2.7%
SN0019	$7.78	$1.00	$8.78	$4.66	$2.50	65%	$1.61	5.4%	$1.32	15.0%	$0.29	2.4%	2.7%
SN0020	***$7.93***	***$1.01***	***$8.94***	***$3.69***	***$1.64***	***69%***	***$3.61***	***11.5%***	***$0.32***	***3.6%***	***$3.29***	***13.3%***	***13.4%***
SN0021	$5.36	$2.09	$7.46	$3.97	$1.99	67%	$1.50	6.7%	$0.04	0.6%	$1.46	6.8%	4.8%
Average	**$6.97**	**$0.97**	**$7.94**	**$3.57**	**$2.66**	**57%**	**$1.72**	**4.7%**	**$0.55**	**6.8%**	**$1.17**	**4.7%**	**4.0%**
Top 25%*	**$7.53**	**$0.69**	**$8.22**	**$3.37**	**$2.04**	**62%**	**$2.81**	**10.5%**	**$0.48**	**6.0%**	**$2.33**	**14.0%**	**13.5%**

* The Top 25% are bold and italicised

Table C2 Physical information – South

Farm number	Total usable area	Milking area	Water used	Number of milking cows	Milking cows per usable area	Milk sold	Milk sold	Fat	Protein
	ha	ha	mm/ha	hd	hd/ha	kg MS/ cow	kg MS/ha	%	%
SN0002	242	80	1,367	276	1.1	552	629	3.9%	3.4%
SN0004	159	125	1,487	140	0.9	568	500	4.0%	3.2%
SN0005	287	141	1,573	260	0.9	586	531	3.9%	3.2%
SN0006	281	71	1,329	315	1.1	487	546	3.8%	3.2%
SN0007	***808***	***280***	***910***	***1,276***	***1.6***	***613***	***968***	***3.9%***	***3.2%***
SN0009	280	156	645	243	0.9	625	542	3.9%	3.3%
SN0010	389	167	613	387	1.0	626	622	3.9%	3.4%
SN0012	***318***	***101***	***693***	***300***	***0.9***	***614***	***579***	***3.9%***	***3.2%***
SN0013	***326***	***60***	***690***	***220***	***0.7***	***450***	***304***	***4.4%***	***3.6%***
SN0014	430	185	660	360	0.8	617	516	4.1%	3.4%
SN0016	430	277	1,055	422	1.0	452	444	4.1%	3.4%
SN0017	160	80	1,068	132	0.8	538	443	4.3%	3.4%
SN0018	368	140	959	195	0.5	558	296	4.3%	3.3%
SN0019	175	100	1,566	400	2.3	481	1,099	3.7%	3.2%
SN0020	***383***	***219***	***1,204***	***630***	***1.6***	***566***	***930***	***3.3%***	***3.1%***
SN0021	1,030	434	760	1,250	1.2	498	604	4.9%	3.9%
Average	**379**	**164**	**1,036**	**425**	**1.1**	**552**	**597**	**4.0%**	**3.3%**
Top 25%*	**459**	165	874	**607**	**1.2**	**560**	**695**	**3.9%**	**3.3%**

* The Top 25% are bold and italicised

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	8.7	0.0	44%	121.0	52.3	54.3	30.1	57	31,259
SN0004	3.5	1.4	59%	29.1	7.4	9.2	11.2	54	30,895
SN0005	5.7	2.3	55%	31.8	6.6	12.2	9.1	79	46,369
SN0006	9.9	0.0	57%	68.2	1.0	3.2	1.2	72	35,088
SN0007	***16.2***	***0.8***	***60%***	***193.3***	***14.6***	***8.1***	***17.2***	***104***	***63,520***
SN0009	0.6	2.4	46%	53.5	11.9	0.0	0.9	70	43,859
SN0010	4.7	4.1	47%	75.4	29.7	0.0	19.2	65	40,617
SN0012	***8.5***	***2.7***	***61%***	***46.0***	***13.9***	***0.0***	***13.9***	***58***	***35,415***
SN0013	***9.7***	***0.0***	***62%***	***0.0***	***0.0***	***0.0***	***0.0***	***155***	***69,695***
SN0014	5.0	0.9	52%	109.8	36.0	15.5	9.4	74	45,843
SN0016	3.4	2.1	57%	19.2	7.1	6.8	2.7	65	29,298
SN0017	2.5	4.4	63%	25.9	7.5	19.0	8.7	61	32,685
SN0018	4.6	3.5	84%	35.2	11.5	4.1	10.8	54	29,925
SN0019	5.3	3.4	43%	252.1	31.1	49.0	20.1	103	49,307
SN0020	***8.8***	***0.5***	***55%***	***109.4***	***0.0***	***32.6***	***0.0***	***97***	***54,919***
SN0021	7.1	2.1	70%	173.9	18.2	23.1	8.5	124	61,767
Average	**6.5**	**1.9**	**57%**	**84.0**	**15.5**	**14.8**	**10.2**	**81**	**43,779**
Top 25%*	**10.8**	**1.0**	**60%**	**87.2**	**7.1**	**10.2**	**7.8**	**103**	**55,887**

* The Top 25% are bold and italicised

Table C3 Purchased feed – South

Farm number	Purchased feed per milker	Concentrate price	Silage price	Hay price	Other feed price	Average purchased feed price	Average ME of purchased feed	Average purchased feed price	Percent of total energy imported
	t DM/hd	$/t DM	$/t DM	$/t DM	$/t DM	$/t DM	MJ ME/kg	c/MJ	% of ME
SN0002	4.1	$444		$344		$414	11.7	3.7	56%
SN0004	3.2	$403		$325		$391	12.2	3.3	41%
SN0005	3.6	$394		$280		$361	11.9	3.2	45%
SN0006	2.3	$485		$394		$481	12.3	4.0	43%
SN0007	***3.0***	***$356***		***$260***		***$338***	***12.3***	***2.9***	***40%***
SN0009	4.5	$363		$206	$123	$322	12.2	2.7	54%
SN0010	2.0	$348		$256		$341	12.4	2.8	53%
SN0012	***3.3***	***$330***	***$231***	***$219***		***$301***	***11.5***	***2.7***	***39%***
SN0013	***2.2***	***$283***		***$235***		***$270***	***11.2***	***2.5***	***38%***
SN0014	2.5	$380	$106		$270	$332	11.7	2.9	48%
SN0016	2.1	$378		$278		$367	12.6	3.0	43%
SN0017	1.8	$519				$519	12.5	4.2	37%
SN0018	1.3	$310				$310	12.8	2.4	16%
SN0019	3.2	$377		$282	$311	$366	12.2	3.1	57%
SN0020	***3.3***	***$428***		***$418***		***$425***	***11.5***	***3.9***	***45%***
SN0021	1.6	$318				$318	12.8	2.5	30%
Average	**2.7**	**$382**	**$168**	**$292**	**$235**	**$366**	**12.1**	**3.1**	**43%**
Top 25%*	**2.9**	**$349**	**$0**	**$0**	**$0**	**$333**	**11.6**	**3.0**	**40%**

* The Top 25% are bold and italicised

Table C4 Variable costs – South

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	$0.13	$0.13	$0.07	$0.05	$0.23	$0.60	$0.37	$0.04	$0.00
SN0004	$0.16	$0.26	$0.10	$0.09	$0.11	$0.71	$0.18	$0.00	$0.10
SN0005	$0.04	$0.16	$0.07	$0.08	$0.08	$0.43	$0.17	$0.04	$0.12
SN0006	$0.15	$0.23	$0.19	$0.19	$0.15	$0.91	$0.26	$0.01	$0.32
SN0007	***$0.17***	***$0.24***	***$0.29***	***$0.07***	***$0.24***	***$1.00***	***$0.40***	***$0.25***	***$0.00***
SN0009	$0.24	$0.20	$0.01	$0.18	$0.12	$0.74	$0.20	$0.09	$0.09
SN0010	$0.18	$0.12	$0.00	$0.07	$0.07	$0.44	$0.34	$0.17	$0.18
SN0012	***$0.15***	***$0.10***	***$0.08***	***$0.07***	***$0.04***	***$0.44***	***$0.21***	***$0.27***	***$0.04***
SN0013	***$0.00***	***$0.01***	***$0.01***	***$0.09***	***$0.16***	***$0.27***	***$0.00***	***$0.34***	***$0.04***
SN0014	$0.11	$0.21	$0.12	$0.08	$0.08	$0.61	$0.44	$0.83	$0.18
SN0016	$0.10	$0.09	$0.06	$0.05	$0.08	$0.38	$0.18	$0.18	$0.14
SN0017	$0.08	$0.08	$0.06	$0.06	$0.09	$0.37	$0.27	$0.20	$0.27
SN0018	$0.17	$0.09	$0.00	$0.09	$0.06	$0.41	$0.37	$0.36	$0.17
SN0019	$0.23	$0.26	$0.00	$0.06	$0.25	$0.81	$0.29	$0.11	$0.23
SN0020	***$0.09***	***$0.12***	***$0.14***	***$0.09***	***$0.14***	***$0.58***	***$0.18***	***$0.00***	***$0.06***
SN0021	$0.05	$0.11	$0.00	$0.10	$0.06	$0.32	$0.43	$1.01	$0.50
Average	**$0.13**	**$0.15**	**$0.07**	**$0.09**	**$0.12**	**$0.56**	**$0.27**	**$0.24**	**$0.15**
Top 25%*	**$0.10**	**$0.11**	**$0.13**	**$0.08**	**$0.14**	**$0.57**	**$0.20**	**$0.22**	**$0.04**

* The Top 25% are bold and italicised

Farm number	Fuel and oil	Pasture improvement/ cropping	Other feed costs	Fodder purchases	Grain/ concentrates/ other	Agistment costs	Total feed costs	Total variable costs
	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS	$/kg MS
SN0002	$0.15	$0.05	$0.00	$0.78	$2.30	$0.05	$3.75	$4.35
SN0004	$0.19	$0.18	$0.00	$0.35	$2.04	$0.09	$3.14	$3.85
SN0005	$0.06	$0.16	$0.00	$0.56	$1.74	$0.11	$2.96	$3.40
SN0006	$0.16	$0.10	$0.00	$0.20	$2.20	$0.00	$3.26	$4.16
SN0007	***$0.04***	***$0.47***	***$0.78***	***$0.24***	***$1.42***	***$0.00***	***$3.58***	***$4.59***
SN0009	$0.15	$0.14	$0.24	$0.27	$2.10	$0.09	$3.35	$4.09
SN0010	$0.12	$0.20	$0.15	$0.06	$1.02	$0.03	$2.28	$2.72
SN0012	***$0.17***	***$0.15***	***$0.03***	***$0.33***	***$1.31***	***$0.00***	***$2.51***	***$2.95***
SN0013	***$0.10***	***$0.04***	***$0.00***	***$0.37***	***$1.08***	***$0.00***	***$1.97***	***$2.24***
SN0014	$0.08	$0.27	$0.03	$0.05	$1.36	$0.23	$3.47	$4.07
SN0016	$0.02	$0.15	$0.00	$0.23	$1.65	$0.00	$2.57	$2.95
SN0017	$0.08	$0.15	$0.00	$0.00	$1.84	$0.00	$2.81	$3.18
SN0018	$0.12	$0.10	$0.01	$0.00	$0.70	$0.00	$1.83	$2.24
SN0019	$0.08	$0.32	$0.11	$0.18	$2.28	$0.26	$3.85	$4.66
SN0020	***$0.06***	***$0.11***	***$0.00***	***$0.80***	***$1.90***	***$0.00***	***$3.11***	***$3.69***
SN0021	$0.15	$0.38	$0.05	$0.00	$1.01	$0.12	$3.65	$3.97
Average	**$0.11**	**$0.19**	**$0.09**	**$0.28**	**$1.62**	**$0.06**	**$3.01**	**$3.57**
Top 25%*	**$0.09**	**$0.19**	**$0.20**	**$0.43**	**$1.43**	**$0.00**	**$2.79**	**$3.37**

* The Top 25% are bold and italicised

Table C5 Overhead costs – South

Farm number	Rates	Registration and insurance	Farm insurance	Repairs and maintenance	Bank charges	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	$/kg MS
SN0002	$0.12	$0.02	$0.08	$0.16	$0.00	$0.08	$0.87	$1.33	$0.41	$1.15	$2.89
SN0004	$0.13	$0.12	$0.10	$0.53	$0.02	$0.23	$0.71	$1.83	$0.48	$1.35	$3.66
SN0005	$0.11	$0.02	$0.05	$0.22	$0.01	$0.12	$0.66	$1.19	$0.40	$0.69	$2.27
SN0006	$0.04	$0.07	$0.17	$0.49	$0.26	$0.15	$1.56	$2.73	$0.51	$0.28	$3.52
SN0007	***$0.02***	***$0.01***	***$0.01***	***$0.33***	***$0.00***	***$0.15***	***$1.16***	***$1.66***	***$0.21***	***$0.00***	***$1.88***
SN0009	$0.05	$0.02	$0.07	$0.43	$0.00	$0.11	$0.74	$1.42	$0.42	$0.66	$2.50
SN0010	$0.02	$0.04	$0.00	$0.49	$0.01	$0.06	$1.05	$1.66	$0.31	$0.58	$2.56
SN0012	***$0.03***	***$0.04***	***$0.08***	***$0.72***	***$0.04***	***$0.13***	***$0.81***	***$1.85***	***$0.47***	***$0.80***	***$3.13***
SN0013	***$0.05***	***$0.02***	***$0.10***	***$0.04***	***$0.02***	***$0.10***	***$0.24***	***$0.57***	***$0.26***	***$0.68***	***$1.51***
SN0014	$0.02	$0.03	$0.12	$0.23	$0.00	$0.17	$0.52	$1.10	$0.28	$0.58	$1.95
SN0016	$0.04	$0.01	$0.12	$0.39	$0.00	$0.05	$1.01	$1.63	$0.93	$1.22	$3.79
SN0017	$0.17	$0.01	$0.10	$0.53	$0.01	$0.08	$0.39	$1.29	$0.29	$1.70	$3.28
SN0018	$0.20	$0.06	$0.08	$0.48	$0.00	$0.14	$0.65	$1.61	$0.29	$1.58	$3.47
SN0019	$0.02	$0.07	$0.08	$0.34	$0.02	$0.26	$0.86	$1.66	$0.29	$0.56	$2.50
SN0020	***$0.09***	***$0.03***	***$0.04***	***$0.13***	***$0.00***	***$0.06***	***$0.59***	***$0.93***	***$0.14***	***$0.57***	***$1.64***
SN0021	$0.03	$0.01	$0.05	$0.52	$0.00	$0.04	$0.76	$1.41	$0.32	$0.25	$1.99
Average	**$0.07**	**$0.04**	**$0.08**	**$0.38**	**$0.03**	**$0.12**	**$0.79**	**$1.49**	**$0.37**	**$0.79**	**$2.66**
Top 25%*	**$0.05**	**$0.03**	**$0.06**	**$0.30**	**$0.02**	**$0.11**	**$0.70**	**$1.26**	**$0.27**	**$0.51**	**$2.04**

* The Top 25% are bold and italicised

Table C6 Variable costs % – South

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	1.8%	1.8%	0.9%	0.7%	3.2%	8.3%	5.2%	0.6%	0.0%
SN0004	2.2%	3.4%	1.3%	1.2%	1.4%	9.5%	2.4%	0.0%	1.3%
SN0005	0.7%	2.9%	1.2%	1.4%	1.5%	7.6%	3.0%	0.7%	2.1%
SN0006	2.0%	3.0%	2.4%	2.5%	1.9%	11.8%	3.4%	0.2%	4.1%
SN0007	***2.6%***	***3.7%***	***4.5%***	***1.1%***	***3.7%***	***15.5%***	***6.2%***	***3.8%***	***0.0%***
SN0009	3.6%	3.1%	0.1%	2.7%	1.8%	11.3%	3.0%	1.3%	1.3%
SN0010	3.4%	2.2%	0.0%	1.3%	1.4%	8.3%	6.4%	3.2%	3.4%
SN0012	***2.4%***	***1.6%***	***1.4%***	***1.2%***	***0.6%***	***7.2%***	***3.4%***	***3.4%***	***0.7%***
SN0013	***0.1%***	***0.2%***	***0.3%***	***2.5%***	***4.1%***	***7.3%***	***0.0%***	***9.1%***	***0.9%***
SN0014	1.8%	3.5%	2.0%	1.4%	1.3%	10.1%	7.2%	1.8%	3.0%
SN0016	1.5%	1.3%	0.9%	0.8%	1.2%	5.6%	2.7%	2.6%	2.1%
SN0017	1.2%	1.2%	1.0%	1.0%	1.4%	5.8%	4.2%	3.0%	4.2%
SN0018	3.0%	1.6%	0.0%	1.5%	1.0%	7.1%	6.6%	5.4%	2.9%
SN0019	3.3%	3.6%	0.0%	0.9%	3.6%	11.3%	4.0%	1.6%	3.2%
SN0020	***1.8%***	***2.2%***	***2.6%***	***1.7%***	***2.6%***	***10.9%***	***3.4%***	***0.0%***	***1.1%***
SN0021	0.9%	1.8%	0.0%	1.7%	0.9%	5.3%	7.2%	3.1%	8.4%
Average	**2.0%**	**2.3%**	**1.2%**	**1.5%**	**2.0%**	**8.9%**	**4.3%**	**2.5%**	**2.4%**
Top 25%*	**1.7%**	**1.9%**	**2.2%**	**1.6%**	**2.8%**	**10.2%**	**3.2%**	**4.1%**	**0.7%**

* The Top 25% are bold and italicised

Farm number	Fuel and oil	Pasture improvement/ cropping	Other feed costs	Fodder purchases	Grain/ concentrates/ other	Agistment costs	Total feed costs	Total variable costs
	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs
SN0002	2.1%	0.7%	0.0%	10.8%	31.7%	0.7%	51.8%	60.1%
SN0004	2.5%	2.4%	0.0%	4.7%	27.2%	1.2%	41.8%	51.3%
SN0005	1.1%	2.9%	0.0%	9.9%	30.6%	2.0%	52.3%	59.9%
SN0006	2.0%	1.4%	0.0%	2.6%	28.6%	0.0%	42.4%	54.2%
SN0007	***0.7%***	***7.2%***	***12.0%***	***3.7%***	***21.9%***	***0.0%***	***55.4%***	***70.9%***
SN0009	2.2%	2.1%	3.7%	4.1%	31.9%	1.3%	50.8%	62.1%
SN0010	2.3%	3.9%	2.9%	1.2%	19.3%	0.6%	43.2%	51.5%
SN0012	***2.8%***	***2.4%***	***0.5%***	***5.5%***	***21.6%***	***0.0%***	***41.3%***	***48.5%***
SN0013	***2.6%***	***1.2%***	***0.0%***	***9.8%***	***28.9%***	***0.0%***	***52.6%***	***59.8%***
SN0014	1.3%	4.5%	0.5%	0.9%	22.7%	3.8%	57.6%	67.6%
SN0016	0.4%	2.3%	0.0%	3.5%	24.6%	0.0%	38.1%	43.8%
SN0017	1.3%	2.4%	0.0%	0.0%	28.5%	0.0%	43.5%	49.3%
SN0018	2.2%	1.7%	0.2%	0.0%	12.3%	0.0%	32.0%	39.2%
SN0019	1.1%	4.5%	1.5%	2.5%	31.9%	3.6%	53.8%	65.1%
SN0020	***1.1%***	***2.1%***	***0.0%***	***14.9%***	***35.7%***	***0.0%***	***58.3%***	***69.2%***
SN0021	2.5%	6.5%	0.8%	0.0%	17.0%	2.1%	61.3%	66.7%
Average	**1.7%**	**3.0%**	**1.4%**	**4.6%**	**25.9%**	**1.0%**	**48.5%**	**57.5%**
Top 25%*	**1.8%**	**3.2%**	**3.1%**	**8.5%**	**27.0%**	**0.0%**	**51.9%**	**62.1%**

* The Top 25% are bold and italicised

Table C7 Overhead costs – South

Farm number	Rates	Registration and insurance	Farm insurance	Repairs and maintenance	Bank charges	Other overheads	Employed labour	Total cash overheads	Depreciation	Imputed owner/ operator & family labour	Total overheads
	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs
SN0002	1.6%	0.3%	1.1%	2.2%	0.0%	1.1%	12.1%	18.4%	5.6%	15.8%	39.9%
SN0004	1.7%	1.6%	1.4%	7.1%	0.3%	3.0%	9.4%	24.4%	6.3%	18.0%	48.7%
SN0005	1.9%	0.4%	0.9%	3.9%	0.2%	2.1%	11.6%	21.0%	7.0%	12.1%	40.1%
SN0006	0.5%	1.0%	2.2%	6.3%	3.4%	1.9%	20.3%	35.6%	6.6%	3.7%	45.8%
SN0007	***0.3%***	***0.2%***	***0.1%***	***5.0%***	***0.1%***	***2.3%***	***17.9%***	***25.7%***	***3.3%***	***0.0%***	***29.1%***
SN0009	0.8%	0.3%	1.0%	6.5%	0.1%	1.7%	11.2%	21.5%	6.3%	10.1%	37.9%
SN0010	0.4%	0.8%	0.0%	9.2%	0.2%	1.1%	19.9%	31.5%	5.9%	11.1%	48.5%
SN0012	***0.4%***	***0.7%***	***1.4%***	***11.8%***	***0.7%***	***2.1%***	***13.3%***	***30.5%***	***7.8%***	***13.2%***	***51.5%***
SN0013	***1.4%***	***0.5%***	***2.6%***	***1.0%***	***0.6%***	***2.6%***	***6.5%***	***15.2%***	***6.8%***	***18.1%***	***40.2%***
SN0014	0.4%	0.5%	2.0%	3.8%	0.0%	2.8%	8.7%	18.2%	4.6%	9.6%	32.4%
SN0016	0.7%	0.1%	1.9%	5.7%	0.0%	0.8%	15.1%	24.2%	13.9%	18.1%	56.2%
SN0017	2.7%	0.2%	1.6%	8.2%	0.1%	1.3%	6.0%	20.0%	4.5%	26.3%	50.7%
SN0018	3.5%	1.0%	1.4%	8.4%	0.0%	2.5%	11.4%	28.1%	5.0%	27.7%	60.8%
SN0019	0.3%	0.9%	1.2%	4.8%	0.3%	3.6%	12.0%	23.1%	4.0%	7.8%	34.9%
SN0020	***1.6%***	***0.5%***	***0.7%***	***2.5%***	***0.0%***	***1.1%***	***11.1%***	***17.5%***	***2.6%***	***10.7%***	***30.8%***
SN0021	0.5%	0.2%	0.9%	8.7%	0.0%	0.7%	12.7%	23.6%	5.4%	4.3%	33.3%
Average	**1.2%**	**0.6%**	**1.3%**	**5.9%**	**0.4%**	**1.9%**	**12.4%**	**23.7%**	**6.0%**	**12.9%**	**42.5%**
Top 25%*	**0.9%**	**0.5%**	**1.2%**	**5.1%**	**0.4%**	**2.0%**	**12.2%**	**22.2%**	**5.1%**	**10.5%**	**37.9%**

* The Top 25% are bold and italicised

Table C8 Capital structure – South

	Farm Assets				Other farm assets (per usable hectare)				
	Land value	Land value	Permanent water value	Permanent water value	Plant and equipment	Livestock	Hay and grain	Other assets	Total assets
	$/ha	$/cow	$/ha	$/cow	$/ha	$/ha	$/ha	$/ha	$/ha
Average	$19,971	$14,674	$1,890	$2,043	$2,004	$2,415	$344	$289	$21,193
Top 25%*	$10,069	$8,117	$1,291	$1,746	$1,622	$2,648	$86	$446	$16,645

	Liabilities		Equity	
	Liabilities per usable hectare	Liabilities per milking cow	Equity per usable hectare	Average equity
	$/ha	$/cow	$/ha	%
Average	$5,151	$4,647	$16,042	73%
Top 25%*	$4,111	$4,100	$12,534	69%

* The Top 25% are bold and italicised

Table C9 Historical data – Sorth
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	$7.18	$7.48	$8.08	$0.31	$0.34	$0.25	$0.27	$2.86	$3.09	$3.42	$3.70
2012–13	$6.03	$6.37	$6.95	$7.33	$0.32	$0.34	$0.24	$0.25	$3.01	$3.18	$3.57	$3.77
2013–14	$7.12	$7.30	$7.98	$8.18	$0.32	$0.32	$0.21	$0.22	$3.20	$3.28	$3.73	$3.82
2014–15	$7.28	$7.35	$8.25	$8.33	$0.30	$0.30	$0.21	$0.22	$3.28	$3.31	$3.79	$3.83
2015–16	$6.97	$6.97	$7.94	$7.94	$0.35	$0.35	$0.21	$0.21	$3.01	$3.01	$3.57	$3.57
Average		**$7.03**		**$7.97**		**$0.33**		**$0.23**		**$3.17**		**$3.74**

Note: 'Real' dollar values are the nominal values converted to 2015–16 dollar equivalents by the consumer price index (CPI) to allow for inflation

Overhead costs							Profit							
	Cash overhead costs		Non-cash overhead costs		Total overhead costs		Earnings before interest & tax		Interest & 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 assets	Return on equity
2011–12	$1.35	$1.46	$1.05	$1.14	$2.40	$2.60	$1.65	$1.78	$0.73	$0.79	$0.92	$1.00	5.5%	4.9%
2012–13	$1.44	$1.52	$1.12	$1.18	$2.56	$2.70	$0.81	$0.86	$0.66	$0.70	$0.15	$0.16	2.7%	0.5%
2013–14	$1.54	$1.58	$1.16	$1.19	$2.69	$2.76	$1.56	$1.60	$0.61	$0.63	$0.95	$0.97	4.8%	1.2%
2014–15	$1.52	$1.54	$1.02	$1.03	$2.55	$2.57	$1.91	$1.93	$0.56	$0.56	$1.35	$1.37	5.3%	5.7%
2015–16	$1.49	$1.49	$1.17	$1.17	$2.66	$2.66	$1.72	$1.72	$0.55	$0.55	$1.17	$1.17	4.7%	4.7%
Average		**$1.52**		**$1.14**		**$2.66**		**$1.58**		**$0.64**		**$0.93**	**4.6%**	**3.4%**

Table C10 Historical data – South
Average farm physical information

	Total usable area	Milking area	Water used	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	mm/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	1,142	450	1.5	495	728	6.8	0.9	52%	$301	$326
2012–13	323	151	805	337	1.1	523	601	6.5	1.2	55%	$311	$328
2013–14	381	139	765	350	1.0	541	546	6.2	1.0	54%	$377	$387
2014–15	372	165	1,076	430	1.1	540	597	6.7	1.8	57%	$389	$392
2015–16	379	164	1,036	425	1.1	552	597	6.5	1.9	57%	$382	$382
Average	**361**	**155**	**965**	**399**	**1.2**	**530**	**614**	**6.5**	**1.4**	**55%**		**$363**

* From 2006–07 to 2010–11estimated 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 income

Income to the farm from all sources except milk. Includes livestock trading profit, feed inventory change, dividends, interest payments received, and rent from farm cottages.

Appreciation

An increase in the value of an asset in the market place. 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 (ie 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 of production

The cost of producing the main product of the business; milk. Usually expressed in terms of the main enterprise output ie dollars per kilogram of milk solids. It is reported at the following levels;

- Cash cost of production; variable costs plus cash overhead costs
- Cost of production excluding inventory changes; variable costs plus cash and non-cash overhead costs
- Cost of production including inventory changes; variable costs plus cash and non-cash overhead costs, accounting for feed inventory change and livestock inventory change minus livestock purchases

Cost structure

Variable costs as a percentage of total costs, where total costs equals variable costs plus overhead costs.

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 & tax (EBIT)

Gross income minus total variable costs, total overhead costs.

EBIT %

The ratio of EBIT compared to gross income. Indicates the percentage of each dollar of gross income that is retained as EBIT.

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 %

Total equity as a percentage of the total assets managed. The proportion of the total assets owned by the business.

Farm income

See gross farm income.

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.

Finance costs

See interest and lease costs.

Full time equivalent (FTE)

Standardised labour unit. Equal to 2,400 hours a year. Calculated as 50 hours a week for 48 weeks a year.

Grazed area

Total usable area minus any area used only for fodder production during the year.

Grazed pasture

Calculated using the energetics method. Grazed pasture is calculated as the gap between total energy required by livestock over the year and amount of energy available from other sources (hay, silage, grain and concentrates).

Total energy required by livestock is a factor of; age, weight, growth rate, pregnancy and lactation requirements, distance to shed and terrain, and number of animals.

Total energy available is the sum of energy available from all feed sources except pasture, calculated as (weight (kg) x dry matter content (DM %) x metabolisable energy (MJ/ kg DM)).

Gross farm income

Farm income including milk sales, livestock and feed trading gains 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, valued at $28 per hour.

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 kilogram of milk solid. Measures of productivity of the total labour resources in the business.

Labour resource

Any person who works in the business, be they the owner, family, sharefarmer or employed on a permanent, part time or contract basis.

Liability

Money owed to someone else, eg 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. An increase in livestock trading indicates there was an appreciation of livestock or an increase in livestock numbers over the year.

Metabolisable energy

Energy available to livestock in feed, expressed in megajoules per kilogram of dry matter (MJ/kg DM).

Milk income

Income through the sales of milk. This is net of compulsory levies and charges.

Milking area

Total usable area minus out-blocks or run-off areas.

Net farm income

Previously reported as business profit. 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 external sources. Includes dividends, interest payments received, and rents from farm cottages.

Overhead costs

All fixed costs incurred by the farm business e.g. rates, administration, depreciation, insurance and imputed labour. Interest, leases, capital expenditure, principal repayments and tax are not included.

Real terms

Dollar values or interest rates that have no inflation component.

Return on assets (RoA)

Earnings before interest and tax divided by the value of total assets under management, including owned and leased land..

Return on equity (RoE)

Net farm income divided by the value of total equity.

Shed costs

Cost of shed power and dairy supplies such as filter socks, rubberware, vacuum pump oil etc.

Total usable area

Total hectares managed minus the area of land which is of little or no value for livestock production eg house and shed area.

Total water used

Total rainfall plus average irrigation water used expressed as millimetres per hectare, where irrigation water is calculated as; (total megalitres of water used/total usable area) x 100.

Variable costs

All costs that vary with the size of production in the enterprise eg herd, shed and feed costs.

List of abbreviations

AI	Artificial insemination
CH_4	Methane gas
CO_2	Carbon dioxide gas
CO_2-e	Carbon dioxide equivalent
CoP	Cost of production
DEDJTR	Department of Economics Development, Jobs, Transport and Resources, Victoria
DFMP	Dairy Farm Monitor Project
DM	Dry matter of feed stuffs
EBIT	Earnings before interest and tax
FTE	Full time equivalent
GWP	Global Warming Potential
ha	Hectares
hd	Head of cattle
HRWS	High Reliability Water Shares
kg	Kilograms
LRWS	Low Reliability Water Shares
ME	Metabolisable energy (MJ/kg)
MJ	Megajoules of energy
mm	Millimetres. 1 mm is equivalent to 4 points or 1/25th of an inch of rainfall
MS	Milk solids (proteins and fats)
N_2O	Nitrous oxide gas
Q1	First quartile, i.e. the value of which one quarter, or 25%, of data in that range is less than
Q3	Third quartile, i.e. the value of which one quarter, or 25%, of data in that range is greater than
RoA	Return on assets
RoE	Return on equity
t	Tonne = 1,000 kg

Standard values

Irrigation values

The standard values to estimate the inventory values of irrigation water for the Murray Irrigation system were

Category	Opening value ($/ML)	Closing value ($/ML)
Permanent water	$1,012	$1.012
Groundwater	$500	$500
Carry over water	$170	$170

Livestock values

The standard vales used to estimate the inventory values of livestock were

Category	Opening value ($/ML)	Closing value ($/ML)
Mature cows	$1,500	$1,500
13-14 heifers	$1,050	$1,500
14-15 heifers	$450	$1,050
15-16 calves		$450
14-15 bulls	$450	$750
13-14 bulls	$750	$1,500
Mature bulls	$1,500	$1,500

Imputed owner/operator and family labour

In 2015–16 the imputed owner/operator and family labour rate was $28/hr based on a full time equivalent (FTE) working 48 hours/week for 50 weeks of the year.

Dairy Australia
Your Levy at Work

Dairy Australia Limited ABN 60 105 227 987
Level 5, IBM Centre
60 City Road, Southbank VIC 3006 Australia
T + 61 3 96943777 F + 61 3 9694 3701
E enquiries@dairyaustralia.com.au
dairyaustralia.com.au

0758 | Nov 2016