Dairy Australia
Your Levy at Work

Dairy Farm Monitor Project

South Australia
annual report 2014–15

Acknowledgements

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The data in this report and the report itself have been produced by Chris Scheid and Lachie Hood, from ProAdvice, in conjunction with Natalie Nelson from the Victorian Department of Economic Development, Jobs, Transport and Resources.

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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 of the report is also discussed.

This report is presented in the following sections:

- Executive summary
- Farm monitor method
- State wide 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 South Australia. 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 2014/15 year. Data are presented for individual farms, as state averages and for the state top 25% of farms ranked by return on assets. 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 coloured bars in the state overview figures. Return on assets is the determinant 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, which is the value of which one quarter (75%) of data in that range is greater than the average. Therefore the middle 50% of data resides between the Q1–Q3 data range.

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

Milk production data is presented in kilograms of milk solids as farms are paid based on milk solids.

The report focusses on measures on a per kilogram of milk solids basis, with occasional reference to measures on a 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} × (100/1)] = [(40/80) × 100] = 0.5 × 100 = 50%, unless otherwise stated.

Any reference to 'last year' refers to the 2013/14 Dairy Farm Monitor Project report. Price and cost comparisons between years are nominal unless otherwise stated. While all of the participants (19) from the 2013/14 report were in the 2014/15 report, there is one new participant in this year's dataset. It is important to keep this in mind when comparing datasets between years.

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

What's new in 2014/15?

The Dairy Farm Monitor Report for 204/15 includes a number of changes since last year's report. The most significant is:

The pasture consumption calculations have been revised to now align with the DEDJTR Dairy Pasture Consumption Calculator available online at dairypastureconsumptioncalculator.com.au.

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

Summary

Summary

In 2014/15, the data from 20 participant farms in South Australia showed the average whole farm earnings before interest and tax (EBIT) of $217,956, a 33% decrease compared with the previous year. Return on assets was 3.9% compared to last year's 6.2%. Average milk solids sold per cow increased from 469 kg in 2013/14 to 581 kg this year.

This is the third year of the Dairy Farm Monitor Project in South Australia. The project aims to provide the South Australian dairy industry with valuable farm level data relating to profitability and production.

The lower average milk price received and challenging seasonal conditions resulted in lower profit performance in 2014/15. In response to these challenges, dairy farmers took advantage of a strong cattle market to reduce cow numbers, save future supplementary feed costs and focused on per cow and per hectare milk production.

The average milk price in 2014/15 was $6.35/kg MS, a 7.3% reduction on last year's price of $6.83/kg MS. Along with a lower average milk price, 'other income' (including inventory changes, livestock trading profit and other income), fell from $0.90/kg MS in 2013/14 to $0.67/kg MS this year. These were the key contributors to the 9.1% reduction in average dairy farm gross income of $7.03/kg MS from $7.74/kg MS in 2013/14.

The 9.1% reduction in gross farm income was partially compounded by a small increase (1.6%) in average cost of production. The stable average cost of production at least allowed dairy farmers a cash margin to continue to consolidate their business, attend to repairs and maintenance and make capital purchases.

With none of the 20 dairy farms in the project reporting average or above average rainfall, irrigators used their full water allocations to increase pasture and fodder production.

The tough seasonal conditions resulted in home grown pasture levels reducing and conserved fodder levels rising this year with the average estimated grazed pasture of 6.4 t DM/ha and 1.4 t DM/ha from conserved fodder. The lack of available pasture feed was supplemented by concentrates which again this year made up an average of 31% of total ME fed at a higher average cost of $364/t compared to $343/t last year.

Seasonal conditions resulting in poor pasture production, higher concentrate prices and to some degree high livestock prices moved dairy farmers to focus on per cow milk production. The average stocking rate in South Australia this year fell to 1.3 cows/ha compared to 1.4 cows/ha in 2013/14. Cow performance, also improved from last year's 468 kg MS/cow to 581 kg MS/cow. Similarly, per hectare performance increased from 660 kg milk solids sold in 2013/14 to 738 kg MS/ha sold this year.

The average earnings before interest and tax of $0.72/kg MS was lower than last year's $1.27/kg MS, but was well up on 2012/13 average of -$0.31/kg MS.

Input costs continue to remain a concern for dairy farmers with the average South Australian participants' average cost of production at $6.32/kg MS (a 1.6% increase from $6.22/kg MS in 2013/14). The top 25% achieved an average cost of production of $5.19/kg MS (a 2.6% decrease on 2013/14 $5.33/kg MS) or 17.8% lower than the average South Australian participant producer – a key determinant of being a top 25% dairy farmer in 2014/15.

The top 25% (as selected on highest return on asset) have an overall lower cost structure (22% lower) when compared to the average of all South Australian participants, with all costs (except herd costs) being equal to or lower than the average for South Australian participants.

Additionally, the top 25% have managed to maintain their variable costs at $3.35/kg MS (exactly the same as 2013/14). They spent lower average total overhead costs by 6.4%, from $2.02/kg MS in 2013/14 to $1.89/kg MS this year) and lower their average total overhead costs by 6.4%, from $2.02/kg MS in 2013/14 to $1.89/kg MS this year. Like the average South Australian participant, this reduction in total overhead costs was largely due to a decrease in imputed labour costs from $0.46/kg MS to $0.26/kg MS.

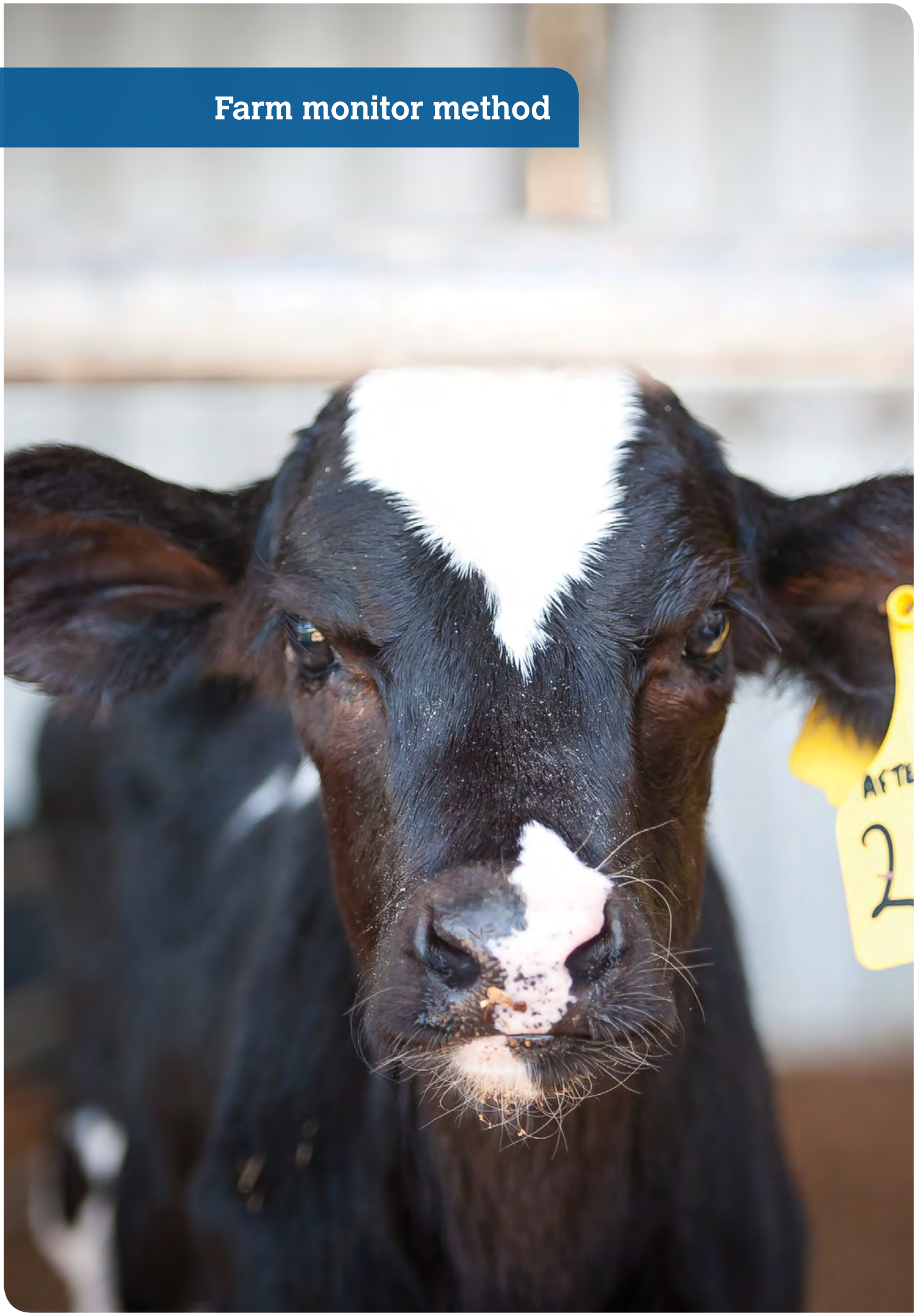
The top 25% farms and the South Autralian average spent the same amount on employed labour ($0.77/kg MS). Employed and imputed labour costs accounted for 54.2% of total overhead costs for the top 25% and 41.6% for the average South Australian participant.

Improved labour efficiency, better milk production per cow (613kg MS/cow compared to 471 kg MS/cow in 2013/14) and per hectare (1094 kg MS/ha compared to 857 kg MS/ha in 2013/14), along with lower costs of production are key indicators that distinguished the top 25% participants in 2014/15.

Expectations for 2015/16 are varied, with producers expecting milk price and production levels to remain the same as 2014/15. Seasonal variability, input costs, milk price and farm infrastructure are the main issues of concern facing farmers over the next 12-month period. Milk price, farm infrastructure and succession planning were the major long term issues facing South Australian dairy farmers.

Greenhouse gasses emitted by South Australian dairy farmers were 10.3 t $C0_2$ -e/t MS produced, down from last year's 12.6 t $C0_2$ -e/t MS produced. This was due mainly to the combined effect of reduced number of livestock held on farm and increased milk production.

Farm monitor method



Farm monitor method

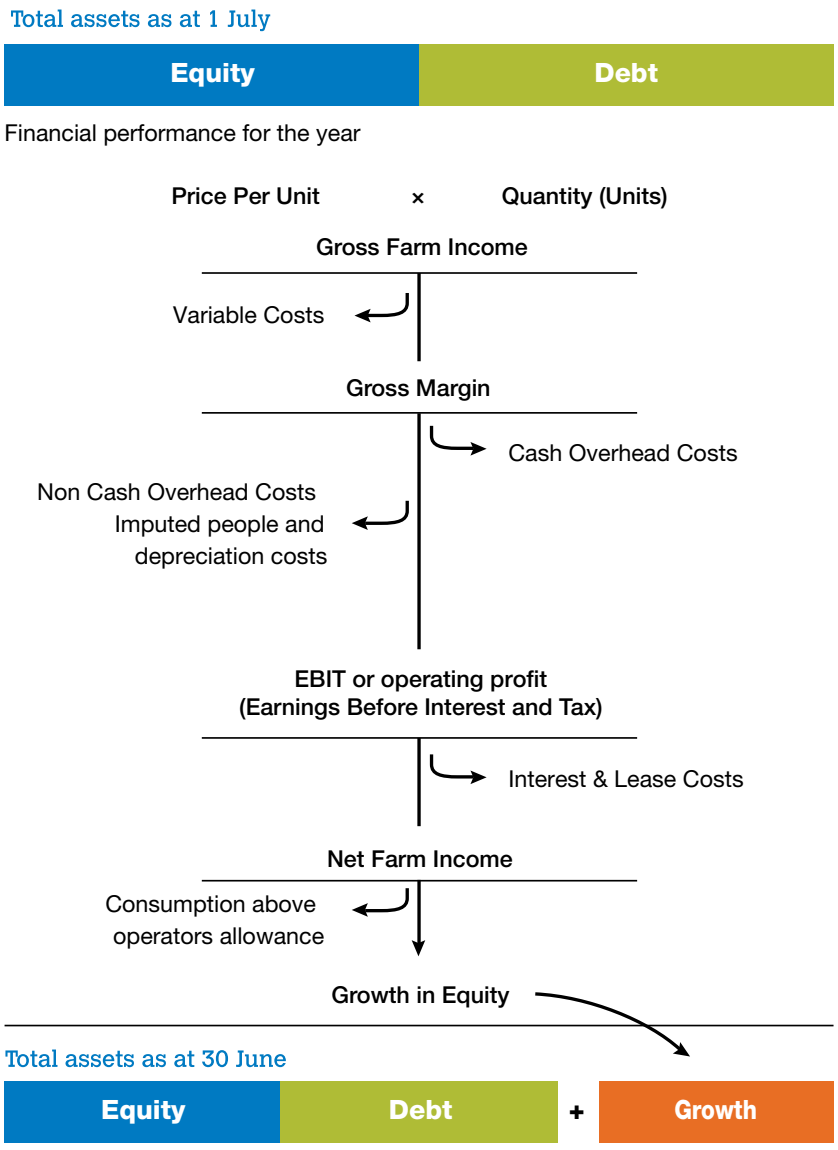
This chapter explains the methodology used in the Dairy Farm Monitor Project and defines the key terms used.

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 reports. Readers should be aware that not all benchmarking programs use the same methodology or terminology 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 total 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.

Figure 2 shows this methodology using the average for all participants in the project. Production and economic data is both shown 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 total 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 Dairy Farm Monitor Project 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

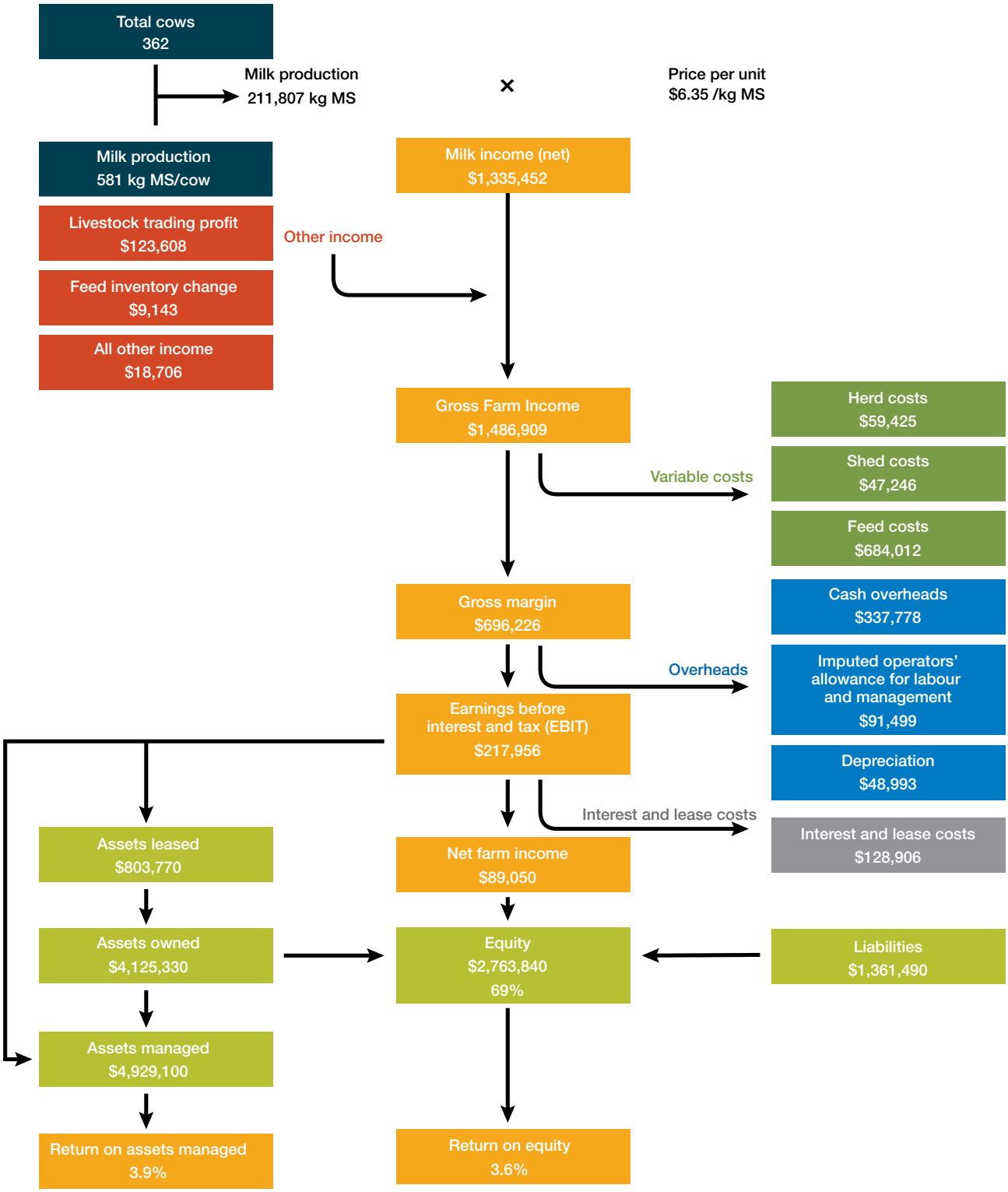
Two commonly used economic indicators of whole farm performance are return on assets and return on equity. They measure the return to their respective capital base.

Return on assets indicates the overall earning of the total farm assets, irrespective of capital structure of the business. It is EBIT or operating profit expressed as a percentage of the total assets under management in the farm business, including the value of leased assets. 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. Return on assets is sometimes referred to as return on capital. The return on equity including capital appreciation is reported in Appendix Table 1 for each region.

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 Dairy Farm Monitor Project reports return on equity with and without capital appreciation. This is to distinguish between productivity gains (return on equity without capital appreciation) and capital gains (return on equity with capital appreciation).

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



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

South Australian overview

South Australian dairy industry

South Australia represents approximately 5.3%, or 516.5 million litres, of the national output of milk in the Australian dairy industry.

The state's industry has a long history of high productivity and quality dairy produce. South Australia's milk has a record of high component values in terms of butterfat and protein which adds to its value in terms of product shelf-life and versatility to a processor.

There are three main dairying regions in South Australia. These are the Mid North, Central and South East as shown in Figure 3.

The Mid North including Barossa (shaded orange) is perhaps better known for its wine and crop production. There is, however, a thriving dairy industry in the region based on dryland systems supported by locally grown grain and hay. Milk production has increased in the past few years in response to favourable milk prices (2013/14 and 2014/15) and as dairy farmers actively aim to develop and fine tune their production and feeding regimes that their system is based upon.

The Central region (shaded blue) has three subregions – the Fleurieu Peninsula, River and Lakes and the Adelaide Hills. The Fleurieu Peninsula and Adelaide Hills traditionally have high average annual rainfalls and higher land values but they are predominantly dryland dairy farming areas. The number of farms in the area is contracting but total cow numbers and milk production are holding steady. These well-known and productive dairy regions are under increasing threat from urban encroachment and other competing land uses, making it difficult to achieve an acceptable return on total assets. However, the farmers in these regions remain committed to high quality milk and have productive herds.

Figure 3 South Australian dairying regions

The River and Lakes have a history of being affected by severe water restrictions particularly during the 2000s and drought times. These farms are more dependent on irrigation and natural water flows for fodder production and stock and domestic purposes than the Mid North, Fleurieu Peninsula and Adelaide Hills. The irregularity of Murray River flows during the 2000s has reduced the number of dairy farms in the region but numbers have now stabilised. Dairy farmers from the Rivers and Lakes are resilient and have had to develop more flexible, profitable dairy farming systems.

The South East of South Australia (shaded green) is regarded as an integral part of the future growth of the "South West Victorian" milk bowl. Its longer growing season (April to end November, or longer) and ready access to high quality underground water enables irrigation to extend the growing season and makes this region a premium dairying area in South Australia. This region produces over 60% of South Australia's milk.

There are a number of different dairying systems in South Australia. These have been developed by dairy farmers to take advantage of regional strengths. For example in the Mid North, River and Lakes regions of South Australia, the close proximity to South Australia's cereal zone has seen 'total (and 'partial') mixed rations' dairies rise in numbers. In the South East of South Australia, the best use of its regional strength – high quality underground water – sees predominantly irrigation and (mainly) grass based dairies, although concentrates still form an integral part of cow's diet.

It is important to recognise, that this report contains data from all the representative types of dairying systems available in South Australia and not one particular type.

2014/15 Seasonal conditions

The 2014/15 year was characterised by less favourable weather conditions across South Australia's dairy farming areas. In particular, the dry winter - spring of 2014 led to earlier use of irrigation in August in the south east of South Australia. Dairy farmers reacted to the lower spring rainfall by irrigating more and increasing their conserved fodder reserves by 150% (1.4 DM/ha in 2014/15 from 0.9 t DM/ha in 2013/14) to get them through the season.

Seasonal conditions were less than favourable across the dairy regions of South Australia during 2014/15. There were no farms that recorded average or above rainfall for this year (Figure 4).

The season started with a favourable April (2014) break followed by winter rainfall averages being well below long term averages (Figure 5). Drier conditions continued into winter and spring with monthly rainfall totals disappointingly below long term averages. This resulted in South Australian dairy farmers making earlier plans to conserve fodder which was required to be fed out throughout an expected dry summer and autumn.

The average conserved fodder yields (on the milking area) were 1.4 t DM/ha. This was a 150% increase from last year's 0.9 t DM/ha conserved fodder yield. The top 25% participants also increased fodder conserved by 87% (1.5 t DM/ha compared to 0.8 t DM/ha in 2013/14).

The early finish to spring had irrigation commencing as early as August in the South East of South Australia. As per the previous year, irrigators used their full water allocations to increase pasture and fodder production.

Figure 4 2014/15 annual rainfall and long term average rainfall of participant farmers

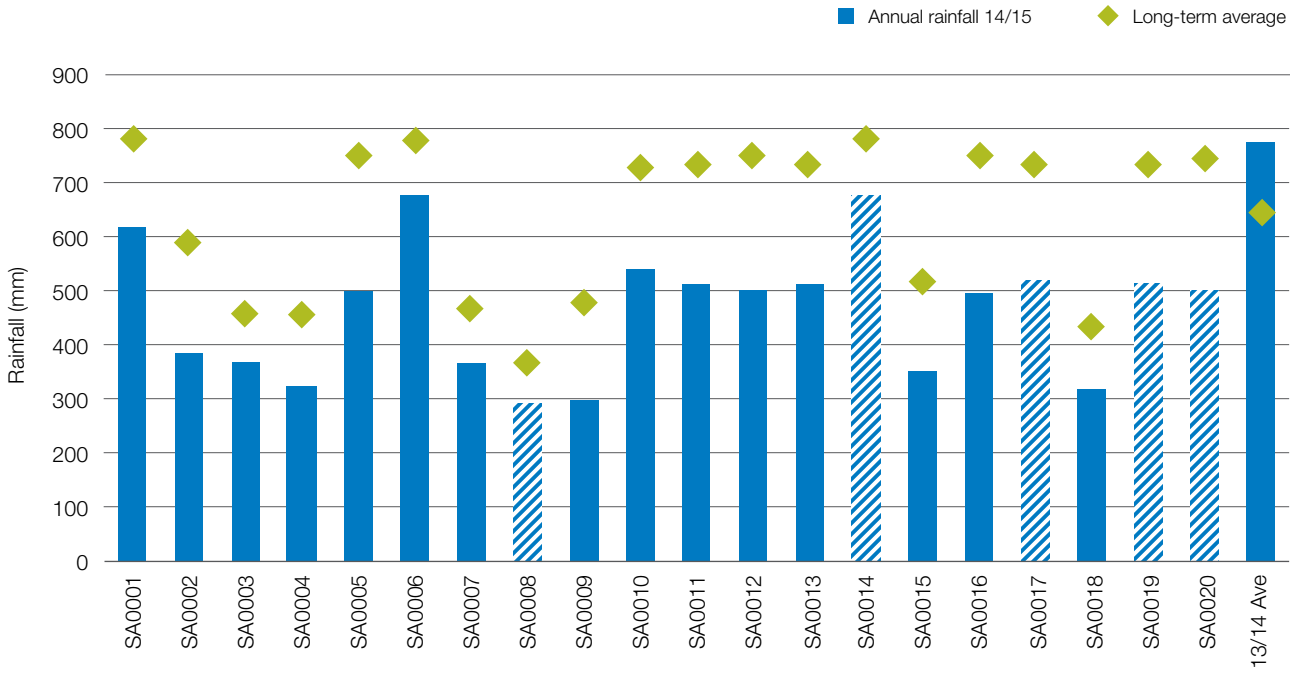
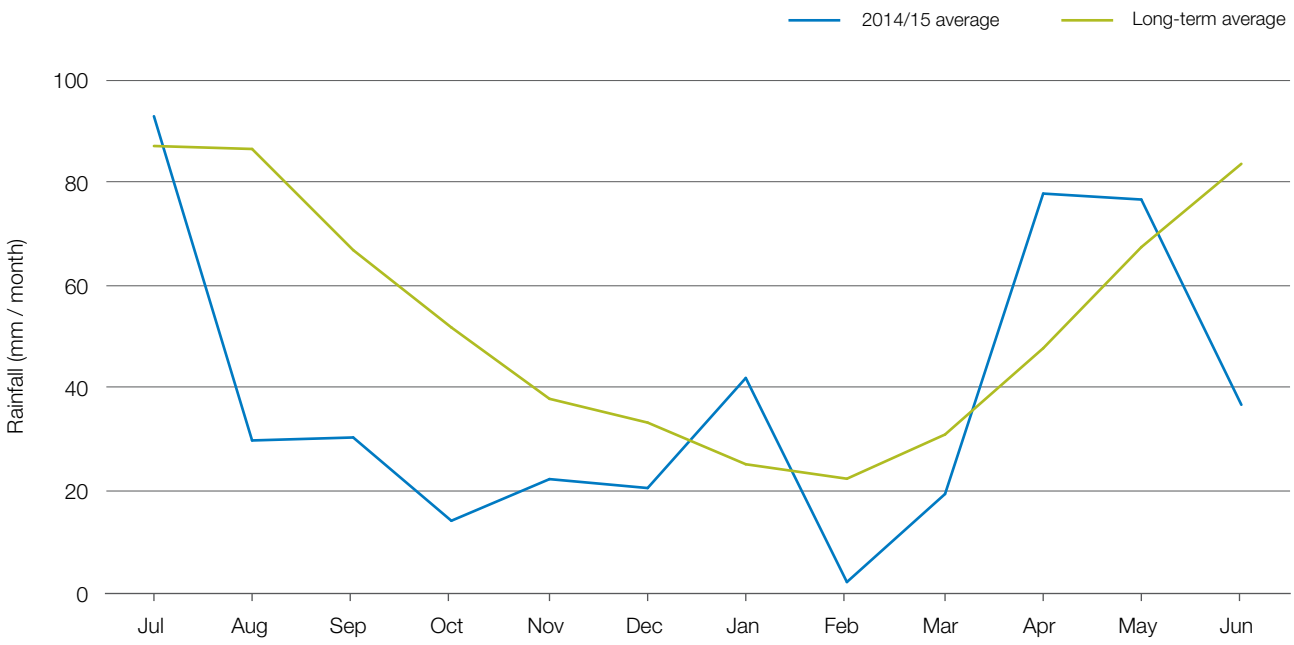


Figure 5 Monthly average rainfall (all farms)



Whole farm analysis

Key whole farm physical parameters for South Australia are presented below in Table 1. 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% farms only partly explained their ability to be more profitable. Caution must be taken when looking at the physical parameters in isolation.

The top 25% South Australian dairy farmers for 2014/15 carried higher stocking rates (1.9 cows/usable hectare) than the average (1.3 cows/usable hectare). Their cows produced 5.5% more milk solids sold (613 kg MS/cow) than the average (581 kg MS/cow). Through a combination of higher stocking rate (46%) and more productive cows, the top 25% sold 48% more milk solids per hectare (1,094 kg MS/ha) than the average (738 kg MS/ha).

The top 25% of South Australian dairy farms achieved these production efficiencies through a combination of pasture production, consumption efficiencies and labour efficiencies. The top 25% grew and utilised more home grown feed (as a per cent of ME consumed) – 62% of home-grown feed utilised of ME consumed for the top 25% compared to the average of all farms with 44%. One main contributing factor for the top 25% was having access to and utilising more water used (rainfall and irrigation) to grow feed (29% more water used to produce feed – 800 mm of water used compared to 618 mm water used for the average dairy farm).

The home grown feed consumed Q1 to Q3 range of 34% to 61% illustrates the wide range of home-grown feed supplied by South Australian dairy farmers (Table 1). Farmers were less concerned about feeding better quality concentrates this year as the higher milk price gave them the capacity to gain production from these supplements.

The top 25% were also 22% more efficient with their labour use - milking 111 milking cows per full time equivalent labour unit (cows/FTE) compared to 91 milking cows/FTE for the average, and producing 66,218 kg MS/FTE or 27% more efficient than the average at 51,938 kg MS/FTE.

Table 1 Farm physical data – State overview

Farm physical parameters	Average	Q1 to Q3 range	Top 25% average
Annual rainfall (mm) 2014/15	464	363–516	501
Water used (irrigation + rainfall) (mm/ha)	618	372–824	800
Total usable area (hectares)	529	179–453	266
Milking cows per usable hectare	1.3	0.6–1.8	1.9
Milk sold (kg MS /cow)	581	508 - 668	613
Milk sold (kg MS /ha)	738	385–1,031	1,094
Home grown feed as % of ME consumed	44%	33%– 61%	62%
Labour efficiency (milking cows / FTE)	91	73–101	111
Labour efficiency (kg MS / FTE)	51,938	41,506–58,979	66,218

Gross farm income

Gross farm income is inclusive of all farm incomes. It includes income from milk sales, livestock trading profit, milk factory shares and increases/decreases of feed inventories.

Figure 6 presents the gross farm income for participant farms throughout the South Australian dairying areas. The range of gross farm income received was between $5.28/kg MS and $9.28/kg MS with an average of $7.03/kg MS. The top 25% averaged $6.98/kg MS. The difference between the gross income figure of the average and top 25% is small and is not due to net milk income ($6.35/kg MS for the average and $6.36/kg MS for the top 25%). Neither gross income nor net milk income is a determinant of being a top 25% South Australian dairy farmer in 2014/15.

This year was relatively a good year for milk prices throughout South Australia with an average of $6.35/kg MS. This however was a decrease of 7% ($0.31/kg MS) on last year when average price received was $6.83/kg MS.

Although not as high as last year, the average other income (livestock trading profit and feed inventory changes) of all farms of $0.67/kg ($0.62/kg MS for the top 25%) was a significant contributor to gross farm income. It contributed 10.6% of gross farm income for the average and 9.7% for the top 25% of South Australian dairy farmers.

South Australian participants continued to supplement their milk income with livestock sales, similar to previous years. In 2014/15, net livestock sales contributed 8% ($0.58/kg MS) to the average gross farm income. In 2014/15, dairy farmers continued to benefit from a strong export dairy heifer industry and good cull cow prices resulting from reduced beef available for sale Australia-wide.

Figure 6 Gross farm income of per kilogram of milk solids

Milk solids sold

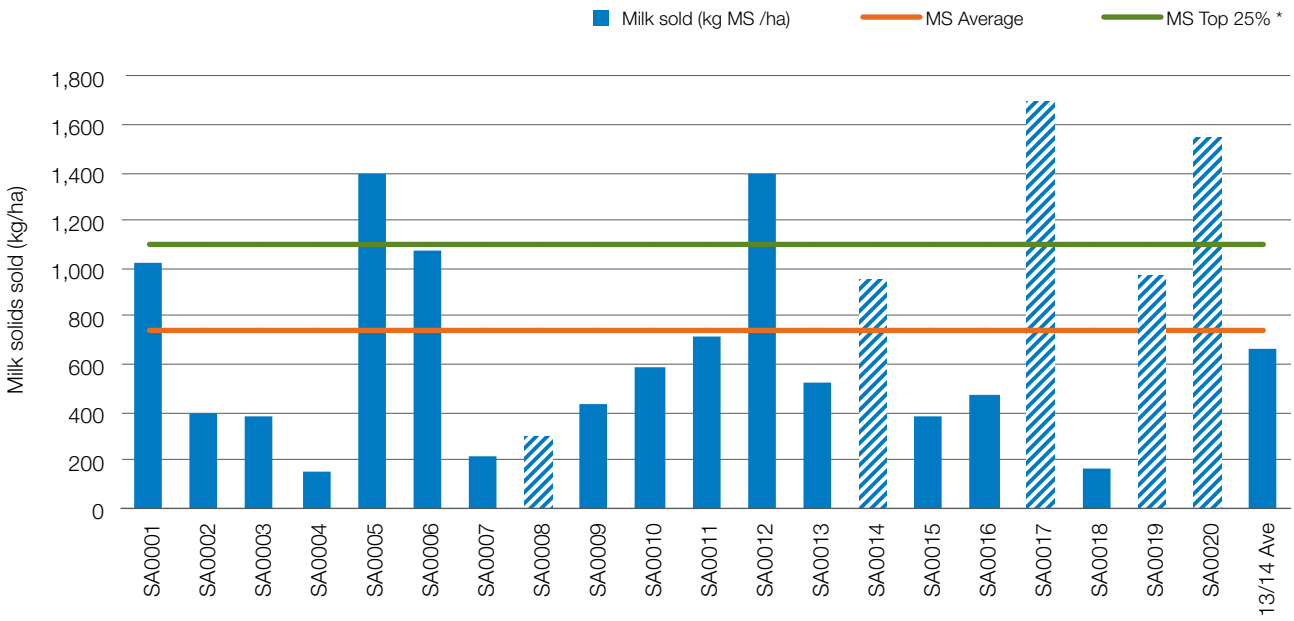
Figure 7 shows the quantity of milk solids sold per usable hectare. The varied per hectare production is a reflection of the diverse dairy farming systems throughout South Australia rather than the quality of management.

With a variety of dairy farming systems in the state, the range of quantity of milk sold was wide, ranging from 154 kg MS/ha to 1,694 kg MS/ha, averaging 738 kg MS/ha, 11.8% higher than the 2013/14 average of 660 kg MS/ha.

The high average milk solids sold per hectare was due to improved cow productivity and a reduction in cows per usable hectare (reduction in stocking rate) due to the tight feed season in 2014/15 (see Whole Farm Analysis section). In 2014/15 the average number of milkers decreased from 453 cows/farm to 362 cows/farm compared to 453 cows/farm in 2013/14. The average usable area was similar - 529 ha/farm in 2014/15 and 526 ha/farm in 2013/14, noting a slight difference to the sample population this year.

It was a similar story for the top 25% farmers who increased their milk solids sold by 30% (613 kg MS/cow compared to 471 kg MS/cow in 2013/14). They also reduced cow numbers by 13% (390 compared to 448 cows/farm milked in 2013/14) but at a higher stocking rate of 1.9 cows/ha compared to 1.8 cows/usable ha in 2013/14.

Figure 7 Milk solids sold per hectare



There was an 11.8% increase in kg MS/ha in 2013/14 which was due to 10 of 15 dairy farmers in the average group who increased their kg MS/ha (on average by 3.3%), three who reduced their kg MS/ha (on average by 18.7%) and two making no significant changes.

All five farms in this year's top 25% increased their milk production (kg MS) per hectare by an average of 3.5%. These farms were from three of the state's four dairying regions and all were irrigators.

Such a wide variation in milk solids sold in 2014/15 was due to the differences in rainfall, irrigation use, growing season, soil types and stocking rates in the dairying areas of South Australia.

Much of the variation in milk solids per hectare for the top 25% (as compared to the average) can be explained in part by the fact that the top 25% grow and utilise more home grown feed than the average, as a result of the access to and utilisation of more water used to grow feed. They also used labour more efficiently milking 111 milking cows/FTE (91 milking cows/FTE for the average).

One of the top 25% farms was well below the average kg MS/ha line (Figure 7). This suggests that milk solids sold per hectare is not the only determinant to being a top 25% producer in 2014/15.

Milk sales versus calving pattern

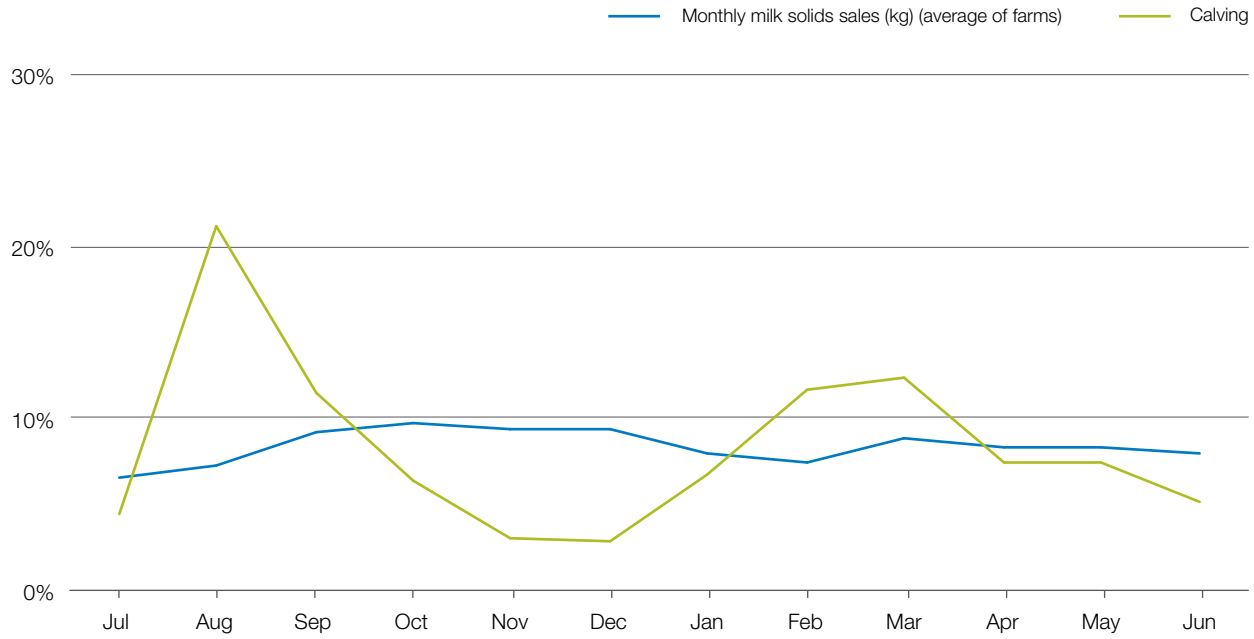
Figure 8 shows the average milk sales (for all participant farms) against the monthly distribution of calves born. Year round calving is evident with peaks in spring and autumn.

Although there were peaks and troughs in calving, milk sales were relatively stable with dairy farmers taking advantage of good out-of-season prices.

Milk sales recorded the lowest monthly figure amongst dairy farmers in July which is reflective of targeting calving to coincide with optimal spring pasture growth. Calvings continued throughout spring. Milk sales dipped again in February before autumn calving commenced.

This indicates that seasonal, split calving and year round calving patterns are present in South Australia. This has been a relatively stable pattern since the South Australian Dairy Monitor Project commenced in 2012/13.

Figure 8 Milk sales vs calving pattern



Variable costs

Variable costs (Figure 9) are those that change directly according to the amount of output and are measured in cost per kilogram of milk solids. Variable costs include herd, shed and feed costs.

The average variable costs remained largely steady but higher than the top 25% for the last three years. They were down slightly (0.5%) to $3.79/kg MS this year from $3.81/kg MS in 2013/14, after increasing 1.4% between 2012/13 and 2013/14.

The top 25% of dairy farmers have managed to stabilise a trend of rising variable costs. In 2014/15 the top 25% averaged $3.35/kg MS, the same as in 2013/14 but 10.9% higher than in 2012/13 with $3.02/kg MS.

Within total variable costs, there is a considerable range between the top 25% and the average. Of this year's variable costs, the herd and shed costs were $0.51/kg MS on average for the state and $0.53/kg MS for the top 25% ($0.57/kg MS and $0.50/kg MS in 2013/14, respectively). The average herd and shed costs reduced by 10.5% this year.

The top 25% of dairy farmers had a lower overall cost of home grown and purchased feed than the average of all participant farms. Their home grown feed costs were $0.96/kg MS (6%) lower than the $1.02/kg MS on average for the state. Their purchased feed costs (including agistment) were $1.87/kg MS compared to the average of $2.26/kg MS, a difference of 17%.

Overhead costs

Overhead costs are those that do not vary with the level of production. The Dairy Farm Monitor Project includes cash overheads such as 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 $1.38/kg MS to $7.51/kg MS (shown as blue bars in Figure 9).

In 2014/15, the average overhead costs ($2.52/kg MS) were 11% lower than 2013/14 ($2.85/kg MS). This continues a trend of falling average overhead costs (9.5% lower between 2012/13 and 2013/14). The fall this year was largely due to a decrease in imputed labour from $0.96/kg MS to $0.75/kg MS.

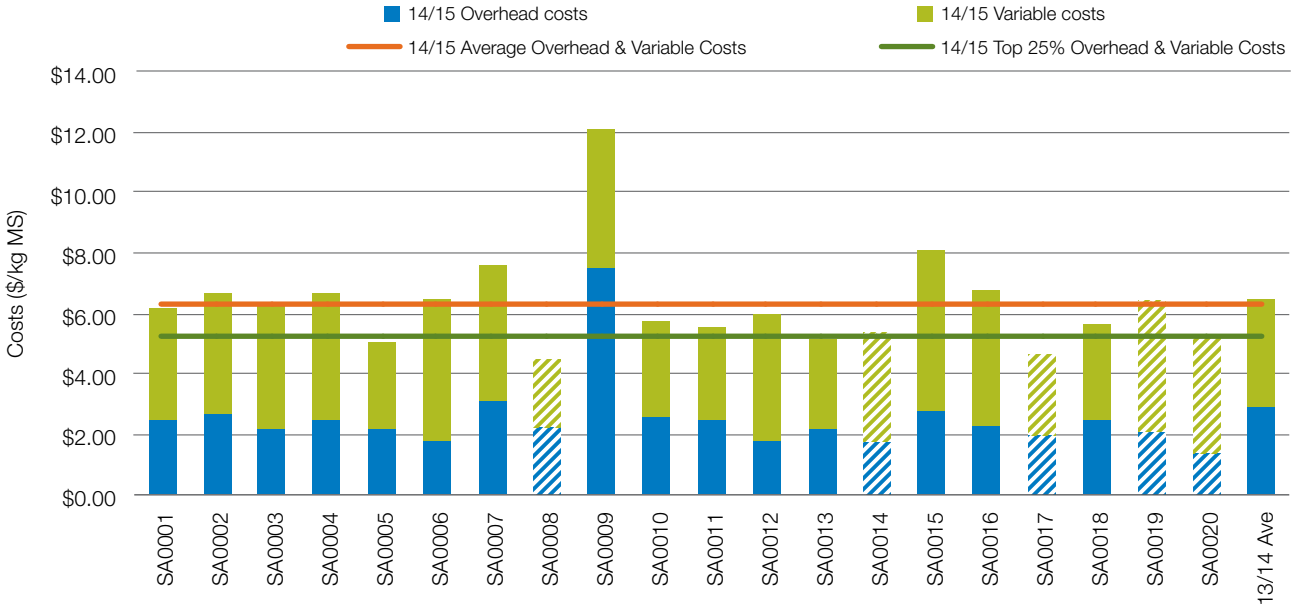
For the top 25%, their average overhead costs were $0.13/kg MS (6.4%) lower this year. Like the average producer, this fall in total overhead costs was largely due to a decrease in imputed labour from $0.46/kg MS to $0.34/kg MS.

Both the average of all farms and the top 25% spent $0.77/kg MS on employed labour.

Farms that regularly perform well do so by keeping overhead costs low and manage their 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 during a tough 2014/15 season.

A break down of the overhead costs in $/kg MS is provided in Appendix Table A5.

Figure 9 Whole farm variable and overhead costs per kilogram of milk solids



Cost of production

Cost of production gives an indication of the average cost of producing a kilogram of milk solids. It is calculated as variable plus overhead costs and accounts for changes in fodder inventory and livestock trading losses. Including changes in fodder inventory is important to establish the true costs to the business. The changes in fodder inventory count for the net cost of feed from what was fed out, conserved, purchased and stored over the year. Livestock trading loss is also considered in the cost of production where there is a net livestock depreciation or reduced stock numbers.

Table 2 shows that the average cost of production was $6.34/kg MS, a 2% increase from 2013/14. The top 25% had an average cost of production of $5.18/kg MS, 2.6% lower than last year.

On average, dairy farmers built up their feed inventories in 2014/15 compared to last year. However, the top 25% participants reduced the value of their feed inventories by $0.06/kg MS.

The average cost of production of all participant farms was 22% higher than the top 25% with all costs (except herd costs) being equal to or higher than the top 25%. Having a low cost of production is one key determinant of being a top 25% producer in 2014/15.

Table 2 Cost of production

Farm Costs	Average	Q1 to Q3 range	Top 25% average
Inventory changes ($/kg MS)			
Livestock trading loss	$0.00	$0.00–$0.00	$0.00
Feed inventory change	$0.03	$-0.09–$0.04	-$0.06
Changes in inventory	$0.03	$-0.09–$0.04	-$0.06
Variable costs ($/kg MS)			
Herd costs	$0.29	$0.24–$0.32	$0.32
Shed costs	$0.22	$0.19–$0.25	$0.21
Purchased feed and agistment	$2.26	$1.43–$2.86	$1.87
Home grown feed cost	$1.02	$0.75–$1.13	$0.96
Total variable costs	**$3.79**	**$3.13–$4.38**	**$3.35**
Overhead costs ($/kg MS)			
Rates	$0.05	$0.03–$0.06	$0.03
Registration and insurance	$0.02	$0.00–$0.02	$0.02
Farm insurance	$0.07	$0.05–$0.07	$0.03
Repairs and maintenance	$0.37	$0.26–$0.42	$0.27
Bank charges	$0.01	$0.00–$0.01	$0.01
Other overheads	$0.21	$0.11–$0.23	$0.16
Employed people cost	$0.77	$0.47–$0.99	$0.77
Total cash overheads	**$1.50**	**$1.25–$1.72**	**$1.29**
Depreciation	$0.75	$0.23–$0.81	$0.34
Imputed people cost	$0.28	$0.15–$0.37	$0.26
Total overhead costs	**$2.52**	**$2.07–$2.55**	**$1.89**
Total cost of production	**$6.34**	**$5.35–$6.64**	**$5.18**

Break-even price required

The break-even price required for milk is calculated as variable and overhead costs less income other than milk (including livestock trading profit, changes in feed inventory or other income). The difference between the break-even price required and milk income is earnings before interest and tax per kilogram of milk solids.

Figure 10 shows that the milk price for all but three farms exceeded the break-even price for 2014/15. In 2013/14 all but one farm exceeded the break-even price. The graph also shows that the milk price to break-even varied from $4.12/kg MS to $12.06/kg MS with an average of $5.64/kg MS.

The average break-even price required of $5.64/kg MS, was slightly higher than last year's $5.56/kg MS.

The top 25% in 2014/15 had a break-even price required of $4.62/kg MS, 5.5% higher than last year's $4.38/kg MS.

Figure 10 also shows that the milk price received ranged from $5.78/kg MS to $7.38/kg MS with an average of $6.35/kg MS.

The top 25% received a milk price of $6.36/kg MS. Milk price alone is not a determinant of being in the top 25% however, the ability of the top 25% to manage their production costs does make a difference

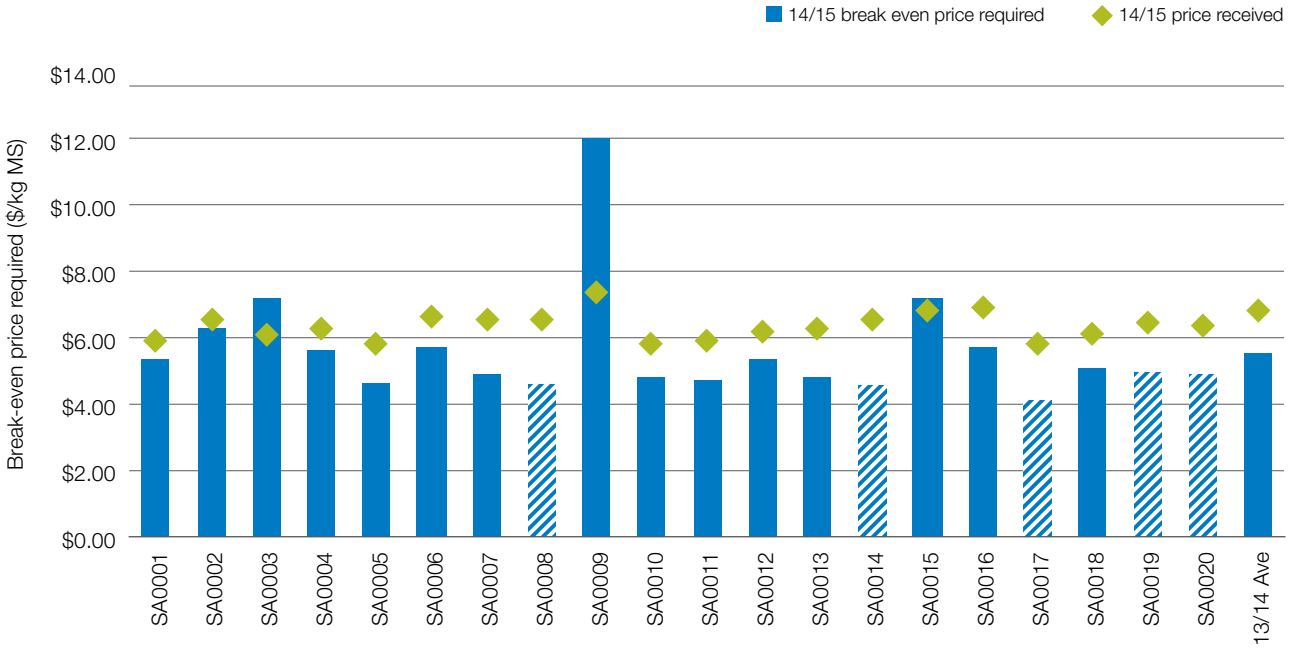
Earnings before interest and tax

Earnings before interest and tax (EBIT) is the gross farm income less variable and overhead costs. As EBIT excludes interest and lease costs, it is a valuable measure of operating profit.

Figure 11 shows that the average EBIT for 2014/15 was $0.72/kg MS, 43% lower than last year's $1.27/kg MS.

The fall in EBIT in 2014/15 was a considerable turnaround on last year and is largely explained by a 7% lower average milk price achieved. Per cow (24% increase) and per hectare (12% increase) milk solids sold were not enough to counter the

Figure 10 Break-even price required per kilogram of milk solids sold



7% fall in average milk prices. A 2.3% fall in total variable and overhead costs was not a significant contributing factor to the 43% fall in EBIT (average $6.46/kg MS in 2013/14 to $6.31/kg MS this year).

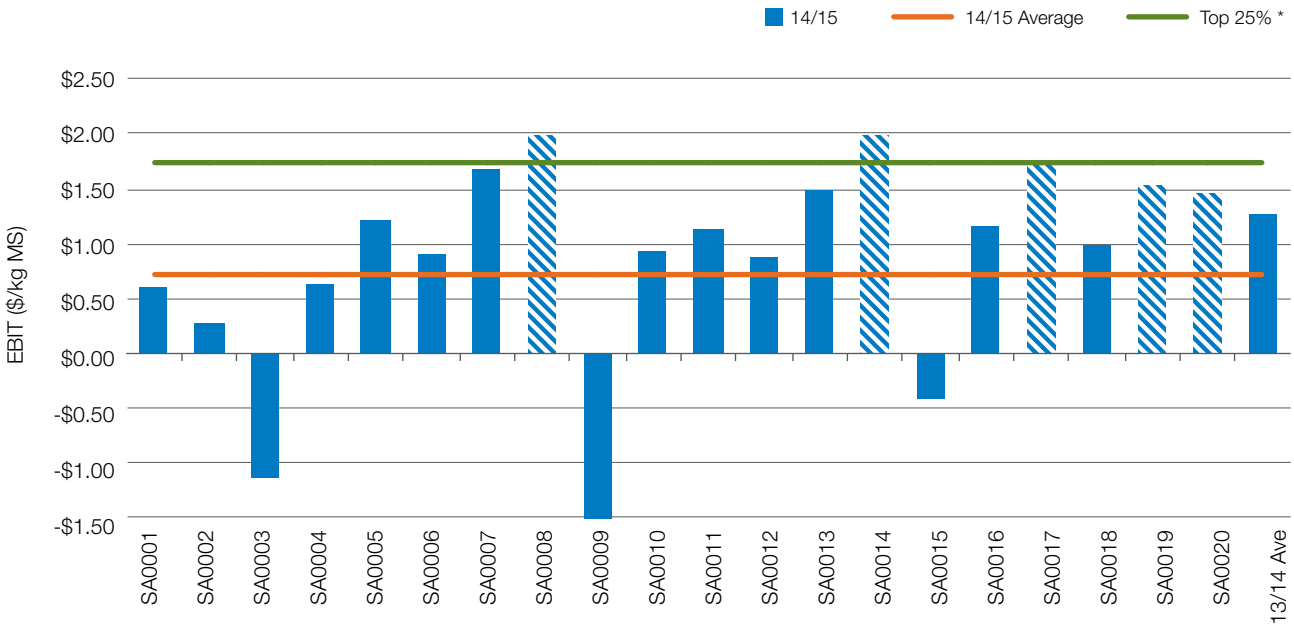
The top 25% in 2014/15, also recorded a lower EBIT of $1.74/kg MS, 23% lower than last year's $2.26/kg MS. Their fall in EBIT is again largely explainable by a 9.8% lower milk price received in 2014/15.

Similar to the average of all participant farms, the top 25% increased their milk solids sold by 30% per cow and 28% per hectare compared to 2013/14. Their total variable and overhead costs also decreased by 2.4% ($5.37/kg MS in 2013/14 and $5.24/kg MS in 2014/15).

Even though the EBIT/kg MS decreased for both the average and the top 25%, the latter were still able to retain 25% of their gross farm income in 2014/15.

In Figure 11 the axis has been modified to allow for representation of EBIT received by all South Australian farms in the project. Farm SA0009 has an EBIT of -$4.68/kg MS in 2014/15 which the axis does not allow to be represented to the full extent.

Figure 11 Whole farm earnings before interest & tax per kilogram of milk solids



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 12 and 13 were calculated excluding capital appreciation. For return on equity including capital appreciation refer to Appendices.

The average return on assets for participants across South Australia was 3.9% with the top 25% achieving 9.3%. Although lower than last year's return on assets, this was still an excellent result for both groups.

In 2014/15, only three farms achieved a return on assets of 8% or greater compared to six in 2013/14. These were still strong performances given the early finish to spring 2014, lower milk prices and higher feed costs experienced in the 2014/15 season.

The top 25% continued to have business choices for their profit - consolidate short and long term debt and/or purchase much needed capital items. The rest of the farms, however, were, with their higher cost structure (break even price to achieve of $5.64/kg MS), more reliant upon good milk prices to generate sustainable profits.

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 their investment. The average this year was 3.6% compared to 8.5% last year (Figure 13) and -4.9% in 2012/13. There was a wide variance of return on equity, ranging from -9.1% to 32.4%

Given the average return on assets in 2014/15 was 3.9% and average return on equity was 3.6% these indicate that gearing levels were moderate and sustainable.

The top 25% recorded an average return on equity of 12.7% compared to 16.3% in 2013/14. With an average return on equity for the top 25% of 12.7% and their return on assets of 9.3%, this indicates that their gearing levels were moderately high. However, the top 25% have used other forms of finance effectively to increase their overall business performance.

In Figure 13 the axis has been modified to allow for representation of return on equity received by all South Australian farms in the project. Farm SA0014 has a return on equity of 32.4% in 2014/15 which, if shown in its entirety, would not allow for adequate representation of the other farms' return on equity.

For more information Appendix A1 presents the return on assets and return on equity for all participant farms.

Figure 12 Return on assets

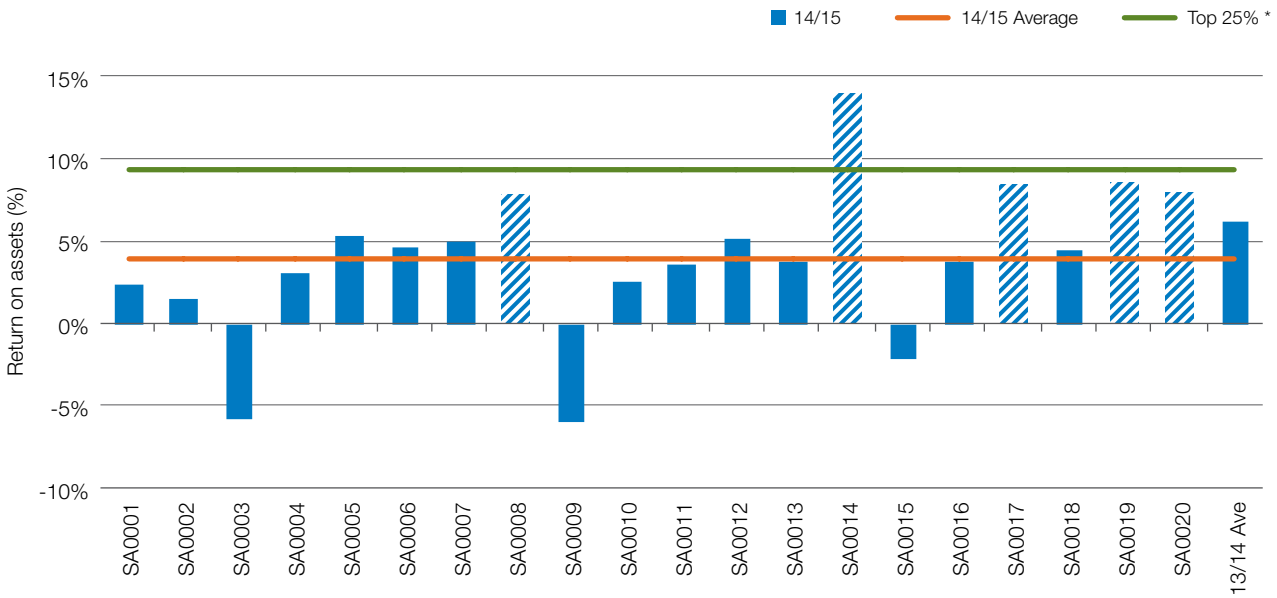
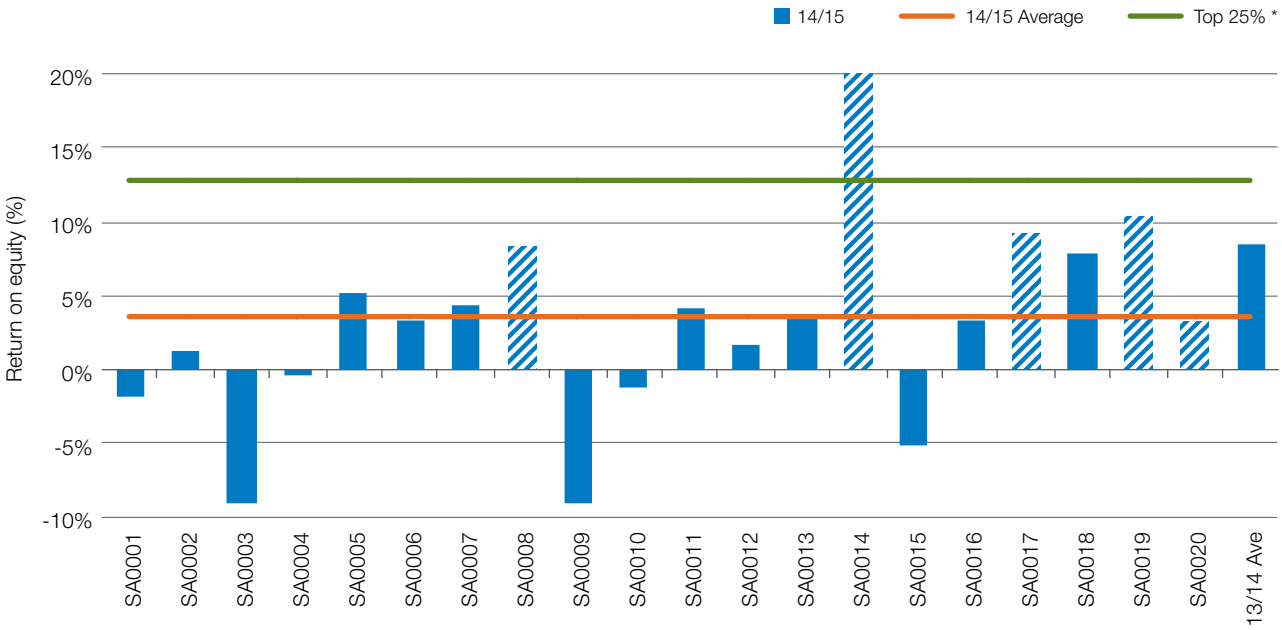


Figure 13 Return on equity



Physical measures

Dairy farms in South Australia exhibited a wide range of feeding systems. Directly grazed pasture was the dominant source of metabolisable energy supplying on average 40% of metabolisable energy fed to livestock. In 2014/15, farmers applied an average of 151.8 kg/ha of nutrients, 60% being nitrogen.

Feed consumption

Pasture consumption is calculated as the gap between the total energy required on farm for all livestock classes and the energy provided from concentrates, silage, hay and other sources. A further description of the Energetics method used to calculate energy sources and feed consumption can be found in the Appendix B.

For all 20 farms, pasture grazed accounted for the largest source of metabolisable energy (ME) fed to livestock at an average of 40% of total ME. Notably, the top 25% averaged 61% of ME sourced from grazed pasture, with one farm achieving 81% of total ME sourced from pasture grazed.

The average estimated grazed pasture was 6.4 t DM/ha plus an additional 1.4 t DM/ha harvested as conserved fodder. The range of home grown feed consumed per milking hectare varied greatly between South Australian producers (Figure 14).

The main source (61%) of ME for the top 25% farms was grazed pasture compared to 33% average for all farms. This factor is a key determinant to being a top 25% performer because of the relatively lower cost of home grown feed. Their grazed pasture was 11.7t DM/ha, 83% more than the average.

Concentrates were the next highest source of total ME fed to livestock with an average of 31% of total ME fed and 25% of total ME fed by the top 25%. Although the average price for concentrates was higher in 2014/15 ($364/t DM) than in 2013/14 ($343/t DM), it did not deter dairy farmers from feeding higher volumes of quality grain as favourable milk prices still made higher feeding levels attractive throughout 2014/15.

The average fodder conserved was 1.4 t DM/ha (0.9 t DM/ha in 2013/14) and ranged from 0 t DM/ha to 5.6 t DM/ha.

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 Appendix B.

Farms SA0003, SA0007 and SA0009 have minimal milking areas and could be considered feedlots. This is reflected in both Figures 14 and 15 where there is no grazed pasture shown.

Figure 14 Sources of whole farm metabolisable energy

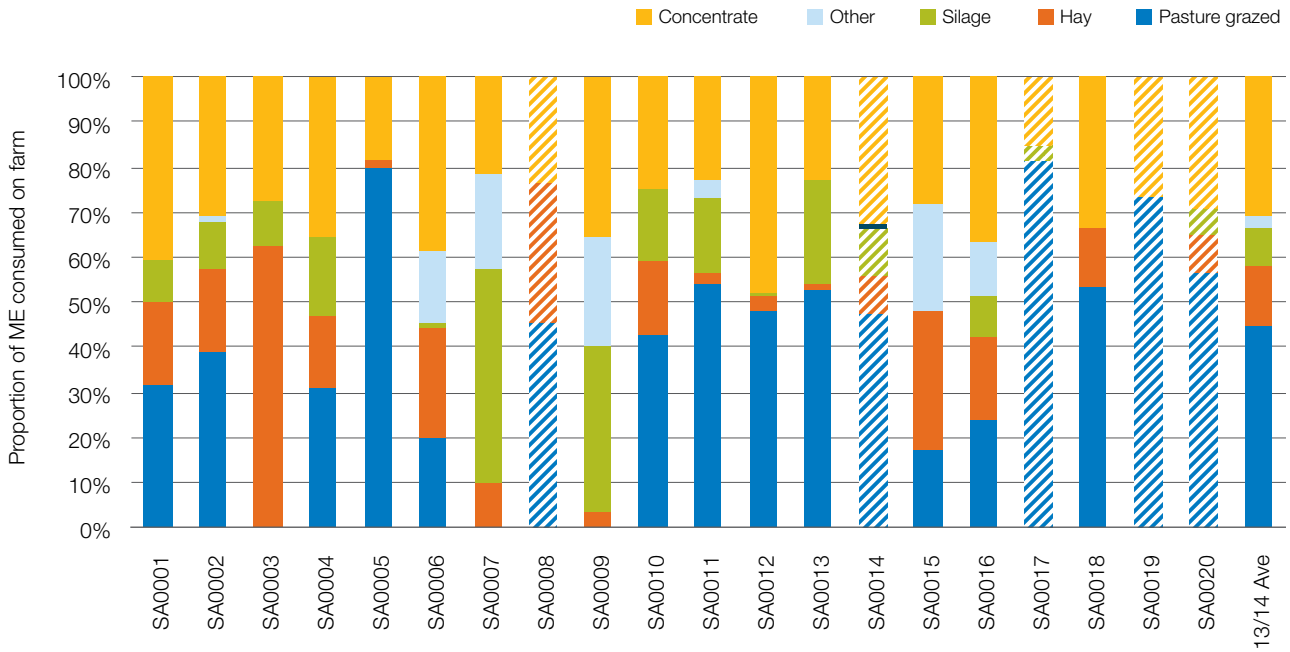
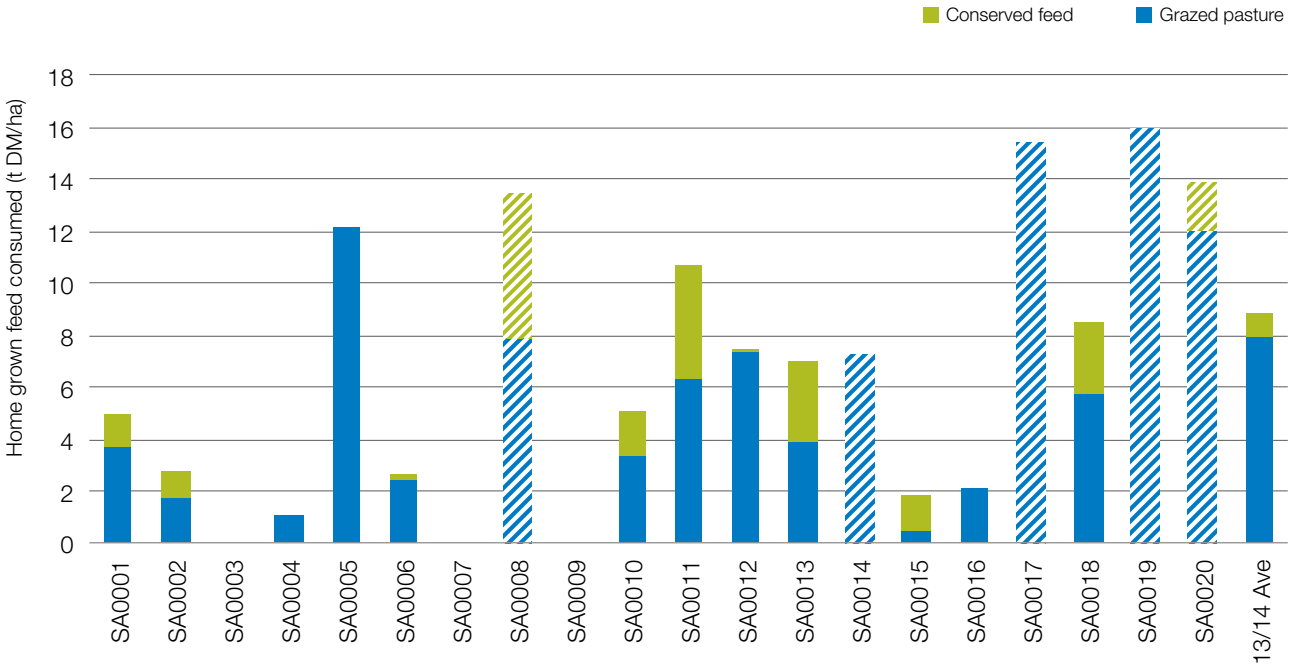


Figure 15 Estimated tonnes of home grown feed consumed per milking hectare



Fertiliser application

Dairy farms across South Australia used a wide variety of fertilisers and application rates.

Table 3 shows that the application rates of phosphorous, potassium and to some degree sulphur have been relatively consistent over the past three years of data collection.

Despite the early finish to spring 2014 and the growing season, fertiliser application varied greatly for some nutrients more than others compared to 2013/14 – nitrogen 90.8 kg/ha, a 49% increase (61 kg/ha) on 2013/14, phosphorous 10.5 kg/ha, a 2.9% increase (10.2 kg//ha) on 2013/14, potassium 30.8 kg/ha, a 15% increase (26.6 kg/ha) on 2013/14 and sulphur 19.6 kg/ha, a 9% increase (18.0 kg/ha) on 2013/14.

The top 25% of South Australian dairy farms (all irrigation farms in 2014/15) continued to use fertiliser to drive pasture and conserved fodder production. Compared to the average in 2014/15, their average annual application of nutrients is 199% higher for nitrogen (181.4 kg/ha), 5% lower for phosphorus (10.5 kg/ha), 59% higher (49.4 kg/ha) for potassium and 198% higher (39.7 kg/ha) for sulphur. Being an irrigated dairy farm is not necessarily a pre-determinant to being in the top 25%. In the 2013/14 dairy farm monitoring report only two of five in the top 25% were irrigated dairy farms.

Table 3 Fertiliser usehectare

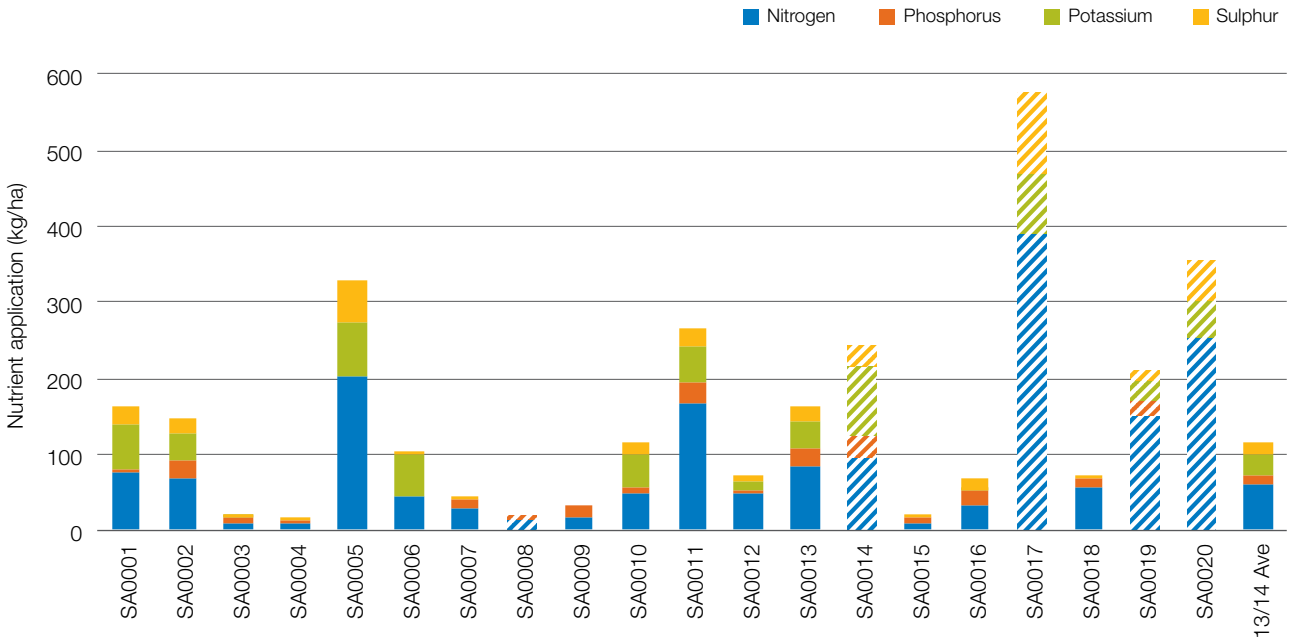
	2012/13	2013/14	2014/15
Nitrogen kg/ha	70	61	91
Phosphorus kg/ha	11	10	11
Potassium kg/ha	32	27	31
Sulphur kg/ha	15	18	20

Fertilisers used on dryland pastures were urea and diammonium phospate (DAP) which are both leading sources of nitrogen. Irrigators elected to fertilise more frequently using custom fertilisers to optimise feed growth.

Figure 16 below shows the distribution of application rates used on properties. There could be other factors beyond fertiliser application that influence the production of home grown feed including soil fertility, climate and management of pastures.

The range in use of nitrogen was quite significant, ranging from 9 kg/ha to 390kg/ha. The application rate on irrigated pastures was higher with an average of 131kg/ha (range of 15kg/ha to 390kg/ha). The maximum application rates for phosphorous were 28kg/ha, 92 kg/ha for potassium and 106kg/ha for sulphur.

Figure 16 Fertiliser application (kg/ha)



Business confidence survey

Expectations and issues

Responses to this business confidence survey were made in August 2015 with regard to the 2015/16 financial year and the next five years to 2020/21.

Expectation for business returns

Following the 2014/15 year, expectations for the coming season were neutral or negative with 5% of the farmers predicting an improvement in business returns and 25% were not sure what would happen to their business returns in 2015/16. This is notably different to the positive expectations recorded in 2013/14.

Responses to the survey took into consideration all aspects of farming including climate and market conditions for all products bought and sold.

While expectations varied across all categories, participants were more negative to neutral about returns in 2015/16 as shown in Figure 17.

At the time of data collection, farmers had already received their 2015/16 milk price announcements which were lower than in 2014/15. Optimism for improved farm business returns came from farmers expecting to make changes to management and operating systems to increase returns.

Price and production expectations – milk

The majority of dairy farmers expected their milk price for 2015/16 to decrease (Figure 18) or remain at similar levels to 2014/15.

Although a decrease in milk price was anticipated, 50% of dairy farmers anticipated no change to production levels with a further 40% planning on increasing milk production in 2015/16.

Figure 17 Expectation of business returns

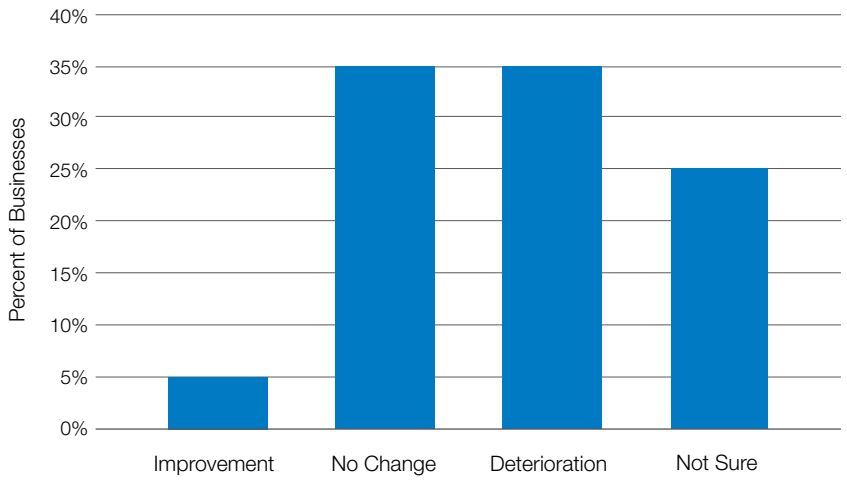
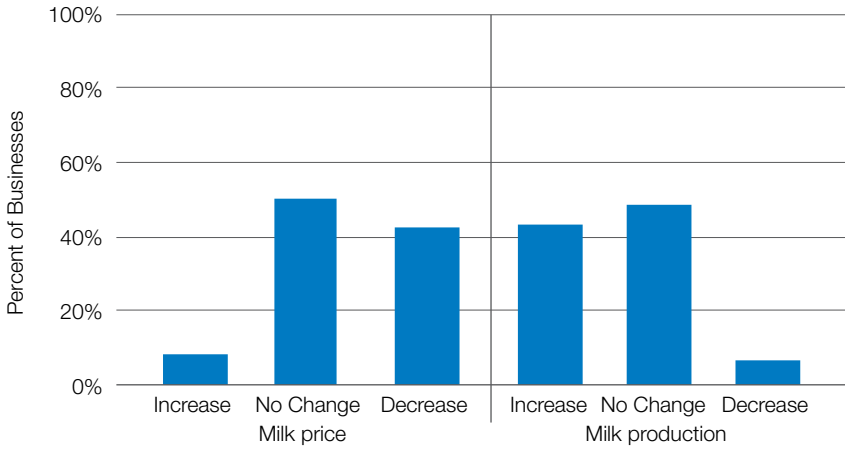


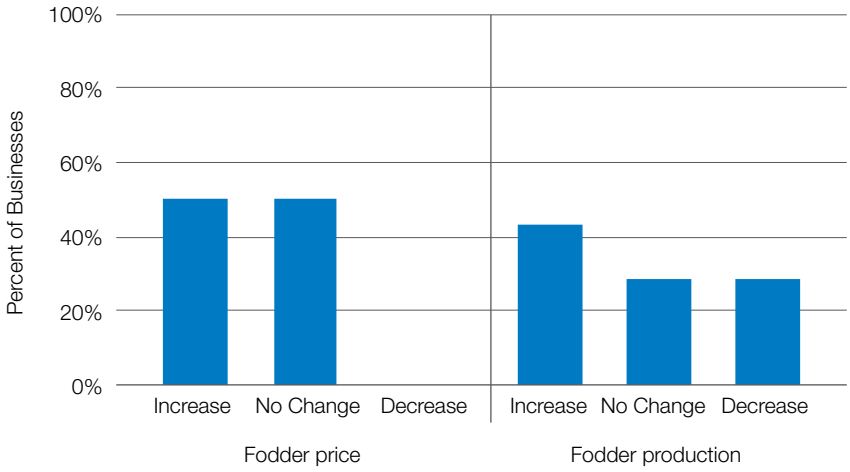
Figure 18 Price and production expectations – milk



Price and production expectations – Fodder

With fodder prices higher in 2014/5 than the previous year, 50% of dairy farmers (Figure 19) believed prices would remain constant and 50% believed they would rise for the 2015/16 financial year. Participants planned to increase fodder production for 2014/15, as a result of running down conserved fodder stocks in 2014/15.

Figure 19 Price and production expectations – fodder

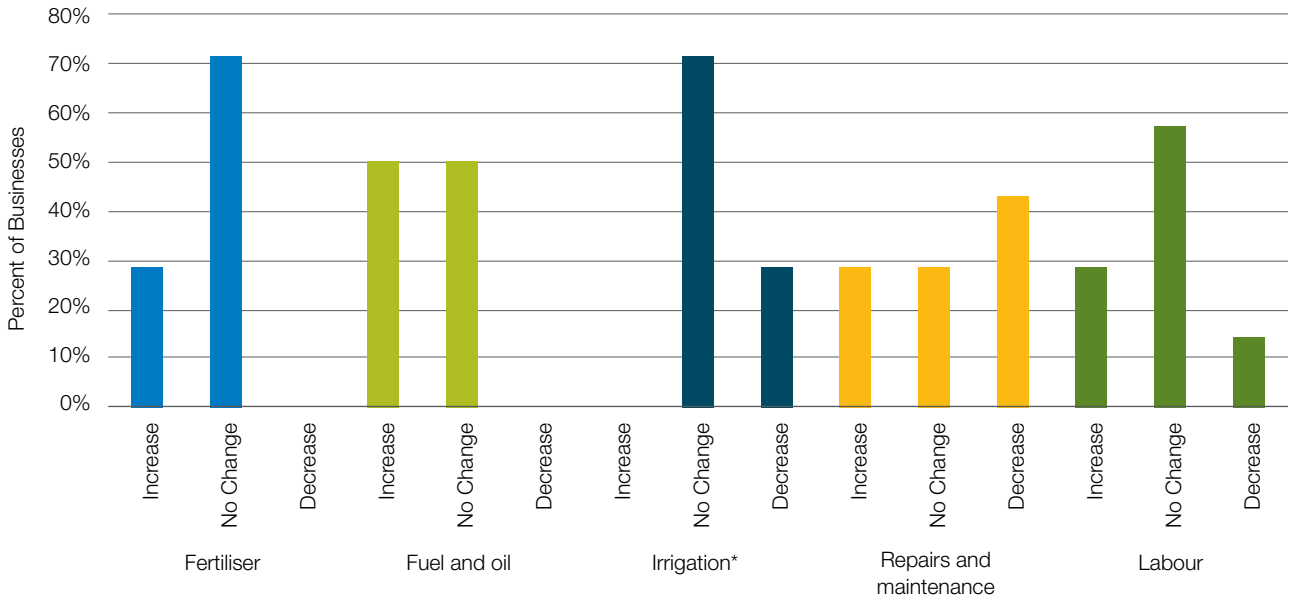


Cost expectations

Data in Figure 20 presents the expectations of costs for the dairy industry taken from the 20 South Australian dairy farms. Most dairy farmers expected costs to not change for fertiliser, irrigation and labour. An equal number of dairy farmers expected fuel and oil costs to increase and not change.

Repairs and maintenance costs had an evenly spread range (again this year) of answers among dairy farmers. Many farmers increased the amount of repairs and maintenance in 2014/15 or replaced machinery. This was a reason for some dairy farmers suggesting a decrease in repairs and maintenance cost for next year. Others expected an increase or no changes to the amount of repairs and maintenance but expected the cost of materials to rise.

Figure 20 Cost expectations



Major issues facing the dairy industry – the next 12 months

A summary of the issues identified by participants for the next 12-month period is summarised in Figure 21. Most dairy farmers were concerned about seasonal variability (19% of all responses). An equal number of dairy farmers identified input costs and milk prices as issues of concern (15% of all responses) in 2015/16. A few dairy farmers also mentioned farm infrastructure and feed production to be their issues of concern for 2015/16.

Farm labour (4% of responses, 16% of responses last year) was less of a concern for the 12 months ahead indicating that current labour employment levels are fairly stable.

Major issues facing the dairy industry – the next five years

Figure 22 below shows the longer term issues identified for the next five years. The price of milk was the main concern for farmers in the next five years, followed by farm infrastructure and succession planning, accounting for 36% of all responses.

Seasonal variability accounted for only 7% and labour only accounted for 4% of all responses. These responses indicate that dairy farmers see climate variability as a short term issue and that they are currently managing labour well.

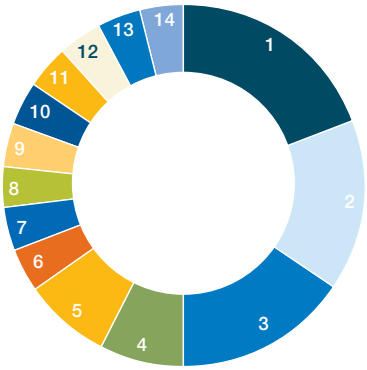


Figure 21 Major issues facing the dairy industry – the next 12 months

1 Seasonal variability **19%**

2 Input cost **15%**

3 Milk price **15%**

4 Farm infrastructure **8%**

5 Feed production **8%**

6 Cash flow **4%**

7 Effluent management **4%**

8 Equity and debt **4%**

9 Herd size **4%**

10 Irrigation **4%**

11 Labour **4%**

12 Meat price **4%**

13 Profitability **4%**

14 Succession planning **4%**

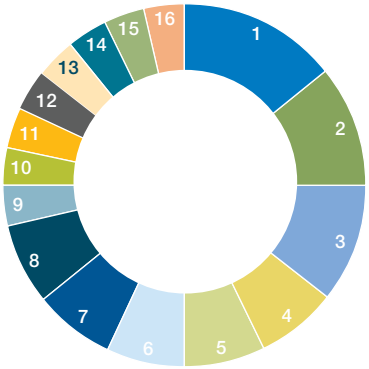


Figure 22 Major issues facing the dairy industry - the next five years

1 Milk price **14%**

2 Farm infrastructure **11%**

3 Succession planning **11%**

4 Economic and political environment **7%**

5 Herd management **7%**

6 Input cost **7%**

7 Irrigation **7%**

8 Seasonal variability **7%**

9 Business planning **4%**

10 Equity and debt **4%**

11 Labour **4%**

12 Land prices **4%**

13 Power **4%**

14 Public perception **4%**

15 Urban encroachment **4%**

16 Work–life balance **4%**

2014/15 Greenhouse gas emissions

2014/15 Greenhouse Gas Emissions

The average level of emission from participating farms was 10.32 t CO_2-e/t MS in 2014/15, lower than last year's 12.67 t CO_2-e/t MS. The combined effect of a reduced number of livestock and increased milk production contributed to lower emissions per milk solids produced this year.

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).

The GWP for the three gases that are discussed in this report are: 1 : 21 : 310 (CO_2 : CH_4 : N_2O). This means that one CO_2-e tonne equates to 47.6 kg of methane (CH_4) and 3.2 kg of nitrous oxide (N_2O).

The distribution of different emissions for 2014/15 is shown in Figure 23. The indicative greenhouse gas emissions per tonne of milk solids produced ranged from 7.5 t CO_2-e/t MS to 15.6 t CO_2-e/t MS with an average emission level of 10.3 t CO_2-e/t MS. This is lower than last year's total greenhouse gas emissions of 12.7 t CO_2-e/t MS. The combined effect of a 20% reduction in the total number of livestock and a 12% increase in milk solids production contributed to a lower average emission, although energy use increased by 14%.

Methane was identified as the main greenhouse gas emitted from dairy farms, accounting for 67.3% of all greenhouse emissions. In 2013/14, CH_4 accounted for 72% of gas 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 61.9% of total emissions. Methane from effluent ponds accounted for 5.3% of total emissions on average across the state in 2014/15.

The most efficient strategy to reduce enteric CH_4 production is manipulating the diet by increasing the diet quality through improved pastures or supplementation with particular concentrates. Adding fat supplements such as whole cotton seed, canola meal or linseed oil into the diet can also reduce CH_4 emissions. This is a simple and effective method however it is recommended that fats should not constitute more than 6–7% of the dietary dry matter intake.

> "Methane was identified as the main greenhouse gas emitted from dairy farms, similar to last year, accounting for 67% of all greenhouse emissions in 2014/15."

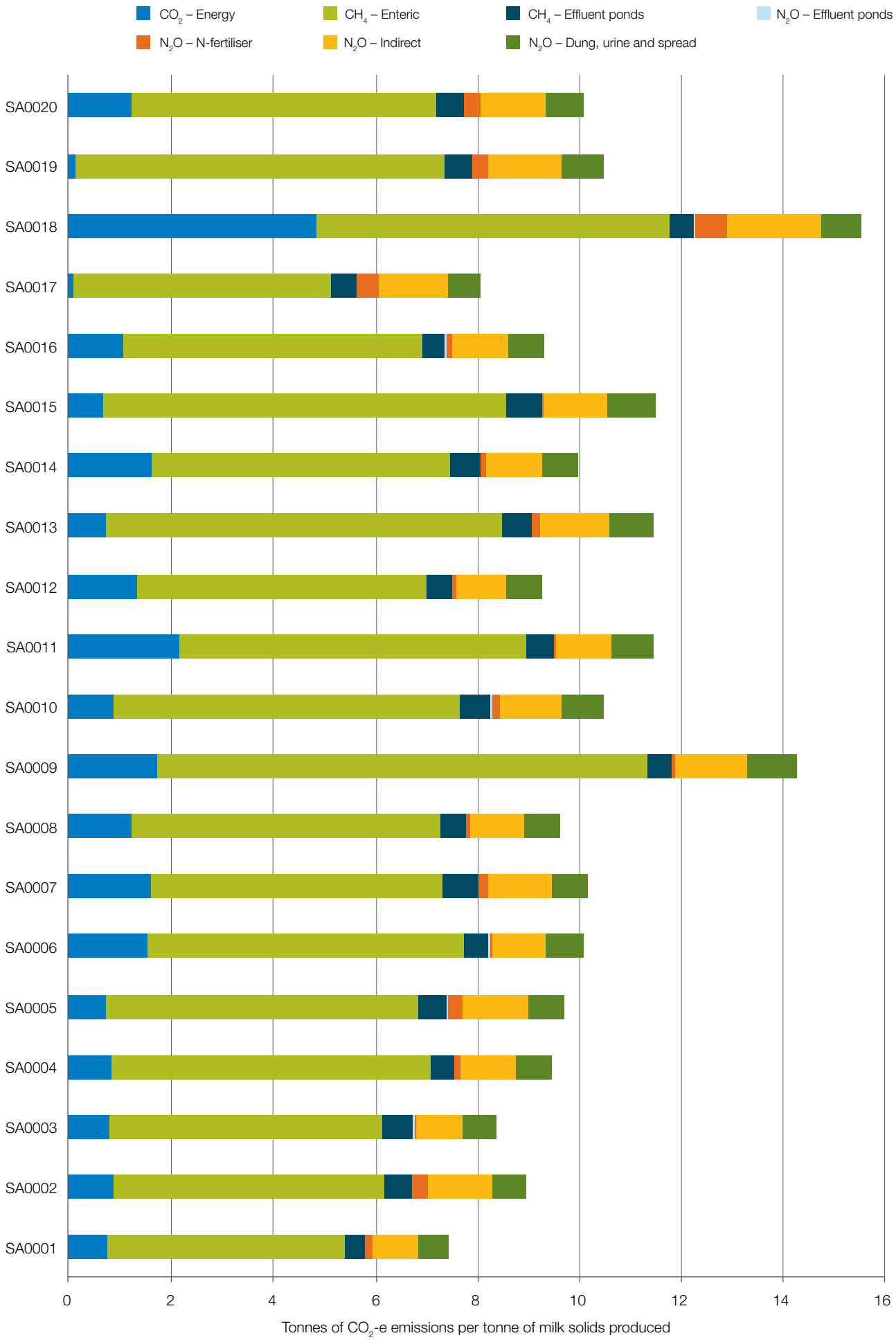
The second main greenhouse gas emission is nitrous oxide accounting for 21% of total emissions or 2.2 t CO_2-e/t MS. Nitrous oxide emissions on dairy farms are primarily derived from direct emissions; including nitrogen fertiliser application, effluent management systems, and animal excreta (dung and urine), as well as indirect emissions such as from ammonia and nitrate loss in soils.

Nitrous oxide emissions from fertiliser accounted for 1.8% of total emissions, an increase from 1.3% in 2013/14. Other sources of nitrous oxide were effluent ponds (0.1%), excreta (7.3%) and from indirect emissions (11.7%). 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.

The third main greenhouse gas emission is CO_2 which is produced primarily from fossil fuel consumption as either electricity or petrochemicals. Carbon dioxide accounted for 11.6% of total emissions (1.3 t CO_2-e/t MS), up from 7% in 2013/14. This indicated that farms used more energy this year than last year. Output levels were highly dependent on the source of electricity used with all farms using brown coal generated electricity. There are a number of technologies available to improve energy efficiency in the dairy while reducing electricity costs.

We are currently seeing the importance of understanding and monitoring 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 Greenhouse Office's website at environment.gov.au/climate-change

Figure 23 Greenhouse gas emissions per tonne of milk solids sold



Historical analysis

Historical analysis

This section compares the performance of participant farms in the Dairy Farm Monitor Project over the past three years. While figures were adjusted for inflation to allow comparison between years it should be noted that there were three new farms in 2013/14 and one in 2014/15.

As can be seen in Figure 24, the average EBIT and net farm income have risen for all farms from 2012/13 to 2013/14. The low EBIT of 2012/13 was primarily due to low milk prices received (average of $6.09/kg MS (adjusted for inflation). An early finish to the spring and the growing season with low levels of pasture grown and grazed also contributed, which in turn caused an increase in feed cost. In 2012/13, feed costs accounted for 83% of total variable costs.

By contrast, the EBIT and net farm income rose in 2013/14 primarily as a result of good average milk prices received $6.94/kg MS (adjusted for inflation), a 14% increase on 2012/13). Other factors were much improved pasture growing season (average 4.8 t DM/ha in 2012/13 and 7.9 t DM/ha estimated pasture grazed in 2013/14) and much lower levels of fodder conserved (1.2 t DM/ha in 2012/13 and 0.9 t DM/ha in 213/14).

Although average milk production has risen in 2014/15, EBIT and net farm income have reduced in comparison to 2013/14 as a result of lower average milk prices received. The average milk price of $6.35/kg MS in 2014/15 was 8.5% lower than the $6.94/kg MS received in 2013/14 (adjusted for inflation).

Return on assets had dropped to an average of 3.9% and was still higher than the three year average of 3.2%. This followed a high of 6.2% return on assets last year and a low of -0.6% in 2012/13.

The average return on equity in 2014/15 fell from 8.5% in 2013/14 to 3.6% in 2014/15 which is still higher than the return on equity of -4.9% posted in 2012/13.

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 is the case for South Australian dairy farmers in 2013/14 when return on assets was 6.2% and return on equity was 8.5%.

Figure 24 Historical ebit and net farm income

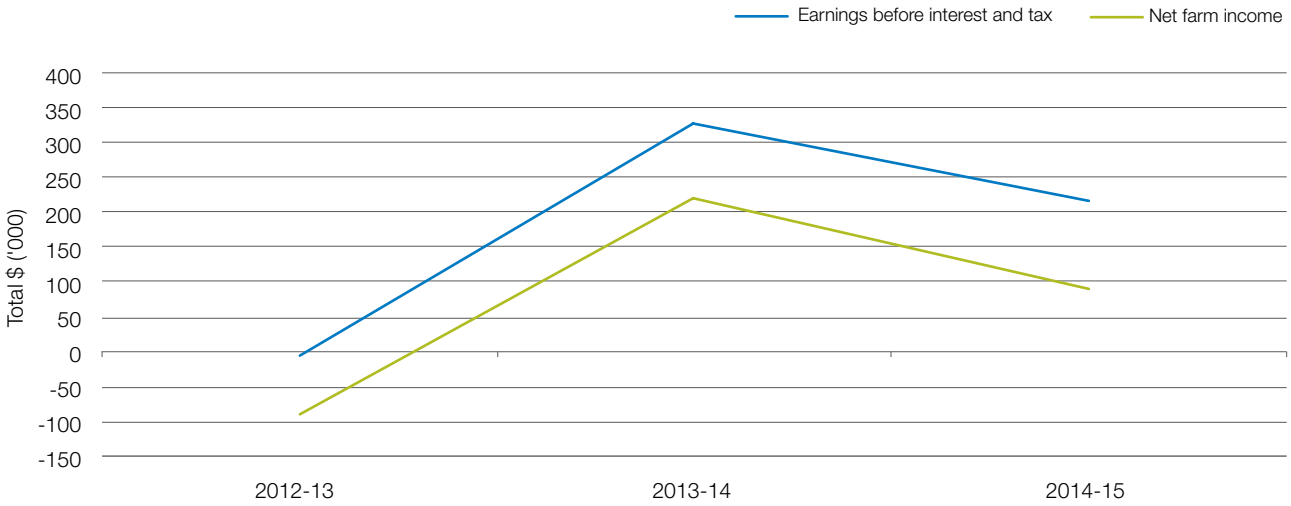
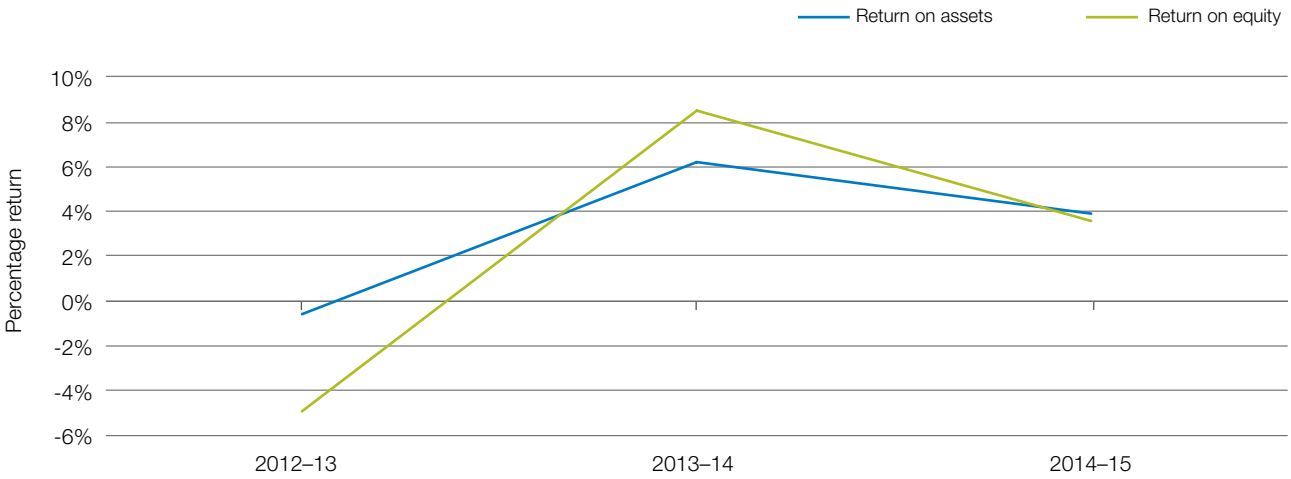


Figure 25 Historical return on assets and return on equity



Appendices

Table A1 Main Financial indicators

Farm number	Milk income (net)	All other income	Gross farm income	Total variable costs	Total overhead costs	Cost structure (Variable costs / Total costs)	Earnings Before Interest and Tax	Return on assets (excl. capital apprec.)	Interest and lease charges	Debt servicing ratio	Net farm income	Return on equity	Return on equity (incl. capital apprec.)
	$/ kg MS	$/ kg MS	$/ kg MS	$/ kg MS	$/ kg MS	%	$/ kg MS	%	$/ kg MS	% of income	$/ kg MS	%	%
SA0001	$5.95	$0.80	$6.74	$3.70	$2.44	60%	$0.60	2.4%	$0.78	11.6%	-$0.18	-1.7%	-1.8%
SA0002	$6.57	$0.35	$6.92	$3.99	$2.66	60%	$0.26	1.5%	$0.07	1.1%	$0.19	1.3%	1.3%
SA0003	$6.06	-$0.79	$5.28	$4.19	$2.20	66%	-$1.12	-5.7%	$0.21	4.1%	-$1.33	-9.0%	-8.6%
SA0004	$6.31	$0.95	$7.26	$4.10	$2.52	62%	$0.64	3.0%	$0.69	9.5%	-$0.05	-0.4%	-0.4%
SA0005	$5.83	$0.43	$6.26	$2.89	$2.17	57%	$1.20	5.3%	$0.00	0.0%	$1.20	5.3%	5.2%
SA0006	$6.67	$0.70	$7.37	$4.65	$1.81	72%	$0.90	4.6%	$0.60	8.1%	$0.31	3.4%	3.5%
SA0007	$6.57	$2.72	$9.28	$4.48	$3.12	59%	$1.68	5.0%	$0.77	8.3%	$0.91	4.3%	4.4%
SA0008	***$6.56***	***-$0.10***	***$6.46***	***$2.24***	***$2.24***	***50%***	***$1.98***	***7.8%***	***$0.16***	***2.5%***	***$1.82***	***8.4%***	***8.1%***
SA0009	$7.38	$0.02	$7.40	$4.57	$7.51	38%	-$4.68	-6.1%	$0.65	8.8%	-$5.33	-9.1%	-8.9%
SA0010	$5.78	$0.90	$6.68	$3.17	$2.59	55%	$0.93	2.4%	$1.21	18.1%	-$0.28	-1.3%	-1.2%
SA0011	$5.90	$0.76	$6.65	$2.99	$2.54	54%	$1.13	3.6%	$0.09	1.3%	$1.04	4.1%	4.1%
SA0012	$6.21	$0.68	$6.88	$4.21	$1.79	70%	$0.88	5.1%	$0.78	11.3%	$0.10	1.7%	1.7%
SA0013	$6.30	$0.36	$6.66	$3.03	$2.14	59%	$1.49	3.7%	$0.12	1.9%	$1.37	3.6%	3.7%
SA0014	***$6.54***	***$0.83***	***$7.37***	***$3.62***	***$1.76***	***67%***	***$1.99***	***13.9%***	***$0.66***	***8.9%***	***$1.33***	***32.4%***	***33.7%***
SA0015	$6.78	$0.93	$7.70	$5.31	$2.81	65%	-$0.41	-2.1%	$0.29	3.7%	-$0.70	-5.1%	-5.2%
SA0016	$6.87	$1.05	$7.92	$4.51	$2.24	67%	$1.17	3.7%	$0.58	7.3%	$0.59	3.4%	3.5%
SA0017	***$5.85***	***$0.53***	***$6.38***	***$2.67***	***$1.98***	***57%***	***$1.73***	***8.4%***	***$0.39***	***6.1%***	***$1.35***	***9.2%***	***9.3%***
SA0018	$6.13	$0.51	$6.63	$3.16	$2.48	56%	$0.99	4.5%	$0.79	11.9%	$0.21	7.9%	8.1%
SA0019	***$6.48***	***$1.49***	***$7.98***	***$4.34***	***$2.10***	***67%***	***$1.53***	***8.5%***	***$1.09***	***13.6%***	***$0.44***	***10.4%***	***11.3%***
SA0020	***$6.36***	***$0.36***	***$6.72***	***$3.88***	***$1.38***	***74%***	***$1.46***	***7.9%***	***$1.16***	***17.3%***	***$0.30***	***3.3%***	***3.4%***
Average	**$6.35**	**$0.67**	**$7.03**	**$3.79**	**$2.52**	**61%**	**$0.72**	**3.9%**	**$0.55**	**7.8%**	**$0.16**	**3.6%**	**3.7%**
Top 25%*	**$6.36**	**$0.62**	**$6.98**	**$3.35**	**$1.89**	**63%**	**$1.74**	**9.3%**	**$0.69**	**9.7%**	**$1.05**	**12.7%**	**13.1%**

** The top 25% are bold and italicised*

Table A2 Physical information

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	%	%
SA0001	79	79	617	127	1.6	630	1,018	4.7%	3.7%
SA0002	532	250	422	287	0.5	730	394	4.0%	3.3%
SA0003	331	12	366	250	0.8	507	383	4.8%	3.7%
SA0004	1,644	300	325	380	0.2	668	154	4.1%	3.4%
SA0005	176	171	940	540	3.1	453	1,389	4.5%	3.5%
SA0006	180	170	679	340	1.9	566	1,070	3.6%	3.3%
SA0007	691	9	368	218	0.3	670	211	4.0%	3.2%
SA0008	***444***	***84***	***445***	***176***	***0.4***	***754***	***299***	***4.1%***	***3.4%***
SA0009	78	1	298	103	1.3	325	429	5.0%	3.4%
SA0010	252	208	541	280	1.1	527	586	4.2%	3.4%
SA0011	208	118	745	263	1.3	567	717	4.0%	3.1%
SA0012	264	256	883	628	2.4	584	1,392	3.1%	3.3%
SA0013	340	194	904	374	1.1	481	528	4.1%	3.3%
SA0014	***238***	***152***	***805***	***410***	***1.7***	***553***	***952***	***3.9%***	***3.3%***
SA0015	314	100	353	250	0.8	485	386	4.0%	3.2%
SA0016	481	103	536	311	0.6	734	475	3.5%	3.3%
SA0017	***126***	***123***	***1,050***	***420***	***3.3***	***508***	***1,694***	***4.6%***	***3.6%***
SA0018	3,680	520	373	948	0.3	620	160	3.7%	3.4%
SA0019	***365.0***	***210.0***	***740.8***	***523.0***	***1.4***	***681.3***	***976***	***3.4%***	***3.2%***
SA0020	***155.0***	***121.4***	***961.5***	***420.0***	***2.7***	***570.7***	***1,547***	***4.0%***	***3.5%***
Average	**528.9**	**159.1**	**617.6**	**362.4**	**1.3**	**580.7**	**738**	**4.1%**	**3.4%**
Top 25%*	**265.6**	**138.1**	**800.5**	**389.8**	**1.9**	**613.4**	**1094**	**4.0%**	**3.4%**

** The top 25% are bold and italicised*

Table A2 Physical information (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
SA0001	3.7	1.3	41%	77.2	3.8	59.6	22.4	53	33,650
SA0002	1.8	1.0	50%	67.2	26.1	34.3	19.9	57	41,586
SA0003	0.0	0.0	15%	9.7	7.4	0.1	4.9	102	51,511
SA0004	1.1	0.0	45%	8.9	3.4	0.0	0.3	63	41,955
SA0005	12.2	0.0	80%	202.5	0.0	70.8	55.5	158	71,509
SA0006	2.5	0.2	21%	44.7	0.0	55.6	2.7	86	48,469
SA0007	0.0	0.0	39%	28.2	11.6	0.0	0.3	59	39,283
SA0008	***7.9***	***5.6***	***46%***	***15.1***	***4.7***	***0.0***	***0.0***	***81***	***61,105***
SA0009	0.0	0.0	31%	18.3	15.4	0.0	0.0	35	11,494
SA0010	3.4	1.7	59%	50.2	4.7	45.3	16.9	78	41,043
SA0011	6.3	4.3	55%	169.1	24.5	50.3	20.6	77	43,524
SA0012	7.4	0.0	49%	49.3	2.5	14.1	8.3	136	79,443
SA0013	4.0	3.0	63%	86.0	20.6	35.6	21.4	86	41,267
SA0014	***7.3***	***0.0***	***48%***	***96.6***	***27.9***	***91.8***	***27.2***	***90***	***49,490***
SA0015	0.5	1.3	27%	8.7	8.4	0.0	3.7	101	48,753
SA0016	2.1	0.0	35%	34.9	16.4	3.2	15.6	77.6	56,949
SA0017	***15.4***	***0.0***	***81%***	***390.2***	***0.0***	***79.4***	***106.2***	***122.7***	***62,348***
SA0018	5.8	2.7	61%	54.9	13.9	0.0	1.1	92.3	57,230
SA0019	***16.0***	***0.0***	***74%***	***150.7***	***19.8***	***27.4***	***12.7***	***85.5***	***58,270***
SA0020	***12.0***	***1.9***	***63%***	***254.4***	***0.0***	***48.4***	***52.3***	***175.0***	***99,878***
Average	**6.4**	**1.4**	**49%**	**90.8**	**10.5**	**30.8**	**19.6**	**90.7**	**51,938**
Top 25%*	**11.7**	**1.5**	**62%**	**181.4**	**10.5**	**49.4**	**39.7**	**110.8**	**66,218**

** The top 25% are bold and italicised*

Table A3 Purchased feed

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
SA0001	3.8	$446		$278		$382	12.2	3.3	59%
SA0002	5.5	$416	$150	$224	$1,168	$358	11.1	3.4	50%
SA0003	4.0	$460		$232		$332	10.9	3.3	85%
SA0004	3.6	$444		$326		$415	12.2	3.5	55%
SA0005	0.9	$327		$247		$314	12.9	2.5	20%
SA0006	5.1	$406		$281	$308	$341	12.1	2.9	79%
SA0007	3.5			$102	$290	$256	11.3	2.5	61%
SA0008	***2.6***	***$281***			***$828***	***$310***	***12.3***	***2.6***	***54%***
SA0009	4.3	$329		$100	$50	$190	11.7	1.7	69%
SA0010	3.0	$332	$73	$236		$283	11.7	2.6	41%
SA0011	2.0	$407		$200	$133	$349	12.7	2.8	45%
SA0012	3.0	$392		$347		$388	12.9	3.1	51%
SA0013	1.5	$322		$271		$319	13.4	2.4	37%
SA0014	***3.3***	***$340***	***$165***	***$268***	***$1,098***	***$304***	***11.6***	***2.8***	***52%***
SA0015	5.6	$369		$255	$190	$269	11.4	2.5	73%
SA0016	5.6	$347		$306	$330	$333	12.0	2.8	65%
SA0017	***0.9***	***$328***	***$178***			***$293***	***12.8***	***2.4***	***19%***
SA0018	2.9	$264				$264	13.0	2.1	39%
SA0019	***3.0***	***$344***			***$1,438***	***$388***	***12.7***	***3.1***	***26%***
SA0020	***2.6***	***$353***		***$324***		***$345***	***12.1***	***3.0***	***37%***
Average	**3.3**	**$364**	**$142**	**$250**	**$583**	**$322**	**12.2**	**2.8**	**51%**
Top 25%*	**2.5**	**$329**	**$69**	**$119**	**$673**	**$328**	**12.3**	**2.8**	**38%**

** The top 25% are bold and italicised*

Table A4 Variable costs

Farm number	AI and herd test	Animal health	Calf rearing	Shed power	Dairy supplies	Total herd and shed costs	Fertiliser	Irrigation	Hay and silage making
	$/ kg MS	$/ kg MS	$/ kg MS	$/ kg MS	$/ kg MS	$/ kg MS	$/ kg MS	$/ kg MS	$/ kg MS
SA0001	$0.10	$0.13	$0.00	$0.11	$0.11	$0.45	$0.22	$0.00	$0.01
SA0002	$0.12	$0.11	$0.00	$0.09	$0.07	$0.40	$0.50	$0.00	$0.07
SA0003	$0.04	$0.10	$0.07	$0.13	$0.03	$0.37	$0.13	$0.30	$0.25
SA0004	$0.13	$0.11	$0.01	$0.12	$0.09	$0.46	$0.10	$0.00	$0.29
SA0005	$0.13	$0.14	$0.05	$0.14	$0.08	$0.54	$0.43	$0.72	$0.00
SA0006	$0.11	$0.14	$0.02	$0.14	$0.15	$0.56	$0.18	$0.00	$0.03
SA0007	$0.15	$0.11	$0.08	$0.11	$0.10	$0.55	$0.37	$0.39	$0.77
SA0008	***$0.10***	***$0.15***	***$0.00***	***$0.12***	***$0.03***	***$0.40***	***$0.18***	***$0.09***	***$0.21***
SA0009	$0.06	$0.22	$0.04	$0.22	$0.09	$0.62	$0.16	$0.10	$0.01
SA0010	$0.10	$0.20	$0.00	$0.14	$0.10	$0.54	$0.30	$0.00	$0.12
SA0011	$0.14	$0.09	$0.08	$0.13	$0.04	$0.49	$0.24	$0.30	$0.12
SA0012	$0.08	$0.13	$0.11	$0.21	$0.11	$0.65	$0.38	$0.25	$0.00
SA0013	$0.11	$0.10	$0.00	$0.08	$0.11	$0.40	$0.49	$0.48	$0.01
SA0014	***$0.15***	***$0.14***	***$0.03***	***$0.09***	***$0.14***	***$0.54***	***$0.31***	***$0.20***	***$0.00***
SA0015	$0.26	$0.07	$0.00	$0.15	$0.12	$0.59	$0.17	$0.01	$0.23
SA0016	$0.15	$0.21	$0.00	$0.14	$0.08	$0.58	$0.28	$0.01	$0.24
SA0017	***$0.10***	***$0.21***	***$0.03***	***$0.15***	***$0.02***	***$0.51***	***$0.59***	***$0.43***	***$0.00***
SA0018	$0.07	$0.06	$0.01	$0.14	$0.06	$0.34	$0.35	$1.00	$0.01
SA0019	***$0.11***	***$0.18***	***$0.15***	***$0.12***	***$0.09***	***$0.64***	***$0.49***	***$0.21***	***$0.18***
SA0020	***$0.12***	***$0.08***	***$0.06***	***$0.20***	***$0.08***	***$0.54***	***$0.49***	***$0.38***	***$0.00***
Average	**$0.12**	**$0.13**	**$0.04**	**$0.14**	**$0.09**	**$0.51**	**$0.32**	**$0.24**	**$0.13**
Top 25%*	**$0.11**	**$0.15**	**$0.05**	**$0.14**	**$0.07**	**$0.53**	**$0.41**	**$0.26**	**$0.08**

** The top 25% are bold and italicised*

Table A4 Variable costs (continued)

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
SA0001	$0.07	$0.17	$0.00	$0.68	$1.65	$0.44	$3.24	$3.70
SA0002	$0.17	$0.11	$0.00	$0.71	$2.03	$0.00	$3.60	$3.99
SA0003	$0.13	$0.18	$0.07	$1.03	$1.63	$0.11	$3.82	$4.19
SA0004	$0.20	$0.13	$0.28	$0.83	$1.81	$0.00	$3.64	$4.10
SA0005	$0.06	$0.06	$0.06	$0.07	$0.52	$0.42	$2.35	$2.89
SA0006	$0.15	$0.19	$0.29	$0.97	$2.18	$0.10	$4.09	$4.65
SA0007	$0.55	$0.31	$0.10	$0.15	$1.31	$0.00	$3.94	$4.48
SA0008	***$0.16***	***$0.00***	***$0.07***	***$0.00***	***$1.06***	***$0.00***	***$1.83***	***$2.24***
SA0009	$0.49	$0.22	$0.07	$0.12	$2.64	$0.14	$3.95	$4.57
SA0010	$0.11	$0.19	$0.29	$0.69	$0.93	$0.00	$2.63	$3.17
SA0011	$0.12	$0.21	$0.27	$0.02	$1.22	$0.00	$2.49	$2.99
SA0012	$0.07	$0.07	$0.35	$0.37	$1.83	$0.25	$3.56	$4.21
SA0013	$0.07	$0.45	$0.16	$0.05	$0.92	$0.00	$2.63	$3.03
SA0014	***$0.04***	***$0.20***	***$0.01***	***$0.66***	***$1.47***	***$0.20***	***$3.09***	***$3.62***
SA0015	$0.09	$0.29	$0.53	$1.17	$2.02	$0.20	$4.71	$5.31
SA0016	$0.17	$0.27	$0.07	$0.88	$2.03	$0.00	$3.93	$4.51
SA0017	***$0.03***	***$0.10***	***$0.00***	***$0.21***	***$0.45***	***$0.34***	***$2.16***	***$2.67***
SA0018	$0.15	$0.09	$0.00	$0.00	$1.22	$0.00	$2.82	$3.16
SA0019	***$0.08***	***$0.16***	***$0.14***	***$0.59***	***$1.84***	***$0.00***	***$3.70***	***$4.34***
SA0020	***$0.05***	***$0.12***	***$0.45***	***$0.45***	***$1.14***	***$0.27***	***$3.34***	***$3.88***
Average	**$0.15**	**$0.18**	**$0.16**	**$0.48**	**$1.49**	**$0.12**	**$3.28**	**$3.79**
Top 25%*	**$0.07**	**$0.11**	**$0.13**	**$0.38**	**$1.19**	**$0.16**	**$2.83**	**$3.35**

** The top 25% are bold and italicised*

Table A5 Overhead costs

Farm number	Rates	Registration and insurance	Farm insurance	Repairs and maintenance	Bank charges	Other overheads	Employed Labour	Total cash overheads	Depreciation	Imputed owner/ operator and 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
SA0001	$0.04	$0.00	$0.07	$0.09	$0.00	$0.22	$0.13	$0.56	$0.22	$1.66	$2.44
SA0002	$0.06	$0.02	$0.07	$0.40	$0.00	$0.07	$1.33	$1.96	$0.18	$0.53	$2.66
SA0003	$0.05	$0.02	$0.07	$0.29	$0.02	$0.38	$0.48	$1.30	$0.25	$0.66	$2.20
SA0004	$0.07	$0.01	$0.08	$0.33	$0.00	$0.17	$1.16	$1.82	$0.22	$0.48	$2.52
SA0005	$0.04	$0.00	$0.07	$0.38	$0.00	$0.19	$0.64	$1.31	$0.50	$0.36	$2.17
SA0006	$0.03	$0.02	$0.05	$0.29	$0.01	$0.09	$0.69	$1.19	$0.17	$0.45	$1.81
SA0007	$0.07	$0.08	$0.20	$1.02	$0.01	$0.22	$0.54	$2.14	$0.36	$0.62	$3.12
SA0008	***$0.09***	***$0.02***	***$0.06***	***$0.39***	***$0.01***	***$0.11***	***$0.29***	***$0.96***	***$0.47***	***$0.80***	***$2.24***
SA0009	$0.08	$0.05	$0.10	$0.45	$0.11	$0.45	$0.45	$1.68	$0.81	$5.02	$7.51
SA0010	$0.08	$0.01	$0.07	$0.36	$0.01	$0.18	$0.68	$1.39	$0.35	$0.85	$2.59
SA0011	$0.05	$0.03	$0.07	$0.47	$0.00	$0.24	$1.46	$2.30	$0.15	$0.08	$2.54
SA0012	$0.03	$0.00	$0.05	$0.29	$0.00	$0.32	$0.93	$1.63	$0.16	$0.00	$1.79
SA0013	$0.00	$0.03	$0.06	$0.15	$0.04	$0.07	$0.43	$0.78	$0.26	$1.10	$2.14
SA0014	***$0.00***	***$0.06***	***$0.00***	***$0.17***	***$0.00***	***$0.13***	***$0.74***	***$1.11***	***$0.08***	***$0.57***	***$1.76***
SA0015	$0.05	$0.02	$0.05	$0.71	$0.01	$0.62	$0.04	$1.50	$0.12	$1.19	$2.81
SA0016	$0.06	$0.01	$0.09	$0.38	$0.02	$0.10	$0.91	$1.58	$0.39	$0.28	$2.24
SA0017	***$0.02***	***$0.00***	***$0.05***	***$0.13***	***$0.00***	***$0.19***	***$1.14***	***$1.55***	***$0.43***	***$0.00***	***$1.98***
SA0018	$0.04	$0.00	$0.03	$0.40	$0.00	$0.05	$1.77	$2.29	$0.09	$0.09	$2.48
SA0019	***$0.03***	***$0.02***	***$0.03***	***$0.51***	***$0.00***	***$0.18***	***$0.81***	***$1.58***	***$0.20***	***$0.32***	***$2.10***
SA0020	***$0.03***	***$0.00***	***$0.04***	***$0.12***	***$0.04***	***$0.19***	***$0.84***	***$1.27***	***$0.11***	***$0.00***	***$1.38***
Average	**$0.05**	**$0.02**	**$0.07**	**$0.37**	**$0.01**	**$0.21**	**$0.77**	**$1.50**	**$0.28**	**$0.75**	**$2.52**
Top 25%*	**$0.03**	**$0.02**	**$0.03**	**$0.27**	**$0.01**	**$0.16**	**$0.77**	**$1.29**	**$0.26**	**$0.34**	**$1.89**

** The top 25% are bold and italicised*

Table A6 Variable costs

Farm number	AI and herd test	Animal health	Calf rearing	Shed power	Dairy supplies	Total herd and shed costs	Fertiliser	Irrigation	Hay and silage making
	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs
SA0001	1.7%	2.1%	0.0%	1.8%	1.8%	7.4%	3.5%	0.0%	0.2%
SA0002	1.8%	1.6%	0.0%	1.4%	1.1%	5.9%	7.5%	0.0%	1.1%
SA0003	0.6%	1.5%	1.2%	2.1%	0.5%	5.8%	2.1%	4.6%	3.9%
SA0004	2.0%	1.6%	0.2%	1.8%	1.4%	6.9%	1.6%	0.0%	4.4%
SA0005	2.6%	2.7%	1.0%	2.8%	1.6%	10.7%	8.5%	14.2%	0.0%
SA0006	1.7%	2.2%	0.4%	2.1%	2.3%	8.7%	2.8%	0.0%	0.5%
SA0007	2.0%	1.4%	1.0%	1.4%	1.3%	7.2%	4.9%	5.1%	10.1%
SA0008	***2.2%***	***3.3%***	***0.0%***	***2.8%***	***0.8%***	***9.0%***	***4.0%***	***1.9%***	***4.7%***
SA0009	0.5%	1.8%	0.3%	1.8%	0.7%	5.1%	1.3%	0.8%	0.1%
SA0010	1.7%	3.4%	0.0%	2.5%	1.8%	9.4%	5.3%	0.0%	2.1%
SA0011	2.6%	1.6%	1.5%	2.4%	0.8%	8.9%	4.3%	5.5%	2.1%
SA0012	1.3%	2.1%	1.9%	3.6%	1.9%	10.8%	6.4%	4.1%	0.1%
SA0013	2.1%	2.0%	0.0%	1.6%	2.2%	7.8%	9.4%	9.2%	0.2%
SA0014	***2.8%***	***2.6%***	***0.5%***	***1.7%***	***2.5%***	***10.0%***	***5.7%***	***3.7%***	***0.0%***
SA0015	3.2%	0.9%	0.0%	1.8%	1.5%	7.3%	2.1%	0.2%	2.8%
SA0016	2.2%	3.1%	0.0%	2.0%	1.2%	8.6%	4.1%	0.1%	3.5%
SA0017	***2.1%***	***4.5%***	***0.5%***	***3.3%***	***0.4%***	***11.0%***	***12.7%***	***9.3%***	***0.0%***
SA0018	1.2%	1.0%	0.2%	2.5%	1.1%	6.1%	6.1%	11.2%	0.1%
SA0019	***1.7%***	***2.8%***	***2.3%***	***1.8%***	***1.3%***	***9.9%***	***7.6%***	***3.3%***	***2.8%***
SA0020	***2.2%***	***1.6%***	***1.1%***	***3.9%***	***1.5%***	***10.3%***	***9.4%***	***7.3%***	***0.0%***
Average	**1.9%**	**2.2%**	**0.6%**	**2.3%**	**1.4%**	**8.3%**	**5.5%**	**4.0%**	**1.9%**
Top 25%*	**2.2%**	**3.0%**	**0.9%**	**2.7%**	**1.3%**	**10.0%**	**7.9%**	**5.1%**	**1.5%**

** The top 25% are bold and italicised*

Table A6 Variable costs (continued)

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
SA0001	1.2%	2.7%	0.0%	11.1%	26.9%	7.2%	52.8%	60.2%
SA0002	2.6%	1.6%	0.0%	10.7%	30.6%	0.0%	54.1%	60.0%
SA0003	2.0%	2.8%	1.0%	16.1%	25.4%	1.8%	59.7%	65.5%
SA0004	3.0%	2.0%	4.2%	12.6%	27.3%	0.0%	55.0%	61.9%
SA0005	1.2%	1.2%	1.2%	1.4%	10.3%	8.3%	46.4%	57.1%
SA0006	2.3%	3.0%	4.5%	14.9%	33.7%	1.6%	63.3%	72.0%
SA0007	7.2%	4.0%	1.3%	2.0%	17.2%	0.0%	51.8%	59.0%
SA0008	***3.5%***	***1.6%***	***1.6%***	***0.0%***	***23.6%***	***0.0%***	***41.0%***	***50.0%***
SA0009	4.0%	1.8%	0.6%	1.0%	21.9%	1.2%	32.7%	37.9%
SA0010	2.0%	3.3%	5.0%	11.9%	16.1%	0.0%	45.7%	55.0%
SA0011	2.2%	3.8%	4.8%	0.3%	22.2%	0.0%	45.2%	54.1%
SA0012	1.2%	1.2%	5.8%	6.1%	30.5%	4.1%	59.4%	70.2%
SA0013	1.3%	8.7%	3.1%	1.0%	17.8%	0.0%	50.9%	58.6%
SA0014	***0.8%***	***3.7%***	***0.1%***	***12.2%***	***27.3%***	***3.6%***	***57.3%***	***67.3%***
SA0015	1.1%	3.6%	6.6%	14.5%	24.9%	2.4%	58.1%	65.4%
SA0016	2.5%	4.0%	1.0%	13.0%	30.0%	0.0%	58.2%	66.8%
SA0017	***0.7%***	***2.1%***	***0.0%***	***4.6%***	***9.7%***	***7.4%***	***46.5%***	***57.5%***
SA0018	2.7%	1.6%	0.0%	0.0%	21.6%	0.0%	50.0%	56.1%
SA0019	***1.3%***	***2.5%***	***2.2%***	***9.2%***	***28.6%***	***0.0%***	***57.5%***	***67.4%***
SA0020	***0.9%***	***2.3%***	***8.5%***	***8.5%***	***21.6%***	***5.1%***	***63.5%***	***73.8%***
Average	**2.2%**	**2.9%**	**2.6%**	**7.6%**	**23.4%**	**2.1%**	**52.4%**	**60.8%**
Top 25%*	**1.5%**	**2.4%**	**2.5%**	**6.9%**	**22.2%**	**3.2%**	**53.2%**	**63.2%**

** The top 25% are bold and italicised*

Table A7 Overhead costs

Farm number	Rates	Registration and insurance	Farm insurance	Repairs and maintenance	Bank charges	Other overheads	Employed labour	Total cash overheads	Depreciation	Imputed owner/operator and 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
SA0001	0.7%	0.0%	1.2%	1.5%	0.0%	3.6%	2.1%	9.1%	3.6%	27.1%	39.8%
SA0002	1.0%	0.2%	1.1%	6.1%	0.0%	1.1%	19.9%	29.4%	2.6%	7.9%	40.0%
SA0003	0.7%	0.2%	1.1%	4.5%	0.3%	5.9%	7.5%	20.3%	3.9%	10.4%	34.5%
SA0004	1.1%	0.2%	1.1%	5.0%	0.0%	2.6%	17.5%	27.5%	3.2%	7.3%	38.1%
SA0005	0.8%	0.0%	1.4%	7.4%	0.0%	3.7%	12.6%	25.9%	9.9%	7.1%	42.9%
SA0006	0.4%	0.3%	0.8%	4.6%	0.1%	1.4%	10.8%	18.4%	2.6%	7.0%	28.0%
SA0007	0.9%	1.1%	2.6%	13.4%	0.1%	2.9%	7.2%	28.2%	4.7%	8.1%	41.0%
SA0008	***1.9%***	***0.4%***	***1.3%***	***8.6%***	***0.2%***	***2.4%***	***6.6%***	***21.5%***	***10.6%***	***17.9%***	***50.0%***
SA0009	0.6%	0.4%	0.9%	3.7%	0.9%	3.7%	3.7%	13.9%	6.7%	41.5%	62.1%
SA0010	1.3%	0.2%	1.2%	6.3%	0.1%	3.1%	11.8%	24.2%	6.1%	14.7%	45.0%
SA0011	0.8%	0.5%	1.2%	8.4%	0.1%	4.3%	26.5%	41.7%	2.8%	1.5%	45.9%
SA0012	0.5%	0.0%	0.9%	4.9%	0.0%	5.3%	15.6%	27.2%	2.6%	0.0%	29.8%
SA0013	0.0%	0.6%	1.2%	3.0%	0.7%	1.3%	8.3%	15.1%	4.9%	21.4%	41.4%
SA0014	***0.0%***	***1.1%***	***0.0%***	***3.2%***	***0.0%***	***2.5%***	***13.8%***	***20.6%***	***1.5%***	***10.6%***	***32.7%***
SA0015	0.6%	0.3%	0.7%	8.7%	0.1%	7.6%	0.5%	18.4%	1.5%	14.7%	34.6%
SA0016	0.9%	0.1%	1.3%	5.6%	0.3%	1.5%	13.5%	23.4%	5.8%	4.1%	33.2%
SA0017	***0.5%***	***0.1%***	***1.0%***	***2.9%***	***0.1%***	***4.1%***	***24.6%***	***33.3%***	***9.2%***	***0.0%***	***42.5%***
SA0018	0.7%	0.0%	0.5%	7.2%	0.1%	0.8%	31.4%	40.7%	1.6%	1.6%	43.9%
SA0019	***0.5%***	***0.3%***	***0.4%***	***7.9%***	***0.0%***	***2.7%***	***12.6%***	***24.5%***	***3.1%***	***5.0%***	***32.6%***
SA0020	***0.6%***	***0.0%***	***0.8%***	***2.4%***	***0.7%***	***3.7%***	***16.0%***	***24.2%***	***2.0%***	***0.0%***	***26.2%***
Average	**0.7%**	**0.3%**	**1.0%**	**5.8%**	**0.2%**	**3.2%**	**13.1%**	**24.4%**	**4.5%**	**10.4%**	**39.2%**
Top 25%*	**0.7%**	**0.4%**	**0.7%**	**5.0%**	**0.2%**	**3.1%**	**14.7%**	**24.8%**	**5.3%**	**6.7%**	**36.8%**

** The Top 25% are bold and italicised*

Table A8 Capital structure

	FARM ASSETS				OTHER FARM ASSETS (PER USABLE HECTARE)				Total assets
	Land value	Land value	Permanent water value	Permanent water value	Plant and equipment	Livestock	Hay and grain	Other assets	
	$/ha	$/cow	$/ha	$/cow	$/ha	$/ha	$/ha	$/ha	$/ha
Average	**$10,973**	**$8,700**	**$369**	**$554**	**$1,932**	**$2,286**	**$212**	**$370**	**$16,461**
Top 25%*	**$11,291**	**$5,534**	**$611**	**$1,541**	**$2,559**	**$2,873**	**$273**	**$524**	**$18,437**

	LIABILITIES		ASSETS	
	Liabilities per usable hectare	Liabilities per milking cow	Equity per usable hectare	Average equity
	$/ha	$/cow	$/ha	%
Average	**$5,369**	**$3,991**	**$11,092**	**69%**
Top 25%*	**$7,789**	**$4,083**	**$10,648**	**66%**

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)
2012–13	$5.83	$6.09	$6.40	$6.69	$0.32	$0.34	$0.28	$0.30	$2.96	$3.09	$3.56	$3.72
2013–14	$6.83	$6.94	$7.74	$7.85	$0.30	$0.31	$0.26	$0.27	$3.04	$3.09	$3.61	$3.66
2014–15	$6.35	$6.35	$7.03	$7.03	$0.29	$0.29	$0.22	$0.22	$3.28	$3.28	$3.79	$3.79
Average		**$6.46**		**$7.19**		**$0.31**		**$0.26**		**$3.15**		**$3.72**

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 and tax		Interest and lease charges		Net farm income			
Year	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Nominal ($/kg MS)	Real ($/kg MS)	Return on assets	Return on equity
2012–13	$1.55	$1.62	$1.60	$1.67	$3.15	$3.29	-$0.31	-$0.33	$0.53	$0.55	-$0.84	-$0.88	-0.6%	-4.9%
2013–14	$1.54	$1.57	$1.31	$1.33	$2.85	$2.90	$1.27	$1.29	$0.52	$0.53	$0.75	$0.76	6.2%	8.5%
2014–15	$1.50	$1.50	$1.03	$1.03	$2.52	$2.52	$0.72	$0.72	$0.55	$0.55	$0.16	$0.16	3.9%	3.6%
Average		**$1.56**		**$1.34**		**$2.90**		**$0.56**		**$0.54**		**$0.02**	**3.2%**	**2.4%**

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

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)
2012–13	*340*	*141*	*650*	*320*	1.2	*527*	*622*	4.8	1.2	*51%*	*$304*	*$317*
2013–14	*526*	*164*	*897*	*453*	1.4	*469*	*660*	7.9	0.9	*57%*	*$343*	*$348*
2014–15	*529*	*159*	*618*	*362*	1.3	*581*	*738*	-11.5	4.1	*44%*	*$364*	*$364*
Average	**465**	**155**	**722**	**379**	**1.3**	**525**	**673**	**0.4**	**2.1**	**51%**		**$343**

**From 2011/12 estimated grazed pasture and conserved feed was calculated per hectare of milking area*

Appendix B: Glossary of terms

All other income

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

Annual hours

Total hours worked by a person during the given twelve month period.

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 land and buildings, plant and machinery, fixtures and fittings, trading stock, investments, debtors, and cash.

Break-even price required

Cost of production minus income only sourced from the main enterprise output. Allows for direct comparison with price received of main output.

Cash overheads

All fixed costs that have a cash cost to the business. Includes all overhead costs except imputed people costs and depreciation.

Cost of production

Variable costs plus overhead costs. Usually expressed in terms of the main enterprise output ie kilograms of milk solids.

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 not cash, but reduces the book value of the asset and is therefore a cost.

Earnings before interest and tax (EBIT)

Gross income minus total variable costs and 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, workcover etc.

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

Total interest plus total lease costs paid.

Full time equivalent (FTE)

Standardised people unit. Equal to 2400 hours a year. Calculated as 50 hours a week, 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) × dry matter content (DM %) × 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 income minus total variable costs.

Herd costs

Cost of 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 cost of owner/operator, family and sharefarmer time in the business, taken as the greater of $400 per cow less employed labour or $25 per hour.

Liability

Money owed to someone else, e.g. family or an institution such as a bank

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.

Milking area

Total usable area minus outblocks or run-off areas.

Net farm income

Previously reported as business profit

Earnings before interest and tax minus interest and lease costs. The amount of profit available for capital investment, loan principal repayments and tax.

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, rents from cottage, rebates and grants.

Overhead costs

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

Labour cost

Cost of the labour resource on farm. Includes both imputed and employed labour cost.

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.

Livestock trading profit

An estimate of the annual contribution to gross 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.

Return on assets (RoA)

Earnings before interest and tax divided by the value of total assets under management.

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, rubber ware, vacuum pump oil etc.

Total income

See gross farm income.

Total usable area

Total hectares managed minus that area of land which is of little or no value for livestock production e.g. 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) × 100.

Variable costs

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

List of abbreviations

AI	Artificial insemination.
BPR	Break-even price required.
CH4	Methane gas.
CO_2	Carbon dioxide gas.
CO_2-e	Carbon dioxide equivalent.
CoP	Cost of production.
DEDJTR	Depasrtment of Economics Development, Jobs, Transport and Resources, Victoria
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).
N2O	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.





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