



**Dairy Farm Monitor Project**  
Tasmania  
annual report 2016–17

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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 is also discussed.

This report is presented in the following sections:

- › Summary
- › Farm monitor method
- › Tasmania overview
- › Business confidence survey
- › Historical analysis
- › Appendices

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

The report presents visual descriptions of data for the 2016–17 year. Data are presented for individual farms, as state financial averages and for the state top 25% of farms ranked by return on assets managed (RoA). The presented averages should not be considered averages for the population of farms in Tasmania due to the small sample size and farms not being randomly selected.

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

In this report, the top 25% consists of nine farms from 36 participants in the 2016–17 Tasmanian Dairy Farm Monitor Project.

The Q1 - Q3 data range for key indicators are presented to provide an indication of variation in the data. The Q1 value is the quartile 1 value, that is, the value of which one quarter (25%) of data in that range is less than the average. The Q3 value is the quartile 3 value, that is, the value of which one quarter (25%) of data in that range is greater than the average. Therefore, the middle 50% of data resides between the Q1-Q3 data range.

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

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

The report focuses on measures on a per kilogram of milk solids basis, with occasional reference to measures on a 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  $[(\text{new value} - \text{original value}) / \text{original value}]$ . For example 'costs went from \$80/ha to \$120/ha, a 50% increase';  $[(120-80)/80] \times (100/1) = [(40/80) \times 100] = 0.5 \times 100 = 50\%$ , unless otherwise stated.

Any reference to 'last year' refers to the 2015–16 Dairy Farm Monitor Project report. Price and cost comparisons between years are nominal unless otherwise stated.

It should be noted that not all of the participants from 2015–16 are in the 2016–17 report, as there were 14 new participants in this year's dataset. It is important to bear 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 2016–17

The Dairy Farm Monitor Report for 2016–17 includes very few changes since last year's report:

- › All Dairy Farm Monitor Project data from Victoria, South Australia, New South Wales, Western Australia and Tasmania now provide the baseline data for comparative purposes in DairyBase, Dairy Australia's national dairy industry database for farm level data.
- › The Pasture Calculator used in the production of this report this year is not the DEDJTR Pasture Consumption Calculator used in previous reports. In 2016–17,

pasture consumption figures have been calculated within DairyBase, meaning results may not be directly comparable to previous years' reports.

- › In 2016–17 gross farm income does not include feed inventory change, as it has in previous years. Feed inventory change and, if applicable, change in the value of carry-over water are included as feed costs.
- › Data in this report are produced using standard values, which

have been outlined in Appendix B. These standard values for livestock and imputed labour have remained unchanged since last year. These standard values may vary from other organisation's standard values. Take care when directly comparing the results of multiple benchmarking studies without due diligence investigating the assumptions made in each data set.

Keep an eye on the project website for further reports and updates on the project at [dairyaustralia.com.au/dairyfarmmonitor](http://dairyaustralia.com.au/dairyfarmmonitor)

## Summary



# Summary

In 2016–17, the whole farm earnings before interest and tax (EBIT) from 36 participant farms in Tasmania rose to \$276,098, a 12% increase on 2015–16. This was on the back of the sudden milk price decrease towards the end of 2015–16 (\$5.55/kg MS) and a further decrease to \$5.03/kg MS. Return on assets decreased to 3.7% and net farm income increased to \$153,967 resulting in return on equity rising to 1.9% compared to last year's 0.8%.

This is the fourth year of the Dairy Farm Monitor Project in Tasmania. The project aims to provide the Tasmanian dairy industry with valuable farm level data relating to profitability and production.

In 2016–17, 36 Tasmanian dairy farms participated in the Dairy Farm Monitor Project, compared with 29 farms in 2015–16. The average milk price of these participants showed a 9% decrease compared to the previous season.

Earnings before interest and tax (EBIT) was on average \$276,098 per farm, a 12% increase on the previous year. Return on assets managed (RoA) decreased to 3.7% from 3.9% in the previous year. The top 25% of farms (as measured by RoA) had RoA of 6.6%.

Of the 36 participants, 34 recorded a positive return on assets with a range (for all farms) from negative 1.3% to 10.4%.

Net farm income, calculated after interest and lease charges were deducted from EBIT, was on average \$153,967 per farm, a 23% increase from last year.

Nine out of the 36 farms recorded a negative return on equity (RoE). The average RoE was 1.9% and was 11.3% for the top 25% performers. The average equity percentage for participating farms declined from 70% in 2015–16 to 61% this year. This increase in liabilities resulted in a slight rise in debt servicing ratio, from 10% the previous year to 11% for 2016–17.

There was a decrease in cost of production without inventory change from \$5.18/kg MS to \$4.87/kg MS, a reduction of 6%.

The top 25% received slightly higher milk price at \$5.15/kg MS and posted 3% higher gross income (at \$5.99/kg MS) than the average of all participant farms. Their variable costs was 4% lower at \$2.75/kg MS compared to the average (\$2.87/kg MS). The top 25% performers also spent less on overhead costs at \$1.56/kg MS than the average (\$1.98/kg MS). They generated much higher EBIT (\$1.68/kg MS) than the average of all participants (\$0.99/kg MS).

Milk sold per hectare increased from 936 kg MS/ha in 2015–16 to 976 kg MS/ha this year but milk sold per cow decreased from 444 kg MS/cow to 433 kg MS/cow. Stocking rate, measured as cows per usable hectare, increased from 2.1 cows per hectare to 2.2 cows per hectare. The top performers sold more milk per cow and per hectare, 10% and 24% higher, respectively.

Farms in the top 25% had a higher stocking rate with 2.5 cows/ha. Average milk fat was 4.5% and milk protein was 3.6%, the same as the previous season.

Pasture consumption was slightly lower than last year at 10.4 t DM/ha compared to 10.7 t DM/ha but home grown feed made up a larger component of the diet. In 2016–17, 74% of the energy consumed by the cows came from home grown feed compared to 69% the previous year.

Eighty-eight percent of participants were expecting business returns to improve in the upcoming season. Half of the participants were expecting an increase in milk price and 81% an increase in milk production.

Pasture/fodder, milk price and input prices were the main concerns for the 2017–18 season. Longer term, milk price remained the dominant concern.

# Farm monitor method



# Farm monitor method

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

The method employed to generate the profitability and production data was adapted from that described in The Farming Game (Malcolm *et al.* 2005) and is consistent with previous Dairy Farm Monitor Project (DFMP) reports. Readers should be aware that not all benchmarking programs use the same method or terms for farm financial reporting. The allocation of items such as lease costs, overhead costs or imputed labour costs against the farm enterprises varies between financial

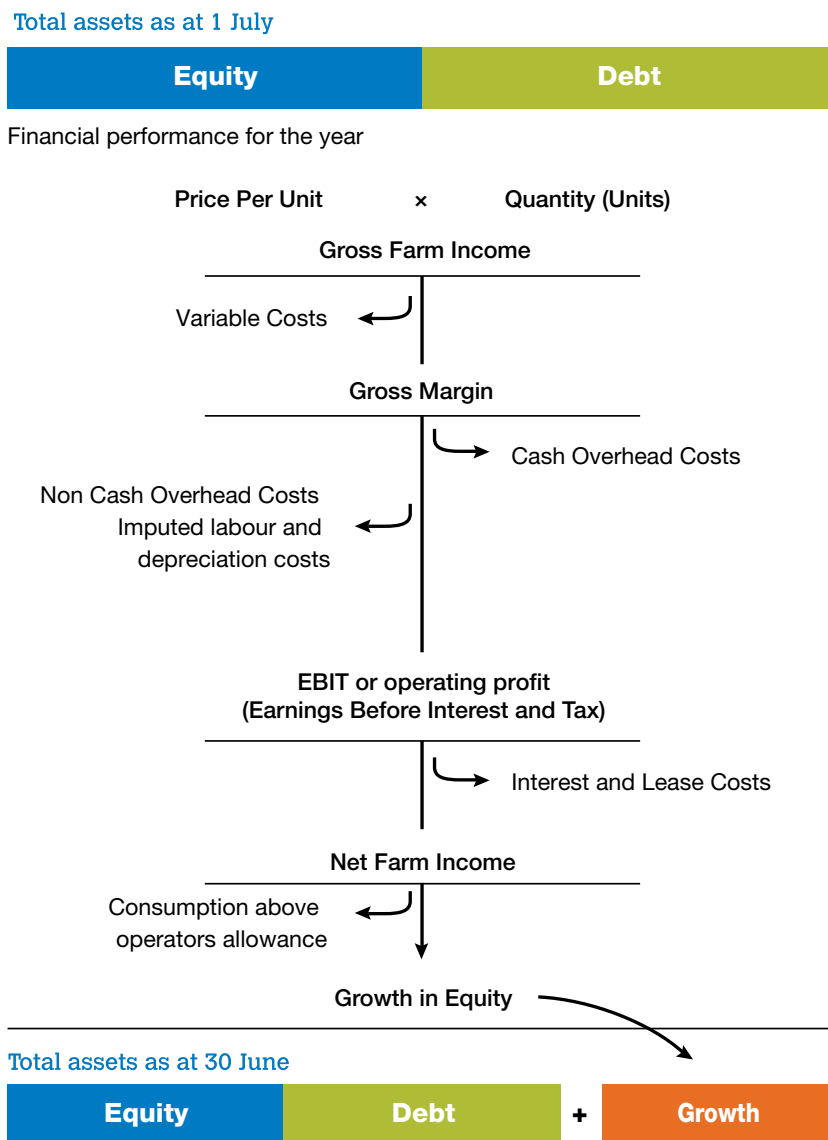
benchmarking programs. Standard dollar values for items such as stock and feed on hand and imputed labour rates may also vary. For this reason, the results from different benchmarking programs should be compared with caution.

Figure 1 demonstrates how the different farm business economic terms fit together and are calculated. This has been adapted from an initial diagram developed by Bill Malcolm. The diagram shows the different profitability measures

as costs are deducted from gross farm income. Growth is achieved by investing in assets which generate income. These assets can be owned with equity (one's own capital) or debt (borrowed capital). The amount of growth is dependent on the maximisation of income and minimisation of costs, or cost efficiency relative to income generation.

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

**Figure 1** Dairy farm monitor project method



## Gross farm income

The farming business generates a gross farm income which is the sum of milk cash income (net), livestock trading profit and 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 sold. Subtracting certain costs from total income gives different profitability measures.

## Variable costs

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



## Overhead costs

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

## Earnings before interest and tax

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

## Net farm income

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

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

## Return on assets and return on equity

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

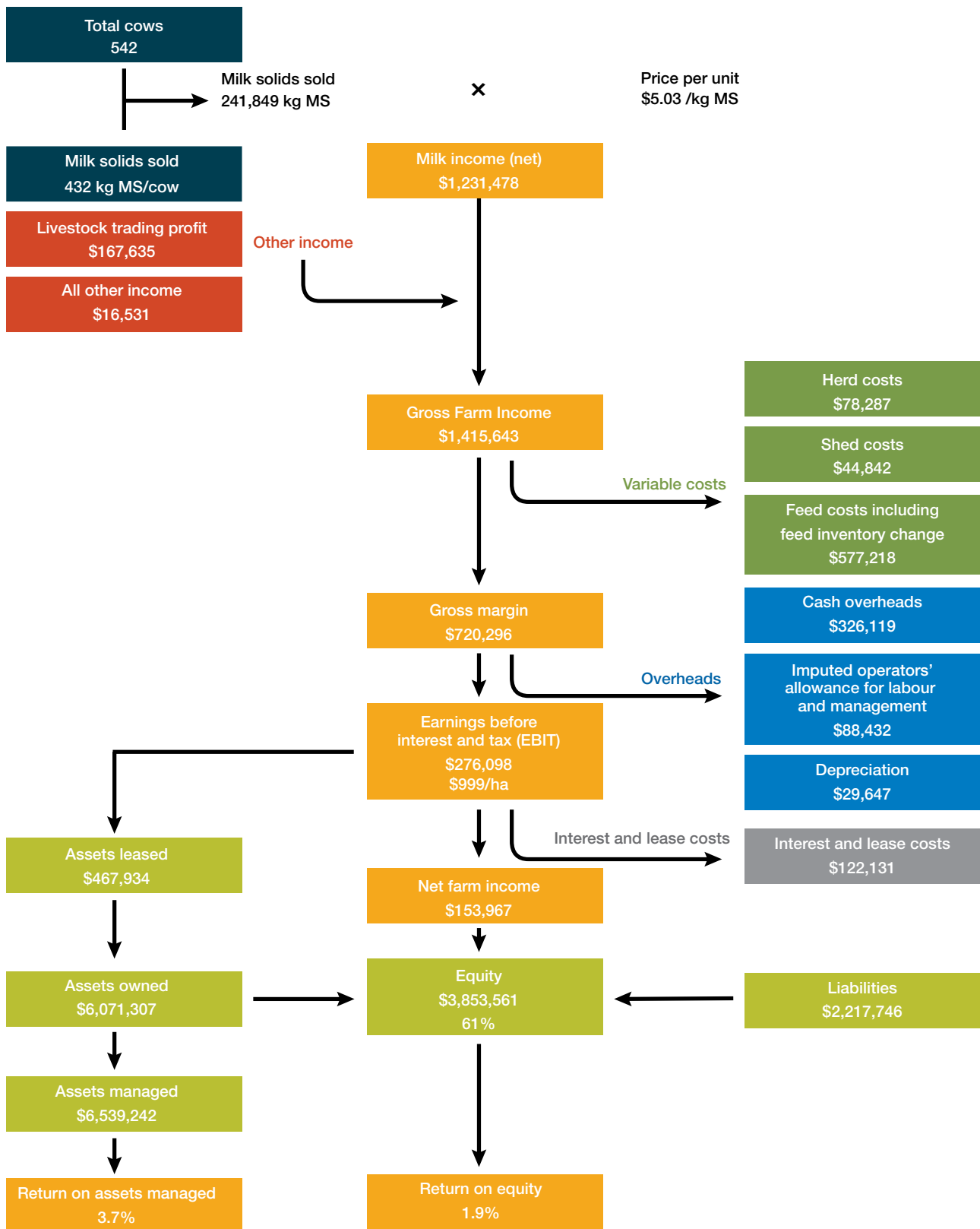
Return on assets indicates the overall earning of the total farm assets, irrespective of capital structure of the business. It is EBIT expressed as a percentage of the total assets under management in the farm business, including the value of leased assets. Return on assets is sometimes referred to as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

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

Return on equity measures the owner's rate of return on their own capital investment in the business. It is net farm income expressed as a percentage of total equity (one's own capital). The DFMP reports RoE without capital appreciation. The RoE is reported in Appendix Table A1.

**Figure 2** Dairy farm monitor project method profit map – state average 2016–17 data<sup>1</sup>

All farms 36



<sup>1</sup> Profit map adapted from Queensland Dairy Accounting Scheme – 2010 with permission from Ray Murphy, Department of Agriculture, Fisheries and Forestry, Queensland

## Tasmania overview



# Tasmania overview

In 2016–17, 835 million litres of milk was sold in Tasmania. This was the second year in a row that total milk production declined (by 5.4% in 2016–17), alongside a national milk production decline of 6.9%.

The number of registered dairy farms in Tasmania this year was 440, the same number as in 2014–15 and slightly greater than in 2015–16 (434 farms). The majority of farms are located in the higher rainfall (>1000 mm) regions of Tasmania along the northern coastline from Marrawah in the west to Pyengana in the east. There are a small number of farms on King Island and in the lower rainfall regions of the northern midlands and southern Tasmania.

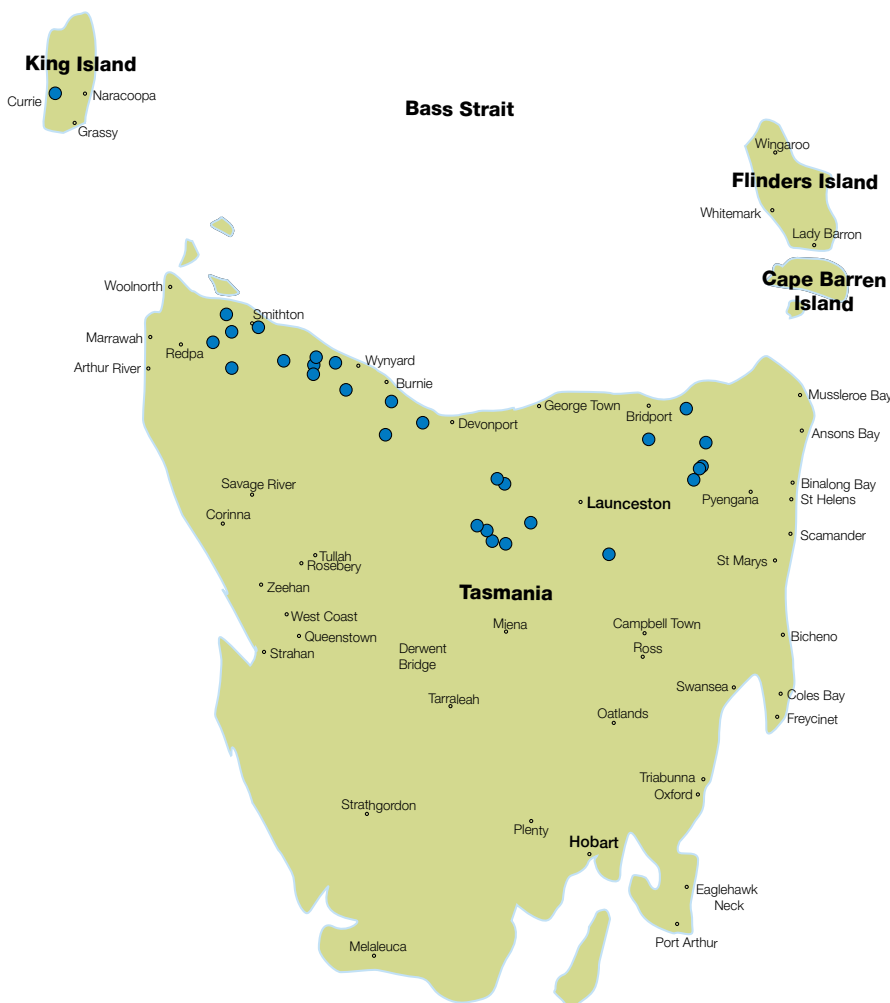
Tasmania has a ryegrass dominant, pasture-based dairy industry with feeding systems ranging from very low input to high input systems. Peak pasture growth occurs in spring, and for many farms this accounts for two-thirds of pasture growth for the season. Rainfall in Tasmania tends to be winter dominant.

Tasmania retains a seasonally based calving pattern with the majority of cows calved in spring but there are increasing numbers of farms that

also calve some cows in autumn. Many Tasmanian dairy farms now use cross-breeding in their herds.

Thirty-six farms provided data for the 2016–17 Tasmanian Dairy Farm Monitor report, 22 of these farms had participated in previous years and 14 were new participants. The approximate locations of the participating farms are shown in Figure 3.

**Figure 3** Distribution of participant farms in 2016–17 across Tasmania



# 2016–17 seasonal conditions

Seasonal conditions in 2016–17 were mainly positive for growing pasture. Most dairy farms received above average rainfall and temperature for the season.

Despite snowfall down to sea level during July, average daily temperatures were above the long-term average for the month. Rainfall for July was also above average (Figure 5) but conditions were drier in August resulting in reasonably good conditions for calving in most regions.

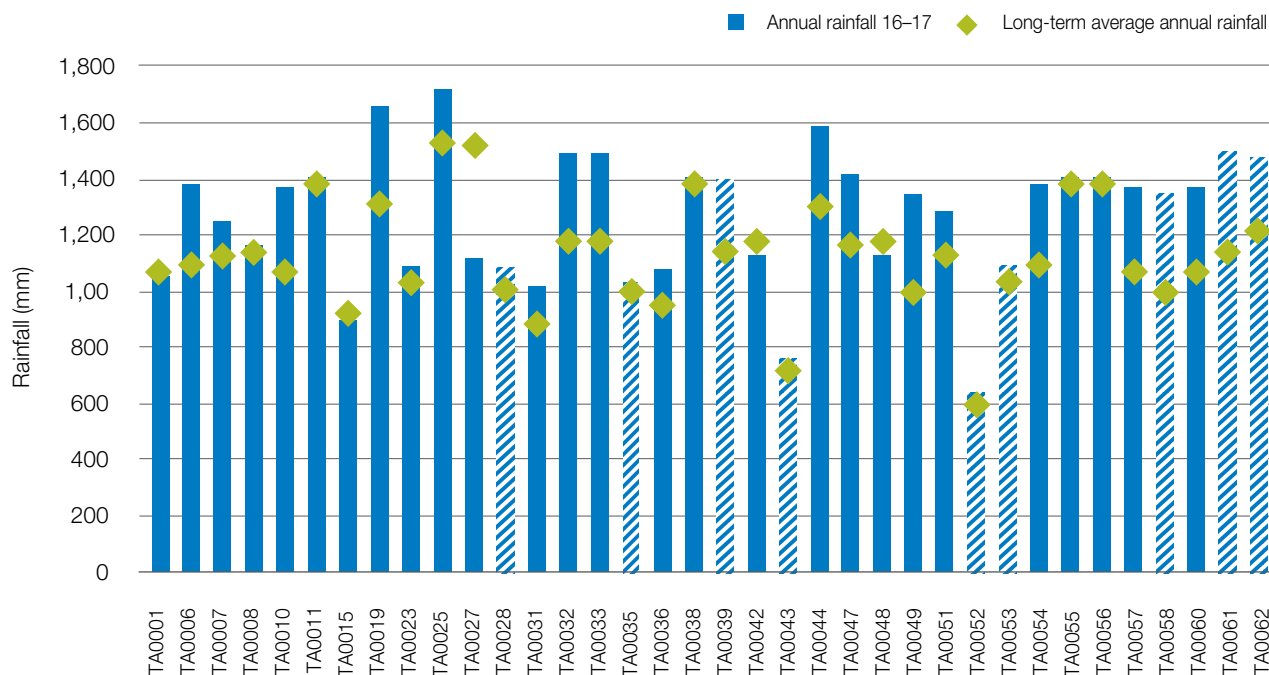
After a positive start to the season, good conditions continued with above average rainfall through spring and early summer. As a result, a greater amount of fodder was conserved than in the previous year with an average of 1.0 t DM/ha harvested.

There was some localised flooding during September and October, mostly in the central north/northern midland regions.

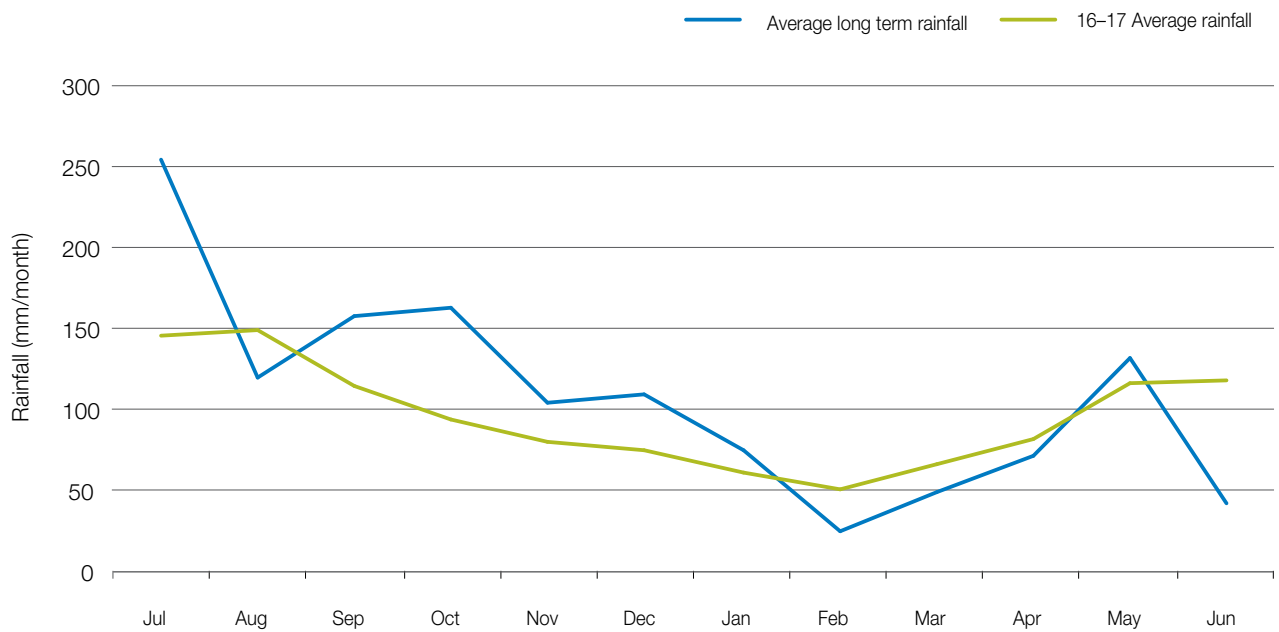
**Top 25%\*** – The top 25% are shown as the striped bars in all graphs as ranked by return on assets.

Figure 4 shows the variability in rainfall received by farms participating in the Dairy Farm Monitor Project. It also shows that most farms received average or above average rainfall.

**Figure 4** 2016–17 annual rainfall and long term average rainfall of participant farms



**Figure 5** Monthly average rainfall (all farms)



# Whole farm analysis

Thirty-six farms provided data for the Tasmanian Dairy Farm Monitor Project in 2016–17. The participating farms had an average herd size of 542 cows with an average stocking rate of 2.2 cows per usable hectare. Key whole farm physical parameters for Tasmania are presented below in Table 1.

Average herd size decreased to 542 cows from 580 cows last season. This was largely due to the introduction of 14 new farms to the project this year, many of which had lower than the previous participants' average herd size.

Rainfall totals were again higher than for the previous year but more evenly distributed so there was less severe and widespread flooding. Total water used was 1,620 mm/ha which is 30% higher than in 2015–16.

The average total usable area decreased from 302 hectares to 268 hectares. Again, this is related to new farms participating in the project. The stocking rate per usable hectare increased from 2.1 cows/ha to 2.2 cows/ha. The top 25% had a higher stocking rate averaging 2.5 cows/ha.

Milk sold per cow was 3% lower than the previous season but milk sold per hectare was 4% higher. This is likely due to the higher stocking rate.

There was a further 9% decrease in milk price this season, from \$5.55/kg MS last year to \$5.03/kg MS this year. This was the fourth year in a row there has been an overall decrease in milk price among participant farms.

Labour efficiency per cow increased slightly from 141 cows per full time equivalent (FTE) to 143 cows/FTE but decreased in terms of milk solids production by 2% to 61,111 kg MS/FTE. These are very small changes even though a number of smaller farms were introduced into the project. Labour efficiency on Tasmanian dairy farms

is the highest of all states participating in the DFMP.

Table 1 presents the average of some farm characteristics for the state. Further details can be found in the Appendix Table A2.

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.

There are nine farms in the top 25% this season. They have a significantly greater herd size (51%) than the Tasmanian average along with more usable area. Stocking rate and milk sold per hectare and per cow are also higher. The amount of energy in the diet coming from home-grown feed was the same for both the average and the top performers at 74%.

The top 25% had higher labour efficiency in terms of milk solids per cow and per full time equivalent (FTE).

**Table 1** Farm physical data – State overview

Farm physical parameters	Average	Q1 to Q3 range	Top 25% average
Herd size	542	330 - 801	817
Annual rainfall 2016–17	1,288	1,092 - 1,410	1,148
Water used (irrigation + rainfall) (mm/ha)	1,620	1,530 - 1,717	1,555
Total usable area (hectares)	268	160 - 311	368
Milking cows per usable hectares	2.3	1.7 - 2.9	2.5
Milk sold (kg MS /cow)	432	376 - 497	475
Milk sold (kg MS /ha)	976	625 - 1,261	1,208
Home grown feed as % of ME consumed	74%	64% - 80%	74%
Labour efficiency (milking cows/FTE)	143	115 - 164	172
Labour efficiency (kg MS/FTE)	61,111	49,537 - 71,189	79,234

## 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 other farm income.

Figure 6 shows how milk income dominates gross farm income, forming 86% of gross farm income in 2016–17. Other income consists of livestock trading profit (13%) and other farm income (1%).

Figure 6 also shows the variation in gross income per kilogram of milk solids from \$4.78/kg MS to \$7.46/kg MS. Average gross farm income was \$5.84/kg MS and 3% lower than last year. The top 25% of farms averaged \$5.99/kg MS.

The decrease in gross farm income in 2016–17 was reflective of the lower milk price received that year. On average, milk price received dropped by 9%, from \$5.55/kg MS in 2015–16 to \$5.03/kg MS this year.

The top 25% received a milk price of \$5.15/kg MS. The total dollar increase in livestock trading profit (35%) this year softened the effect of lower milk price on the gross farm income.

## Milk solids sold

The average amount of milk solids sold was 4% higher at 976 kg MS/ha compared to 936 kg MS/ha in 2015–16 (Figure 7). The top 25% sold an average of 1,208 kg MS/ha, 24% higher than the average of all participants. As can be seen in Figure 7, there is wide variation in the amount of milk solids sold per usable hectare, ranging from 409 kg MS/ha to 1,879 kg MS/ha. Some of this variation is due to strategies employed by different farmers in managing non-milking stock.

Milk solids sold per hectare is calculated on the total dairy area which includes the support area, and because of this, farms which utilise their whole farm as milking area and

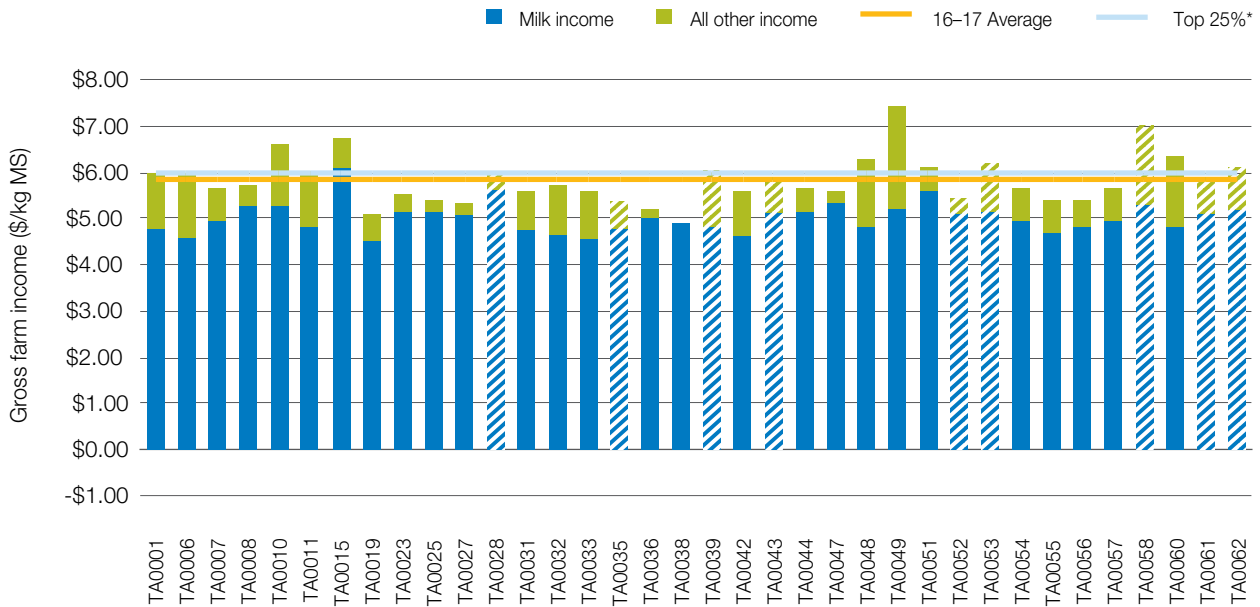
use agistment for non-milking animals tend to have higher milk solids sold per hectare.

There is also a wide range of milk sold per cow, from 290 kg MS/cow to 576 kg MS/cow, with an average of 432 kg MS/cow.

## Milk sales versus calving pattern

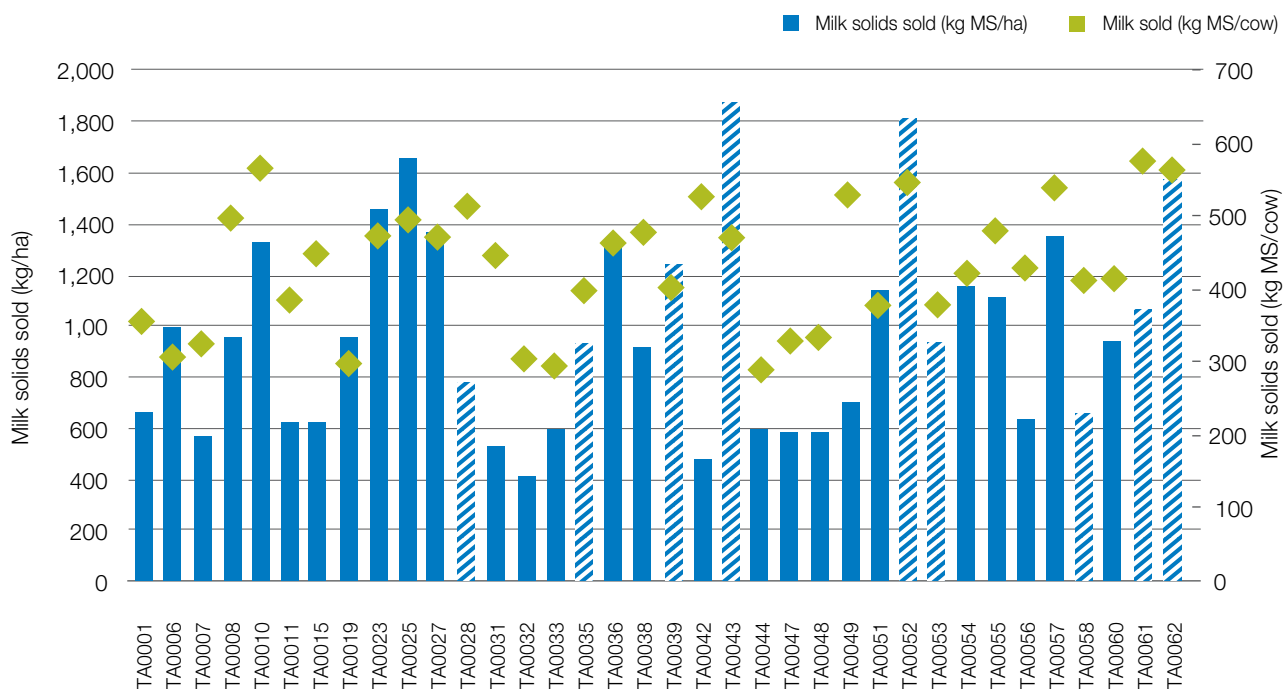
Figure 8 shows the average monthly milk sales for all participant farms with the monthly distribution of calves born. Tasmanian farms have spring dominant calving patterns, with 92% of calves born between July and November. Milk sales are generally higher three months after peak calving. This year, peak milk sales occurred in October and November with 12% of the annual total in each month. There is typically another small peak of milk sales in autumn associated with the autumn calving period but this was not seen this year.

**Figure 6** Gross farm income of per kilogram of milk solids

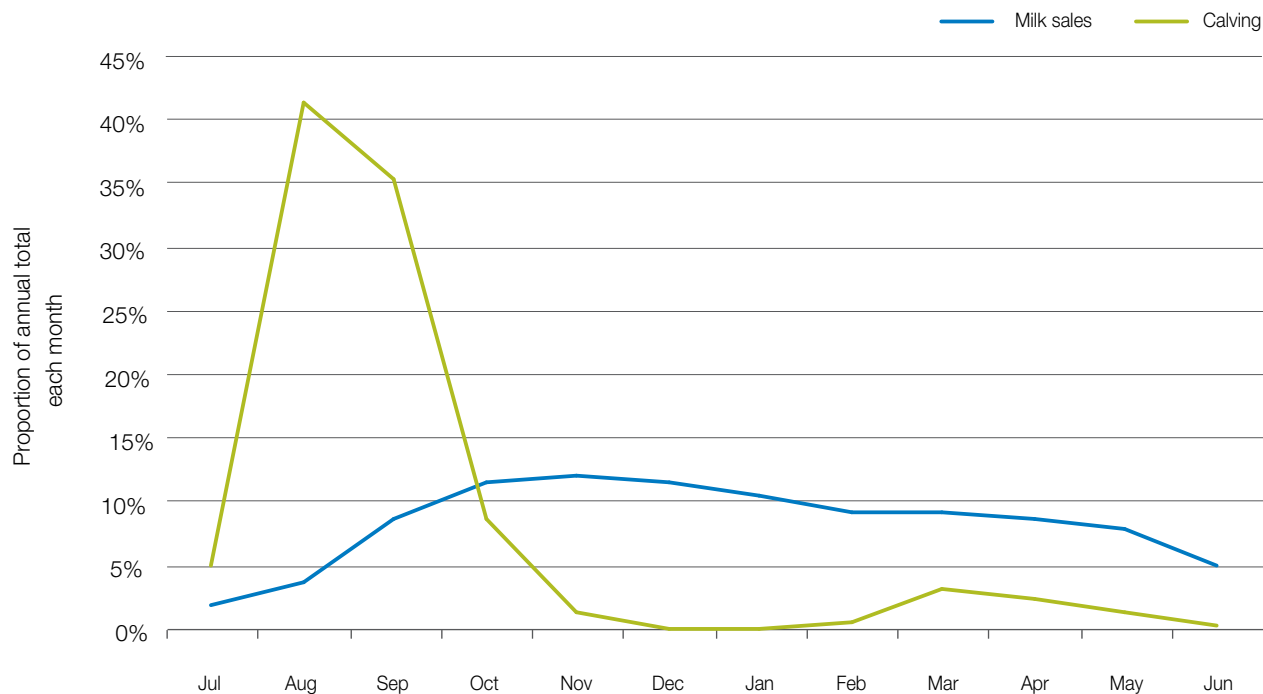




**Figure 7** Milk solids sold



**Figure 8** Milk sales vs calving pattern



## Variable costs

Variable costs are costs 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 of the participant farms were 11% lower than last year. This is to be expected as farmers reined in spending given the lower milk price received for this season.

Figure 9 shows the range of variable costs was from \$1.40/kg MS to \$4.47/kg MS, with an average of \$2.87/kg MS.

Total feed costs, including home grown feed, purchased feed, agistment and feed inventory change, accounted for 83% of total variable costs.

Concentrates were the largest single feed cost category, costing farmers an average of \$1.07/kg MS in 2016–17, a 21% decrease from the previous year.

Fertiliser (\$0.47/kg MS) and agistment (\$0.27/kg MS) are the next largest variable costs.

Variable costs for the top 25% were 4% lower than average at \$2.75/kg MS. The main areas in which the top 25% spent less than the average were shed power (-27%); pasture improvement/cropping (-45%); fodder purchases (-27%), and concentrates (-5%). The top performers spent 14% more on herd costs than the average of all the participant farms.

Appendix Table A4 shows the variable costs per kilogram of milk solids sold and the percentage breakdown can be found in Appendix Table A6.

## 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.

Figure 9 illustrates the overhead cost per kilogram of milk solids. This includes the cash overhead costs and non-cash overhead costs (for imputed owner/operator and family labour and depreciation).

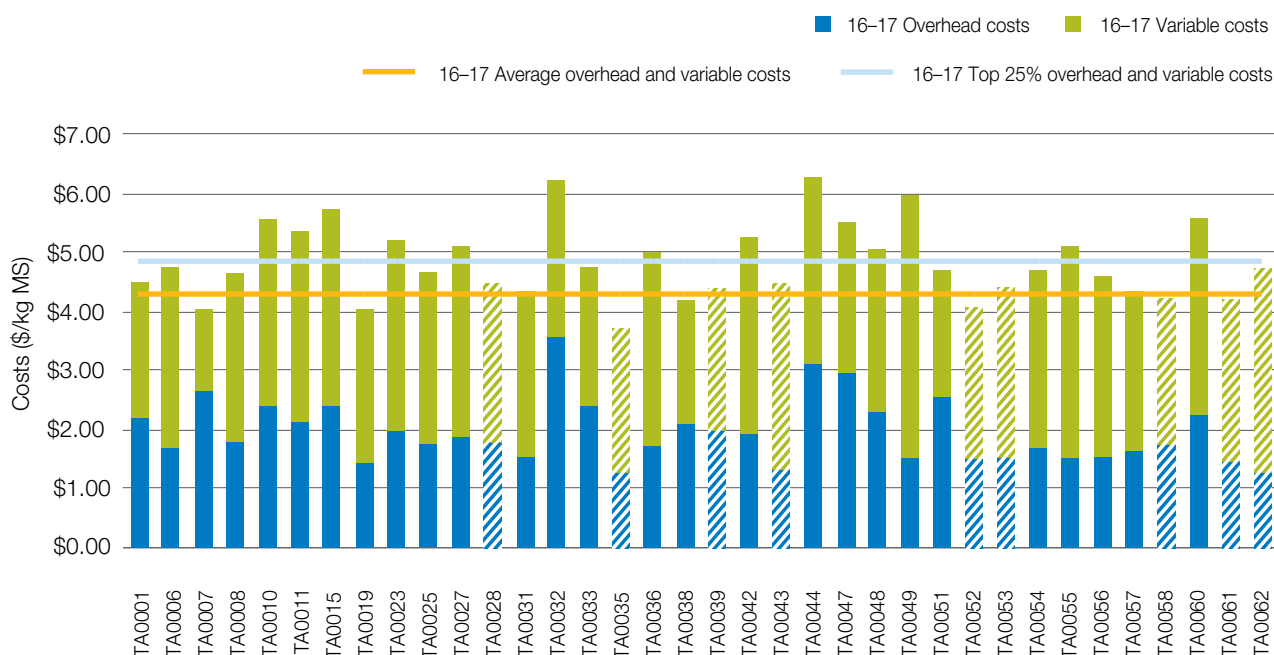
The average overhead cost for 2016–17 was \$1.98/kg MS compared with \$1.91/kg MS in 2015–16. The range of overhead costs during 2016–17 was between \$1.29/kg MS and \$3.58/kg MS.

Labour costs were on average \$1.25/kg MS which was an increase from \$1.19/kg MS in the previous year. Employed labour continues to be the largest component of labour costs at \$0.71/kg MS although there was a 19% reduction from the previous year. However, there was a 77% increase in imputed labour, from \$0.31/kg MS to \$0.55/kg MS.

The change in proportion between employed labour cost and imputed labour cost could be influenced by the new farms participating in the project. It may also be a cost-saving strategy due to the lower milk price with owner-operators taking on an increased workload to reduce employed labour costs.

The ability to maintain lower overhead costs appears to be a key to performing in the top 25% for Tasmania. The top 25% have overhead costs that are 21% lower than average at \$1.56/kg MS. Unlike last year when the top 25% had lower employed labour cost, this year

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



employed labour was higher than the average at \$0.79/kg MS.

Last year the big difference in overhead costs between the average and top 25% was employed labour costs, which is not the case this year. The top performers spent \$1.26/kg MS, only \$0.04/kg MS less on cash overheads than the average. This year, the big difference was in the non-cash overhead cost of imputed labour. The average imputed labour cost was \$0.55/kg MS compared to the top 25% at \$0.18/kg MS.

Table 2 provides an indication of the range of overheads per kilogram of milk solids sold. The breakdown of overheads costs can be found in Appendix Table A5 and Appendix Table A7.

## 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 also 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 account 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 the average cost of production was \$4.84/kg MS, which was an 8% decrease from last year.

The top 25% of farms had a cost of production of \$4.12/kg MS compared to \$4.67/kg MS in 2015–16.

Table 2 shows the imputed owner/operator and family labour and depreciation costs separated out, allowing owner/operators to distinguish their own cost of labour and where cash flow occurs in the business.

**Table 2** Cost of production

Farm Costs	Average	Q1 to Q3 range	Top 25% average
<b>Variable costs</b>			
Herd costs	\$0.28	\$0.23–\$0.34	\$0.32
Shed costs	\$0.20	\$0.13–\$0.23	\$0.16
Purchased feed and agistment	\$1.44	\$1.13–\$1.73	\$1.45
Home grown feed costs	\$0.96	\$0.75–\$1.04	\$0.88
<b>Total variable costs</b>	<b>\$2.89</b>	<b>\$2.60–\$3.16</b>	<b>\$2.81</b>
<b>Overhead costs</b>			
Employed labour cost	\$0.71	\$0.40–\$1.00	\$0.79
Repairs and maintenance	\$0.33	\$0.23–\$0.41	\$0.32
All other cash overheads	\$0.26	\$0.18–\$0.33	\$0.15
Total cash overheads	\$1.30	\$1.01–\$1.57	\$1.26
<b>Cash cost of production (\$/kg MS)</b>	<b>\$4.19</b>	<b>\$3.66–\$4.66</b>	<b>\$4.07</b>
Depreciation	\$0.14	\$0.06–\$0.18	\$0.12
Imputed labour	\$0.55	\$0.18–\$0.95	\$0.18
Non-cash overheads	\$0.68	\$0.30–\$1.07	\$0.30
<b>Cost of production without inventory changes (\$/kg MS)</b>	<b>\$4.87</b>	<b>\$4.43–\$5.23</b>	<b>\$4.37</b>
<b>Inventory change</b>			
+/- feed inventory change	-\$0.02	-\$0.05–\$0.04	-\$0.06
+/- livestock inventory change – purchases	-\$0.01	-\$0.26–\$0.19	-\$0.19
<b>Cost of production with inventory change (\$/kg MS)</b>	<b>\$4.84</b>	<b>\$4.22–\$5.20</b>	<b>\$4.12</b>

## Earnings before interest and tax

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.

Even though the milk price was lower this season, EBIT increased

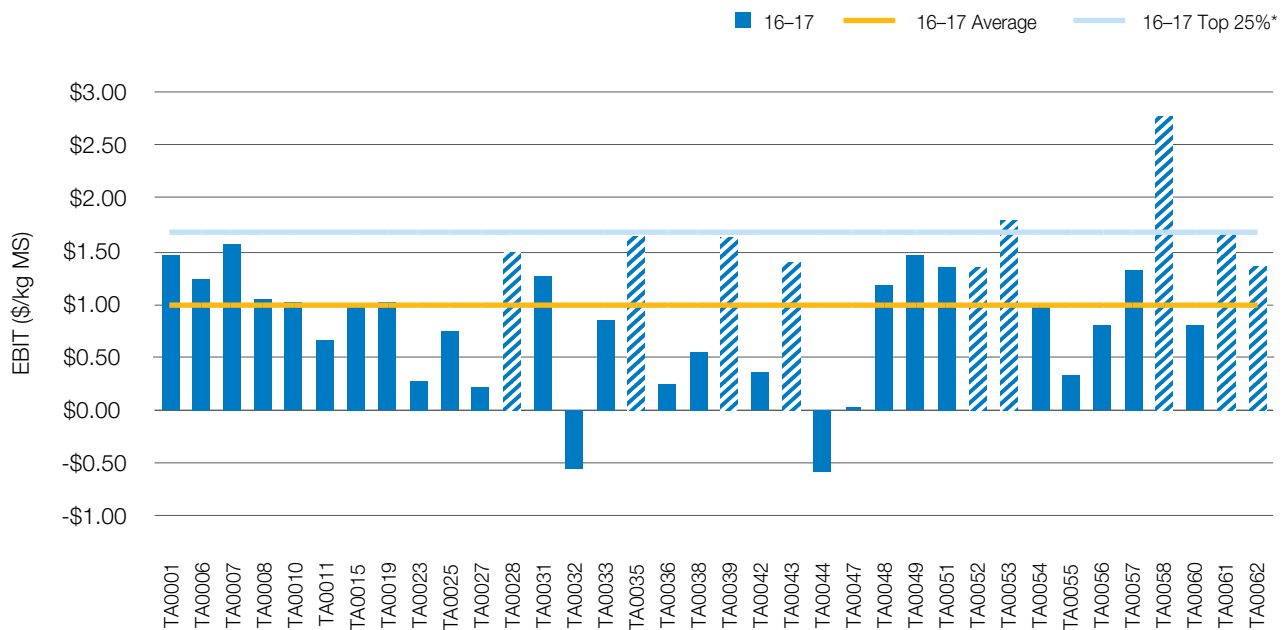
from \$0.92/kg MS last season to \$0.99/kg MS. This was achieved through a reduction in variable costs (-11%) and minimal increase in overhead costs (4%).

The EBIT of the top 25% was \$1.68/kg MS. While higher than the average, the gap between the average and top 25% is lower than in previous years. For the last two years, the EBIT of the top 25% has

been almost one dollar higher than average. This year the difference was \$0.69/kg MS.

Two farms had a negative EBIT in 2016–17 compared to three farms last year.

**Figure 10** Whole farm earnings before interest and tax per kilogram of milk solids



## Return on assets and equity

Return on assets (RoA) 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 11 to 14 were calculated excluding capital appreciation.

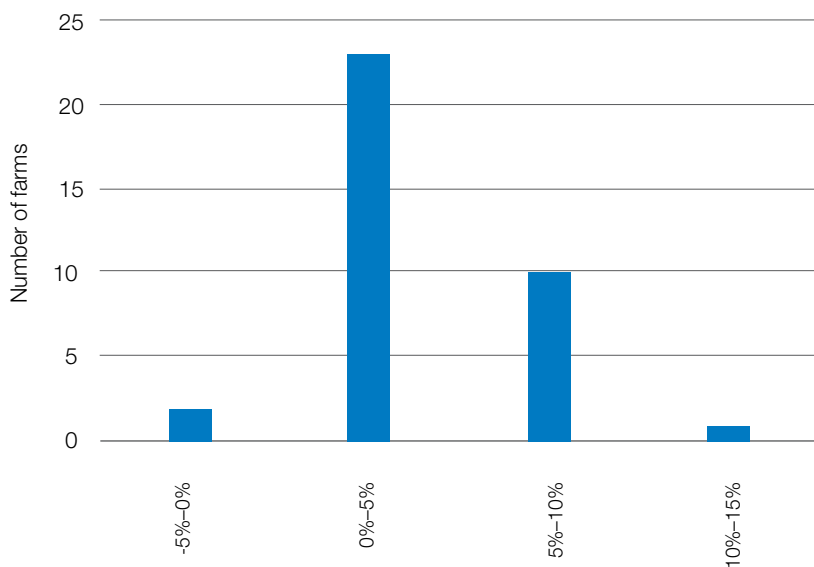
The average return on assets for 2016–17 was 3.7% with a range from negative 1.3% to 10.4% (Figure 11 and Appendix Table A1).

Of the 36 farms, 34 recorded positive return on assets.

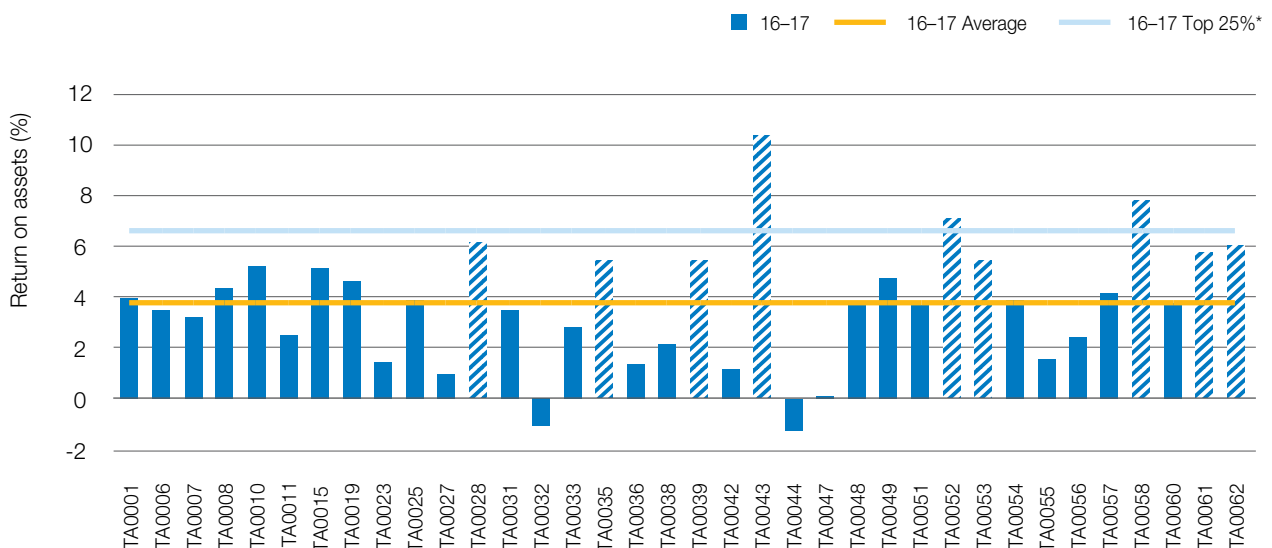
The average return on assets of 3.7% was a slight decline on the average of 3.9% in 2015–16. This decline, despite the increase in EBIT, was due to reported increases in the value of farm assets. Asset value this year averaged \$24,018/ha compared to \$21,069/ha in the previous year. The average return on assets for the top 25% was 6.6%, down from 8.9% in the previous year.

The variation between farms' return on assets (Figure 12) is indicative of the variation between farms' EBIT generated from the assets under management.

**Figure 11** Distribution of farms by return on assets



**Figure 12** Return on assets



Return on equity (RoE) is the net farm income expressed as a percentage of owners' equity. It is a measure of the owners' rate of return on their investment.

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. A negative return on equity will result when total interest and lease payments exceed EBIT. When the percentage of RoE increases compared to RoA, it is the result of a higher return from the additional assets than the interest or lease rate. The average RoE for the 36

farms was 1.9%, an increase from 0.8% in 2016–17 (Figure 13).

Nine farms out of the 36 had a negative return on equity (Figure 13 and Figure 14). This is a higher proportion of farms with a negative RoE than in the previous year.

The top 25% group recorded RoE of 11.3% which was less than the 13.5% achieved in the previous year.

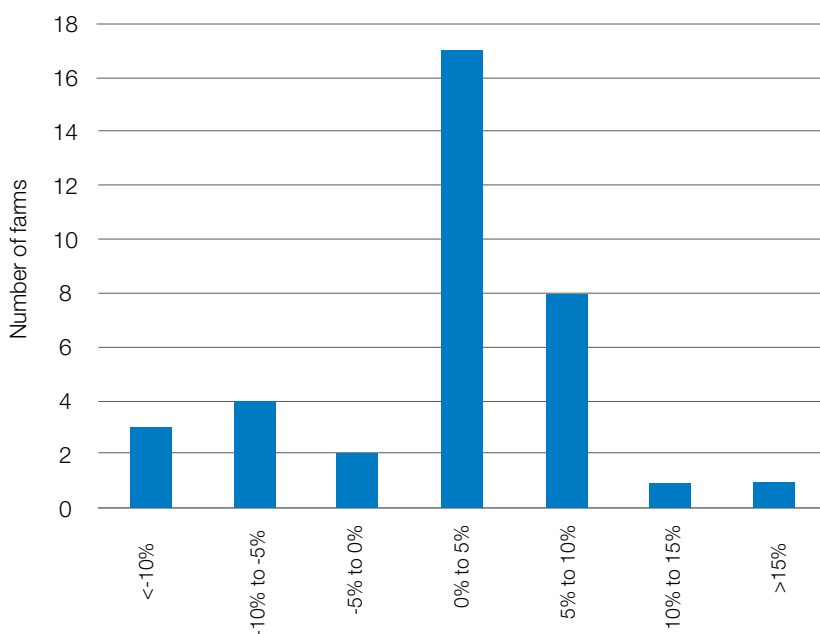
Average interest and lease costs were higher than the previous year, \$0.63/kg MS compared to \$0.42/kg MS. The top 25% also had an increase in these costs from \$0.41/kg MS to \$0.48/kg MS. The change in the composition of the dataset

could have an effect on the increase in the average liabilities by \$464,800 per farm and therefore a rise in financing costs.

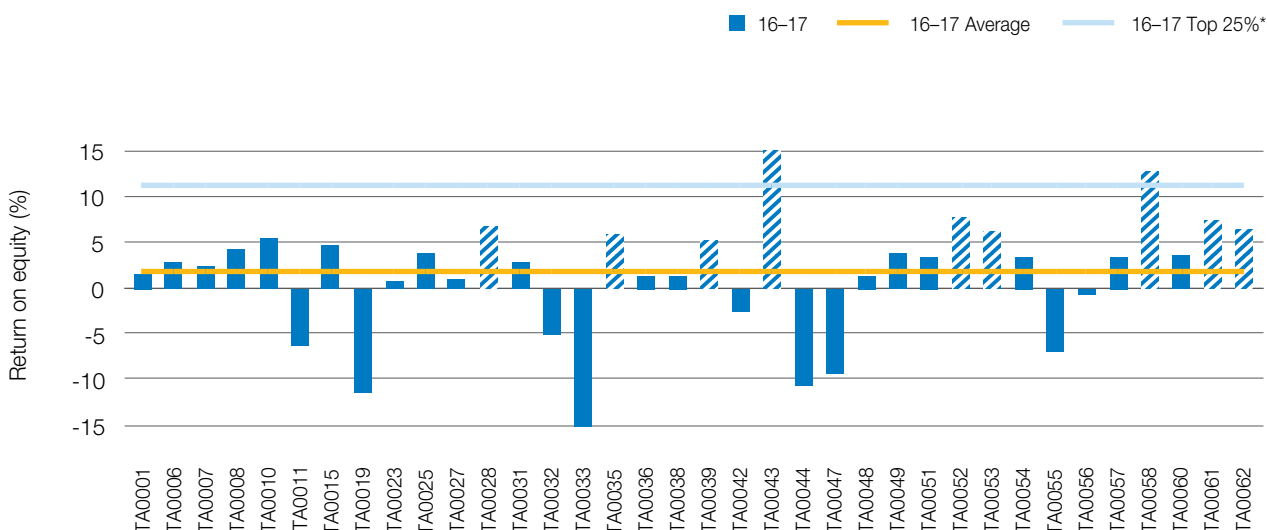
Average capital values can be seen in Appendix A8.

Further discussion of return on assets and return on equity occur in the risk section below. Appendix Table A1 presents all the return on assets and return on equity for the participant farms. Note that Figure 14 has been amended by modifying the y axis to allow for all data to be viewed. One farm returned a RoE of 42.2%, and similarly one farm had a RoE of negative 32.8% due to business structure.

**Figure 13** Distribution of farms by return on equity



**Figure 14** Return on equity



## Risk

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

Table 3 presents some key risk indicators. Refer to Appendix B for the definition of terms used in Table 3. The indicators in Table 3 can also be found in Appendix Tables A1, A3 and A8.

Exposure to risk in business is entirely rational if not unavoidable. It is through managing risk that greater profits can be made. It is also the case that by accepting a level of risk in one area of business, a greater risk in another area can be avoided. Using the example of feed sources, dairy farmers are generally better at dairy farming than they are at grain production. Thus by allowing someone who is experienced in producing grain to supply them, they lessen the

production and other business risks as well as the financial risks they would have exposed themselves to by including extensive cropping in their own business. The trade-off is that they are in turn exposed to price and supply risks.

The trade-off between perceived risk and expected profitability will dictate the level of risk a given individual is willing to take. It then holds that in regions where risk is higher, less risk is taken. While in good times this will result in lower returns, in more challenging times it will lessen the losses.

The higher the risk indicator (or lower with equity %) in Table 3, the greater the exposure to the risk of a shock in those areas of the business.

The cost structure ratio provides variable costs as a proportion of total costs. A lower ratio implies that overhead costs comprised a greater proportion of total costs that in turn indicates less flexibility in the business. Table 3 shows that across Tasmania for every \$1.00 spent, \$0.60 was used to cover variable costs. One hundred minus this gives the proportion of total costs that are overhead costs.

The debt services ratio shows interest and lease costs as a proportion of gross farm income. The ratio increased again this year, from 10% in 2015–16 to 11% this

year. This indicates that on average farms repaid \$0.11 to their creditors from every dollar of gross farm income.

The benefit of taking on risk and borrowing money can be seen when farm incomes yield a higher return on equity than on return on assets. This year there were 10 out of the 36 (27%) participants who achieved a higher return on equity than return on assets compared to 34% last year and 57% in 2014–15.

This year there was a further reduction in the average equity, from 70% to 61%. Caution should be exercised when comparing equity between years as there has been a change of farms in the sample.

This year, all farms in the Dairy Farm Monitor project sourced at least some of their metabolisable energy (ME) from imported feeds and are therefore somewhat exposed to fluctuations in prices and supply in the feed market. In the previous two years, the proportion of imported feed has been 31%. This year it decreased to 26%, perhaps as a cost-saving measure in response to the lower milk price.

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

**Table 3** Risk indicators

	2013–14	2014–15	2015–16	2016–17
Cost structure (proportion of total costs that are variable costs)	59%	62%	63%	60%
Debt servicing ratio (percentage of income as finance costs)	6%	6%	10%	11%
Debt per cow	\$2,660	\$2,601	\$3,141	\$4,313
Equity percentage (ownership of total assets managed)	75%	74%	70%	61%
Percentage of feed imported (as a % of total ME)	28%	31%	31%	26%

# Physical measures

Grazed pasture provided an average of 67% of the total metabolisable energy (ME) on participant farms this year. Concentrates supplied 24% of metabolisable energy.

## 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 Appendix B.

The contribution of different feed sources to the total ME consumed on the farm is presented in Figure 15. This includes feed consumed by dry cows and young stock. A cow's diet can consist of grazed pasture, harvested forage, crops, concentrates and other imported feeds.

Grazed pasture made up the majority of the diet with an average of 67% of the diet being derived from directly grazed pasture.

The next biggest component of energy in the diet is concentrates at 24%, followed by silage at 6% and hay at 4%.

The percentage of ME supplied by concentrates ranged from 2% to 42%.

Appendix Table A3 provides further information on purchased feed.

Figure 16 and Appendix Table A2 give an estimate of the average quantity for home grown feed consumed per milking hectare for participant farms across the state. It accounts only for the consumption of pasture that occurred on the milking area whether by milking, dry or young stock.

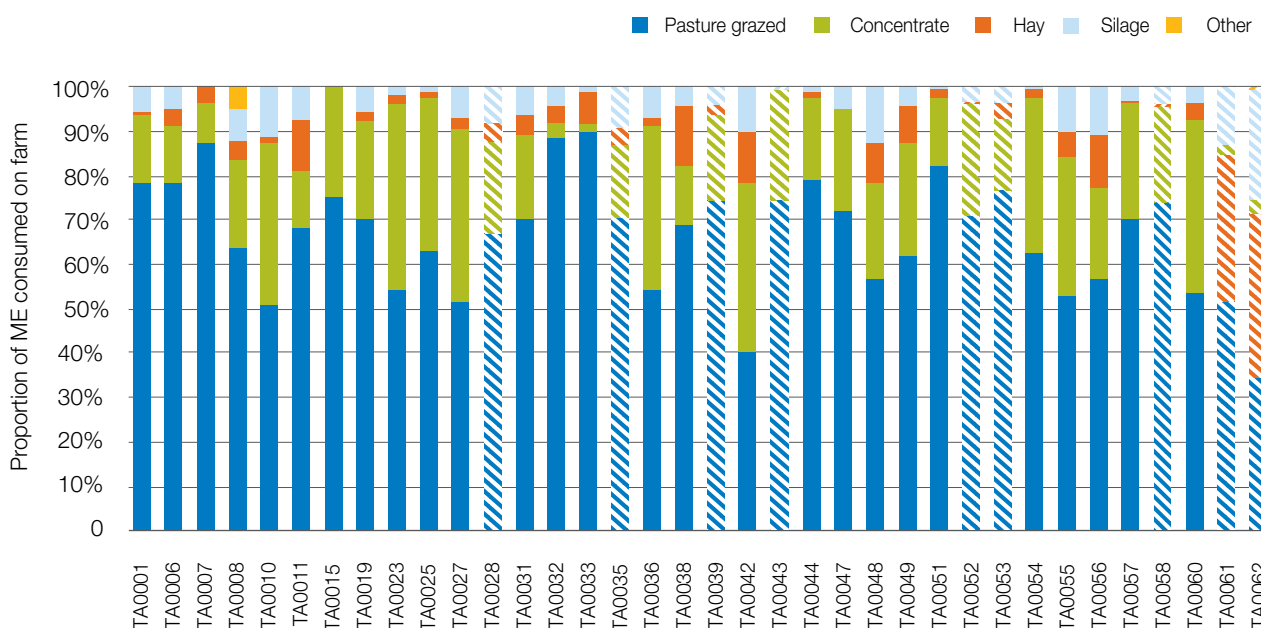
Average pasture consumption in 2016–17 was 10.4 t DM/ha consisting of 9.7 t DM/ha grazed pasture and 0.7 t DM/ha conserved pasture. The top 25% achieved

average pasture consumption of 12.3 t DM/ha, consisting of 11.1 t DM/ha grazed pasture and 1.2 t DM conserved pasture.

Both Figures 15 and 16 were estimated using the pasture consumption calculator in DairyBase which is reasonably similar but not directly comparable to figures published in previous years using the DEDJTR Pasture Consumption Calculator.

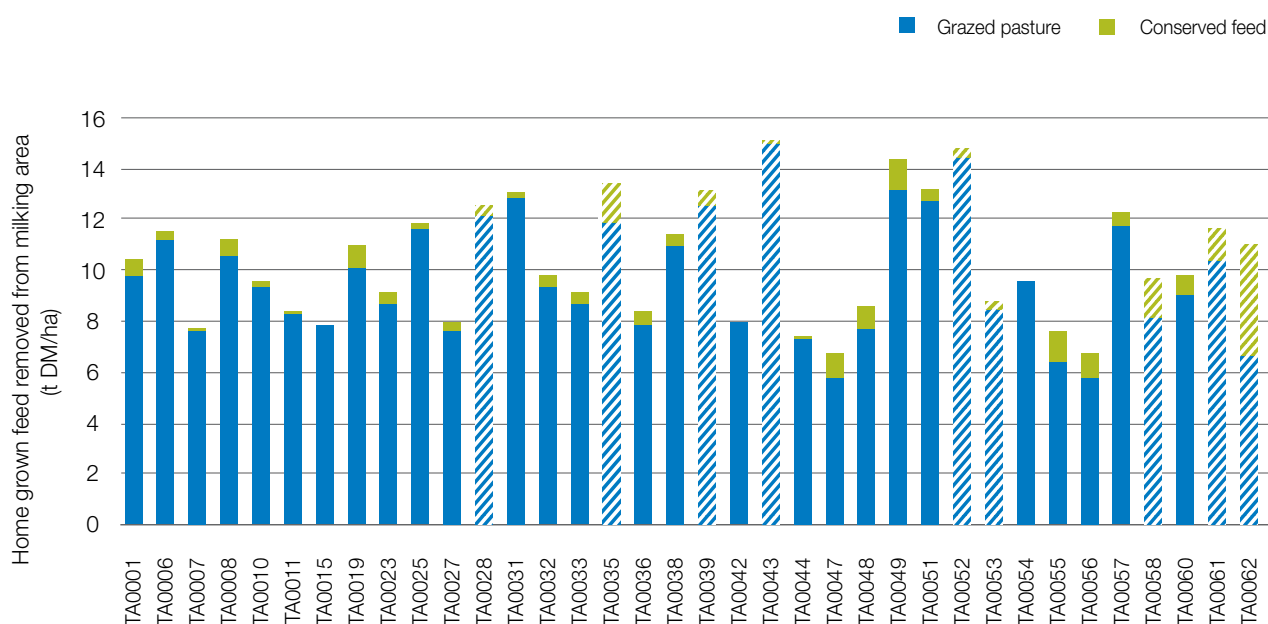
This involves a calculation based on the total ME required on the farm, live weight, average distance stock walk to and from the dairy and milk production. Metabolised energy imported from other feed sources is subtracted from the total farm ME requirements over the year to estimate the total produced on farm, divided into grazed and conserved feed depending on the quantity of fodder production recorded.

**Figure 15** Sources of whole farm metabolisable energy





**Figure 16** Estimated tonnes of home grown feed consumed per milking hectare



### Fertiliser application

Table 4 shows the average application rates of nitrogen, phosphorus, potassium and sulphur per hectare for participants in the DFMP over the past four seasons.

The total amount of nutrients applied this year was 292 kg/ha. This was an increase on the amount applied in previous years (Table 4). The increase came predominantly from increased

nitrogen inputs, perhaps a result of farmers focussing more on home-grown feed to reduce the cost of imported feed.

Farms in the top 25% (based on return on assets) applied 8 kg/ha more of nitrogen, similar amounts of phosphorus and potassium and 11 kg/ha less of sulphur.

It should be noted that water availability, pasture species, soil type,

pasture management, seasonal variation in response rates to fertilisers, variations in long-term fertiliser strategies plus other factors will all influence pasture growth and fertiliser application strategies. Details of these particular strategies are not captured as part of this project.

Appendix Table A2 provides further information on fertiliser application.

**Table 4** Fertiliser use

	2013–14	2014–15	2015–16	2016–17
Nitrogen kg/ha	152	177	179	202
Phosphorus kg/ha	27	27	27	24
Potassium kg/ha	35	43	40	46
Sulphur kg/ha	21	20	20	19

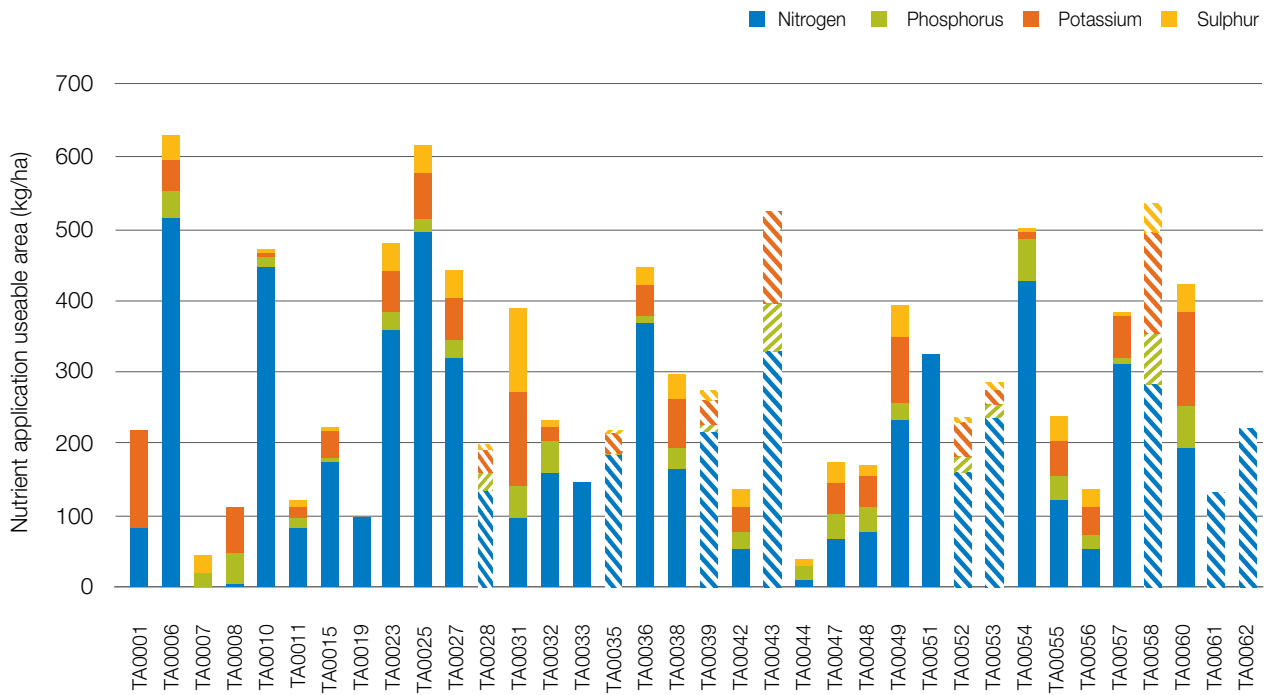
Participant farms in Tasmania used a wide range of fertilisers and fertiliser application rates, both between farms and with the mix of key macro-nutrients on individual farms (Figure 17).

Nitrogen was the main nutrient applied by participant farms, varying

from 0 kg/ha up to 511 kg/ha, a similar range to the previous season.

Only one farm out of the 36 participants did not use any nitrogen. On the other hand, there were five farms that applied nitrogen only.

**Figure 17** Fertiliser application (kg/ha)



## Business confidence survey



# Expectations and issues

Responses to this business confidence survey were made in August 2017 with regard to the 2017–18 financial year and the next five years to 2021-22. Sixteen farms provided responses to the business confidence survey.

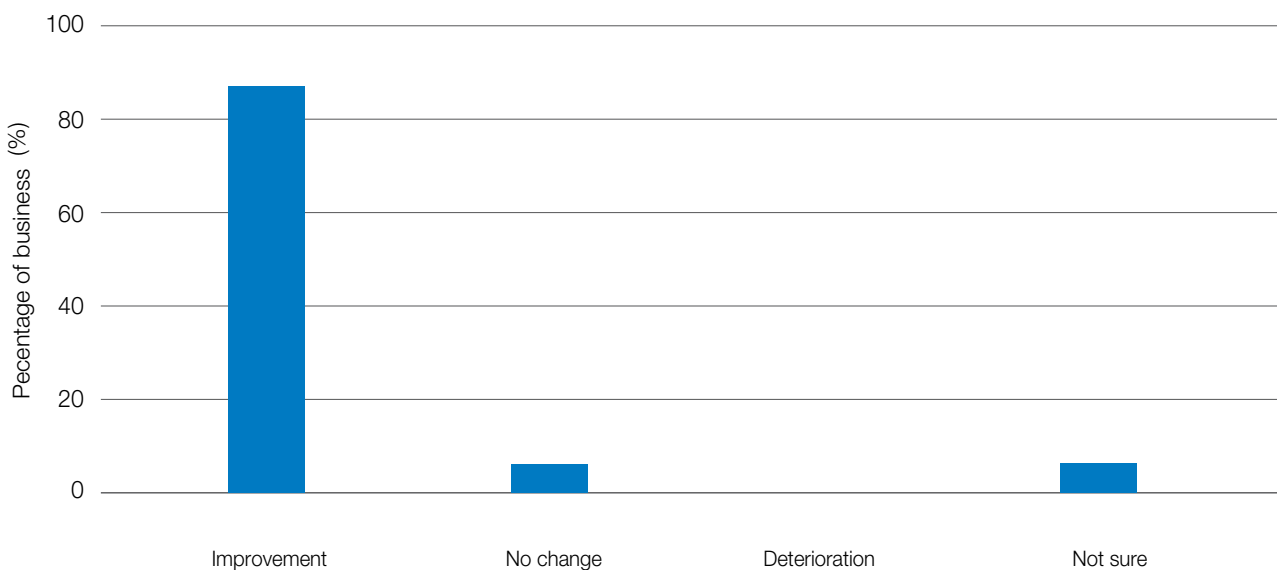
## Expectation for business returns

**Most participants are confident business returns will improve in the 2017–18 season.**

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

Of the respondents, 88% expect higher business returns with 6% expecting no change and 6% being not sure. None of the respondents expected a deterioration in business returns in 2017–18. This was a very different result to the previous season when only 10% of respondents expected an improvement in business returns for the 2016–17 season (Figure 18).

**Figure 18** Expectation of business returns

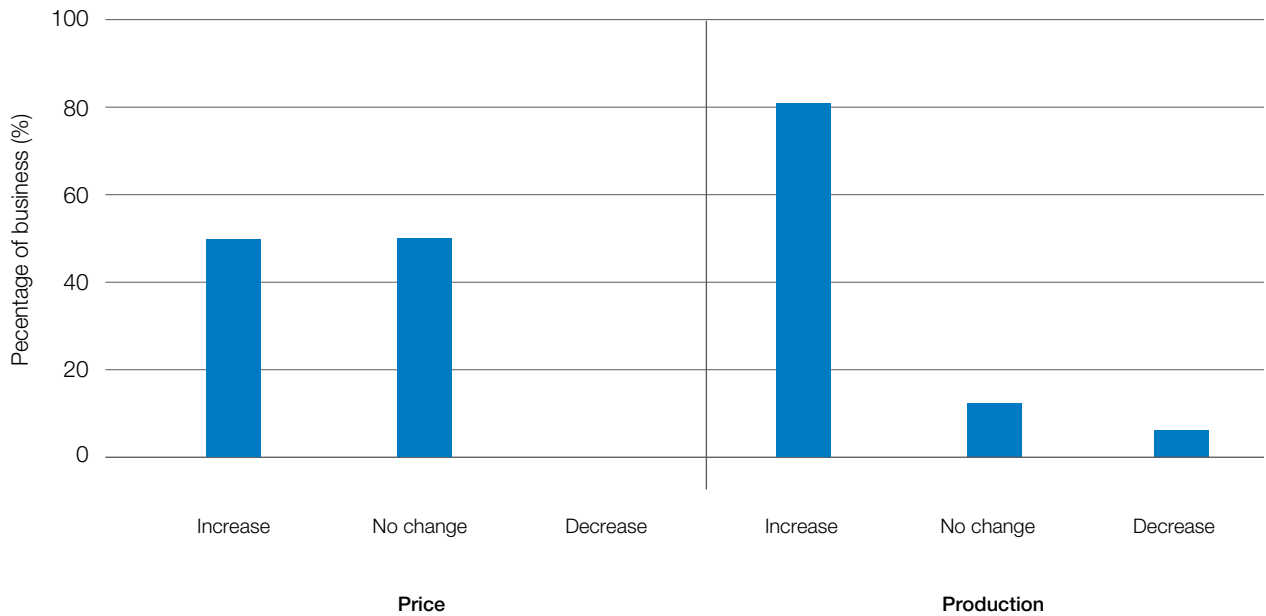


### Price and production expectations – Milk

An equal number of respondents expects milk price to increase or remain unchanged for the 2017–18 season (Figure 19).

The majority of respondents (81%) expect milk production to increase on their farm in 2017–18. Only 6% expect their milk production to decrease.

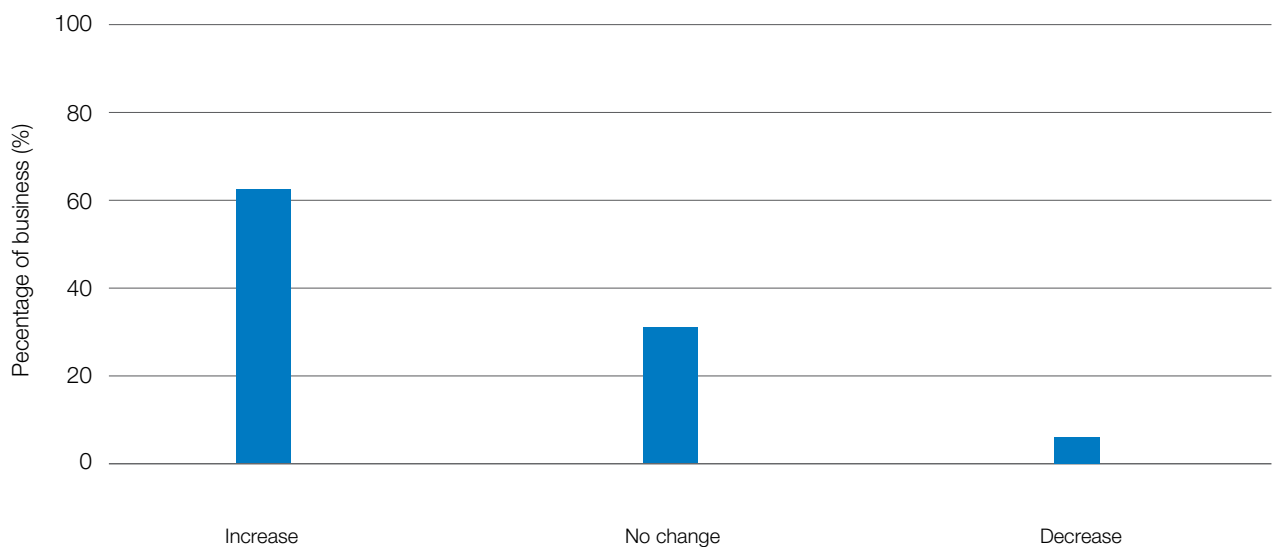
**Figure 19** Price and production expectations – milk



### Production expectations – Fodder

Over 60% of respondents expect their fodder production to increase in 2017–18, as shown in Figure 20.

**Figure 20** Production expectations - fodder



### Cost expectations

The majority of respondents expect no change to most of the major expense categories – purchased feed, fertiliser, fuel and oil, repairs and maintenance and irrigation. The main anticipated increase is in labour costs (Figure 21).

### Major issues facing the dairy industry – the next 12 months

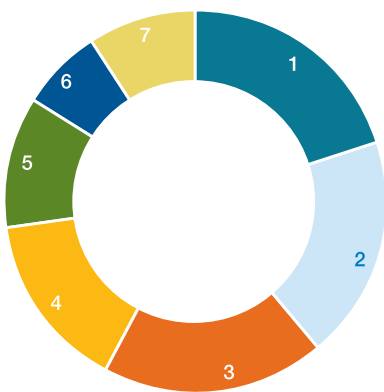
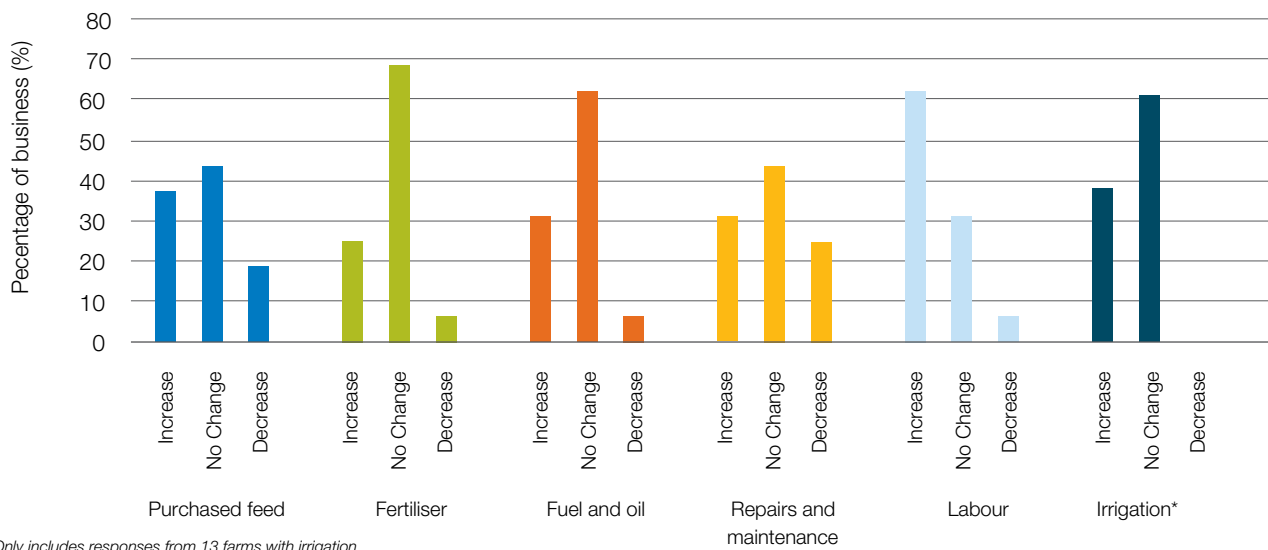
Figure 22 provides a summary of the key issues identified by participants for the coming 12 months.

Respondents were equally concerned about pasture/ fodder, milk price and input costs. Despite expectations that labour costs would increase for the season, labour was the least frequently mentioned major concern in 2017–18.

### Major issues facing the dairy industry – the next five years

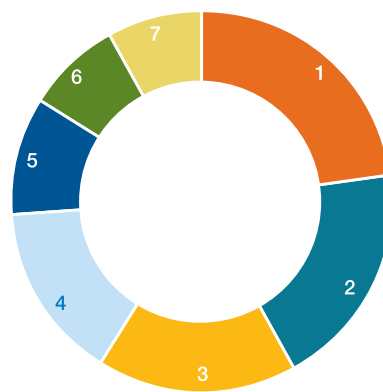
When asked to consider the major issues facing the dairy industry over the next five years, milk price continues to be the major concern (Figure 23). This is not unexpected given the importance to farm business profitability and the challenges over the last few seasons. The next most frequently mentioned concerns were input costs followed by climate/seasonal conditions.

**Figure 21** Cost expectations



**Figure 22** Major issues facing the dairy industry – the next 12 months

- 1 Input costs **20%**
- 2 Pasture/fodder **19%**
- 3 Milk price **19%**
- 4 Climate/seasonal conditions **15%**
- 5 Succession planning **11%**
- 6 Labour **7%**
- 7 Water **9%**



**Figure 23** Major issues facing the dairy industry – the next 5 years

- 1 Milk price **23%**
- 2 Input costs **19%**
- 3 Climate/seasonal conditions **17%**
- 4 Pasture/fodder **15%**
- 5 Labour **10%**
- 6 Succession planning **8%**
- 7 Water **8%**

## Historical analysis



# Historical analysis

The dollar values are adjusted to allow comparison between years, however, the number of farms in the sample is not consistent, some farms do not participate each year and new farms are added to the sample; care needs to be taken when comparing performance across years.

**In Tasmania, 2016–17 was characterised by higher total earnings before interest and tax and net farm income than in 2015–16, however, participants recorded the lowest average milk price and return on assets since the project started in 2013–14.**

As can be seen in Figure 24, the average EBIT and net farm income of participants increased slightly in the 2016–17 season after previously decreasing for two years in row.

The participants' average earnings before interest and tax were \$276,098 for this season compared to \$251,325 in the previous season (adjusted for inflation).

Milk income and gross farm income were both lower in 2016–17 but costs were reduced in the categories of herd, feed and cash

overheads which resulted in the small increase in EBIT. To achieve the savings in feed costs, a greater proportion of the energy consumed in 2016–17 was from home-grown feed (74% compared to 69% in 2015–16). The amount of purchased feed per milker was slightly lower with 1.5 t DM/milker being fed in 2015–16 compared to 1.4 t DM/milker in 2016–17. There was a significant decrease in the price of concentrates (the largest purchased feed cost) from \$440/t DM in 2015–16 to \$390/t DM in 2016–17.

The difference between EBIT and net income is interest and lease costs. These costs increased from \$0.57/kg MS in 2015–16 to \$0.63/kg MS in 2016–17 (adjusted for inflation).

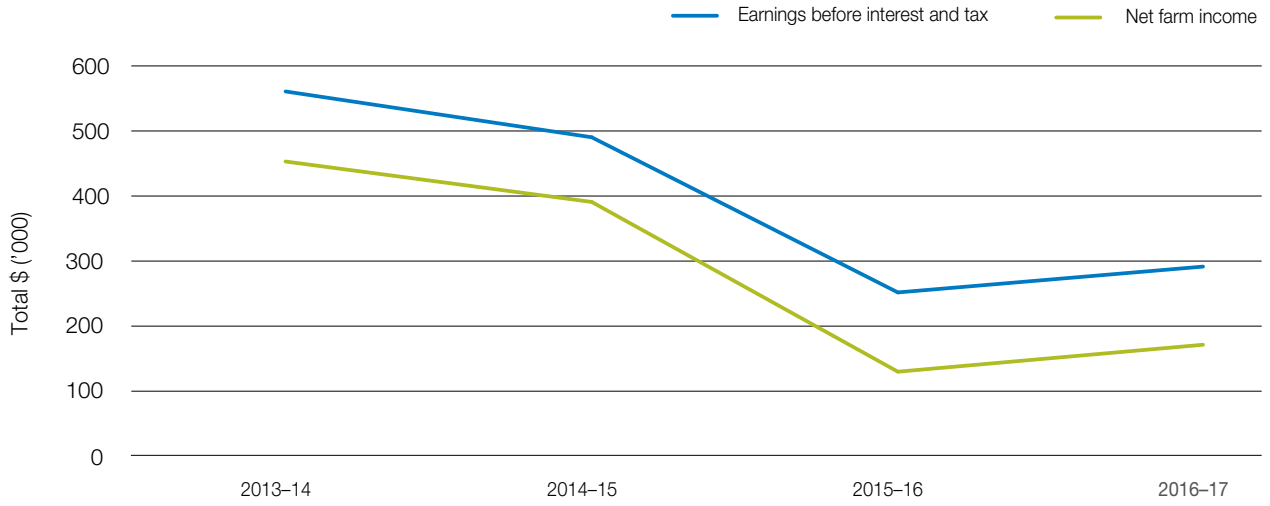
Net farm income increased from \$127,506 in 2015–16 (adjusted for inflation) to \$153,967 this season.

Return on assets had a further small reduction this year from 3.9% 3.7%, the lowest in the four years of the project. The highest RoA was in 2013–14 with 9.6%. Although the whole farm EBIT increased, the total value of farm assets was also higher this year resulting to a slightly lower RoA.

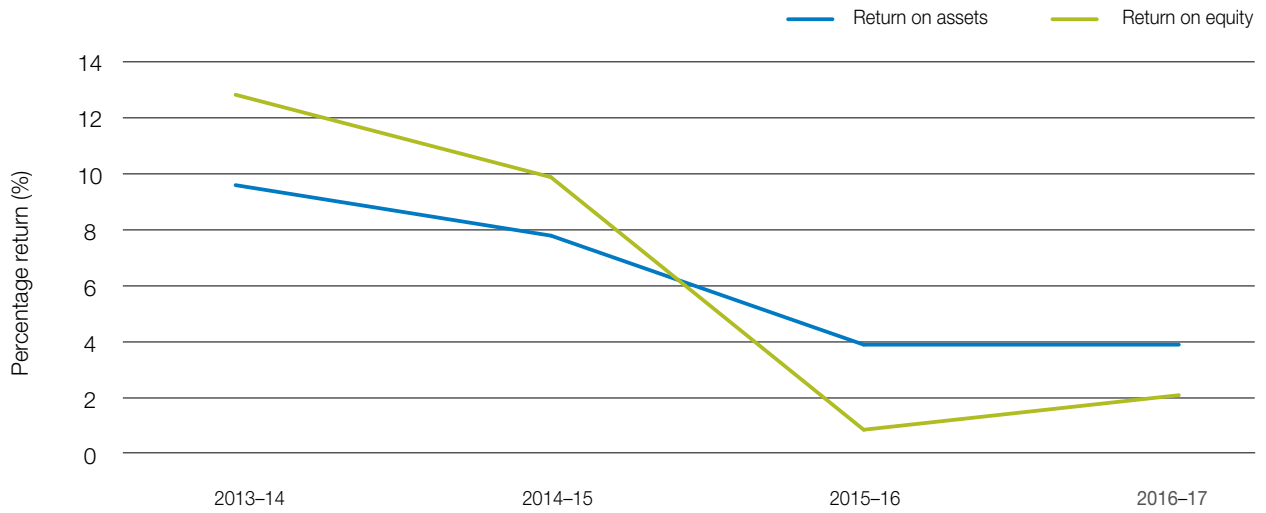
Return on equity increased from 0.8% to 1.9%. This has slightly closed the gap between RoA and RoE. The highest average RoE was recorded at the start of the project in 2013–14 at 12.9%



**Figure 24** Historical EBIT and net farm income



**Figure 25** Historical return on assets and return on equity



# Appendices



# Appendix A: Tasmania summary tables

**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
	\$/ kg MS	\$/ kg MS	\$/ kg MS	\$/ kg MS	\$/ kg MS	%	\$/ kg MS	%	\$/ kg MS	% of income	\$/ kg MS	%
TA0001	\$4.79	\$1.18	\$5.97	\$2.31	\$2.20	50%	\$1.45	3.9%	\$1.16	19.4%	\$0.30	1.7%
TA0006	\$4.56	\$1.42	\$5.98	\$3.01	\$1.73	63%	\$1.24	3.5%	\$0.45	7.6%	\$0.78	2.8%
TA0007	\$4.99	\$0.66	\$5.65	\$1.40	\$2.66	37%	\$1.58	3.2%	\$0.77	13.7%	\$0.81	2.5%
TA0008	\$5.26	\$0.48	\$5.74	\$2.85	\$1.82	60%	\$1.06	4.3%	\$0.31	5.4%	\$0.75	4.4%
TA0010	\$5.26	\$1.34	\$6.61	\$3.20	\$2.40	56%	\$1.01	5.2%	\$0.19	2.9%	\$0.82	5.6%
TA0011	\$4.80	\$1.26	\$6.06	\$3.22	\$2.16	60%	\$0.67	2.5%	\$1.22	20.1%	-\$0.55	-6.1%
TA0015	\$6.13	\$0.62	\$6.75	\$3.33	\$2.42	58%	\$1.00	5.1%	\$0.21	3.1%	\$0.79	4.8%
TA0019	\$4.50	\$0.59	\$5.09	\$2.61	\$1.47	64%	\$1.01	4.6%	\$1.30	25.5%	-\$0.28	-11.3%
TA0023	\$5.17	\$0.34	\$5.51	\$3.22	\$2.01	61%	\$0.28	1.4%	\$0.12	2.2%	\$0.16	0.9%
TA0025	\$5.15	\$0.26	\$5.41	\$2.93	\$1.75	63%	\$0.74	3.9%	\$0.00	0.0%	\$0.74	3.9%
TA0027	\$5.06	\$0.29	\$5.35	\$3.22	\$1.92	62%	\$0.21	1.0%	\$0.00	0.0%	\$0.21	1.0%
<b>TA0028</b>	<b>\$5.63</b>	<b>\$0.34</b>	<b>\$5.97</b>	<b>\$2.68</b>	<b>\$1.80</b>	<b>59%</b>	<b>\$1.49</b>	<b>6.1%</b>	<b>\$0.23</b>	<b>3.8%</b>	<b>\$1.26</b>	<b>6.8%</b>
TA0031	\$4.76	\$0.85	\$5.61	\$2.81	\$1.53	65%	\$1.27	3.5%	\$0.72	12.9%	\$0.55	2.8%
TA0032	\$4.61	\$1.11	\$5.72	\$2.68	\$3.58	42%	-\$0.55	-1.1%	\$1.04	18.2%	-\$1.59	-5.1%
TA0033	\$4.55	\$1.05	\$5.60	\$2.34	\$2.42	49%	\$0.84	2.8%	\$1.53	27.3%	-\$0.69	-32.8%
<b>TA0035</b>	<b>\$4.80</b>	<b>\$0.57</b>	<b>\$5.37</b>	<b>\$2.42</b>	<b>\$1.30</b>	<b>65%</b>	<b>\$1.64</b>	<b>5.4%</b>	<b>\$0.14</b>	<b>2.7%</b>	<b>\$1.50</b>	<b>6.0%</b>
TA0036	\$5.05	\$0.19	\$5.25	\$3.26	\$1.74	64%	\$0.24	1.4%	\$0.00	0.0%	\$0.24	1.4%
TA0038	\$4.92	-\$0.14	\$4.78	\$2.10	\$2.13	49%	\$0.56	2.2%	\$0.27	5.7%	\$0.28	1.4%
<b>TA0039</b>	<b>\$4.84</b>	<b>\$1.21</b>	<b>\$6.04</b>	<b>\$2.41</b>	<b>\$2.00</b>	<b>54%</b>	<b>\$1.63</b>	<b>5.4%</b>	<b>\$1.01</b>	<b>16.7%</b>	<b>\$0.62</b>	<b>5.3%</b>
TA0042	\$4.65	\$0.97	\$5.62	\$3.31	\$1.95	62%	\$0.35	1.2%	\$0.47	8.4%	-\$0.12	-2.6%
<b>TA0043</b>	<b>\$5.14</b>	<b>\$0.74</b>	<b>\$5.88</b>	<b>\$3.14</b>	<b>\$1.34</b>	<b>70%</b>	<b>\$1.40</b>	<b>10.4%</b>	<b>\$0.53</b>	<b>9.0%</b>	<b>\$0.87</b>	<b>42.2%</b>
TA0044	\$5.15	\$0.55	\$5.69	\$3.13	\$3.15	51%	-\$0.59	-1.3%	\$1.52	26.7%	-\$2.11	-10.5%
TA0047	\$5.34	\$0.23	\$5.57	\$2.56	\$2.98	49%	\$0.04	0.1%	\$1.11	19.9%	-\$1.08	-9.2%
TA0048	\$4.82	\$1.46	\$6.28	\$2.75	\$2.34	56%	\$1.20	3.7%	\$1.07	17.0%	\$0.13	1.3%
TA0049	\$5.21	\$2.25	\$7.46	\$4.47	\$1.54	75%	\$1.46	4.7%	\$1.02	13.7%	\$0.43	3.8%
TA0051	\$5.60	\$0.48	\$6.08	\$2.15	\$2.57	47%	\$1.36	3.7%	\$0.93	15.3%	\$0.43	3.6%
<b>TA0052</b>	<b>\$5.12</b>	<b>\$0.31</b>	<b>\$5.44</b>	<b>\$2.57</b>	<b>\$1.52</b>	<b>63%</b>	<b>\$1.35</b>	<b>7.1%</b>	<b>\$0.38</b>	<b>7.0%</b>	<b>\$0.97</b>	<b>7.8%</b>
<b>TA0053</b>	<b>\$5.16</b>	<b>\$1.04</b>	<b>\$6.21</b>	<b>\$2.87</b>	<b>\$1.54</b>	<b>65%</b>	<b>\$1.79</b>	<b>5.4%</b>	<b>\$0.30</b>	<b>4.8%</b>	<b>\$1.49</b>	<b>6.3%</b>
TA0054	\$4.94	\$0.75	\$5.68	\$2.98	\$1.72	64%	\$0.99	3.9%	\$0.57	9.9%	\$0.42	3.5%
TA0055	\$4.71	\$0.71	\$5.42	\$3.55	\$1.55	69%	\$0.32	1.5%	\$0.79	14.5%	-\$0.47	-6.8%
TA0056	\$4.82	\$0.58	\$5.40	\$3.04	\$1.56	67%	\$0.80	2.4%	\$0.87	16.2%	-\$0.08	-0.6%
TA0057	\$4.99	\$0.69	\$5.68	\$2.73	\$1.64	64%	\$1.31	4.1%	\$0.60	10.5%	\$0.72	3.6%
<b>TA0058</b>	<b>\$5.31</b>	<b>\$1.70</b>	<b>\$7.01</b>	<b>\$2.47</b>	<b>\$1.77</b>	<b>63%</b>	<b>\$2.78</b>	<b>7.8%</b>	<b>\$0.71</b>	<b>10.1%</b>	<b>\$2.07</b>	<b>12.8%</b>
TA0060	\$4.83	\$1.54	\$6.38	\$3.32	\$2.27	59%	\$0.79	3.8%	\$0.24	3.8%	\$0.55	3.6%
<b>TA0061</b>	<b>\$5.11</b>	<b>\$0.77</b>	<b>\$5.89</b>	<b>\$2.74</b>	<b>\$1.48</b>	<b>65%</b>	<b>\$1.67</b>	<b>5.8%</b>	<b>\$0.65</b>	<b>11.1%</b>	<b>\$1.02</b>	<b>7.5%</b>
<b>TA0062</b>	<b>\$5.20</b>	<b>\$0.90</b>	<b>\$6.10</b>	<b>\$3.46</b>	<b>\$1.29</b>	<b>73%</b>	<b>\$1.36</b>	<b>6.0%</b>	<b>\$0.42</b>	<b>6.8%</b>	<b>\$0.94</b>	<b>6.5%</b>
<b>Average</b>	<b>\$5.03</b>	<b>\$0.81</b>	<b>\$5.84</b>	<b>\$2.87</b>	<b>\$1.98</b>	<b>60%</b>	<b>\$0.99</b>	<b>3.7%</b>	<b>\$0.63</b>	<b>10.9%</b>	<b>\$0.36</b>	<b>1.9%</b>
<b>Top 25%*</b>	<b>\$5.15</b>	<b>\$0.84</b>	<b>\$5.99</b>	<b>\$2.75</b>	<b>\$1.56</b>	<b>64%</b>	<b>\$1.68</b>	<b>6.6%</b>	<b>\$0.49</b>	<b>8.0%</b>	<b>\$1.19</b>	<b>11.3%</b>

\* 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	%	%
TA0001	220	144	1,521	410	1.9	358	667	4.8%	3.8%
TA0006	87	87	1,706	283	3.3	304	988	4.8%	3.8%
TA0007	212	212	1,582	370	1.7	325	567	4.5%	3.5%
TA0008	490	300	1,615	940	1.9	497	953	4.0%	3.4%
TA0010	215	124	1,812	500	2.3	567	1321	4.0%	3.5%
TA0011	267	185	1,808	430	1.6	386	624	4.7%	3.7%
TA0015	340	255	1,089	470	1.4	452	625	5.0%	3.6%
TA0019	115	115	1,652	370	3.2	296	952	4.6%	3.4%
TA0023	300	300	1,492	919	3.1	475	1454	4.4%	3.8%
TA0025	240	240	2,073	802	3.3	497	1661	4.6%	3.8%
TA0027	210	210	1,567	605	2.9	475	1369	4.4%	3.7%
<b>TA0028</b>	<b>530</b>	<b>236</b>	<b>1,460</b>	<b>800</b>	<b>1.5</b>	<b>515</b>	<b>777</b>	<b>4.2%</b>	<b>3.4%</b>
TA0031	762	236	1,395	900	1.2	447	528	5.1%	3.9%
TA0032	246	140	1,685	330	1.3	305	409	4.7%	3.6%
TA0033	161	143	1,630	330	2.0	290	595	4.8%	3.6%
<b>TA0035</b>	<b>435</b>	<b>260</b>	<b>1,552</b>	<b>1,020</b>	<b>2.3</b>	<b>397</b>	<b>932</b>	<b>5.0%</b>	<b>4.0%</b>
TA0036	188	188	1,533	540	2.9	466	1,339	4.7%	3.9%
TA0038	197	150	1,702	378	1.9	478	917	4.3%	3.2%
<b>TA0039</b>	<b>180</b>	<b>170</b>	<b>1,664</b>	<b>550</b>	<b>3.1</b>	<b>406</b>	<b>1,241</b>	<b>4.4%</b>	<b>3.4%</b>
TA0042	471	150	1,760	420	0.9	529	471	3.9%	3.4%
<b>TA0043</b>	<b>245</b>	<b>245</b>	<b>1,130</b>	<b>980</b>	<b>4.0</b>	<b>470</b>	<b>1,879</b>	<b>4.5%</b>	<b>3.6%</b>
TA0044	234	234	1,899	480	2.1	293	600	5.1%	3.8%
TA0047	218	184	1,818	385	1.8	330	582	4.3%	3.2%
TA0048	115	65	1,660	200	1.7	334	583	4.5%	3.4%
TA0049	301	140	1,645	400	1.3	528	702	3.6%	3.4%
TA0051	72	72	1,642	215	3.0	382	1140	4.7%	3.6%
<b>TA0052</b>	<b>230</b>	<b>230</b>	<b>1,062</b>	<b>760</b>	<b>3.3</b>	<b>549</b>	<b>1,815</b>	<b>4.5%</b>	<b>3.7%</b>
<b>TA0053</b>	<b>370</b>	<b>360</b>	<b>1,411</b>	<b>905</b>	<b>2.4</b>	<b>382</b>	<b>934</b>	<b>4.8%</b>	<b>3.7%</b>
TA0054	120	120	1,424	330	2.8	422	1161	4.0%	3.5%
TA0055	80	80	1,632	185	2.3	482	1,115	4.6%	3.6%
TA0056	156	110	1,638	230	1.5	430	635	4.6%	3.5%
TA0057	186	186	1,670	465	2.5	540	1352	4.7%	3.6%
<b>TA0058</b>	<b>725</b>	<b>500</b>	<b>1,748</b>	<b>1,150</b>	<b>1.6</b>	<b>414</b>	<b>656</b>	<b>4.4%</b>	<b>3.6%</b>
TA0060	122	78	1,670	280	2.3	412	945	4.2%	3.4%
<b>TA0061</b>	<b>500</b>	<b>300</b>	<b>1,998</b>	<b>925</b>	<b>1.9</b>	<b>576</b>	<b>1,065</b>	<b>3.8%</b>	<b>3.4%</b>
<b>TA0062</b>	<b>93</b>	<b>93</b>	<b>1,969</b>	<b>260</b>	<b>2.8</b>	<b>563</b>	<b>1,573</b>	<b>4.1%</b>	<b>3.3%</b>
<b>Average</b>	<b>268</b>	<b>190</b>	<b>1,620</b>	<b>542</b>	<b>2.2</b>	<b>433</b>	<b>976</b>	<b>4.5%</b>	<b>3.6%</b>
<b>Top 25%*</b>	<b>368</b>	<b>266</b>	<b>1,555</b>	<b>817</b>	<b>2.5</b>	<b>475</b>	<b>1208</b>	<b>4.4%</b>	<b>3.6%</b>

\* 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
TA0001	9.9	0.5	86%	83.6	0.0	136.4	0.0	140	50,224
TA0006	11.2	0.4	85%	510.7	40.6	45.5	33.9	177	53,736
TA0007	7.6	0.2	90%	0.0	19.6	0.0	24.5	106	34,325
TA0008	10.6	0.6	72%	5.8	43.3	61.9	0.0	127	63,063
TA0010	9.3	0.3	63%	445.1	15.3	4.0	5.5	54	30,517
TA0011	8.2	0.1	80%	80.8	15.5	15.3	10.3	123	47,479
TA0015	7.9	0.0	76%	173.8	6.3	36.7	7.2	116	52,663
TA0019	10.1	0.9	76%	96.0	0.0	0.0	0.0	178	52,647
TA0023	8.7	0.4	58%	359.1	22.0	59.1	37.5	151	71,498
TA0025	11.7	0.2	65%	491.2	22.0	61.4	38.3	154	76,664
TA0027	7.6	0.3	56%	321.3	23.5	57.5	38.2	168	79,863
<b>TA0028</b>	<b>12.2</b>	<b>0.4</b>	<b>79%</b>	<b>135.2</b>	<b>24.8</b>	<b>31.8</b>	<b>6.4</b>	<b>152</b>	<b>78,046</b>
TA0031	12.9	0.1	80%	99.6	42.9	129.9	115.5	159	71,087
TA0032	9.4	0.5	97%	158.5	45.4	20.6	10.4	92	28,008
TA0033	8.7	0.5	98%	145.1	0.0	0.0	0.0	184	53,444
<b>TA0035</b>	<b>11.9</b>	<b>1.5</b>	<b>82%</b>	<b>184.7</b>	<b>2.3</b>	<b>28.4</b>	<b>0.1</b>	<b>243</b>	<b>96,401</b>
TA0036	7.8	0.6	61%	369.6	9.8	43.3	22.3	164	76,309
TA0038	11.0	0.4	76%	163.5	28.6	69.3	35.5	108	51,488
<b>TA0039</b>	<b>12.6</b>	<b>0.6</b>	<b>79%</b>	<b>216.4</b>	<b>10.4</b>	<b>33.7</b>	<b>13.0</b>	<b>159</b>	<b>64,656</b>
TA0042	8.0	0.0	62%	55.8	20.1	37.5	22.7	90	47,396
<b>TA0043</b>	<b>15.0</b>	<b>0.1</b>	<b>75%</b>	<b>327.6</b>	<b>67.0</b>	<b>127.7</b>	<b>0.0</b>	<b>249</b>	<b>116,821</b>
TA0044	7.3	0.1	81%	8.6	22.2	0.0	10.3	137	40,142
TA0047	5.7	1.0	77%	68.5	34.3	43.6	27.7	109	35,957
TA0048	7.7	0.8	78%	80.7	31.7	42.1	15.2	167	55,733
TA0049	13.1	1.2	75%	232.6	23.1	95.3	42.7	123	64,983
TA0051	12.8	0.4	83%	325.8	0.0	0.0	0.0	112	42,820
<b>TA0052</b>	<b>14.5</b>	<b>0.4</b>	<b>72%</b>	<b>160.2</b>	<b>21.6</b>	<b>47.3</b>	<b>7.4</b>	<b>110</b>	<b>60,145</b>
<b>TA0053</b>	<b>8.5</b>	<b>0.3</b>	<b>80%</b>	<b>235.8</b>	<b>19.2</b>	<b>20.4</b>	<b>8.9</b>	<b>226</b>	<b>86,392</b>
TA0054	9.6	0.0	64%	425.3	59.0	7.6	8.6	167	70,678
TA0055	6.4	1.3	63%	123.0	33.9	49.1	33.3	134	64,552
TA0056	5.8	1.0	70%	53.1	20.4	38.6	24.5	157	67,785
TA0057	11.8	0.5	71%	307.7	12.1	56.1	7.5	116	62,856
<b>TA0058</b>	<b>8.2</b>	<b>1.5</b>	<b>78%</b>	<b>281.9</b>	<b>70.5</b>	<b>141.0</b>	<b>40.3</b>	<b>157</b>	<b>64,922</b>
TA0060	9.0	0.7	57%	193.1	59.8	131.5	37.3	100	40,978
<b>TA0061</b>	<b>10.4</b>	<b>1.3</b>	<b>64%</b>	<b>132.5</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>132</b>	<b>76,064</b>
<b>TA0062</b>	<b>6.6</b>	<b>4.4</b>	<b>54%</b>	<b>220.6</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>124</b>	<b>69,659</b>
<b>Average</b>	<b>9.7</b>	<b>0.7</b>	<b>74%</b>	<b>202.0</b>	<b>24.1</b>	<b>46.5</b>	<b>19.0</b>	<b>143</b>	<b>61,111</b>
<b>Top 25%*</b>	<b>11.1</b>	<b>1.2</b>	<b>74%</b>	<b>210.5</b>	<b>24.0</b>	<b>47.8</b>	<b>8.4</b>	<b>172</b>	<b>79,234</b>

\* The top 25% are bold and italicised  
\*\* on milking area

**Table A3** Purchased feed

Farm number	Purchased feed per milker	Concentrate price	Other feed price	Percent of total energy imported
	t DM/hd	\$/ t DM	\$/ t DM	% of ME
TA0001	0.6	\$470		14%
TA0006	0.6	\$375		15%
TA0007	0.5	\$295		10%
TA0008	1.7	\$508	\$440	28%
TA0010	2.3	\$385		37%
TA0011	1.1	\$357		20%
TA0015	1.3	\$628		24%
TA0019	1.0	\$367		24%
TA0023	2.0	\$351		42%
TA0025	1.7	\$349		35%
TA0027	2.1	\$350		44%
<b>TA0028</b>	<b>1.3</b>	<b>\$411</b>		<b>21%</b>
TA0031	1.1	\$486		20%
TA0032	0.2	\$314		3%
TA0033	0.1	\$318		2%
<b>TA0035</b>	<b>0.9</b>	<b>\$315</b>		<b>18%</b>
TA0036	1.8	\$350		39%
TA0038	1.8	\$455		24%
<b>TA0039</b>	<b>1.0</b>	<b>\$375</b>		<b>21%</b>
TA0042	2.2	\$393		38%
<b>TA0043</b>	<b>1.2</b>	<b>\$402</b>		<b>25%</b>
TA0044	0.9	\$444		19%
TA0047	0.9	\$404		23%
TA0048	1.0	\$382		22%
TA0049	1.8	\$365		25%
TA0051	0.8	\$344		17%
<b>TA0052</b>	<b>1.5</b>	<b>\$454</b>		<b>28%</b>
<b>TA0053</b>	<b>0.8</b>	<b>\$348</b>		<b>20%</b>
TA0054	1.8	\$348		36%
TA0055	1.9	\$537		37%
TA0056	2.0	\$384		30%
TA0057	1.8	\$382		29%
<b>TA0058</b>	<b>1.2</b>	<b>\$351</b>		<b>22%</b>
TA0060	2.2	\$303		43%
<b>TA0061</b>	<b>2.5</b>	<b>\$381</b>		<b>36%</b>
<b>TA0062</b>	<b>3.1</b>	<b>\$360</b>	<b>\$400</b>	<b>46%</b>
<b>Average</b>	<b>1.4</b>	<b>\$390</b>		<b>26%</b>
<b>Top 25%*</b>	<b>1.5</b>	<b>\$377</b>		<b>26%</b>

\* 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
TA0001	\$0.12	\$0.09	\$0.06	\$0.16	\$0.08	\$0.50	\$0.42	\$0.17	\$0.07
TA0006	\$0.08	\$0.09	\$0.05	\$0.05	\$0.04	\$0.30	\$0.70	\$0.05	\$0.08
TA0007	\$0.05	\$0.09	\$0.00	\$0.08	\$0.04	\$0.26	\$0.13	\$0.21	\$0.03
TA0008	\$0.09	\$0.19	\$0.01	\$0.09	\$0.05	\$0.42	\$0.22	\$0.11	\$0.04
TA0010	\$0.07	\$0.11	\$0.16	\$0.08	\$0.03	\$0.45	\$0.37	\$0.19	\$0.29
TA0011	\$0.15	\$0.11	\$0.02	\$0.12	\$0.03	\$0.42	\$0.38	\$0.22	\$0.18
TA0015	\$0.10	\$0.13	\$0.08	\$0.09	\$0.09	\$0.49	\$0.73	\$0.02	\$0.00
TA0019	\$0.04	\$0.08	\$0.02	\$0.16	\$0.15	\$0.45	\$0.24	\$0.00	\$0.06
TA0023	\$0.11	\$0.20	\$0.06	\$0.09	\$0.04	\$0.51	\$0.44	\$0.15	\$0.10
TA0025	\$0.12	\$0.19	\$0.03	\$0.07	\$0.05	\$0.46	\$0.49	\$0.12	\$0.07
TA0027	\$0.11	\$0.22	\$0.05	\$0.11	\$0.09	\$0.58	\$0.41	\$0.11	\$0.10
<b>TA0028</b>	<b>\$0.06</b>	<b>\$0.17</b>	<b>\$0.04</b>	<b>\$0.06</b>	<b>\$0.25</b>	<b>\$0.58</b>	<b>\$0.46</b>	<b>\$0.14</b>	<b>\$0.28</b>
TA0031	\$0.07	\$0.18	\$0.00	\$0.16	\$0.07	\$0.48	\$0.56	\$0.09	\$0.25
TA0032	\$0.07	\$0.21	\$0.02	\$0.11	\$0.03	\$0.44	\$0.82	\$0.18	\$0.08
TA0033	\$0.05	\$0.16	\$0.02	\$0.09	\$0.10	\$0.42	\$0.83	\$0.10	\$0.06
<b>TA0035</b>	<b>\$0.08</b>	<b>\$0.16</b>	<b>\$0.19</b>	<b>\$0.05</b>	<b>\$0.02</b>	<b>\$0.50</b>	<b>\$0.36</b>	<b>\$0.17</b>	<b>\$0.18</b>
TA0036	\$0.10	\$0.18	\$0.05	\$0.09	\$0.07	\$0.50	\$0.45	\$0.14	\$0.10
TA0038	\$0.00	\$0.13	\$0.01	\$0.08	\$0.09	\$0.31	\$0.44	\$0.05	\$0.04
<b>TA0039</b>	<b>\$0.08</b>	<b>\$0.14</b>	<b>\$0.02</b>	<b>\$0.08</b>	<b>\$0.06</b>	<b>\$0.37</b>	<b>\$0.23</b>	<b>\$0.13</b>	<b>\$0.06</b>
TA0042	\$0.06	\$0.13	\$0.00	\$0.14	\$0.17	\$0.50	\$0.52	\$0.00	\$0.08
<b>TA0043</b>	<b>\$0.17</b>	<b>\$0.30</b>	<b>\$0.07</b>	<b>\$0.07</b>	<b>\$0.06</b>	<b>\$0.67</b>	<b>\$0.45</b>	<b>\$0.27</b>	<b>\$0.01</b>
TA0044	\$0.06	\$0.24	\$0.07	\$0.20	\$0.15	\$0.72	\$0.33	\$0.12	\$0.01
TA0047	\$0.06	\$0.12	\$0.05	\$0.14	\$0.36	\$0.73	\$0.43	\$0.06	\$0.33
TA0048	\$0.06	\$0.05	\$0.00	\$0.19	\$0.15	\$0.44	\$0.51	\$0.19	\$0.28
TA0049	\$0.04	\$0.13	\$0.11	\$0.10	\$0.27	\$0.65	\$0.85	\$0.03	\$0.41
TA0051	\$0.10	\$0.08	\$0.05	\$0.17	\$0.06	\$0.45	\$0.39	\$0.17	\$0.29
<b>TA0052</b>	<b>\$0.11</b>	<b>\$0.16</b>	<b>\$0.07</b>	<b>\$0.07</b>	<b>\$0.08</b>	<b>\$0.49</b>	<b>\$0.22</b>	<b>\$0.13</b>	<b>\$0.02</b>
<b>TA0053</b>	<b>\$0.11</b>	<b>\$0.21</b>	<b>\$0.09</b>	<b>\$0.08</b>	<b>\$0.07</b>	<b>\$0.55</b>	<b>\$0.52</b>	<b>\$0.16</b>	<b>\$0.08</b>
TA0054	\$0.07	\$0.18	\$0.02	\$0.11	\$0.12	\$0.49	\$0.57	\$0.07	\$0.04
TA0055	\$0.06	\$0.37	\$0.00	\$0.14	\$0.09	\$0.66	\$0.34	\$0.33	\$0.11
TA0056	\$0.12	\$0.21	\$0.00	\$0.24	\$0.06	\$0.63	\$0.27	\$0.28	\$0.19
TA0057	\$0.04	\$0.18	\$0.08	\$0.16	\$0.05	\$0.50	\$0.30	\$0.02	\$0.05
<b>TA0058</b>	<b>\$0.08</b>	<b>\$0.07</b>	<b>\$0.05</b>	<b>\$0.08</b>	<b>\$0.10</b>	<b>\$0.38</b>	<b>\$1.11</b>	<b>\$0.05</b>	<b>\$0.31</b>
TA0060	\$0.09	\$0.06	\$0.00	\$0.12	\$0.10	\$0.37	\$0.73	\$0.01	\$0.08
<b>TA0061</b>	<b>\$0.06</b>	<b>\$0.14</b>	<b>\$0.03</b>	<b>\$0.16</b>	<b>\$0.02</b>	<b>\$0.40</b>	<b>\$0.35</b>	<b>\$0.04</b>	<b>\$0.10</b>
<b>TA0062</b>	<b>\$0.05</b>	<b>\$0.14</b>	<b>\$0.08</b>	<b>\$0.05</b>	<b>\$0.05</b>	<b>\$0.37</b>	<b>\$0.39</b>	<b>\$0.11</b>	<b>\$0.33</b>
<b>Average</b>	<b>\$0.08</b>	<b>\$0.15</b>	<b>\$0.05</b>	<b>\$0.11</b>	<b>\$0.09</b>	<b>\$0.48</b>	<b>\$0.47</b>	<b>\$0.12</b>	<b>\$0.13</b>
<b>Top 25%*</b>	<b>\$0.09</b>	<b>\$0.16</b>	<b>\$0.07</b>	<b>\$0.08</b>	<b>\$0.08</b>	<b>\$0.48</b>	<b>\$0.46</b>	<b>\$0.13</b>	<b>\$0.15</b>

\* 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	Feed inventory change	Total feed costs	Total variable costs
	\$/ kg MS	\$/ kg MS	\$/ kg MS	\$/ kg MS	\$/ kg MS	\$/ kg MS	\$/ kg MS	\$/ kg MS	\$/ kg MS
TA0001	\$0.09	\$0.10	\$0.08	\$0.00	\$0.79	\$0.00	\$0.08	\$1.81	\$2.31
TA0006	\$0.10	\$0.32	\$0.01	\$0.22	\$0.58	\$0.58	\$0.07	\$2.71	\$3.01
TA0007	\$0.11	\$0.05	\$0.00	\$0.08	\$0.50	\$0.17	-\$0.13	\$1.15	\$1.40
TA0008	\$0.07	\$0.18	\$0.02	\$0.19	\$1.47	\$0.00	\$0.14	\$2.43	\$2.85
TA0010	\$0.09	\$0.09	\$0.02	\$0.00	\$1.56	\$0.02	\$0.13	\$2.75	\$3.20
TA0011	\$0.13	\$0.14	\$0.32	\$0.35	\$0.58	\$0.49	\$0.00	\$2.80	\$3.22
TA0015	\$0.10	\$0.18	\$0.00	\$0.00	\$1.82	\$0.00	\$0.00	\$2.84	\$3.33
TA0019	\$0.08	\$0.05	\$0.03	\$0.11	\$1.02	\$0.57	\$0.00	\$2.16	\$2.61
TA0023	\$0.01	\$0.05	\$0.00	\$0.07	\$1.44	\$0.41	\$0.04	\$2.71	\$3.22
TA0025	\$0.02	\$0.04	\$0.00	\$0.08	\$1.18	\$0.48	-\$0.01	\$2.47	\$2.93
TA0027	\$0.02	\$0.04	\$0.00	\$0.20	\$1.29	\$0.41	\$0.06	\$2.64	\$3.22
<b>TA0028</b>	<b>\$0.10</b>	<b>\$0.05</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$1.04</b>	<b>\$0.00</b>	<b>\$0.04</b>	<b>\$2.10</b>	<b>\$2.68</b>
TA0031	\$0.04	\$0.08	\$0.00	\$0.08	\$1.21	\$0.00	\$0.02	\$2.32	\$2.81
TA0032	\$0.30	\$0.19	\$0.09	\$0.09	\$0.19	\$0.22	\$0.09	\$2.24	\$2.68
TA0033	\$0.05	\$0.13	\$0.10	\$0.05	\$0.13	\$0.46	\$0.00	\$1.91	\$2.34
<b>TA0035</b>	<b>\$0.06</b>	<b>\$0.04</b>	<b>\$0.00</b>	<b>\$0.02</b>	<b>\$0.66</b>	<b>\$0.45</b>	<b>-\$0.02</b>	<b>\$1.91</b>	<b>\$2.42</b>
TA0036	\$0.02	\$0.10	\$0.00	\$0.14	\$1.23	\$0.47	\$0.12	\$2.77	\$3.26
TA0038	\$0.10	\$0.02	\$0.00	\$0.39	\$0.74	\$0.00	\$0.01	\$1.79	\$2.10
<b>TA0039</b>	<b>\$0.20</b>	<b>\$0.05</b>	<b>\$0.00</b>	<b>\$0.06</b>	<b>\$0.82</b>	<b>\$0.46</b>	<b>\$0.03</b>	<b>\$2.04</b>	<b>\$2.41</b>
TA0042	\$0.10	\$0.13	\$0.14	\$0.00	\$1.66	\$0.00	\$0.18	\$2.82	\$3.31
<b>TA0043</b>	<b>\$0.01</b>	<b>\$0.10</b>	<b>\$0.00</b>	<b>\$0.06</b>	<b>\$1.01</b>	<b>\$0.62</b>	<b>-\$0.06</b>	<b>\$2.47</b>	<b>\$3.14</b>
TA0044	\$0.13	\$0.17	\$0.00	\$0.18	\$1.16	\$0.45	-\$0.13	\$2.41	\$3.13
TA0047	\$0.06	\$0.11	\$0.00	\$0.00	\$1.09	\$0.00	-\$0.26	\$1.83	\$2.56
TA0048	\$0.04	\$0.03	\$0.00	\$0.00	\$1.09	\$0.40	-\$0.24	\$2.30	\$2.75
TA0049	\$0.07	\$0.66	\$0.12	\$0.00	\$1.25	\$0.48	-\$0.04	\$3.82	\$4.47
TA0051	\$0.07	\$0.00	\$0.04	\$0.09	\$0.65	\$0.07	-\$0.08	\$1.70	\$2.15
<b>TA0052</b>	<b>\$0.04</b>	<b>\$0.00</b>	<b>\$0.04</b>	<b>\$0.12</b>	<b>\$1.13</b>	<b>\$0.37</b>	<b>\$0.00</b>	<b>\$2.08</b>	<b>\$2.57</b>
<b>TA0053</b>	<b>\$0.02</b>	<b>\$0.16</b>	<b>\$0.00</b>	<b>\$0.19</b>	<b>\$0.58</b>	<b>\$0.62</b>	<b>-\$0.02</b>	<b>\$2.32</b>	<b>\$2.87</b>
TA0054	\$0.06	\$0.14	\$0.10	\$0.16	\$1.39	\$0.00	-\$0.05	\$2.49	\$2.98
TA0055	\$0.09	\$0.04	\$0.02	\$0.10	\$1.63	\$0.20	\$0.04	\$2.89	\$3.55
TA0056	\$0.15	\$0.09	\$0.24	\$0.25	\$1.00	\$0.00	-\$0.08	\$2.40	\$3.04
TA0057	\$0.07	\$0.31	\$0.01	\$0.26	\$1.15	\$0.24	-\$0.19	\$2.23	\$2.73
<b>TA0058</b>	<b>\$0.04</b>	<b>\$0.04</b>	<b>\$0.02</b>	<b>\$0.00</b>	<b>\$1.05</b>	<b>\$0.00</b>	<b>-\$0.53</b>	<b>\$2.09</b>	<b>\$2.47</b>
TA0060	\$0.09	\$0.19	\$0.00	\$0.11	\$1.41	\$0.34	\$0.00	\$2.95	\$3.32
<b>TA0061</b>	<b>\$0.09</b>	<b>\$0.04</b>	<b>\$0.01</b>	<b>\$0.06</b>	<b>\$1.49</b>	<b>\$0.14</b>	<b>\$0.00</b>	<b>\$2.33</b>	<b>\$2.74</b>
<b>TA0062</b>	<b>\$0.06</b>	<b>\$0.02</b>	<b>\$0.07</b>	<b>\$0.24</b>	<b>\$1.44</b>	<b>\$0.43</b>	<b>\$0.00</b>	<b>\$3.09</b>	<b>\$3.46</b>
<b>Average</b>	<b>\$0.08</b>	<b>\$0.11</b>	<b>\$0.04</b>	<b>\$0.11</b>	<b>\$1.07</b>	<b>\$0.27</b>	<b>-\$0.02</b>	<b>\$2.38</b>	<b>\$2.87</b>
<b>Top 25%*</b>	<b>\$0.07</b>	<b>\$0.06</b>	<b>\$0.02</b>	<b>\$0.08</b>	<b>\$1.02</b>	<b>\$0.34</b>	<b>-\$0.06</b>	<b>\$2.27</b>	<b>\$2.75</b>

\* The top 25% are bold and italicised



**Table A5** Overhead costs

Farm number	Rates	Registration and insurance	Repairs and maintenance	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
TA0001	\$0.05	\$0.16	\$0.42	\$0.18	\$0.64	\$1.44	\$0.17	\$0.59	\$2.20
TA0006	\$0.07	\$0.10	\$0.13	\$0.14	\$0.06	\$0.50	\$0.06	\$1.17	\$1.73
TA0007	\$0.09	\$0.12	\$0.30	\$0.07	\$0.50	\$1.09	\$0.18	\$1.40	\$2.66
TA0008	\$0.05	\$0.12	\$0.45	\$0.06	\$0.61	\$1.28	\$0.16	\$0.38	\$1.82
TA0010	\$0.05	\$0.19	\$0.29	\$0.09	\$0.90	\$1.52	\$0.17	\$0.71	\$2.40
TA0011	\$0.05	\$0.22	\$0.22	\$0.09	\$0.37	\$0.95	\$0.21	\$1.00	\$2.16
TA0015	\$0.04	\$0.04	\$0.72	\$0.04	\$0.92	\$1.76	\$0.18	\$0.48	\$2.42
TA0019	\$0.00	\$0.03	\$0.19	\$0.09	\$0.33	\$0.64	\$0.19	\$0.64	\$1.47
TA0023	\$0.02	\$0.03	\$0.54	\$0.18	\$1.20	\$1.97	\$0.05	\$0.00	\$2.01
TA0025	\$0.03	\$0.03	\$0.30	\$0.19	\$1.17	\$1.72	\$0.03	\$0.00	\$1.75
TA0027	\$0.02	\$0.03	\$0.47	\$0.20	\$1.17	\$1.90	\$0.03	\$0.00	\$1.92
<b>TA0028</b>	<b>\$0.03</b>	<b>\$0.12</b>	<b>\$0.30</b>	<b>\$0.07</b>	<b>\$0.85</b>	<b>\$1.37</b>	<b>\$0.22</b>	<b>\$0.21</b>	<b>\$1.80</b>
TA0031	\$0.03	\$0.08	\$0.28	\$0.07	\$0.76	\$1.22	\$0.12	\$0.19	\$1.53
TA0032	\$0.11	\$0.23	\$0.32	\$0.41	\$1.21	\$2.27	\$0.35	\$0.96	\$3.58
TA0033	\$0.10	\$0.10	\$0.07	\$0.14	\$1.45	\$1.85	\$0.13	\$0.44	\$2.42
<b>TA0035</b>	<b>\$0.02</b>	<b>\$0.07</b>	<b>\$0.29</b>	<b>\$0.02</b>	<b>\$0.49</b>	<b>\$0.90</b>	<b>\$0.15</b>	<b>\$0.26</b>	<b>\$1.30</b>
TA0036	\$0.02	\$0.03	\$0.28	\$0.21	\$1.18	\$1.73	\$0.02	\$0.00	\$1.74
TA0038	\$0.06	\$0.10	\$0.30	\$0.13	\$0.77	\$1.36	\$0.24	\$0.52	\$2.13
<b>TA0039</b>	<b>\$0.03</b>	<b>\$0.08</b>	<b>\$0.41</b>	<b>\$0.03</b>	<b>\$0.65</b>	<b>\$1.20</b>	<b>\$0.30</b>	<b>\$0.50</b>	<b>\$2.00</b>
TA0042	\$0.04	\$0.10	\$0.06	\$0.09	\$0.99	\$1.28	\$0.09	\$0.58	\$1.95
<b>TA0043</b>	<b>\$0.02</b>	<b>\$0.11</b>	<b>\$0.37</b>	<b>\$0.04</b>	<b>\$0.77</b>	<b>\$1.30</b>	<b>\$0.02</b>	<b>\$0.01</b>	<b>\$1.34</b>
TA0044	\$0.06	\$0.05	\$0.60	\$0.09	\$1.47	\$2.26	\$0.42	\$0.48	\$3.15
TA0047	\$0.09	\$0.14	\$0.72	\$0.17	\$1.39	\$2.51	\$0.16	\$0.32	\$2.98
TA0048	\$0.03	\$0.15	\$0.74	\$0.16	\$0.00	\$1.08	\$0.06	\$1.21	\$2.34
TA0049	\$0.06	\$0.08	\$0.24	\$0.07	\$0.19	\$0.65	\$0.09	\$0.80	\$1.54
TA0051	\$0.04	\$0.23	\$0.10	\$0.35	\$0.64	\$1.36	\$0.16	\$1.04	\$2.57
<b>TA0052</b>	<b>\$0.02</b>	<b>\$0.02</b>	<b>\$0.22</b>	<b>\$0.02</b>	<b>\$1.04</b>	<b>\$1.31</b>	<b>\$0.08</b>	<b>\$0.13</b>	<b>\$1.52</b>
<b>TA0053</b>	<b>\$0.02</b>	<b>\$0.05</b>	<b>\$0.33</b>	<b>\$0.12</b>	<b>\$0.95</b>	<b>\$1.48</b>	<b>\$0.07</b>	<b>\$0.00</b>	<b>\$1.54</b>
TA0054	\$0.05	\$0.08	\$0.35	\$0.07	\$0.01	\$0.56	\$0.22	\$0.94	\$1.72
TA0055	\$0.03	\$0.09	\$0.23	\$0.09	\$0.00	\$0.45	\$0.07	\$1.04	\$1.55
TA0056	\$0.06	\$0.15	\$0.08	\$0.22	\$0.00	\$0.50	\$0.07	\$0.99	\$1.56
TA0057	\$0.06	\$0.17	\$0.26	\$0.11	\$0.41	\$1.02	\$0.08	\$0.54	\$1.64
<b>TA0058</b>	<b>\$0.04</b>	<b>\$0.06</b>	<b>\$0.55</b>	<b>\$0.08</b>	<b>\$0.64</b>	<b>\$1.37</b>	<b>\$0.09</b>	<b>\$0.31</b>	<b>\$1.77</b>
TA0060	\$0.07	\$0.03	\$0.32	\$0.15	\$0.00	\$0.57	\$0.06	\$1.64	\$2.27
<b>TA0061</b>	<b>\$0.03</b>	<b>\$0.05</b>	<b>\$0.26</b>	<b>\$0.09</b>	<b>\$0.78</b>	<b>\$1.21</b>	<b>\$0.15</b>	<b>\$0.13</b>	<b>\$1.48</b>
<b>TA0062</b>	<b>\$0.03</b>	<b>\$0.03</b>	<b>\$0.19</b>	<b>\$0.03</b>	<b>\$0.92</b>	<b>\$1.20</b>	<b>\$0.04</b>	<b>\$0.05</b>	<b>\$1.29</b>
<b>Average</b>	<b>\$0.05</b>	<b>\$0.10</b>	<b>\$0.33</b>	<b>\$0.12</b>	<b>\$0.71</b>	<b>\$1.30</b>	<b>\$0.14</b>	<b>\$0.55</b>	<b>\$1.98</b>
<b>Top 25%*</b>	<b>\$0.03</b>	<b>\$0.07</b>	<b>\$0.32</b>	<b>\$0.06</b>	<b>\$0.79</b>	<b>\$1.26</b>	<b>\$0.12</b>	<b>\$0.18</b>	<b>\$1.56</b>

\* 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
TA0001	2.7%	1.9%	1.3%	3.5%	1.7%	11.2%	9.4%	3.8%	1.5%
TA0006	1.7%	1.9%	1.0%	1.0%	0.8%	6.4%	14.8%	1.0%	1.6%
TA0007	1.2%	2.1%	0.0%	2.1%	0.9%	6.3%	3.1%	5.2%	0.6%
TA0008	2.0%	4.1%	0.2%	1.8%	1.0%	9.1%	4.7%	2.3%	0.9%
TA0010	1.3%	1.9%	2.9%	1.4%	0.5%	8.0%	6.7%	3.3%	5.1%
TA0011	2.7%	2.0%	0.3%	2.2%	0.6%	7.9%	7.1%	4.0%	3.4%
TA0015	1.7%	2.2%	1.5%	1.5%	1.5%	8.5%	12.6%	0.3%	0.0%
TA0019	1.1%	1.8%	0.4%	4.0%	3.7%	11.1%	5.8%	0.0%	1.6%
TA0023	2.2%	3.9%	1.2%	1.7%	0.8%	9.7%	8.3%	2.9%	1.9%
TA0025	2.5%	4.0%	0.6%	1.5%	1.1%	9.7%	10.5%	2.5%	1.6%
TA0027	2.0%	4.3%	1.1%	2.1%	1.7%	11.2%	8.0%	2.1%	2.0%
<b>TA0028</b>	<b>1.3%</b>	<b>3.7%</b>	<b>0.9%</b>	<b>1.4%</b>	<b>5.6%</b>	<b>12.9%</b>	<b>10.3%</b>	<b>3.0%</b>	<b>6.3%</b>
TA0031	1.6%	4.2%	0.0%	3.7%	1.6%	11.1%	12.9%	2.0%	5.7%
TA0032	1.0%	3.4%	0.3%	1.8%	0.6%	7.0%	13.1%	2.8%	1.2%
TA0033	1.2%	3.3%	0.5%	1.9%	2.1%	8.9%	17.5%	2.0%	1.3%
<b>TA0035</b>	<b>2.2%</b>	<b>4.3%</b>	<b>5.2%</b>	<b>1.5%</b>	<b>0.6%</b>	<b>13.7%</b>	<b>9.7%</b>	<b>4.6%</b>	<b>4.7%</b>
TA0036	2.0%	3.7%	1.1%	1.9%	1.3%	9.9%	8.9%	2.8%	2.1%
TA0038	0.0%	3.0%	0.2%	2.0%	2.1%	7.2%	10.3%	1.2%	0.9%
<b>TA0039</b>	<b>1.9%</b>	<b>3.1%</b>	<b>0.4%</b>	<b>1.8%</b>	<b>1.3%</b>	<b>8.5%</b>	<b>5.2%</b>	<b>2.8%</b>	<b>1.3%</b>
TA0042	1.2%	2.5%	0.0%	2.6%	3.1%	9.4%	10.0%	0.0%	1.6%
<b>TA0043</b>	<b>3.8%</b>	<b>6.6%</b>	<b>1.6%</b>	<b>1.6%</b>	<b>1.4%</b>	<b>14.9%</b>	<b>10.0%</b>	<b>6.1%</b>	<b>0.3%</b>
TA0044	1.0%	3.8%	1.1%	3.1%	2.4%	11.4%	5.3%	1.9%	0.1%
TA0047	1.1%	2.1%	0.9%	2.6%	6.4%	13.2%	7.7%	1.0%	6.0%
TA0048	1.2%	0.9%	0.0%	3.7%	3.0%	8.7%	9.9%	3.8%	5.5%
TA0049	0.7%	2.1%	1.9%	1.7%	4.4%	10.8%	14.1%	0.4%	6.8%
TA0051	2.1%	1.7%	1.0%	3.5%	1.3%	9.6%	8.2%	3.6%	6.2%
<b>TA0052</b>	<b>2.7%</b>	<b>4.0%</b>	<b>1.6%</b>	<b>1.6%</b>	<b>2.0%</b>	<b>12.0%</b>	<b>5.5%</b>	<b>3.1%</b>	<b>0.6%</b>
<b>TA0053</b>	<b>2.5%</b>	<b>4.7%</b>	<b>1.9%</b>	<b>1.8%</b>	<b>1.7%</b>	<b>12.5%</b>	<b>11.9%</b>	<b>3.5%</b>	<b>1.8%</b>
TA0054	1.5%	3.8%	0.5%	2.3%	2.5%	10.5%	12.2%	1.4%	0.9%
TA0055	1.2%	7.3%	0.0%	2.7%	1.8%	13.0%	6.8%	6.5%	2.2%
TA0056	2.5%	4.7%	0.0%	5.3%	1.3%	13.8%	5.8%	6.2%	4.1%
TA0057	0.8%	4.1%	1.9%	3.6%	1.1%	11.4%	7.0%	0.6%	1.1%
<b>TA0058</b>	<b>1.9%</b>	<b>1.6%</b>	<b>1.1%</b>	<b>2.0%</b>	<b>2.3%</b>	<b>8.9%</b>	<b>26.2%</b>	<b>1.3%</b>	<b>7.3%</b>
TA0060	1.6%	1.0%	0.0%	2.1%	1.8%	6.6%	13.1%	0.2%	1.4%
<b>TA0061</b>	<b>1.4%</b>	<b>3.4%</b>	<b>0.7%</b>	<b>3.7%</b>	<b>0.4%</b>	<b>9.6%</b>	<b>8.4%</b>	<b>0.9%</b>	<b>2.5%</b>
<b>TA0062</b>	<b>1.1%</b>	<b>3.0%</b>	<b>1.6%</b>	<b>1.0%</b>	<b>1.1%</b>	<b>7.8%</b>	<b>8.3%</b>	<b>2.2%</b>	<b>6.9%</b>
<b>Average</b>	<b>1.7%</b>	<b>3.2%</b>	<b>1.0%</b>	<b>2.3%</b>	<b>1.9%</b>	<b>10.1%</b>	<b>9.7%</b>	<b>2.5%</b>	<b>2.7%</b>
<b>Top 25%*</b>	<b>2.1%</b>	<b>3.8%</b>	<b>1.7%</b>	<b>1.8%</b>	<b>1.8%</b>	<b>11.2%</b>	<b>10.6%</b>	<b>3.1%</b>	<b>3.5%</b>

\* 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	Feed inventory change	Total feed costs	Total variable costs
	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs
TA0001	1.9%	2.3%	1.9%	0.0%	17.6%	0.0%	1.7%	40.1%	51.3%
TA0006	2.1%	6.7%	0.2%	4.6%	12.2%	12.3%	1.5%	57.1%	63.5%
TA0007	2.7%	1.2%	0.0%	1.9%	12.4%	4.1%	-3.2%	28.2%	34.5%
TA0008	1.5%	3.8%	0.4%	4.0%	31.5%	0.0%	2.9%	51.9%	61.0%
TA0010	1.6%	1.6%	0.3%	0.0%	28.0%	0.3%	2.3%	49.2%	57.2%
TA0011	2.5%	2.5%	5.9%	6.6%	10.8%	9.2%	0.0%	52.0%	59.8%
TA0015	1.7%	3.2%	0.0%	0.0%	31.6%	0.0%	0.0%	49.5%	57.9%
TA0019	1.9%	1.1%	0.9%	2.7%	25.1%	13.9%	0.0%	52.9%	64.0%
TA0023	0.3%	1.0%	0.0%	1.3%	27.5%	7.8%	0.8%	51.8%	61.5%
TA0025	0.4%	0.8%	0.0%	1.7%	25.2%	10.4%	-0.3%	52.8%	62.5%
TA0027	0.5%	0.8%	0.0%	3.9%	25.1%	7.9%	1.1%	51.4%	62.6%
<b>TA0028</b>	<b>2.1%</b>	<b>1.2%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>23.1%</b>	<b>0.0%</b>	<b>0.9%</b>	<b>46.9%</b>	<b>59.8%</b>
TA0031	1.0%	1.9%	0.0%	1.9%	27.9%	0.0%	0.4%	53.6%	64.7%
TA0032	4.8%	3.1%	1.4%	1.4%	3.0%	3.6%	1.4%	35.8%	42.8%
TA0033	1.1%	2.8%	2.1%	1.1%	2.8%	9.6%	-0.1%	40.2%	49.1%
<b>TA0035</b>	<b>1.5%</b>	<b>1.1%</b>	<b>0.0%</b>	<b>0.6%</b>	<b>17.7%</b>	<b>12.1%</b>	<b>-0.6%</b>	<b>51.4%</b>	<b>65.1%</b>
TA0036	0.4%	2.0%	0.0%	2.9%	24.6%	9.3%	2.3%	55.3%	65.2%
TA0038	2.4%	0.4%	0.0%	9.3%	17.6%	0.0%	0.3%	42.4%	49.7%
<b>TA0039</b>	<b>4.6%</b>	<b>1.2%</b>	<b>0.0%</b>	<b>1.3%</b>	<b>18.7%</b>	<b>10.3%</b>	<b>0.8%</b>	<b>46.2%</b>	<b>54.7%</b>
TA0042	1.9%	2.4%	2.6%	0.0%	31.6%	0.0%	3.5%	53.5%	62.9%
<b>TA0043</b>	<b>0.3%</b>	<b>2.2%</b>	<b>0.0%</b>	<b>1.3%</b>	<b>22.5%</b>	<b>13.9%</b>	<b>-1.3%</b>	<b>55.1%</b>	<b>70.0%</b>
TA0044	2.1%	2.6%	0.0%	2.8%	18.4%	7.2%	-2.1%	38.4%	49.8%
TA0047	1.1%	2.1%	0.0%	0.0%	19.7%	0.0%	-4.7%	33.0%	46.1%
TA0048	0.9%	0.5%	0.0%	0.0%	21.5%	7.9%	-4.7%	45.3%	54.0%
TA0049	1.1%	11.0%	1.9%	0.0%	20.9%	8.0%	-0.6%	63.6%	74.4%
TA0051	1.5%	0.0%	0.9%	1.9%	13.8%	1.6%	-1.7%	36.1%	45.6%
<b>TA0052</b>	<b>0.9%</b>	<b>0.0%</b>	<b>1.1%</b>	<b>2.9%</b>	<b>27.6%</b>	<b>9.1%</b>	<b>0.0%</b>	<b>50.8%</b>	<b>62.8%</b>
<b>TA0053</b>	<b>0.5%</b>	<b>3.6%</b>	<b>0.0%</b>	<b>4.3%</b>	<b>13.2%</b>	<b>14.0%</b>	<b>-0.4%</b>	<b>52.5%</b>	<b>65.0%</b>
TA0054	1.2%	3.0%	2.1%	3.5%	29.6%	0.0%	-1.1%	52.9%	63.5%
TA0055	1.7%	0.7%	0.3%	1.9%	32.0%	3.8%	0.7%	56.6%	69.5%
TA0056	3.3%	2.0%	5.3%	5.4%	21.8%	0.0%	-1.6%	52.3%	66.0%
TA0057	1.7%	7.0%	0.3%	5.9%	26.4%	5.5%	-4.3%	51.1%	62.5%
<b>TA0058</b>	<b>1.1%</b>	<b>0.9%</b>	<b>0.6%</b>	<b>0.0%</b>	<b>24.8%</b>	<b>0.0%</b>	<b>-12.6%</b>	<b>49.4%</b>	<b>58.3%</b>
TA0060	1.5%	3.3%	0.0%	2.0%	25.3%	6.0%	0.0%	52.8%	59.4%
<b>TA0061</b>	<b>2.2%</b>	<b>1.0%</b>	<b>0.3%</b>	<b>1.5%</b>	<b>35.3%</b>	<b>3.2%</b>	<b>0.0%</b>	<b>55.3%</b>	<b>64.9%</b>
<b>TA0062</b>	<b>1.4%</b>	<b>0.4%</b>	<b>1.4%</b>	<b>5.0%</b>	<b>30.4%</b>	<b>9.1%</b>	<b>0.0%</b>	<b>65.1%</b>	<b>72.9%</b>
<b>Average</b>	<b>1.6%</b>	<b>2.3%</b>	<b>0.8%</b>	<b>2.3%</b>	<b>22.1%</b>	<b>5.6%</b>	<b>-0.5%</b>	<b>49.2%</b>	<b>59.3%</b>
<b>Top 25%*</b>	<b>1.6%</b>	<b>1.3%</b>	<b>0.4%</b>	<b>1.9%</b>	<b>23.7%</b>	<b>8.0%</b>	<b>-1.5%</b>	<b>52.5%</b>	<b>63.7%</b>

\* The top 25% are bold and italicised

**Table A7** Overhead costs

Farm number	Rates	Registration and insurance	Repairs and maintenance	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
TA0001	1.0%	3.5%	9.4%	3.9%	14.1%	31.9%	3.7%	13.0%	48.7%
TA0006	1.5%	2.2%	2.7%	2.9%	1.2%	10.5%	1.2%	24.7%	36.5%
TA0007	2.2%	3.0%	7.3%	1.8%	12.3%	26.7%	4.5%	34.4%	65.5%
TA0008	1.0%	2.7%	9.6%	1.2%	13.0%	27.5%	3.5%	8.1%	39.0%
TA0010	0.8%	3.5%	5.3%	1.6%	16.0%	27.2%	3.0%	12.7%	42.8%
TA0011	0.9%	4.1%	4.1%	1.6%	6.9%	17.6%	3.9%	18.6%	40.2%
TA0015	0.7%	0.8%	12.5%	0.6%	16.1%	30.7%	3.1%	8.4%	42.1%
TA0019	0.0%	0.8%	4.6%	2.1%	8.1%	15.6%	4.7%	15.7%	36.0%
TA0023	0.4%	0.5%	10.3%	3.4%	23.0%	37.6%	0.9%	0.0%	38.5%
TA0025	0.6%	0.7%	6.5%	4.1%	25.0%	36.8%	0.6%	0.0%	37.5%
TA0027	0.4%	0.6%	9.1%	4.0%	22.8%	36.9%	0.6%	0.0%	37.4%
<b>TA0028</b>	<b>0.7%</b>	<b>2.7%</b>	<b>6.6%</b>	<b>1.6%</b>	<b>19.0%</b>	<b>30.7%</b>	<b>4.8%</b>	<b>4.7%</b>	<b>40.2%</b>
TA0031	0.6%	1.9%	6.3%	1.7%	17.6%	28.1%	2.7%	4.5%	35.3%
TA0032	1.8%	3.7%	5.0%	6.5%	19.3%	36.3%	5.6%	15.4%	57.2%
TA0033	2.0%	2.0%	1.4%	2.9%	30.5%	39.0%	2.7%	9.2%	50.9%
<b>TA0035</b>	<b>0.6%</b>	<b>1.9%</b>	<b>7.8%</b>	<b>0.6%</b>	<b>13.3%</b>	<b>24.1%</b>	<b>3.9%</b>	<b>6.9%</b>	<b>34.9%</b>
TA0036	0.4%	0.6%	5.6%	4.2%	23.6%	34.5%	0.4%	0.0%	34.8%
TA0038	1.4%	2.3%	7.1%	3.1%	18.2%	32.3%	5.7%	12.3%	50.3%
<b>TA0039</b>	<b>0.8%</b>	<b>1.8%</b>	<b>9.2%</b>	<b>0.6%</b>	<b>14.7%</b>	<b>27.2%</b>	<b>6.7%</b>	<b>11.4%</b>	<b>45.3%</b>
TA0042	0.8%	1.8%	1.1%	1.8%	18.8%	24.3%	1.7%	11.0%	37.1%
<b>TA0043</b>	<b>0.5%</b>	<b>2.4%</b>	<b>8.2%</b>	<b>0.9%</b>	<b>17.1%</b>	<b>29.1%</b>	<b>0.5%</b>	<b>0.3%</b>	<b>30.0%</b>
TA0044	0.9%	0.7%	9.5%	1.4%	23.4%	35.9%	6.6%	7.6%	50.2%
TA0047	1.7%	2.4%	13.0%	3.1%	25.0%	45.3%	2.8%	5.7%	53.9%
TA0048	0.6%	3.0%	14.6%	3.1%	0.0%	21.2%	1.1%	23.7%	46.0%
TA0049	1.1%	1.4%	4.0%	1.2%	3.2%	10.8%	1.6%	13.2%	25.6%
TA0051	0.9%	4.9%	2.1%	7.3%	13.5%	28.8%	3.5%	22.1%	54.4%
<b>TA0052</b>	<b>0.5%</b>	<b>0.5%</b>	<b>5.3%</b>	<b>0.5%</b>	<b>25.4%</b>	<b>32.1%</b>	<b>1.9%</b>	<b>3.3%</b>	<b>37.2%</b>
<b>TA0053</b>	<b>0.6%</b>	<b>1.2%</b>	<b>7.4%</b>	<b>2.8%</b>	<b>21.5%</b>	<b>33.5%</b>	<b>1.5%</b>	<b>0.0%</b>	<b>35.0%</b>
TA0054	1.0%	1.7%	7.4%	1.5%	0.2%	11.9%	4.6%	20.0%	36.5%
TA0055	0.6%	1.8%	4.5%	1.9%	0.0%	8.7%	1.3%	20.4%	30.5%
TA0056	1.3%	3.2%	1.7%	4.7%	0.0%	10.9%	1.5%	21.5%	34.0%
TA0057	1.5%	4.0%	6.0%	2.5%	9.5%	23.4%	1.8%	12.3%	37.5%
<b>TA0058</b>	<b>1.1%</b>	<b>1.4%</b>	<b>12.9%</b>	<b>1.9%</b>	<b>15.0%</b>	<b>32.3%</b>	<b>2.2%</b>	<b>7.2%</b>	<b>41.7%</b>
TA0060	1.2%	0.6%	5.8%	2.6%	0.0%	10.2%	1.1%	29.4%	40.6%
<b>TA0061</b>	<b>0.8%</b>	<b>1.2%</b>	<b>6.0%</b>	<b>2.1%</b>	<b>18.4%</b>	<b>28.6%</b>	<b>3.6%</b>	<b>3.0%</b>	<b>35.1%</b>
<b>TA0062</b>	<b>0.7%</b>	<b>0.6%</b>	<b>3.9%</b>	<b>0.6%</b>	<b>19.4%</b>	<b>25.3%</b>	<b>0.9%</b>	<b>1.0%</b>	<b>27.1%</b>
<b>Average</b>	<b>0.9%</b>	<b>2.0%</b>	<b>6.8%</b>	<b>2.5%</b>	<b>14.6%</b>	<b>26.8%</b>	<b>2.8%</b>	<b>11.2%</b>	<b>40.7%</b>
<b>Top 25%*</b>	<b>0.7%</b>	<b>1.5%</b>	<b>7.5%</b>	<b>1.3%</b>	<b>18.2%</b>	<b>29.2%</b>	<b>2.9%</b>	<b>4.2%</b>	<b>36.3%</b>

\* 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
<b>Average</b>	<b>\$19,351</b>	<b>\$8,813</b>	<b>\$1,341</b>	<b>\$744</b>	<b>\$1,091</b>	<b>\$4,031</b>	<b>\$138</b>	<b>\$531</b>	<b>\$24,018</b>
<b>Top 25%*</b>	<b>\$21,969</b>	<b>\$9,101</b>	<b>\$1,006</b>	<b>\$552</b>	<b>\$1,176</b>	<b>\$4,870</b>	<b>\$129</b>	<b>\$241</b>	<b>\$28,720</b>

	LIABILITIES		ASSETS	
	Liabilities per usable hectare	Liabilities per milking cow	Equity per usable hectare	Average equity
	\$/ha	\$/cow	\$/ha	%
<b>Average</b>	<b>\$10,661</b>	<b>\$5,009</b>	<b>\$14,837</b>	<b>61%</b>
<b>Top 25%*</b>	<b>\$12,246</b>	<b>\$4,808</b>	<b>\$16,474</b>	<b>57%</b>

**Table A9** Historical data – Tasmania

Average farm income, costs and profit per kilogram of milk solids

Year	INCOME				VARIABLE COSTS							
	Milk income (net)		Gross farm income		Herd costs		Shed costs		Feed costs		Total variable costs	
	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)
2013–14	\$6.87	\$7.18	\$7.59	\$7.93	\$0.28	\$0.29	\$0.23	\$0.24	\$2.51	\$2.62	\$3.02	\$3.15
2014–15	\$6.19	\$6.38	\$6.90	\$7.11	\$0.29	\$0.29	\$0.20	\$0.20	\$2.65	\$2.72	\$3.13	\$3.22
2015–16	\$5.55	\$5.66	\$6.10	\$6.22	\$0.29	\$0.29	\$0.17	\$0.17	\$2.81	\$2.87	\$3.27	\$3.33
2016–17	\$5.03	\$5.03	\$5.84	\$5.84	\$0.28	\$0.28	\$0.20	\$0.20	\$2.38	\$2.38	\$2.87	\$2.87
<b>Average</b>		<b>\$6.06</b>		<b>\$6.77</b>		<b>\$0.29</b>		<b>\$0.21</b>		<b>\$2.65</b>		<b>\$3.14</b>

Note: 'Real' dollar values are the nominal values converted to 2016–17 dollar equivalents by the consumer price index (CPI) to allow for inflation

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

Year	OVERHEAD COSTS					
	Cash overhead costs		Non-cash overhead costs		Total overhead costs	
	Nominal (\$/kg MS)	Real (\$/kg MS)	Nominal (\$/kg MS)	Real (\$/kg MS)	Nominal (\$/kg MS)	Real (\$/kg MS)
2013–14	\$1.41	\$1.47	\$0.73	\$0.76	\$2.14	\$2.23
2014–15	\$1.34	\$1.38	\$0.60	\$0.62	\$1.94	\$2.00
2015–16	\$1.43	\$1.46	\$0.48	\$0.49	\$1.91	\$1.95
2016–17	\$1.30	\$1.30	\$0.68	\$0.68	\$1.98	\$1.98
<b>Average</b>		<b>\$1.40</b>		<b>\$0.64</b>		<b>\$2.04</b>

Note: 'Real' dollar values are the nominal values converted to 2016–17 dollar equivalents by the consumer price index (CPI) to allow for inflation

Year	PROFIT							
	Earnings before interest and tax		Interest and lease charges		Net farm income			
	Nominal (\$/kg MS)	Real (\$/kg MS)	Nominal (\$/kg MS)	Real (\$/kg MS)	Nominal (\$/kg MS)	Real (\$/kg MS)	Return on assets	Return on equity
2013–14	\$2.44	\$2.55	\$0.47	\$0.49	\$1.97	\$2.05	9.6%	12.9%
2014–15	\$1.84	\$1.89	\$0.42	\$0.44	\$1.41	\$1.45	7.8%	9.9%
2015–16	\$0.92	\$0.94	\$0.56	\$0.57	\$0.36	\$0.37	3.9%	0.8%
2016–17	\$0.99	\$0.99	\$0.63	\$0.63	\$0.36	\$0.36	3.7%	1.9%
<b>Average</b>		<b>\$1.59</b>		<b>\$0.53</b>		<b>\$1.06</b>	<b>6.3%</b>	<b>6.4%</b>

Note: 'Real' dollar values are the nominal values converted to 2016–17 dollar equivalents by the consumer price index (CPI) to allow for inflation

**Table A10** Historical data – Tasmania  
Average farm physical information

Year	Total usable area	Milking area	Water used	Number of milking cows	Milking cows per usable area	Milk sold	Milk sold	Estimated grazed pasture*	Estimated conserved feed*	Home grown feed as % of ME consumed	Concentrate price	
	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)
2013–14	260	178	1,475	502	2.1	425	894	9.0	0.6	72%	\$437	\$457
2014–15	280	191	1,084	545	2.1	447	924	9.3	0.7	69%	\$429	\$442
2015–16	302	198	1,250	580	2.1	444	936	10.2	0.5	69%	\$440	\$449
2016–17	268	190	1,620	542	2.2	433	976	9.7	0.7	74%	\$390	\$390
<b>Average</b>	<b>277</b>	<b>189</b>	<b>1,357</b>	<b>542</b>	<b>2.1</b>	<b>437</b>	<b>932</b>	<b>9.6</b>	<b>0.6</b>	<b>71%</b>		<b>\$434</b>

\*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, and rent from farm cottages.

## 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 owned land and buildings, leased land, plant and machinery, fixtures and fittings, trading stock, farm investments (ie Farm Management Deposits), debtors, and cash.

## Cash overheads

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

## Cost of production

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

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

## Cost structure

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

## Debt servicing ratio

Interest and lease costs as a percentage of gross farm income.

## Depreciation

Decrease in value over time of capital asset, usually as a result of using the asset. Depreciation is a non-cash cost of the business, but reduces the book value of the asset and is therefore a cost.

## Earnings before interest and tax (EBIT)

Gross income minus total variable costs, total overhead costs.

## EBIT %

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

## Employed labour cost

Cash cost of any paid employee, including on-costs such as superannuation and Workcover.

## Equity

Total assets minus total liabilities. Equal to the total value of capital invested in the farm business by the owner/operator(s).

## Equity %

Total equity as a percentage of the total assets owned. 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, and feed inventory change.

## Finance costs

See interest and lease costs.

## Full time equivalent (FTE)

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

## Grazed area

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

## Grazed pasture

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

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

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

## Gross farm income

Farm income including milk sales, livestock trading and other income such as income from grants and rebates.

## Gross margin

Gross farm income minus total variable costs.

## Herd costs

Cost of artificial insemination (AI) and herd tests, animal health and calf rearing.

## Imputed

An estimated amount, introduced into economic management analysis to allow reasonable comparisons between years and between other businesses.

**Imputed labour cost**

An allocated allowance for the cost of owner/operator, family and share-farmer time in the business, valued at \$28 per hour.

**Interest and lease costs**

Total interest plus total lease costs paid.

**Labour cost**

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

**Labour efficiency**

FTEs per cow and per kilogram of milk solid. Measures of productivity of the total labour resources in the business.

**Labour resource**

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

**Liability**

Money owed to someone else, eg family or a financial institute such as a bank.

**Livestock trading profit**

An estimate of the annual contribution to gross farm income by accounting for the changes in the number and value of livestock during the year. It is calculated as the trading income from sales minus purchases, plus changes in the value and number of livestock on hand at the start and end of the year, and accounting for births and deaths. An increase in livestock trading indicates there was an appreciation of livestock or an increase in livestock numbers over the year.

**Metabolisable energy**

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

**Milk income**

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

**Milking area**

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

**Net farm income**

*Previously reported as business profit.*

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

**Nominal terms**

Dollar values or interest rates that include an inflation component.

**Number of milkers**

Total number of cows milked for at least three months.

**Other income**

Income to the farm from other farm owned assets and external sources. Includes dividends, interest payments received, and rents from farm cottages.

**Overhead costs**

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

**Real terms**

Dollar values or interest rates that have no inflation component.

**Return on assets (RoA)**

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

**Return on equity (RoE)**

Net farm income divided by the value of total equity.

**Shed costs**

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

**Total income**

See gross farm income.

**Total usable area**

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

**Total water used**

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

**Variable costs**

All costs that vary with the size of production in the enterprise eg herd, shed and feed costs (including feed inventory change).



## List of abbreviations

<b>AI</b>	Artificial insemination	<b>kg</b>	Kilograms
<b>CH<sub>4</sub></b>	Methane gas	<b>LRWS</b>	Low Reliability Water Shares.
<b>CO<sub>2</sub></b>	Carbon dioxide gas	<b>ME</b>	Metabolisable energy (MJ/kg)
<b>CO<sub>2-e</sub></b>	Carbon dioxide equivalent	<b>MJ</b>	Megajoules of energy
<b>CoP</b>	Cost of production	<b>mm</b>	Millimetres. 1 mm is equivalent to 4 points or 1/25th of an inch of rainfall
<b>DFMP</b>	Dairy Farm Monitor Project	<b>MS</b>	Milk solids (proteins and fats)
<b>DM</b>	Dry matter of feed stuffs	<b>N<sub>2</sub>O</b>	Nitrous oxide gas
<b>DEDJTR</b>	Department of Economic Development, Jobs, Transport and Resources, Victoria	<b>Q1</b>	First quartile, i.e. the value of which one quarter, or 25%, of data in that range is <i>less than</i>
<b>EBIT</b>	Earnings before interest and tax	<b>Q3</b>	Third quartile, i.e. the value of which one quarter, or 25%, of data in that range is <i>greater than</i>
<b>FTE</b>	Full time equivalent	<b>RoA</b>	Return on assets
<b>GWP</b>	Global Warming Potential	<b>RoE</b>	Return on equity
<b>ha</b>	Hectare(s)	<b>t</b>	Tonne = 1,000 kg
<b>hd</b>	Head of cattle		
<b>HRWS</b>	High Reliability Water Shares		

## Standard values

### Livestock values

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

Category	Opening value (\$/hd)	Closing value (\$/hd)
Mature cows	\$1,500	\$1,500
14–15 heifers	\$1,050	\$1,500
15–16 heifers	\$450	\$1,050
16–17 calves		\$450
Mature bulls	\$1,500	\$1,500

### Imputed owner/operator and family labour

In 2016–17 the imputed owner/operator and family labour rate was \$28/hr based on a full time equivalent (FTE) working 48 hours/week for 50 weeks of the year.



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