



# **Dairy Farm Monitor Project**

**Tasmania | Annual report 2017–18**

# Acknowledgements

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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
- › Greenhouse Gas Emissions
- › Business confidence survey
- › Historical analysis
- › Appendices

Participants selected for the project 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 2017–18 year. Data is presented for individual farms, as state financial averages and for the state top 25% of farms ranked by return on total assets managed (RoTA). 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 total 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 eight farms from 32 participants in the 2017–18 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 2016–17 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 2016–17 are in the 2017–18 report, as there were 8 farms from the previous year that did not participate and 4 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 2017–18

The Dairy Farm Monitor Report for 2017–18 includes a number of changes since last year's report:

- › Data in this report is produced using standard values, which have been outlined in Appendix B. The standard values for livestock and imputed labour have been revised to align with market values. These standard values may vary from other organisation's standard values. Care should be taken when directly comparing the results of multiple benchmarking studies.
- › Within the overhead cost category, registration and insurance have now been separated into farm insurance and motor vehicle expenses.

Farm insurance relates to all farm insurance that is not personal, such as death and total and permanent disability (TPD). Motor vehicle expenses include registration, insurance, fuel and repairs on vehicles.

- › Return on assets is now referred to as return on total assets.
- › Water use previously reported as mm/ha is now reported as total water use efficiency (t DM/100mm/ ha). Total water use efficiency estimates the amount of home grown feed produced from rainfall and irrigation applied across the usable area. This

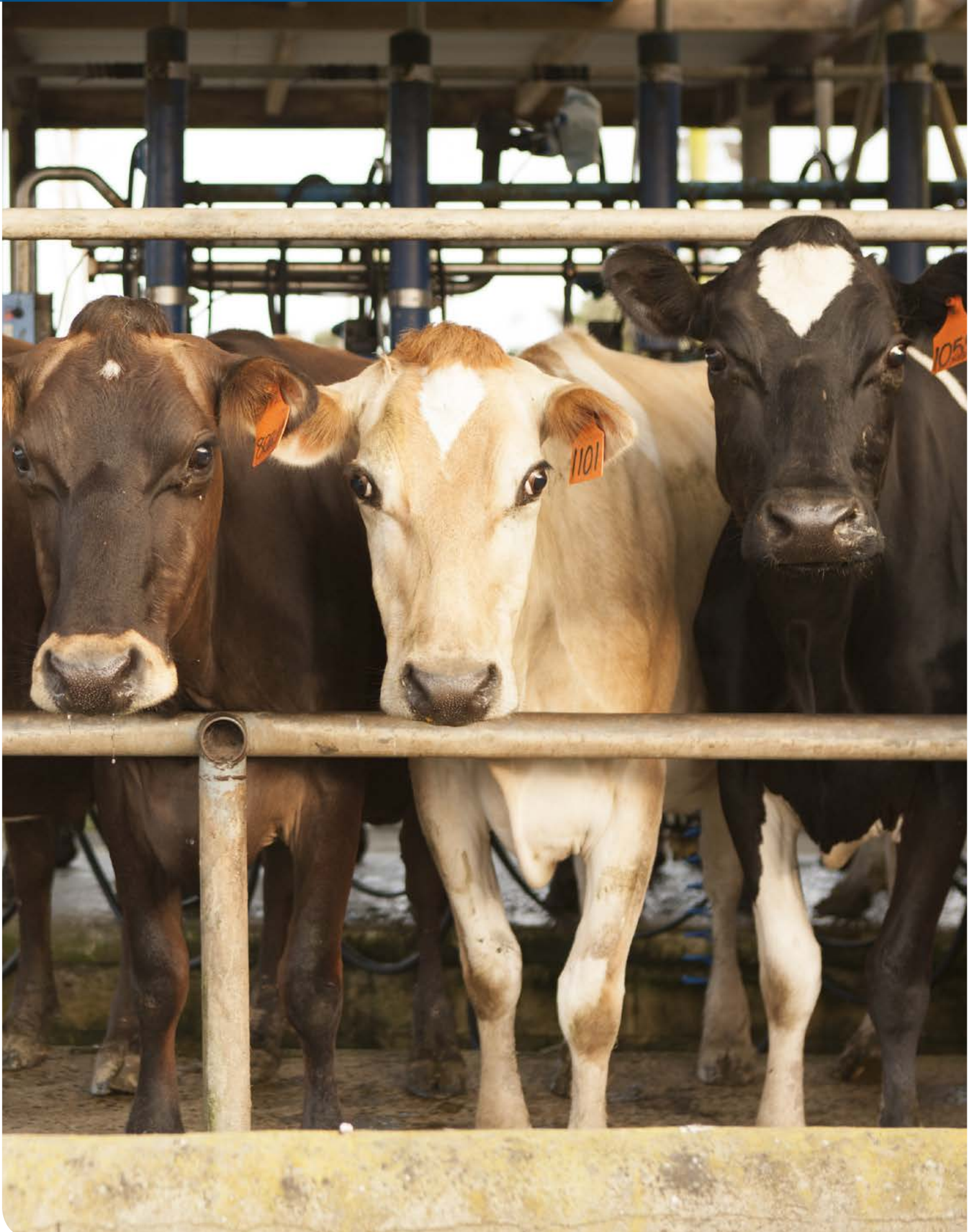
calculation aligns with DairyBase and the Dairy Moving Forward Feedbase targets.

- › Australia's dairy industry greenhouse gas emissions calculator, the national greenhouse gas inventory (NGGI), was used in conjunction with the physical and financial data provided by participant farms. The NGGI emissions calculator is now embedded within DairyBase resulting in some small differences with data entry, and care should be taken when comparing between calculators.

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



## There was strong improvement in earnings before interest and tax (EBIT), net farm income and return on total assets (RoTA) in 2017–18 compared to the previous two years.

This is the fifth 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 2017–18, 32 Tasmanian dairy farms participated in the Dairy Farm Monitor Project, compared with 36 farms in 2016–17. The average milk income of these participants was \$5.95, an 18% increase compared to the previous season.

Earnings before interest and tax (EBIT) averaged \$493,729 per farm, a 79% increase on the previous year. Return on total assets (RoTA) increased from 3.7% to 6.3%, a 70% increase from 2016–17. The top 25% of farms (as measured by RoTA) had a RoTA of 11.5%.

All participants had a positive return on total assets this year ranging from 1.6% to 15.2%.

Net farm income, calculated after interest and lease charges were deducted from EBIT, was on average \$358,205 per farm, a 133% increase from last year.

Three out of the 32 farms recorded a negative return on equity (RoE). The average RoE was 6.7% and 13.1% for the top 25% performers. After a relatively large decline in average equity percentage from 70% in 2015–16 to 61% in 2016–17, there was a slight increase this

year to 62%. There was a decline in debt service ratio from 11% to 9%.

Cost of production without inventory change increased from \$4.87/kg MS to \$5.04/kg MS, an increase of 3.5%.

The top 25% received a 1% higher than average milk income of \$6.02/kg MS and posted 3% higher gross income of \$6.90/kg MS compared to the average of \$6.70/kg MS. The variable costs of the top 25% were 13% lower at \$2.59/kg MS than the average (\$2.95/kg MS). The top 25% performers also spent less on overhead costs at \$1.66/kg MS than the average (\$2.09/kg MS). They generated much higher EBIT (\$2.65/kg MS) than the average of all participants (\$1.66/kg MS).

Milk production increased on both a per cow basis and per hectare basis. Milk sold per hectare increased from 976 kg MS/ha to 1031 kg MS/ha and milk sold per cow increased from 433 kg MS/cow to 445 kg MS/cow. The top performers sold more milk per cow and per hectare, 2% and 16% higher, respectively.

Stocking rate, measured as cows per usable hectare remained the same compared to 2016–17 at 2.3 cows per hectare. Farms in the top 25% had a higher stocking rate than average at 2.8 cows/ha. This

was an increase from 2.5 cows/ha the season before.

Average milk fat was 4.6%, 0.1% higher than the previous season and milk protein was 3.6%, the same as the previous season.

Average homegrown feed was 10.6 t DM/ha forming an estimated 71% of the diet.

Three-quarters of participants expect farm business returns to improve in the upcoming season. Over half expect milk price to remain stable and their milk production to increase.

Milk price and input prices continue to be ranked as the most important issues facing the dairy industry both in the immediate and longer term future.

## 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.

### 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

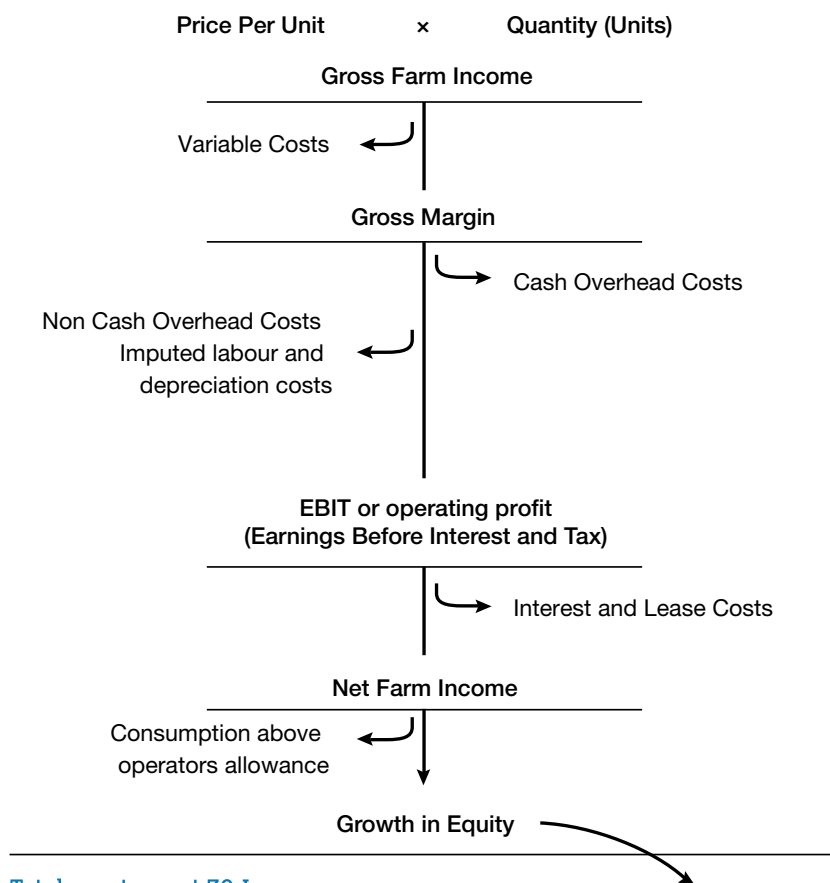
Overhead costs are costs not directly related to an enterprise as they are expenses incurred through the general operating of the business. The DFMP separates overheads into cash and non-cash overheads, to distinguish between different cash flows within the business. Cash overheads include rates, insurance, and repairs and maintenance. Non-cash overheads include costs that are not actual cash receipts or expenditure; for example the amount of depreciation

**Figure 1** Dairy farm monitor project method

#### Total assets as at 1 July

<b>Equity</b>	<b>Debt</b>
---------------	-------------

Financial performance for the year



#### Total assets as at 30 June

<b>Equity</b>	<b>Debt</b>	<b>+</b>	<b>Growth</b>
---------------	-------------	----------	---------------

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) is 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 total assets and return on equity**

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

Return on total assets indicates the overall earning of the total farm assets, irrespective of the 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 total assets is sometimes referred to as return on capital.

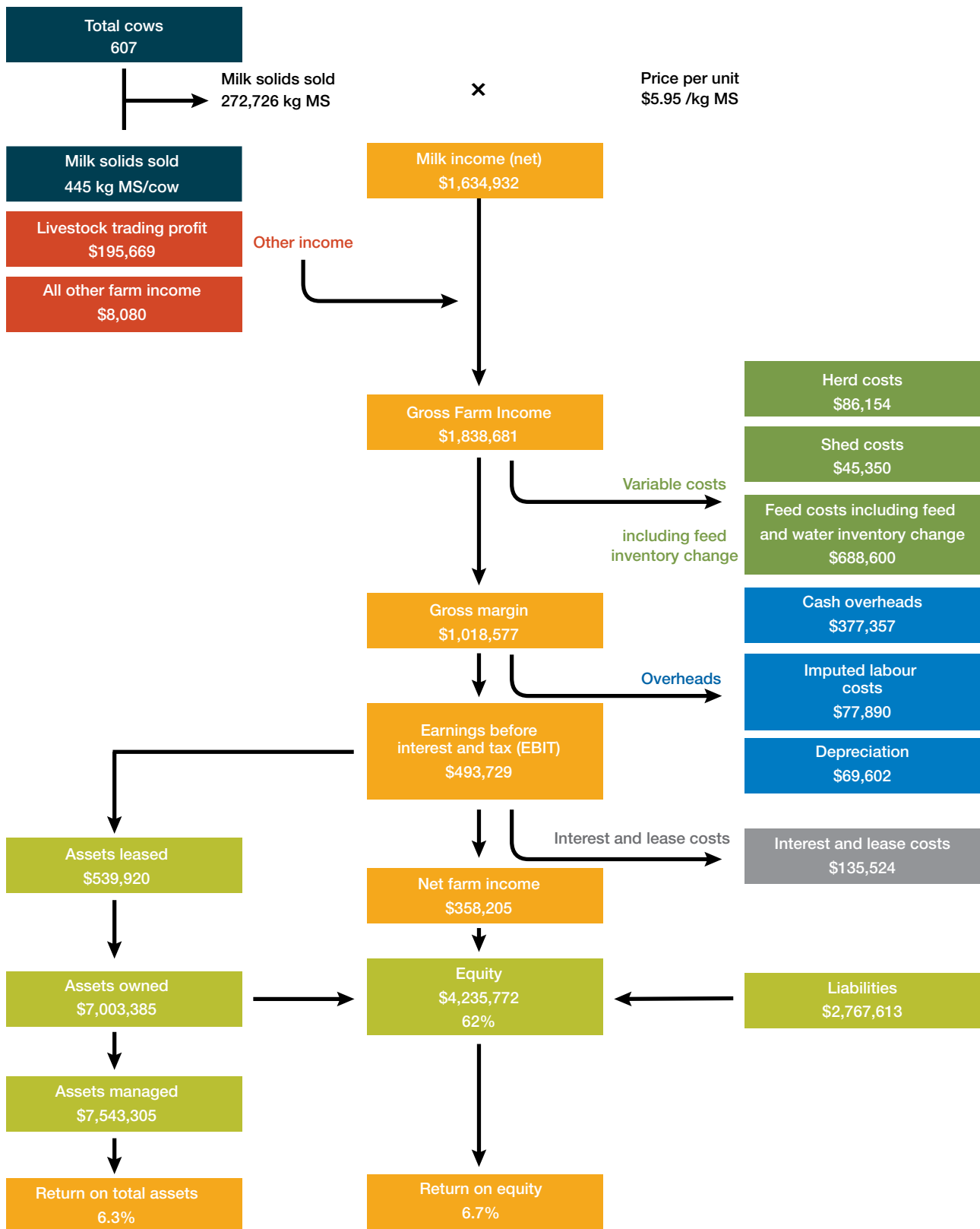
Earnings before interest and tax expressed as a return on total assets is the return from farming. There is also a further return to the asset from any increase in the value of the assets over the year, such as land value. If land value goes up 5% over the year, this is added to the return from farming 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 2017–18 data<sup>1</sup>

All farms 32



<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



In 2017–18, 913 million litres of milk was sold in Tasmania. This was a record high for the state and a 9% increase on the previous year.

The number of registered dairy farms in Tasmania this year was 412, a decrease from 427 in 2016–17. 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.

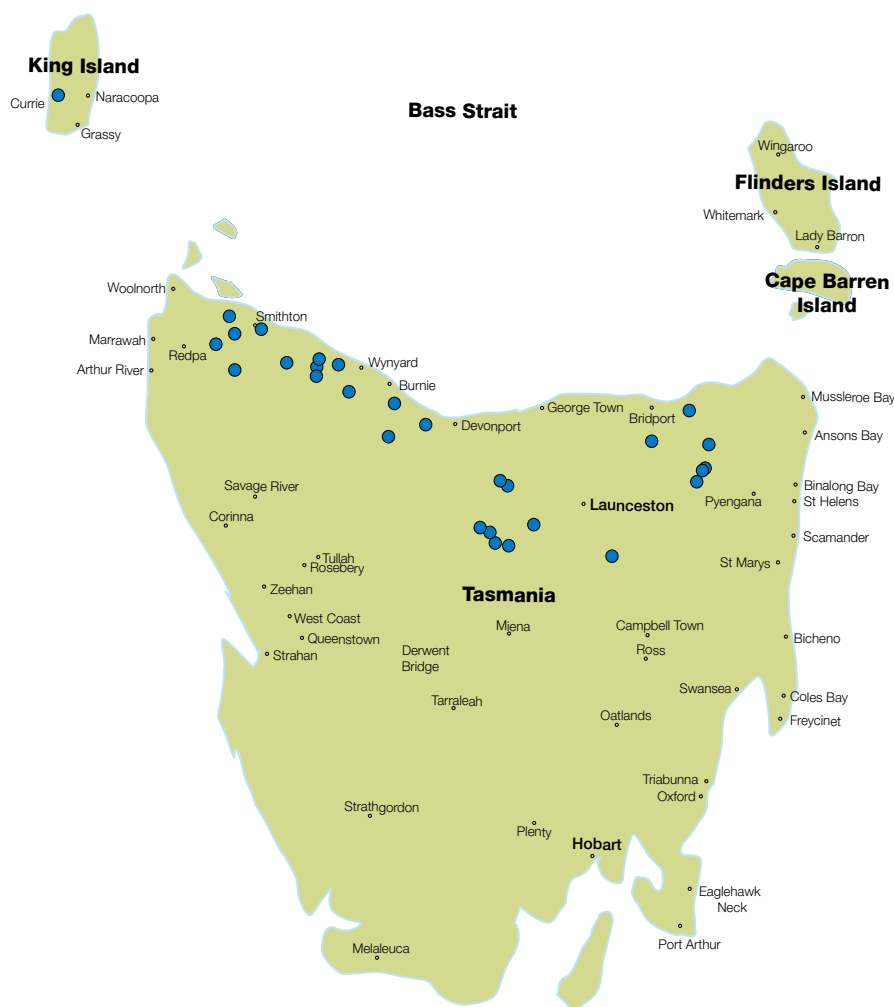
Tasmania has a ryegrass dominant, pasture-based dairy industry with feeding systems ranging from very low input to high input systems. Peak pasture growth occurs in spring, and for many farms this accounts for

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. Many Tasmanian dairy farms now use cross-breeding in their herds.

Thirty-two farms provided data for the 2017–18 Tasmanian Dairy Farm Monitor report, 30 of these farms had participated in previous years with only 2 being new participants to the project. The approximate locations of the participating farms are shown in Figure 3.

**Figure 3** Distribution of participant farms in 2017–18 across Tasmania



# 2017–18 seasonal conditions

Seasonal conditions in 2017–18 were drier than average for spring and early summer but an early autumn break resulted in excellent pasture growth and a boost to milk production during autumn.

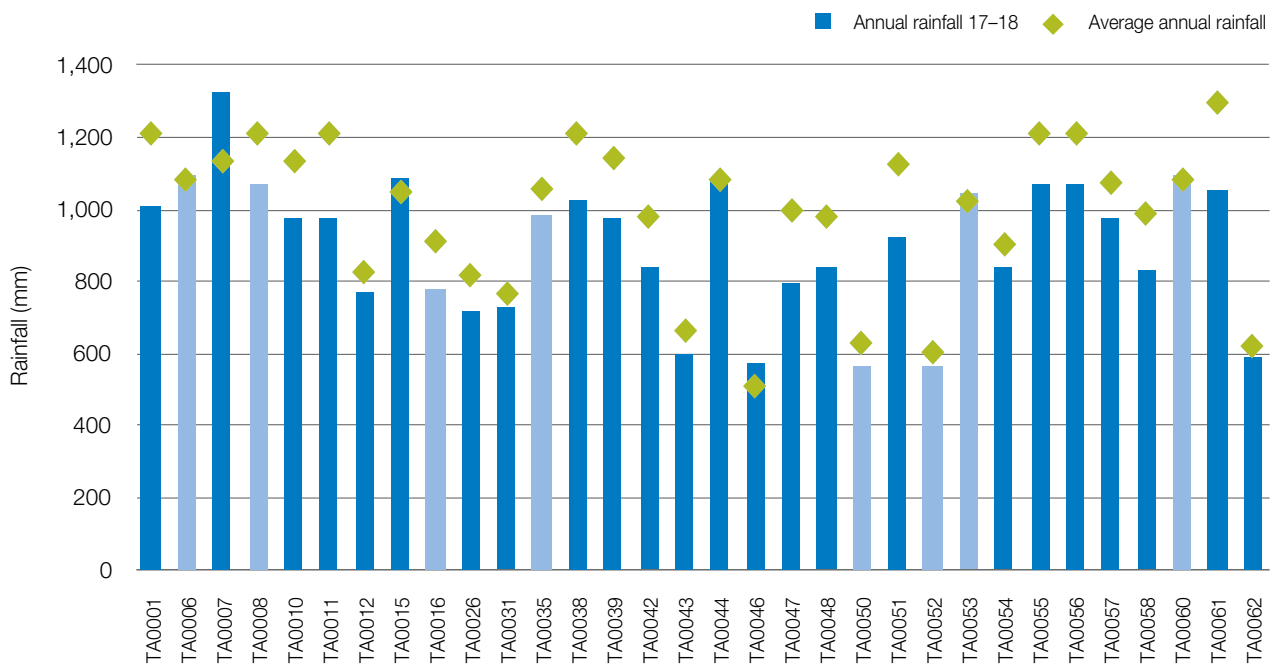
Winter conditions in 2017 were relatively mild with no major challenges during the calving period. Spring started well but dried-off quickly, particularly in the north-east of the state where an earlier than usual irrigation start-up was needed. There was some rainfall over summer but it was below average. However, an early autumn break resulted in one of the best autumn's

in recent memory for pasture growth. And while rainfall did drop below average again during late autumn/early winter, in general farm pasture covers and cow condition going into winter were very good.

**Top 25%\*** The top 25% are shown as the lighter bars in all graphs as ranked by return on total 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 below average rainfall for the season. However the above average rainfall in autumn (Figure 5) and the timing of that rainfall resulted in very good pasture growth through autumn which helped hold milk production and ultimately resulted in a record amount of milk being produced.

**Figure 4** 2017–18 annual rainfall and long term average rainfall of participant farms



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



# Whole farm analysis

Thirty-two farms provided data for the Tasmanian Dairy Farm Monitor Project in 2017–18. The participating farms had an average herd size of 607 cows with an average stocking rate of 2.3 cows per usable hectare. Key whole farm physical parameters for Tasmania are presented below in Table 1.

The average herd size of participating farms was 607 cows.

Rainfall was 35% lower in 2017–18 compared to the previous year. Total water use efficiency is a new measure in the report this year. It is a measure of the tonnes (DM) of feed grown on the farm per 100 mm of rainfall or irrigation water received.

The average total usable area increased slightly from the previous year. Milking cows per usable hectares was 2.3 cows/ha this year, the same as last year. Milk sold per cow was 3% higher than the previous season. Milk sold per hectare was 7% higher.

Labour efficiency per cow has increased by 8% from 143 cows/FTE to 154 cows/FTE. This is the fifth year in a row this efficiency measure has increased. Labour efficiency measured as kg MS/FTE has increased in four out of the five years of the Tasmanian Dairy Farm Monitor Project and is at its highest this year at 67,059 kg MS/FTE. Labour efficiency on Tasmanian dairy farms continues to be the highest of all states participating in the DFMP.

Table 1 presents the average of some farm physical 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 eight farms in the top 25% this year. They have a significantly larger herd size (22%) than the Tasmanian average but a lower usable area resulting in a higher stocking rate. Per cow milk production is 8% higher and per hectare milk production is 32% higher.

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
Annual rainfall 2017–18	901	808–1,060	897
Parameter (No. of milking cows)	607	425–830	738
Total water use efficiency (tDM/100mm/ha)	0.9	0.7–0.9	1.0
Total usable area (hectares)	289	174–437	278
Milking cows per usable hectares	2.3	1.7–2.8	2.8
Milk sold (kg MS /cow)	445	400–483	480
Milk sold (kg MS /ha)	1,031	652–1289	1,364
Home grown feed as % of ME consumed	71%	64%–76%	72%
Labour efficiency (milking cows/FTE)	154	119–185	158
Labour efficiency (kg MS/FTE)	67,059	51,293–78,913	75,044



## 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 88.8% of gross farm income in 2017–18. Other income consists of livestock trading profit (10.7%) and other farm income (0.4%). The proportion of other income decreased (14% to 11%) this year.

Figure 6 also shows the variation in gross income per kilogram of milk solids from \$6.06/kg MS to \$7.47/kg MS. Average gross farm income was \$6.70/kg MS, a 15% increase from last year. The top 25% of farms also increased by 15% from \$5.99/kg MS to \$6.90/kg MS.

The increase in gross farm income in 2017–18 was reflective of the higher milk income received that year. On average, milk price increased by 18%, from \$5.03/kg MS in 2016–17 to \$5.95/kg MS this year. The top 25% received a milk price of \$6.02/kg MS.

## Milk solids sold

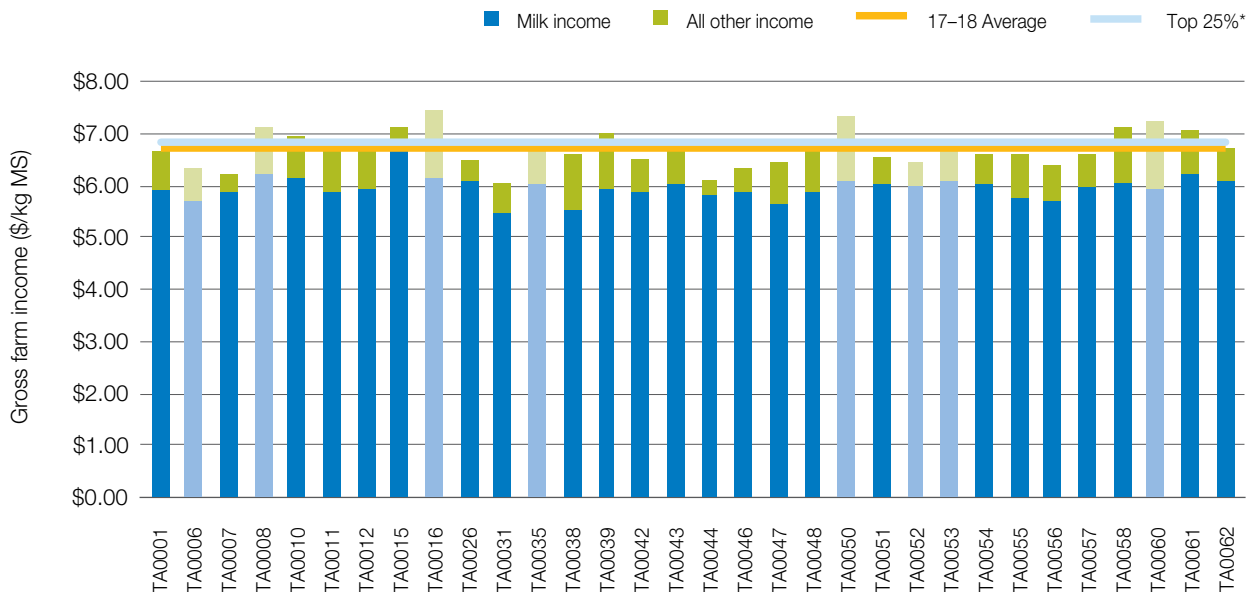
The average amount of milk solids sold was 7% higher at 1042 kg MS/ha compared to 976 kg MS/ha in 2016–17 (Figure 7). The top 25% sold an average of 1,229 kg MS/ha, 16% higher than the average of all participants. As can be seen in Figure 7, there is wide variation in the amount of milk solids sold per 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 281 kg MS/cow to 609 kg MS/cow. This is a wider range than the previous year (290–576 kg MS/cow). The average milk production per cow is 445 kg MS/cow.

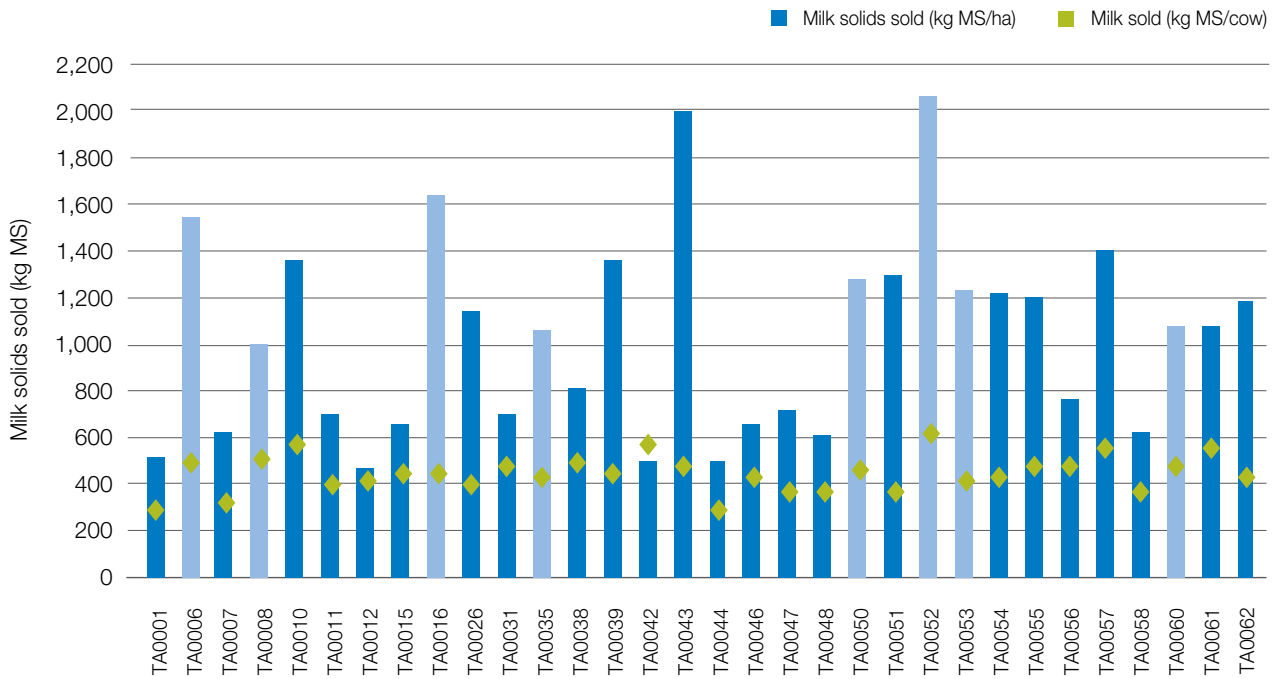
## Milk sales versus calving pattern

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 88% 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 was another small peak in March (9% of annual total) and April (9% of annual total) due to autumn calving cows. There was also a slower decline in milk production during autumn due to the excellent pasture growth that occurred.

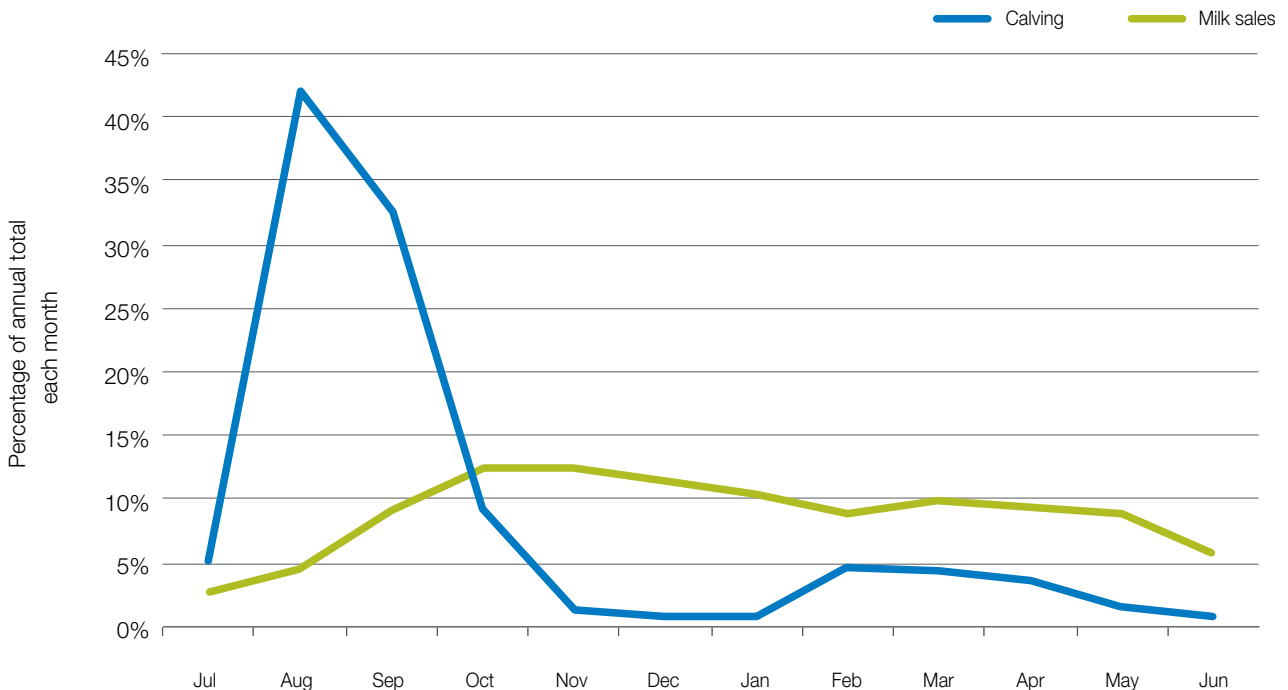
**Figure 6** Gross farm income of per kilogram of milk solids



**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 3% higher

than last year. It is typical when milk income increases to see an increase in spending.

Figure 9 shows the range of variable costs from \$1.42/kg MS to \$3.87/kg MS, with an average of \$2.95/kg MS. Total feed costs, including home grown feed,

purchased feed, agistment and feed inventory change, accounted for 84% of total variable costs.

Concentrates were the largest single feed cost category, costing farmers an average of \$1.13/kg MS in 2017–18, a 6% increase from the previous year.

Fertiliser (\$0.40/kg MS) and agistment (\$0.26/kg MS) are the next largest variable costs.

Variable costs for the top 25% were 13% lower than average at \$2.59/kg MS. Unlike the average, this was a decrease, by 6%, in variable costs. The main areas in which the top 25% spent less than the average were concentrates (-\$0.13/kg MS); fertiliser (-\$0.09/kg MS) and fodder purchases (-\$0.05/kg MS). However the top 25% did spend a higher amount on agistment (\$0.13/kg MS) than the average.

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 2017–18 was \$2.09/kg MS compared with \$1.98/kg MS in 2016–17. The range of overhead costs during 2017–18 was between \$1.25/kg MS and \$3.38/kg MS.

Labour costs were on average \$1.17/kg MS which was a decrease from \$1.25/kg MS in the previous year. Employed labour continues to be the largest component of labour costs at \$0.73/kg MS which was a 3% increase on the previous year. There was a 20% decrease in imputed labour, from \$0.55/kg MS to \$0.44/kg MS.

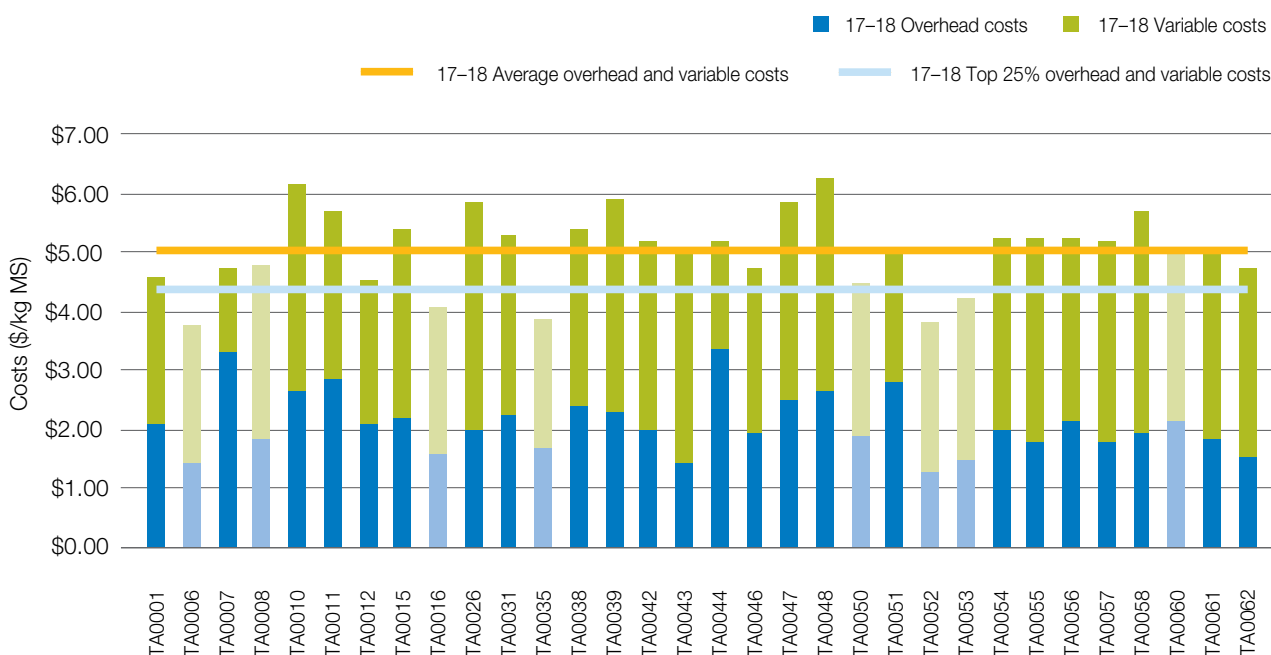
The ability to maintain lower overhead costs appears to be a key to performing in the top 25% for Tasmania. The top 25% have overhead costs that are 26% lower than average at \$1.66/kg MS.

The top 25% have cash overhead costs of \$1.16/kg MS compared to the average of \$1.36/kg MS. The largest component of this difference is in the employed labour cost where the top 25% spend \$0.08/kg MS less than the average. The top 25% also spend \$0.05/kg MS less on repairs and maintenance and \$0.02/kg MS less on each of the other cash overhead cost categories (rates, farm insurance, motor vehicle expenses and other overheads).

The top 25% also spent less on non-cash overhead costs. The imputed labour cost was \$0.16/kg MS and depreciation was \$0.07/kg MS lower. The lower depreciation cost indicates the top 25% have less assets per kilogram of milk solids produced than the average farm.

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

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



## Cost of production

Cost of production gives an indication of the average cost of producing a kilogram of milk solids. It is calculated as variable plus overhead costs and 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 \$5.04/kg MS, which was a 4% increase from last year. The top 25% of farms also increased their cost of production by 4% from \$4.12/kg MS to \$4.28/kg MS.

**Table 2** Cost of production

Farm costs (\$/kg MS)	Average	Q1 to Q3 range	State top 25% average
Cash cost of production	\$4.31	\$3.96– \$4.67	\$3.77
Cost of production (excl inventory changes)	\$5.04	\$4.67–\$5.41	\$4.28
<b>Inventory change</b>			
+/- feed and water inventory changes	\$0.00	\$-0.05–\$0.06	-\$0.02
+/- livestock inventory changes minus purchases	-\$0.21	\$-0.4–\$0.01	-\$0.48

## Earnings before interest and tax

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

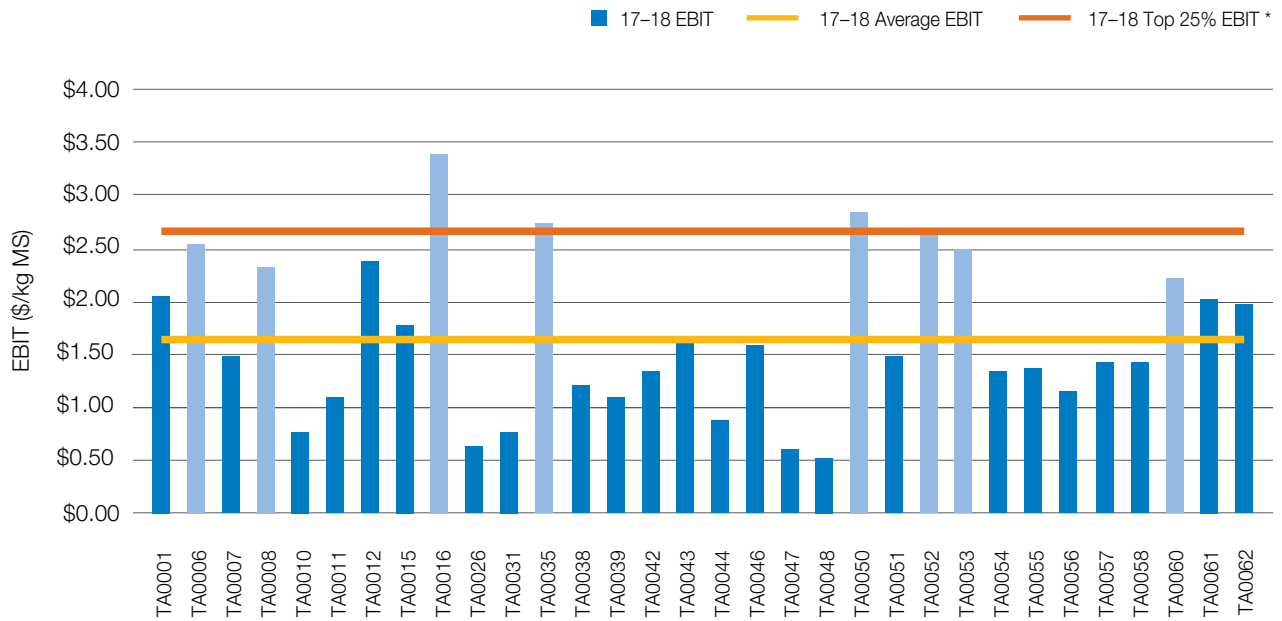
This season the average EBIT increased from \$0.99/kg MS to \$1.66/kg MS. This was driven primarily by the higher milk income.

The EBIT of the top 25% was \$2.65/kg MS, a 58% increase from \$1.68/kg MS in 2016–17. The difference between the average

EBIT and the top 25% EBIT increased by 0.30 kgMS from \$0.69/kg MS to \$0.99/kg MS.

All farms had a positive EBIT this year (Figure 10).

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



## Return on total assets and equity

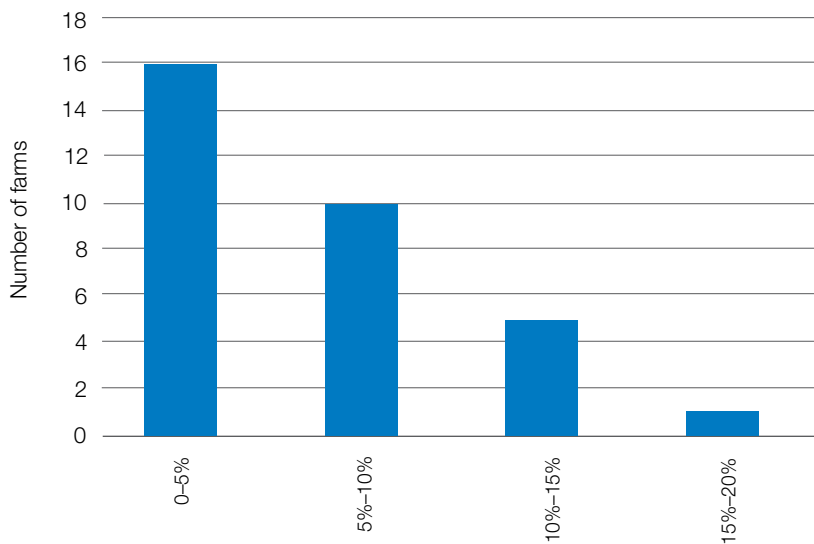
Return on total assets (RoTA) is the EBIT expressed as a percentage of total assets under management. It is an indicator of the overall earning power of total assets, irrespective of capital structure.

Figures 11 to 14 were calculated excluding capital appreciation.

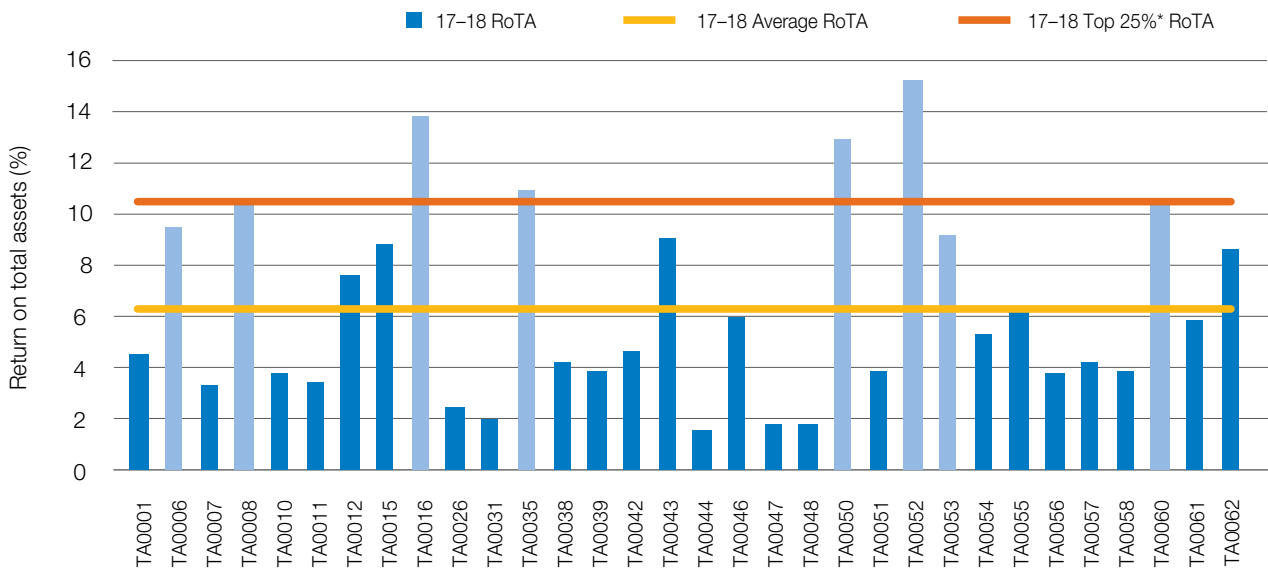
The average return on total assets for 2017–18 was 6.3% with a range from 1.6% to 15.2% (Figure 11 and Appendix Table A1). The average RoTA of 6.3% was an increase from 3.7% last year. The average asset value this year has increased from \$24,018/ha to \$26,396/ha. The top 25% have a higher asset value of \$31,344/ha and also have a higher RoTA at 11.5%. This was an increase from 6.6% last year.

The variation between farms' return on total assets (Figure 12) is indicative of the variation between farms' EBIT generated from the assets under management. An asset's ability to generate a profit for one owner/manager over another is identifiable where farms generate a similar EBIT, but manage total assets of a different value.

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



**Figure 12** Return on total 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 RoTA 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 RoTA, it is the result of

a higher return from the additional assets than the interest or lease rate.

The average RoE for the 32 farms was 6.7%, an increase from 1.9% in 2016–17. This was a larger increase than RoTA. As a result, average RoE is higher than RoTA.

Three farms out of the 32 had a negative RoE (Figure 13 and Figure 14). This is a lower proportion of farms with a negative RoE than in the previous year.

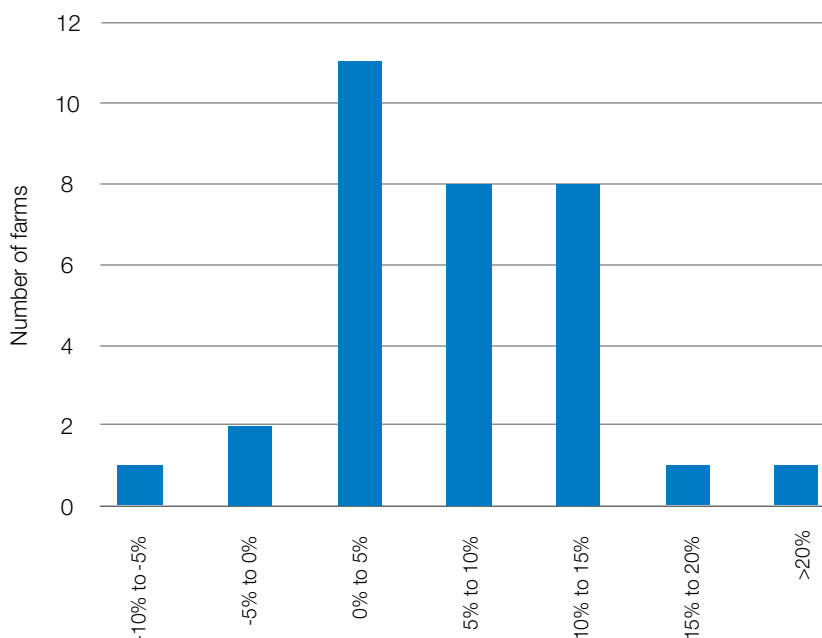
The top 25% group recorded a RoE of 13.1% which was slightly higher than the previous year.

Average interest and lease costs were slightly lower at \$0.60/kg MS than the previous year at \$0.63/kg MS.

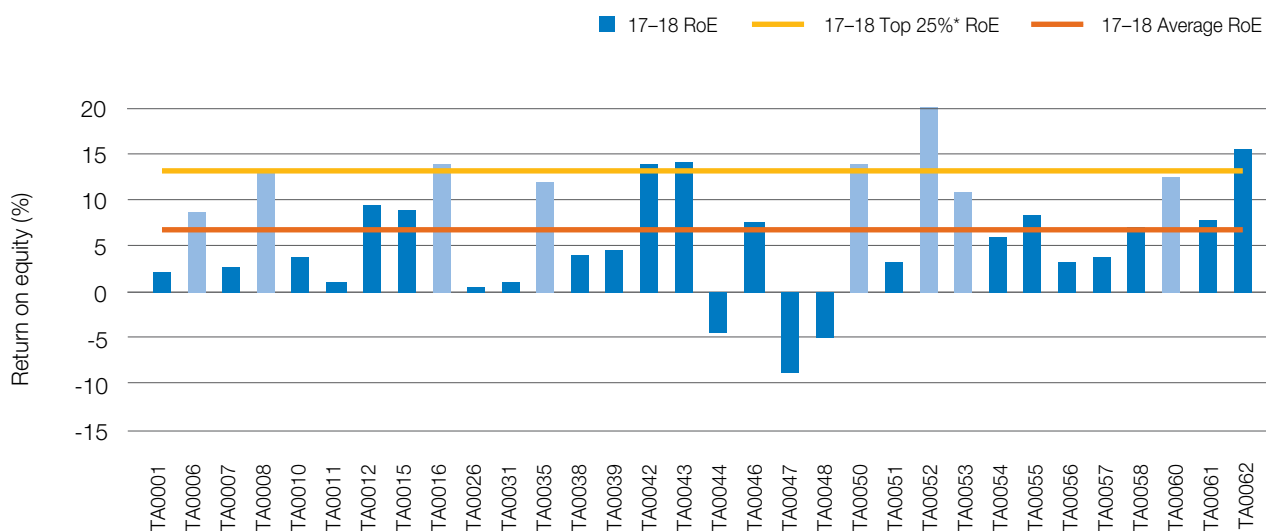
Average capital values can be seen in Appendix A8.

Further discussion of return on total assets and return on equity occur in the risk section below. Appendix Table A1 presents all the return on total assets and return on equity for the participant farms.

**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 4. 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 4 shows that across Tasmania for every \$1.00 spent, \$0.59 was used to cover variable costs. One 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 decreased from 11% last year to 9% this year. This indicates that on average farms repaid \$0.09 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 total assets. This year there were 17 out of the 32 (or 53%) participants who achieved a higher return on equity than return on total assets compared to 27% last year and 34% in 2015–16.

This year there was a slight increase in the equity percentage.

All farms in the Dairy Farm Monitor project sourced some of their metabolisable energy (ME) from imported feeds and are therefore somewhat exposed to fluctuations in prices and supply in the feed market. Last year there was a decrease in the amount of imported feed, perhaps as a response to the lower milk price. This year the amount of imported feed increased to 29% of the total ME of the diet.

<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 - statewide

	2017–18
Cost structure	59%
Debt servicing ratio (percentage of income as finance costs)	9%
Debt per cow	\$4,479
Equity percentage (percentage ownership of total assets managed)	62%
Percentage of feed imported (as a % of total ME)	29%



# Physical measures

Grazed pasture provided an average of 66% 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 the 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 66% of the diet derived from directly grazed pasture.

The next biggest component of energy in the diet is concentrates at 24%, followed by silage at 5% and hay at 5%.

The percentage of ME supplied by concentrates ranged from 5% to 39%.

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.

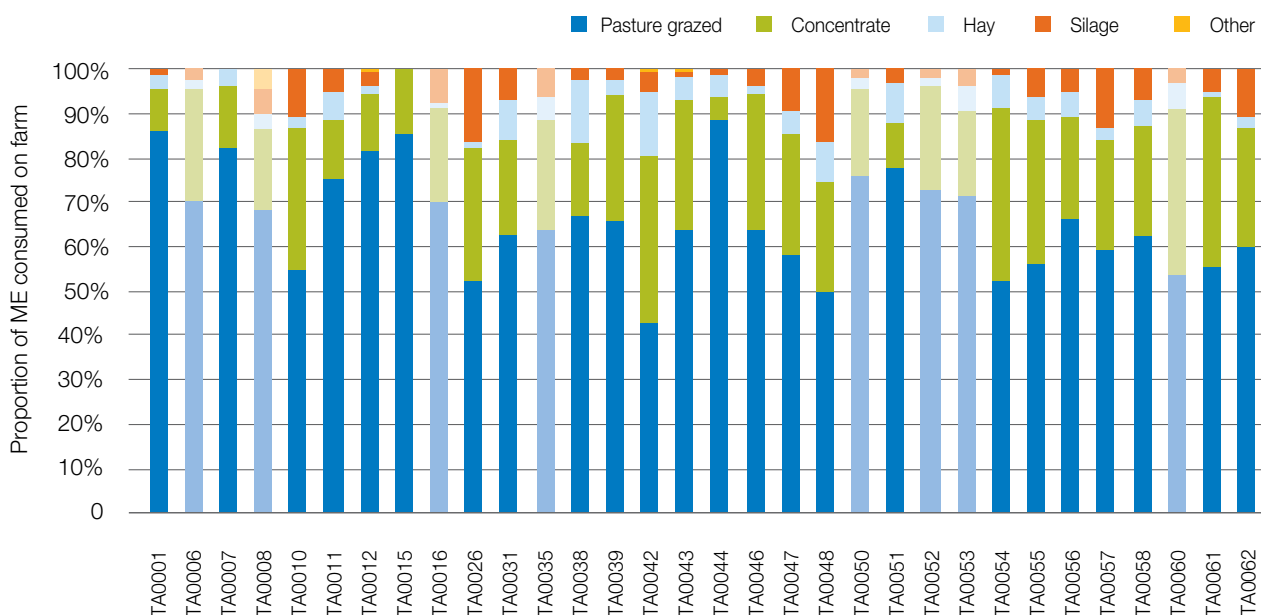
Average pasture produced in 2017–18 was 10.6 t DM/ha consisting of 10.1 t DM/ha grazed pasture and 0.5 t DM/ha conserved pasture. This is an increase in pasture produced of 0.2 t DM/ha from 2016–17.

The top 25% achieved average pasture production of 12.5 t DM/ha grazed and 0.5 t DM conserved pasture. This was an increase in pasture produced of 0.6 t DM/ha from the previous year.

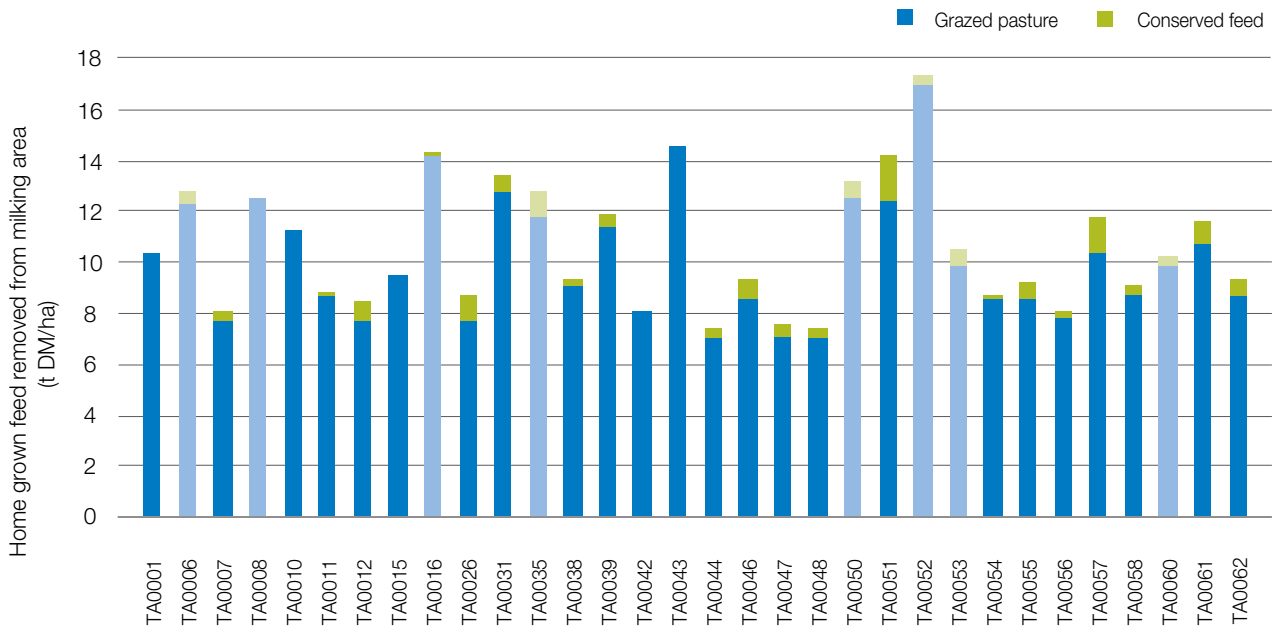
The amount of homegrown conserved fodder was lower this year than the previous year.

Data in figures 15 and 16 was estimated using the pasture consumption calculator in DairyBase. 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 removed 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 294 kg/ha, similar to the previous year. In 2016–17 there was an increase in the amount of nitrogen applied and a similar amount was applied again this year.

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.

Participant farms in Tasmania used a wide range of fertilisers and fertiliser application rates (Figure 17).

Nitrogen was the main nutrient applied by participant farms, varying from 0 kg/ha up to 498 kg/ha, a similar range to the previous season.

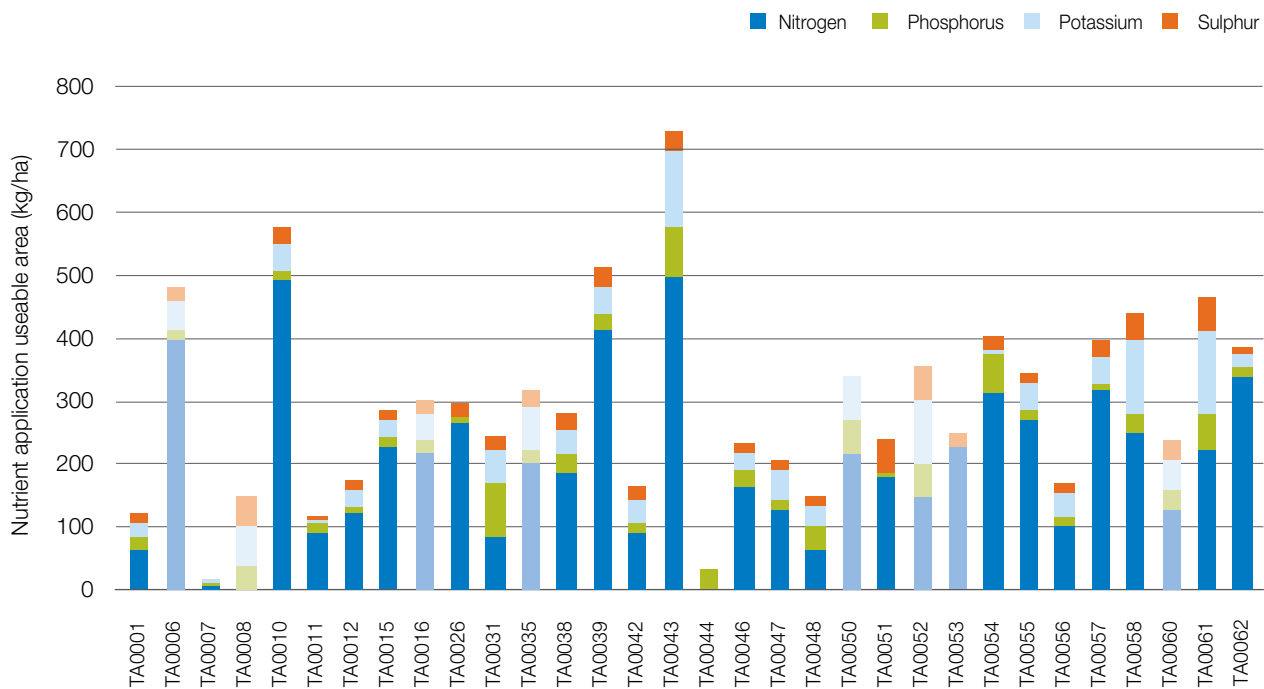
Two farms out of the 32 participants did not use any nitrogen.

Unlike last year when there were five farms that applied nitrogen only, possibly to reduce fertiliser costs, this year all farms applied phosphorus, potassium or sulphur, or a combination.

**Table 4** Fertiliser use

	2013–14	2014–15	2015–16	2016–17	2017–18
Nitrogen kg/ha	152	177	179	202	201
Phosphorus kg/ha	27	27	27	24	28
Potassium kg/ha	35	43	40	46	42
Sulphur kg/ha	21	20	20	19	23

**Figure 17** Fertiliser application per usable area (kg/ha)



## Greenhouse gas emissions



This year the greenhouse emissions calculation was generated through DairyBase using the Australian Dairy Carbon Calculator. The average emissions from participating farms was 12.9 tonnes of carbon dioxide equivalents per tonne of milk solids (t CO<sub>2</sub>-e/t MS) in 2017–18. The most significant source of on-farm emissions were methane from ruminant digestion, contributing 64% of total farm emissions. The next biggest contributor was from pre-farm emissions sources; carbon dioxide from purchased feed and fertiliser, contributing 12 per cent.

Carbon dioxide equivalents (CO<sub>2</sub>-e) are used to standardise the greenhouse potentials from different gases. The Global Warming Potential (GWP) is the index used to convert relevant non-carbon dioxide gases to a carbon dioxide equivalent. This is calculated by multiplying the quantity of each gas by its GWP. All of the data in this section is in CO<sub>2</sub>-e tonnes and expressed per tonne of milk solids produced (CO<sub>2</sub>-e/t MS).

The method of estimating Australia's dairy industry greenhouse gas emissions reflects new research outcomes and aligns with international guidelines. The GWP for the three gases discussed in this report is 1: 25: 298 (carbon dioxide; CO<sub>2</sub>; methane; CH<sub>4</sub>; nitrous oxide; N<sub>2</sub>O). This year the greenhouse emission was calculated through DairyBase using the Australian Dairy Carbon Calculator.

The distribution of different emissions for 2017–18 is shown in Figure 18. Greenhouse gas emissions per tonne of milk solids produced ranged from 9.5 t CO<sub>2</sub>-e/t MS to 15.9 t CO<sub>2</sub>-e/t MS with an average emission level of 12.9 t CO<sub>2</sub>-e/t MS.

Methane was identified as the main greenhouse gas emitted from dairy farms, accounting for 9.2 t CO<sub>2</sub>-e/t MS, 71% of all greenhouse emissions. Methane produced from ruminant digestion (enteric CH<sub>4</sub>) was the major source of emissions from all farms in this report, with an average of 64% of total emissions. Methane from effluent ponds accounted for 7% of total emissions on average across the state in 2017–18.

The most efficient strategy to reduce enteric CH<sub>4</sub> production is manipulating the diet by increasing the feed quality through improved pastures or supplementation with particular concentrates and fat supplements. However, it is recommended that fats should not constitute more than 6–7% of the dietary dry matter intake.

The second main greenhouse gas emission was nitrous oxide N<sub>2</sub>O, accounting for 15% of total emissions or 1.9 t CO<sub>2</sub>-e/t MS. This gas is produced from wastes (dung and urine); applied fertiliser and effluent ponds. Nitrous oxide emissions from fertiliser accounted for 3% of total emissions, effluent ponds accounted for 1% and excreta accounted for 5%. Nitrous oxide from indirect emissions was 6%. Nitrous oxide emissions are highest in warm, waterlogged soils with readily available nitrogen. Over application of nitrogen, high stocking intensity and flood irrigation are all potential causes of increased nitrogen loss as N<sub>2</sub>O. Strategic fertiliser management practices can reduce N<sub>2</sub>O emissions and improve nitrogen efficiency.

The third main greenhouse gas emission was CO<sub>2</sub>. Carbon dioxide accounted for 14% of total emissions (1.8 t CO<sub>2</sub>-e/t MS) in 2017–18. The estimation of greenhouse gas emissions includes a pre-farm gate emission source. These are the greenhouse gases emitted during the manufacturing of fertilisers and the production of purchased fodder, grain and concentrates. Pre-farm gate sources accounted for 12% of the emissions and 2% from on-farm energy sources. The low level of CO<sub>2</sub>

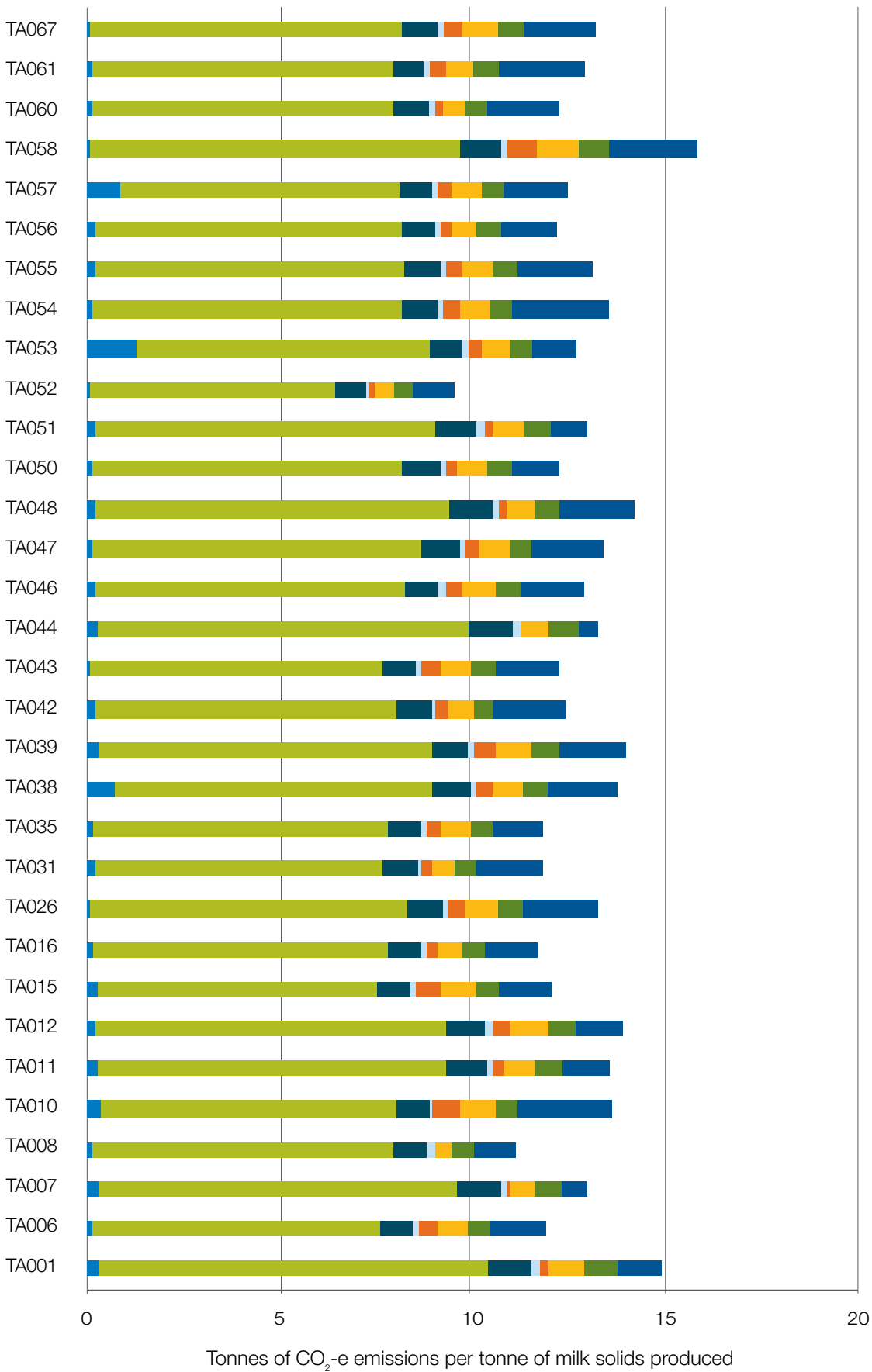
emissions from on-farm energy sources is due to the use of hydro-electricity in Tasmania.

There is a growing importance to understand and monitor greenhouse gas emissions, and these are likely to become more important into the future.

To find detailed information on the Australian National Greenhouse Gas Inventory, strategies for reducing greenhouse gasses and more details on sources of greenhouse gases on dairy farms visit the Australian Department of the Environment's website at [environment.gov.au/climate-change](http://environment.gov.au/climate-change)

**Figure 18** Greenhouse gas emissions per tonne of milk solids produced

- CO<sub>2</sub> – Energy      CH<sub>4</sub> – Enteric      CH<sub>4</sub> – Effluent pond      N<sub>2</sub>O – Effluent pond
- N<sub>2</sub>O – N-fertiliser      N<sub>2</sub>O – Indirect      N<sub>2</sub>O – Drug, urine and spread      CO<sub>2</sub> – Pre-farm gate



# Business confidence survey



# Expectations and issues

Responses to this business confidence survey were made in August to October 2018 with regard to the 2018–19 financial year and the next five years to 2022–23. Twenty-eight farms provided responses to the business confidence survey.

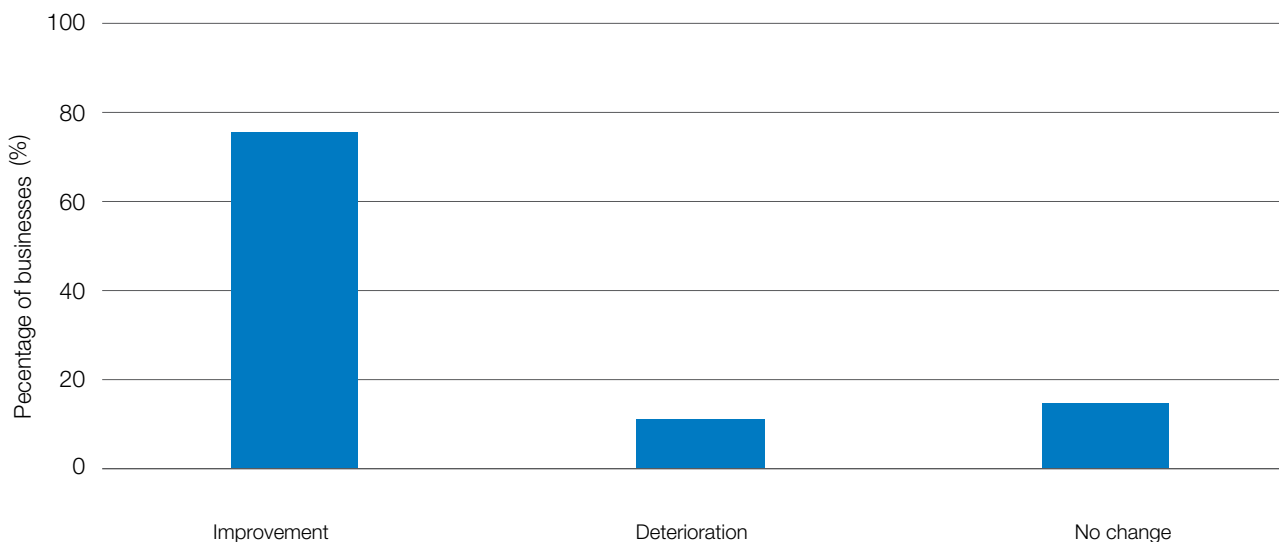
## Expectation for business returns

**Most participants are expecting business returns will improve in the 2018–19 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, 75% expect an improvement in their business returns, 11% expect a decline and 14% expect no change (Figure 19). The percentage expecting improvement is lower than last year's 88% that anticipated an improvement in business returns. As outlined earlier in this report, average business returns for participants did improve in the 2017–18 season in-line with the majority of expectations.

**Figure 19** Expectation of business returns





## Price and production expectations – Milk

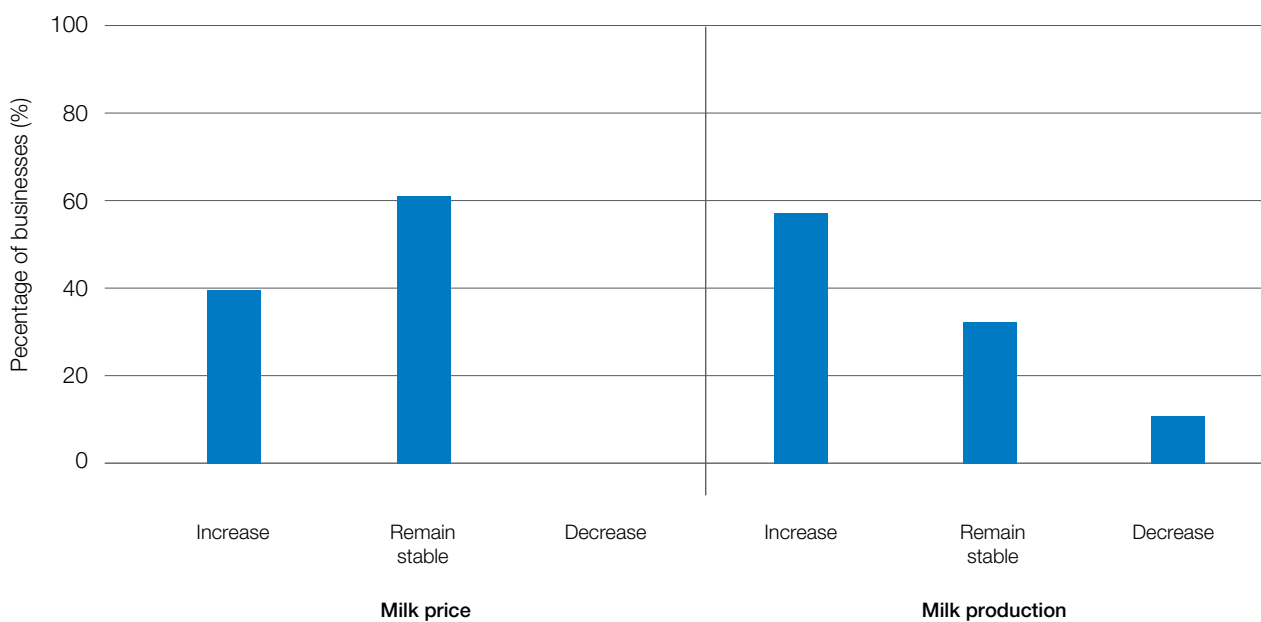
The majority (61%) of participants expect milk price to remain stable for the 2018–19 season (Figure 20). The remainder of participants expect milk price will increase.

Just over half of the participants (57%) expect their milk production to increase in 2018–19. This is lower

than the number (81%) expecting milk production to increase in the last survey. Average milk production did increase for participant farmers in 2017–18. A third of farmers expect their milk production to remain stable and 11% expect milk production to decrease. The lower number of farmers expecting an increase in milk production in this survey compared to the previous

survey may be a result of the climate outlook available at the time of data collection. This was forecasting a high likelihood of a drier than normal summer. Another factor likely impacting on milk production expectations is the cost of purchased feed. Eighty-six percent of participants expected feed prices to increase for the 2018–19 season (Figure 22).

**Figure 20** Price and production expectations – milk



## Production expectations – Fodder

Just below half of participants (48%) expect fodder production to increase for 2018–19 (Figure 21). This is lower than the 63% of participants that expected an increase for 2017–18. The lower number expecting an increase may have been due to the seasonal outlook which forecast the likelihood of a drier than average summer.

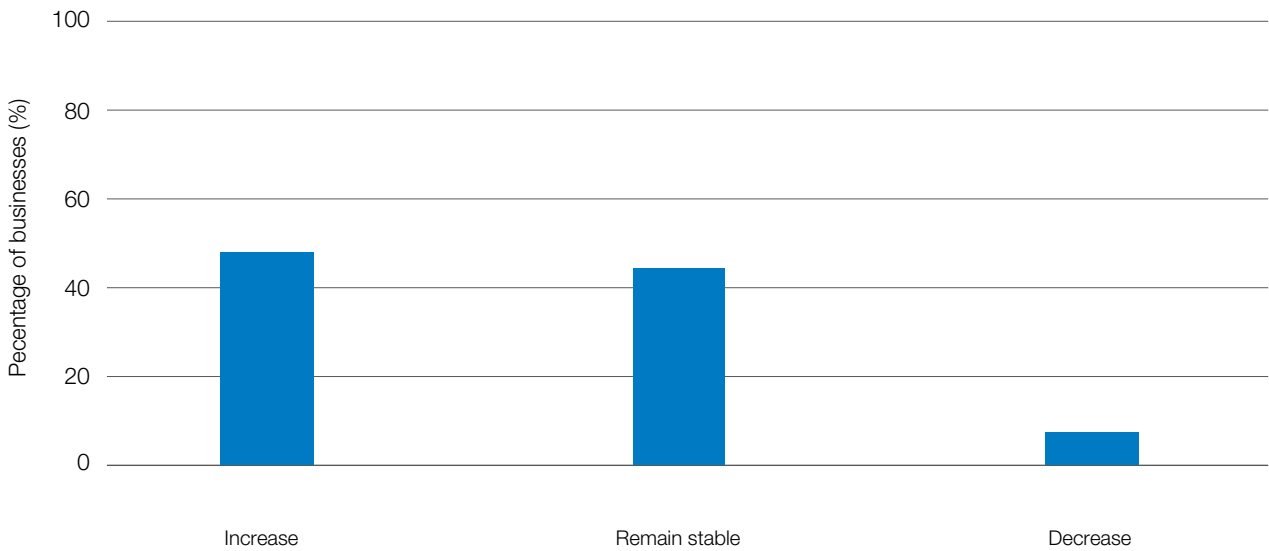
A very good autumn for growing pasture in 2017–18 may also have caused farmers to think an increase in fodder production less likely in the upcoming season.

## Cost expectations

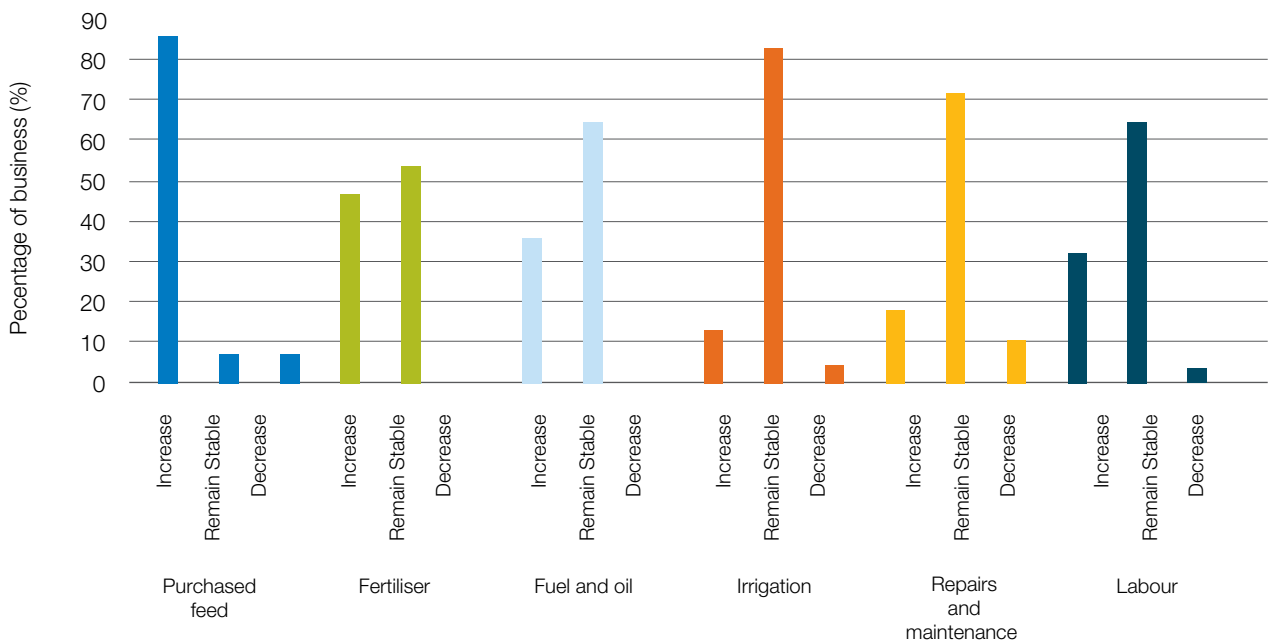
The main increase in costs participants expect in the 2018–19 season is with purchased feed. The impact of this was already being felt at the time of data collection. A third or more of participants were

also expecting an increase in fertiliser costs (46%) and fuel and oil costs (36%). Most participants expected irrigation costs to remain stable despite the forecast likelihood of a drier than normal summer.

**Figure 21** Production expectations - fodder



**Figure 22** Cost expectations



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

Figure 23 provides a summary of the key issues identified by participants for the coming 12 months.

Respondents were equally concerned about milk price and input costs. Despite expectations that labour costs would increase for

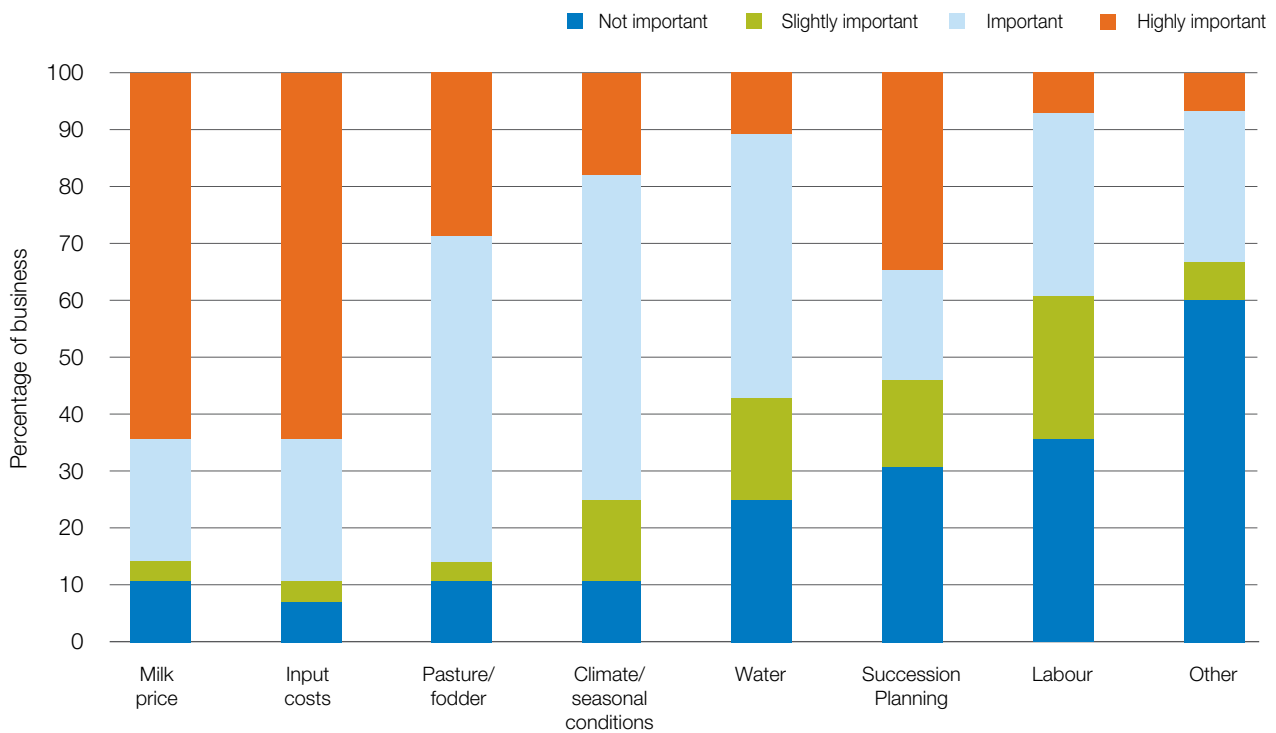
the season, labour was the least frequently mentioned major concern in 2017–18.

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

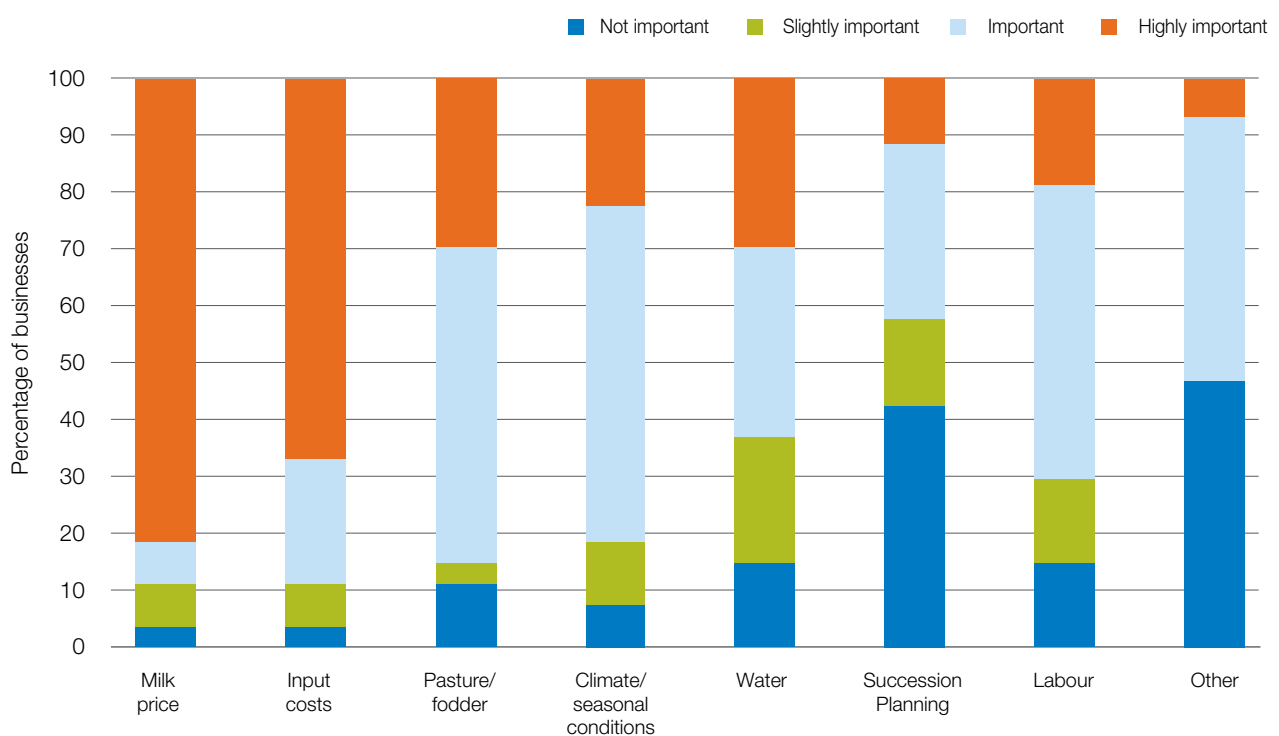
When asked to consider the major issues facing the dairy industry over the next five years, milk price continues to be the major concern

(Figure 24). 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 pasture/ fodder and climate/ seasonal conditions.

**Figure 23** 12-months issues



**Figure 24** 5-years issues



## 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 and 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.

## Tasmanian dairy farmers received a higher milk price in 2017–18. This resulted in a higher net farm income, EBIT and RoTA.

As can be seen in Figure 25, the average EBIT and net farm income of participants continued to increase following the low in 2015–16.

Milk income and gross farm income increased this season and this resulted in improved profitability.

Net farm income increased from \$157,200 in 2016–17 (adjusted for inflation) to \$358,216 this season.

Variable and overhead costs increased which is typical when milk price increases. This led to an increased cost of production.

Despite an increased cost of production, the participants'

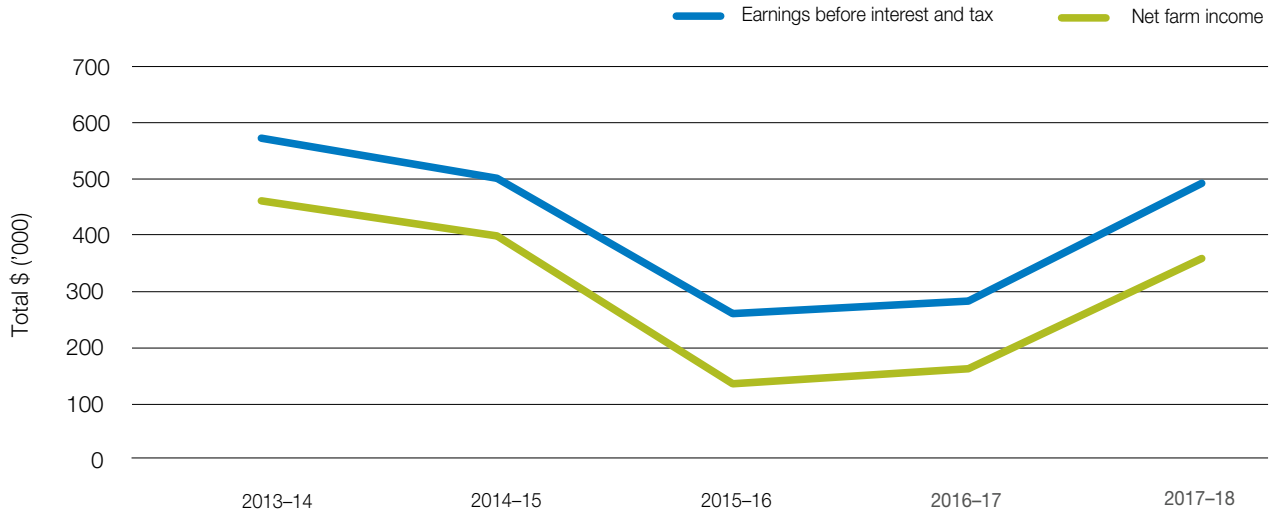
average earnings before interest and taxes was \$493,729 for this season compared to \$281,896 in the previous season (adjusted for inflation).

The difference between EBIT and net income is interest and lease costs. In real terms, there was very little change in interest and lease costs this year, they increased from \$0.65/kg MS to \$0.66/kg MS.

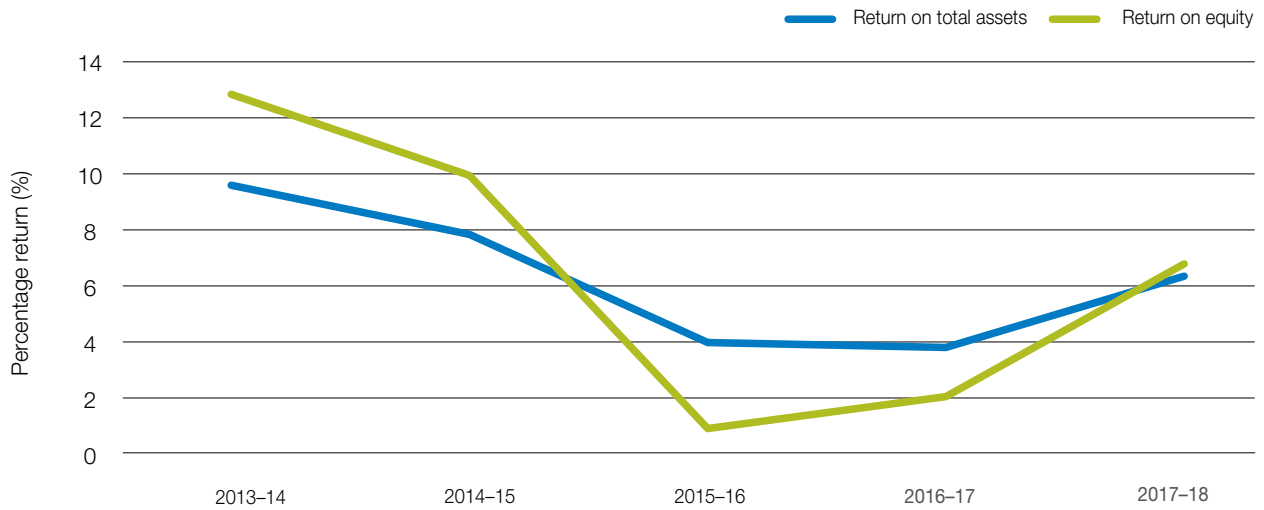
Return on total assets has increased for the first time in three years with an average of 6.3% this year.

Return on equity continued to increase and after two years below ROE is now slightly higher at 6.7%.

**Figure 25** Historical EBIT and net farm income



**Figure 26** Historical return on total 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	\$5.94	\$0.71	\$6.65	\$2.49	\$2.10	54%	\$2.05	4.6%	\$1.59	23.9%	\$0.47	2.1%
<b>TA0006</b>	<b>\$5.67</b>	<b>\$0.65</b>	<b>\$6.32</b>	<b>\$2.32</b>	<b>\$1.44</b>	<b>62%</b>	<b>\$2.56</b>	<b>9.5%</b>	<b>\$0.57</b>	<b>9.0%</b>	<b>\$1.99</b>	<b>8.6%</b>
TA0007	\$5.84	\$0.38	\$6.22	\$1.42	\$3.31	30%	\$1.49	3.3%	\$0.60	9.7%	\$0.88	2.7%
<b>TA0008</b>	<b>\$6.20</b>	<b>\$0.90</b>	<b>\$7.09</b>	<b>\$2.94</b>	<b>\$1.83</b>	<b>62%</b>	<b>\$2.32</b>	<b>10.5%</b>	<b>\$0.29</b>	<b>4.0%</b>	<b>\$2.04</b>	<b>13.4%</b>
TA0010	\$6.16	\$0.77	\$6.92	\$3.52	\$2.64	57%	\$0.76	3.7%	\$0.24	3.5%	\$0.51	3.6%
TA0011	\$5.86	\$0.91	\$6.77	\$2.86	\$2.83	50%	\$1.08	3.4%	\$0.99	14.6%	\$0.10	0.9%
TA0012	\$5.91	\$1.00	\$6.91	\$2.46	\$2.07	54%	\$2.37	7.6%	\$0.37	5.4%	\$2.00	9.4%
TA0015	\$6.83	\$0.31	\$7.14	\$3.20	\$2.17	60%	\$1.77	8.8%	\$0.18	2.5%	\$1.59	9.0%
<b>TA0016</b>	<b>\$6.14</b>	<b>\$1.33</b>	<b>\$7.47</b>	<b>\$2.50</b>	<b>\$1.57</b>	<b>61%</b>	<b>\$3.40</b>	<b>13.8%</b>	<b>\$0.02</b>	<b>0.3%</b>	<b>\$3.38</b>	<b>13.8%</b>
TA0026	\$6.09	\$0.38	\$6.47	\$3.87	\$1.98	66%	\$0.61	2.4%	\$0.57	8.8%	\$0.04	0.4%
TA0031	\$5.48	\$0.58	\$6.06	\$3.05	\$2.26	57%	\$0.75	2.0%	\$0.57	9.5%	\$0.18	0.9%
<b>TA0035</b>	<b>\$6.02</b>	<b>\$0.62</b>	<b>\$6.63</b>	<b>\$2.18</b>	<b>\$1.70</b>	<b>56%</b>	<b>\$2.75</b>	<b>10.9%</b>	<b>\$0.13</b>	<b>1.9%</b>	<b>\$2.63</b>	<b>12.0%</b>
TA0038	\$5.54	\$1.04	\$6.59	\$3.00	\$2.39	56%	\$1.20	4.2%	\$0.22	3.3%	\$0.98	4.0%
TA0039	\$5.90	\$1.07	\$6.97	\$3.61	\$2.27	61%	\$1.09	3.9%	\$0.57	8.2%	\$0.52	4.5%
TA0042	\$5.87	\$0.64	\$6.50	\$3.19	\$1.97	62%	\$1.34	4.7%	\$0.69	10.6%	\$0.65	13.9%
TA0043	\$6.01	\$0.72	\$6.73	\$3.64	\$1.41	72%	\$1.67	9.1%	\$0.26	3.9%	\$1.41	14.1%
TA0044	\$5.80	\$0.28	\$6.08	\$1.83	\$3.38	35%	\$0.87	1.6%	\$1.83	30.2%	-\$0.96	-4.4%
TA0046	\$5.89	\$0.43	\$6.33	\$2.78	\$1.95	59%	\$1.60	6.0%	\$0.78	12.3%	\$0.82	7.7%
TA0047	\$5.61	\$0.84	\$6.45	\$3.38	\$2.47	58%	\$0.60	1.7%	\$1.26	19.6%	-\$0.67	-8.8%
TA0048	\$5.85	\$0.92	\$6.77	\$3.62	\$2.65	58%	\$0.50	1.7%	\$0.86	12.7%	-\$0.36	-5.0%
<b>TA0050</b>	<b>\$6.10</b>	<b>\$1.24</b>	<b>\$7.34</b>	<b>\$2.62</b>	<b>\$1.86</b>	<b>59%</b>	<b>\$2.86</b>	<b>12.9%</b>	<b>\$0.14</b>	<b>1.9%</b>	<b>\$2.72</b>	<b>14.0%</b>
TA0051	\$6.02	\$0.54	\$6.56	\$2.31	\$2.77	45%	\$1.48	3.8%	\$1.01	15.4%	\$0.47	3.1%
<b>TA0052</b>	<b>\$5.95</b>	<b>\$0.49</b>	<b>\$6.45</b>	<b>\$2.57</b>	<b>\$1.25</b>	<b>67%</b>	<b>\$2.63</b>	<b>15.2%</b>	<b>\$0.33</b>	<b>5.2%</b>	<b>\$2.29</b>	<b>20.1%</b>
<b>TA0053</b>	<b>\$6.12</b>	<b>\$0.58</b>	<b>\$6.70</b>	<b>\$2.73</b>	<b>\$1.48</b>	<b>65%</b>	<b>\$2.49</b>	<b>9.2%</b>	<b>\$0.23</b>	<b>3.5%</b>	<b>\$2.25</b>	<b>11.0%</b>
TA0054	\$6.03	\$0.56	\$6.59	\$3.29	\$1.96	63%	\$1.34	5.3%	\$0.60	9.2%	\$0.73	5.9%
TA0055	\$5.73	\$0.87	\$6.60	\$3.46	\$1.77	66%	\$1.36	6.4%	\$0.67	10.1%	\$0.70	8.4%
TA0056	\$5.71	\$0.65	\$6.36	\$3.11	\$2.11	60%	\$1.14	3.8%	\$0.69	10.8%	\$0.45	3.2%
TA0057	\$5.97	\$0.63	\$6.61	\$3.39	\$1.81	65%	\$1.42	4.2%	\$0.61	9.2%	\$0.81	3.7%
TA0058	\$6.03	\$1.08	\$7.11	\$3.76	\$1.92	66%	\$1.43	3.8%	\$0.74	10.5%	\$0.69	7.1%
<b>TA0060</b>	<b>\$5.92</b>	<b>\$1.30</b>	<b>\$7.22</b>	<b>\$2.87</b>	<b>\$2.14</b>	<b>57%</b>	<b>\$2.21</b>	<b>10.5%</b>	<b>\$0.23</b>	<b>3.1%</b>	<b>\$1.98</b>	<b>12.4%</b>
TA0061	\$6.19	\$0.84	\$7.03	\$3.19	\$1.82	64%	\$2.02	5.8%	\$0.72	10.2%	\$1.30	7.9%
TA0067	\$6.08	\$0.61	\$6.69	\$3.18	\$1.53	68%	\$1.97	8.6%	\$0.48	7.2%	\$1.49	15.6%
<b>Average</b>	<b>\$5.95</b>	<b>\$0.75</b>	<b>\$6.70</b>	<b>\$2.95</b>	<b>\$2.09</b>	<b>59%</b>	<b>\$1.66</b>	<b>6.3%</b>	<b>\$0.60</b>	<b>9.1%</b>	<b>\$1.06</b>	<b>6.7%</b>
<b>Top 25%*</b>	<b>\$6.02</b>	<b>\$0.89</b>	<b>\$6.90</b>	<b>\$2.59</b>	<b>\$1.66</b>	<b>61%</b>	<b>\$2.65</b>	<b>11.5%</b>	<b>\$0.24</b>	<b>3.6%</b>	<b>\$2.41</b>	<b>13.1%</b>

\* The top 25% are bold and italicised



**Table A2** Physical information

Farm number	Total usable area	Milking area	Total water use efficiency	Number of milking cows	Milking cows per usable area	Milk sold	Milk sold	Fat	Protein
	ha	ha	tDM/100mm/ha	hd	hd/ha	kg MS/ cow	kg MS/ ha	%	%
TA0001	240	144	0.7	430	1.8	287	514	5.1%	4.0%
<b>TA0006</b>	<b>88</b>	<b>88</b>	<b>1.0</b>	<b>279</b>	<b>3.2</b>	<b>489</b>	<b>1,550</b>	<b>4.9%</b>	<b>3.5%</b>
TA0007	212	212	0.6	419	2.0	315	622	4.4%	3.5%
<b>TA0008</b>	<b>540</b>	<b>300</b>	<b>0.8</b>	<b>1050</b>	<b>1.9</b>	<b>512</b>	<b>995</b>	<b>3.9%</b>	<b>3.3%</b>
TA0010	198	124	0.8	465	2.3	576	1,353	4.1%	3.4%
TA0011	266	185	0.7	465	1.7	400	699	4.7%	3.5%
TA0012	442	282	0.9	500	1.1	414	468	4.7%	3.6%
TA0015	340	255	0.7	490	1.4	451	651	4.9%	3.7%
<b>TA0016</b>	<b>155</b>	<b>155</b>	<b>1.2</b>	<b>570</b>	<b>3.7</b>	<b>448</b>	<b>1,647</b>	<b>5.0%</b>	<b>3.7%</b>
TA0026	253	253	1.0	724	2.9	400	1,146	4.8%	3.8%
TA0031	607	236	0.9	890	1.5	480	704	5.0%	3.8%
<b>TA0035</b>	<b>435</b>	<b>260</b>	<b>0.8</b>	<b>1060</b>	<b>2.4</b>	<b>437</b>	<b>1,065</b>	<b>4.9%</b>	<b>4.0%</b>
TA0038	222	165	0.7	372	1.7	485	812	4.2%	3.2%
TA0039	180	170	0.9	560	3.1	439	1,367	4.2%	3.4%
TA0042	471	150	0.5	420	0.9	567	506	4.0%	3.4%
TA0043	251	245	1.5	1042	4.2	482	2,001	4.4%	3.7%
TA0044	234	234	0.6	420	1.8	281	504	5.2%	3.8%
TA0046	497	274	0.7	750	1.5	432	652	4.3%	3.7%
TA0047	202	162	0.8	400	2.0	365	724	4.5%	3.4%
TA0048	135	70	0.5	220	1.6	370	602	4.5%	3.4%
<b>TA0050</b>	<b>286</b>	<b>265</b>	<b>1.3</b>	<b>810</b>	<b>2.8</b>	<b>454</b>	<b>1,287</b>	<b>4.8%</b>	<b>3.8%</b>
TA0051	57	57	1.1	200	3.5	369	1,297	5.0%	3.8%
<b>TA0052</b>	<b>230</b>	<b>230</b>	<b>1.8</b>	<b>777</b>	<b>3.4</b>	<b>609</b>	<b>2,058</b>	<b>4.7%</b>	<b>3.7%</b>
<b>TA0053</b>	<b>370</b>	<b>370</b>	<b>0.9</b>	<b>1080</b>	<b>2.9</b>	<b>421</b>	<b>1,228</b>	<b>4.8%</b>	<b>3.7%</b>
TA0054	120	120	0.9	338	2.8	432	1,216	4.0%	3.5%
TA0055	80	80	0.7	200	2.5	481	1,202	4.4%	3.5%
TA0056	145	108	0.7	230	1.6	480	761	4.7%	3.5%
TA0057	186	180	0.9	480	2.6	547	1,413	4.7%	3.6%
TA0058	750	450	0.8	1300	1.7	360	623	4.5%	3.7%
<b>TA0060</b>	<b>122</b>	<b>78</b>	<b>0.7</b>	<b>280</b>	<b>2.3</b>	<b>472</b>	<b>1,084</b>	<b>4.2%</b>	<b>3.4%</b>
TA0061	500	300	0.7	970	1.9	554	1,074	3.8%	3.4%
TA0067	442	442	1.4	1230	2.8	425	1,184	4.8%	3.8%
<b>Average</b>	<b>289</b>	<b>208</b>	<b>0.9</b>	<b>607</b>	<b>2.3</b>	<b>445</b>	<b>1031</b>	<b>4.6%</b>	<b>3.6%</b>
<b>Top 25%*</b>	<b>278</b>	<b>218</b>	<b>1.0</b>	<b>738</b>	<b>2.8</b>	<b>480</b>	<b>1364</b>	<b>4.6%</b>	<b>3.7%</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	10.4	0.0	87%	64.6	21.5	23.3	11.6	294	84,270
<b>TA0006</b>	<b>12.3</b>	<b>0.5</b>	<b>70%</b>	<b>394.2</b>	<b>18.1</b>	<b>49.2</b>	<b>21.3</b>	<b>186</b>	<b>90,906</b>
TA0007	7.7	0.4	85%	5.7	5.7	8.5	0.0	119	37,484
<b>TA0008</b>	<b>12.6</b>	<b>0.0</b>	<b>74%</b>	<b>0.0</b>	<b>41.2</b>	<b>58.9</b>	<b>51.8</b>	<b>143</b>	<b>73,005</b>
TA0010	11.3	0.0	68%	490.5	18.0	39.1	27.9	100	57,659
TA0011	8.8	0.1	80%	93.3	12.4	8.6	4.5	103	41,345
TA0012	7.7	0.8	87%	123.7	11.0	27.7	11.1	132	54,435
TA0015	9.5	0.0	86%	226.9	14.5	27.9	16.0	103	46,634
<b>TA0016</b>	<b>14.1</b>	<b>0.2</b>	<b>70%</b>	<b>219.6</b>	<b>20.6</b>	<b>38.2</b>	<b>23.5</b>	<b>107</b>	<b>48,053</b>
TA0026	7.7	1.0	58%	264.2	9.2	2.5	19.0	206	82,510
TA0031	12.8	0.7	75%	85.8	83.7	55.5	19.3	150	71,917
<b>TA0035</b>	<b>11.8</b>	<b>1.0</b>	<b>75%</b>	<b>201.6</b>	<b>18.8</b>	<b>72.6</b>	<b>24.2</b>	<b>240</b>	<b>104,765</b>
TA0038	9.1	0.2	70%	184.1	31.2	40.2	25.5	106	51,517
TA0039	11.4	0.5	68%	413.2	27.0	38.5	33.9	160	70,293
TA0042	8.0	0.0	62%	89.8	19.4	33.2	21.6	86	48,899
TA0043	14.5	0.0	64%	498.3	77.7	120.5	32.2	233	112,100
TA0044	7.0	0.4	95%	0.0	36.1	0.0	0.0	133	37,412
TA0046	8.5	0.8	69%	165.2	23.7	27.2	15.8	155	67,137
TA0047	7.1	0.5	66%	128.4	17.3	44.4	16.9	111	40,603
TA0048	7.1	0.3	66%	64.5	35.4	35.7	12.1	183	67,758
<b>TA0050</b>	<b>12.5</b>	<b>0.6</b>	<b>78%</b>	<b>219.4</b>	<b>50.2</b>	<b>69.5</b>	<b>0.0</b>	<b>135</b>	<b>61,337</b>
TA0051	12.4	1.8	83%	180.9	3.9	0.0	51.5	137	50,619
<b>TA0052</b>	<b>16.9</b>	<b>0.4</b>	<b>74%</b>	<b>150.7</b>	<b>51.5</b>	<b>101.4</b>	<b>53.4</b>	<b>139</b>	<b>84,767</b>
<b>TA0053</b>	<b>9.9</b>	<b>0.6</b>	<b>75%</b>	<b>226.8</b>	<b>0.0</b>	<b>0.0</b>	<b>23.4</b>	<b>190</b>	<b>80,028</b>
TA0054	8.6	0.2	53%	314.9	61.0	4.0	20.6	153	66,096
TA0055	8.5	0.7	60%	272.8	15.0	39.0	18.0	144	69,288
TA0056	7.8	0.2	71%	100.1	18.8	33.5	17.8	149	71,651
TA0057	10.4	1.4	64%	315.2	12.9	41.9	29.0	120	65,612
TA0058	8.8	0.3	75%	247.9	34.7	112.7	43.3	188	67,543
<b>TA0060</b>	<b>9.8</b>	<b>0.4</b>	<b>57%</b>	<b>126.7</b>	<b>31.9</b>	<b>50.7</b>	<b>29.5</b>	<b>122</b>	<b>57,494</b>
TA0061	10.8	0.9	59%	221.8	59.7	129.0	53.4	142	78,541
TA0067	8.8	0.5	63%	337.7	15.3	21.6	10.2	245	104,220
<b>Average</b>	<b>10.2</b>	<b>0.6</b>	<b>71%</b>	<b>200.9</b>	<b>28.0</b>	<b>42.3</b>	<b>23.1</b>	<b>154</b>	<b>67,059</b>
<b>Top 25%*</b>	<b>12.5</b>	<b>0.5</b>	<b>72%</b>	<b>192.4</b>	<b>29.0</b>	<b>55.1</b>	<b>28.4</b>	<b>158</b>	<b>75,044</b>

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

**Table A3** Purchased feed

Farm number	Purchased feed per milker	Concentrate price	Silage price	Hay price	Other feed price	Average purchased feed price
	t DM/hd	\$/ t DM	\$/ t DM	\$/ t DM	\$/ t DM	\$/ t DM
TA0001	0.5	\$466		\$151		\$321
<b>TA0006</b>	<b>1.5</b>	<b>\$353</b>	<b>\$201</b>	<b>\$165</b>		<b>\$314</b>
TA0007	0.7	\$337		\$151		\$297
<b>TA0008</b>	<b>1.6</b>	<b>\$549</b>		<b>\$282</b>	<b>\$440</b>	<b>\$502</b>
TA0010	2.2	\$416	\$233	\$220		\$351
TA0011	1.3	\$378		\$94		\$240
TA0012	0.8	\$547	\$185	\$235	\$161	\$507
TA0015	0.7	\$874				\$874
<b>TA0016</b>	<b>1.6</b>	<b>\$387</b>	<b>\$225</b>	<b>\$188</b>		<b>\$302</b>
TA0026	2.2	\$404	\$311	\$139		\$364
TA0031	1.1	\$501	\$127	\$165		\$459
<b>TA0035</b>	<b>1.1</b>	<b>\$313</b>		<b>\$222</b>		<b>\$311</b>
TA0038	1.7	\$446	\$266	\$216		\$335
TA0039	1.6	\$400		\$175		\$368
TA0042	2.6	\$406			\$281	\$403
TA0043	1.3	\$421	\$160	\$170	\$353	\$375
TA0044	0.2	\$694				\$694
TA0046	1.3	\$308		\$158		\$305
TA0047	1.5	\$344	\$273	\$141		\$303
TA0048	1.5	\$420	\$273	\$91		\$327
<b>TA0050</b>	<b>0.9</b>	<b>\$309</b>		<b>\$89</b>		<b>\$265</b>
TA0051	0.8	\$305		\$135		\$274
<b>TA0052</b>	<b>1.6</b>	<b>\$489</b>		<b>\$176</b>		<b>\$457</b>
<b>TA0053</b>	<b>1.2</b>	<b>\$372</b>		<b>\$177</b>		<b>\$343</b>
TA0054	2.5	\$364		\$160		\$311
TA0055	2.4	\$427	\$303	\$118		\$327
TA0056	1.6	\$522		\$128		\$337
TA0057	2.3	\$367	\$399	\$172		\$369
TA0058	1.4	\$370				\$370
<b>TA0060</b>	<b>2.4</b>	<b>\$376</b>		<b>\$132</b>		<b>\$326</b>
TA0061	2.6	\$383	\$206	\$324		\$368
TA0067	1.9	\$383	\$321	\$122		\$325
<b>Average</b>	<b>1.5</b>	<b>\$426</b>	<b>\$249</b>	<b>\$168</b>	<b>\$309</b>	<b>\$376</b>
<b>Top 25%*</b>	<b>1.5</b>	<b>\$393</b>	<b>\$213</b>	<b>\$179</b>	<b>\$440</b>	<b>\$352</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	\$0.13	\$0.27	\$0.02	\$0.17	\$0.04	\$0.63	\$0.43	\$0.40	\$0.05
<b>TA0006</b>	<b>\$0.08</b>	<b>\$0.12</b>	<b>\$0.05</b>	<b>\$0.06</b>	<b>\$0.06</b>	<b>\$0.36</b>	<b>\$0.36</b>	<b>\$0.06</b>	<b>\$0.05</b>
TA0007	\$0.10	\$0.08	\$0.01	\$0.07	\$0.04	\$0.29	\$0.06	\$0.16	\$0.03
<b>TA0008</b>	<b>\$0.13</b>	<b>\$0.15</b>	<b>\$0.06</b>	<b>\$0.07</b>	<b>\$0.04</b>	<b>\$0.46</b>	<b>\$0.26</b>	<b>\$0.13</b>	<b>\$0.11</b>
TA0010	\$0.08	\$0.19	\$0.14	\$0.08	\$0.04	\$0.54	\$0.45	\$0.17	\$0.15
TA0011	\$0.12	\$0.18	\$0.03	\$0.11	\$0.08	\$0.53	\$0.27	\$0.28	\$0.09
TA0012	\$0.12	\$0.06	\$0.02	\$0.10	\$0.06	\$0.36	\$0.53	\$0.07	\$0.22
TA0015	\$0.09	\$0.15	\$0.08	\$0.11	\$0.12	\$0.55	\$0.72	\$0.03	\$0.00
<b>TA0016</b>	<b>\$0.08</b>	<b>\$0.16</b>	<b>\$0.00</b>	<b>\$0.08</b>	<b>\$0.04</b>	<b>\$0.36</b>	<b>\$0.21</b>	<b>\$0.11</b>	<b>\$0.01</b>
TA0026	\$0.14	\$0.18	\$0.10	\$0.09	\$0.05	\$0.56	\$0.31	\$0.05	\$0.12
TA0031	\$0.06	\$0.23	\$0.01	\$0.07	\$0.04	\$0.40	\$0.63	\$0.15	\$0.20
<b>TA0035</b>	<b>\$0.10</b>	<b>\$0.15</b>	<b>\$0.04</b>	<b>\$0.05</b>	<b>\$0.03</b>	<b>\$0.37</b>	<b>\$0.40</b>	<b>\$0.19</b>	<b>\$0.15</b>
TA0038	\$0.00	\$0.14	\$0.01	\$0.08	\$0.11	\$0.34	\$0.64	\$0.10	\$0.04
TA0039	\$0.09	\$0.20	\$0.03	\$0.09	\$0.04	\$0.46	\$0.38	\$0.29	\$0.09
TA0042	\$0.07	\$0.14	\$0.02	\$0.06	\$0.17	\$0.46	\$0.44	\$0.11	\$0.09
TA0043	\$0.14	\$0.21	\$0.03	\$0.20	\$0.18	\$0.76	\$0.48	\$0.13	\$0.00
TA0044	\$0.07	\$0.10	\$0.03	\$0.22	\$0.08	\$0.49	\$0.36	\$0.17	\$0.02
TA0046	\$0.14	\$0.10	\$0.01	\$0.11	\$0.05	\$0.40	\$0.48	\$0.25	\$0.12
TA0047	\$0.07	\$0.09	\$0.00	\$0.18	\$0.11	\$0.45	\$0.43	\$0.30	\$0.12
TA0048	\$0.08	\$0.09	\$0.07	\$0.14	\$0.08	\$0.47	\$0.39	\$0.22	\$0.20
<b>TA0050</b>	<b>\$0.13</b>	<b>\$0.19</b>	<b>\$0.08</b>	<b>\$0.07</b>	<b>\$0.05</b>	<b>\$0.51</b>	<b>\$0.34</b>	<b>\$0.14</b>	<b>\$0.06</b>
TA0051	\$0.06	\$0.15	\$0.01	\$0.07	\$0.24	\$0.53	\$0.21	\$0.16	\$0.17
<b>TA0052</b>	<b>\$0.12</b>	<b>\$0.18</b>	<b>\$0.06</b>	<b>\$0.06</b>	<b>\$0.08</b>	<b>\$0.49</b>	<b>\$0.24</b>	<b>\$0.12</b>	<b>\$0.02</b>
<b>TA0053</b>	<b>\$0.20</b>	<b>\$0.20</b>	<b>\$0.07</b>	<b>\$0.06</b>	<b>\$0.04</b>	<b>\$0.57</b>	<b>\$0.31</b>	<b>\$0.14</b>	<b>\$0.09</b>
TA0054	\$0.11	\$0.15	\$0.09	\$0.09	\$0.12	\$0.56	\$0.47	\$0.12	\$0.02
TA0055	\$0.13	\$0.31	\$0.04	\$0.09	\$0.07	\$0.64	\$0.29	\$0.31	\$0.04
TA0056	\$0.08	\$0.21	\$0.00	\$0.14	\$0.14	\$0.59	\$0.33	\$0.34	\$0.17
TA0057	\$0.08	\$0.27	\$0.06	\$0.07	\$0.06	\$0.55	\$0.35	\$0.08	\$0.23
TA0058	\$0.16	\$0.08	\$0.05	\$0.09	\$0.10	\$0.49	\$0.84	\$0.18	\$0.22
<b>TA0060</b>	<b>\$0.06</b>	<b>\$0.08</b>	<b>\$0.02</b>	<b>\$0.11</b>	<b>\$0.09</b>	<b>\$0.37</b>	<b>\$0.35</b>	<b>\$0.04</b>	<b>\$0.07</b>
TA0061	\$0.08	\$0.16	\$0.03	\$0.13	\$0.02	\$0.41	\$0.55	\$0.05	\$0.11
TA0067	\$0.07	\$0.17	\$0.05	\$0.08	\$0.04	\$0.41	\$0.35	\$0.03	\$0.03
<b>Average</b>	<b>\$0.10</b>	<b>\$0.16</b>	<b>\$0.04</b>	<b>\$0.10</b>	<b>\$0.08</b>	<b>\$0.48</b>	<b>\$0.40</b>	<b>\$0.16</b>	<b>\$0.10</b>
<b>Top 25%*</b>	<b>\$0.11</b>	<b>\$0.15</b>	<b>\$0.05</b>	<b>\$0.07</b>	<b>\$0.05</b>	<b>\$0.43</b>	<b>\$0.31</b>	<b>\$0.12</b>	<b>\$0.07</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 and water inventory change	Total feed costs	Total variable costs
	\$/ kg MS	\$/ kg MS	\$/ kg MS	\$/ kg MS	\$/ kg MS	\$/ kg MS	\$/ kg MS	\$/ kg MS	\$/ kg MS
TA0001	\$0.07	\$0.08	\$0.04	\$0.19	\$0.68	\$0.00	-\$0.07	\$1.86	\$2.49
<b>TA0006</b>	<b>\$0.06</b>	<b>\$0.11</b>	<b>\$0.00</b>	<b>\$0.14</b>	<b>\$0.90</b>	<b>\$0.35</b>	<b>-\$0.07</b>	<b>\$1.96</b>	<b>\$2.32</b>
TA0007	\$0.10	\$0.04	\$0.00	\$0.06	\$0.52	\$0.12	\$0.04	\$1.13	\$1.42
<b>TA0008</b>	<b>\$0.05</b>	<b>\$0.28</b>	<b>\$0.08</b>	<b>\$0.10</b>	<b>\$1.49</b>	<b>\$0.00</b>	<b>-\$0.02</b>	<b>\$2.49</b>	<b>\$2.94</b>
TA0010	\$0.10	\$0.21	\$0.06	\$0.46	\$1.57	\$0.22	-\$0.40	\$2.98	\$3.52
TA0011	\$0.10	\$0.12	\$0.19	\$0.15	\$0.65	\$0.43	\$0.04	\$2.33	\$2.86
TA0012	\$0.10	\$0.18	\$0.00	\$0.03	\$1.00	\$0.00	-\$0.03	\$2.10	\$2.46
TA0015	\$0.12	\$0.25	\$0.00	\$0.00	\$1.53	\$0.00	\$0.00	\$2.65	\$3.20
<b>TA0016</b>	<b>\$0.03</b>	<b>\$0.07</b>	<b>\$0.01</b>	<b>\$0.52</b>	<b>\$0.86</b>	<b>\$0.54</b>	<b>-\$0.21</b>	<b>\$2.15</b>	<b>\$2.50</b>
TA0026	\$0.03	\$0.24	\$0.00	\$0.42	\$1.41	\$0.59	\$0.13	\$3.31	\$3.87
TA0031	\$0.07	\$0.08	\$0.00	\$0.06	\$1.28	\$0.00	\$0.19	\$2.64	\$3.05
<b>TA0035</b>	<b>\$0.02</b>	<b>\$0.00</b>	<b>\$0.02</b>	<b>\$0.01</b>	<b>\$0.76</b>	<b>\$0.27</b>	<b>-\$0.02</b>	<b>\$1.81</b>	<b>\$2.18</b>
TA0038	\$0.12	\$0.13	\$0.00	\$0.45	\$0.92	\$0.00	\$0.14	\$2.54	\$3.00
TA0039	\$0.12	\$0.22	\$0.12	\$0.09	\$1.25	\$0.56	\$0.02	\$3.16	\$3.61
TA0042	\$0.10	\$0.03	\$0.06	\$0.00	\$1.79	\$0.00	\$0.11	\$2.73	\$3.19
TA0043	\$0.01	\$0.04	\$0.00	\$0.10	\$1.17	\$0.88	\$0.07	\$2.89	\$3.64
TA0044	\$0.04	\$0.00	\$0.00	\$0.00	\$0.42	\$0.27	\$0.05	\$1.34	\$1.83
TA0046	\$0.09	\$0.16	\$0.27	\$0.01	\$0.95	\$0.00	\$0.05	\$2.38	\$2.78
TA0047	\$0.04	\$0.23	\$0.23	\$0.31	\$1.17	\$0.00	\$0.11	\$2.93	\$3.38
TA0048	\$0.14	\$0.22	\$0.00	\$0.36	\$1.25	\$0.18	\$0.20	\$3.15	\$3.62
<b>TA0050</b>	<b>\$0.05</b>	<b>\$0.09</b>	<b>\$0.00</b>	<b>\$0.04</b>	<b>\$0.63</b>	<b>\$0.76</b>	<b>\$0.00</b>	<b>\$2.11</b>	<b>\$2.62</b>
TA0051	\$0.09	\$0.16	\$0.00	\$0.07	\$0.69	\$0.60	-\$0.37	\$1.78	\$2.31
<b>TA0052</b>	<b>\$0.04</b>	<b>\$0.09</b>	<b>\$0.00</b>	<b>\$0.05</b>	<b>\$1.18</b>	<b>\$0.34</b>	<b>\$0.00</b>	<b>\$2.08</b>	<b>\$2.57</b>
<b>TA0053</b>	<b>\$0.03</b>	<b>\$0.05</b>	<b>\$0.00</b>	<b>\$0.06</b>	<b>\$0.71</b>	<b>\$0.64</b>	<b>\$0.13</b>	<b>\$2.16</b>	<b>\$2.73</b>
TA0054	\$0.04	\$0.22	\$0.00	\$0.25	\$1.65	\$0.00	-\$0.04	\$2.74	\$3.29
TA0055	\$0.07	\$0.09	\$0.00	\$0.31	\$1.62	\$0.19	-\$0.09	\$2.82	\$3.46
TA0056	\$0.12	\$0.17	\$0.00	\$0.30	\$1.37	\$0.00	-\$0.27	\$2.52	\$3.11
TA0057	\$0.10	\$0.18	\$0.05	\$0.49	\$0.99	\$0.33	\$0.04	\$2.83	\$3.39
TA0058	\$0.08	\$0.04	\$0.01	\$0.00	\$1.48	\$0.00	\$0.41	\$3.27	\$3.76
<b>TA0060</b>	<b>\$0.08</b>	<b>\$0.15</b>	<b>\$0.00</b>	<b>\$0.14</b>	<b>\$1.51</b>	<b>\$0.17</b>	<b>\$0.00</b>	<b>\$2.51</b>	<b>\$2.87</b>
TA0061	\$0.08	\$0.11	\$0.08	\$0.13	\$1.71	\$0.14	-\$0.18	\$2.78	\$3.19
TA0067	\$0.02	\$0.14	\$0.05	\$0.45	\$1.09	\$0.64	-\$0.03	\$2.77	\$3.18
<b>Average</b>	<b>\$0.07</b>	<b>\$0.13</b>	<b>\$0.04</b>	<b>\$0.17</b>	<b>\$1.13</b>	<b>\$0.26</b>	<b>\$0.00</b>	<b>\$2.47</b>	<b>\$2.95</b>
<b>Top 25%*</b>	<b>\$0.05</b>	<b>\$0.11</b>	<b>\$0.01</b>	<b>\$0.13</b>	<b>\$1.00</b>	<b>\$0.39</b>	<b>-\$0.02</b>	<b>\$2.16</b>	<b>\$2.59</b>

\* The top 25% are bold and italicised

**Table A5** Overhead costs

Farm number	Rates	Farm insurance	Motor vehicle expenses	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	\$/ kg MS
TA0001	\$0.07	\$0.07	\$0.11	\$0.48	\$0.27	\$0.21	\$1.21	\$0.18	\$0.71	\$2.10
<b><i>TA0006</i></b>	<b><i>\$0.04</i></b>	<b><i>\$0.04</i></b>	<b><i>\$0.00</i></b>	<b><i>\$0.22</i></b>	<b><i>\$0.13</i></b>	<b><i>\$0.51</i></b>	<b><i>\$0.94</i></b>	<b><i>\$0.22</i></b>	<b><i>\$0.27</i></b>	<b><i>\$1.44</i></b>
TA0007	\$0.10	\$0.10	\$0.02	\$0.36	\$0.08	\$0.45	\$1.12	\$0.71	\$1.48	\$3.31
<b><i>TA0008</i></b>	<b><i>\$0.04</i></b>	<b><i>\$0.09</i></b>	<b><i>\$0.02</i></b>	<b><i>\$0.49</i></b>	<b><i>\$0.06</i></b>	<b><i>\$0.53</i></b>	<b><i>\$1.23</i></b>	<b><i>\$0.28</i></b>	<b><i>\$0.33</i></b>	<b><i>\$1.83</i></b>
TA0010	\$0.05	\$0.05	\$0.03	\$0.38	\$0.07	\$1.60	\$2.17	\$0.47	\$0.00	\$2.64
TA0011	\$0.04	\$0.06	\$0.03	\$0.47	\$0.12	\$0.65	\$1.36	\$0.49	\$0.97	\$2.83
TA0012	\$0.13	\$0.04	\$0.11	\$0.19	\$0.15	\$1.29	\$1.92	\$0.16	\$0.00	\$2.07
TA0015	\$0.05	\$0.04	\$0.01	\$0.47	\$0.05	\$0.86	\$1.48	\$0.18	\$0.51	\$2.17
<b><i>TA0016</i></b>	<b><i>\$0.02</i></b>	<b><i>\$0.04</i></b>	<b><i>\$0.01</i></b>	<b><i>\$0.18</i></b>	<b><i>\$0.03</i></b>	<b><i>\$0.98</i></b>	<b><i>\$1.26</i></b>	<b><i>\$0.19</i></b>	<b><i>\$0.11</i></b>	<b><i>\$1.57</i></b>
TA0026	\$0.06	\$0.06	\$0.03	\$0.51	\$0.13	\$0.95	\$1.75	\$0.24	\$0.00	\$1.98
TA0031	\$0.03	\$0.09	\$0.11	\$0.57	\$0.11	\$0.78	\$1.68	\$0.42	\$0.16	\$2.26
<b><i>TA0035</i></b>	<b><i>\$0.02</i></b>	<b><i>\$0.04</i></b>	<b><i>\$0.09</i></b>	<b><i>\$0.64</i></b>	<b><i>\$0.08</i></b>	<b><i>\$0.44</i></b>	<b><i>\$1.31</i></b>	<b><i>\$0.16</i></b>	<b><i>\$0.24</i></b>	<b><i>\$1.70</i></b>
TA0038	\$0.05	\$0.12	\$0.06	\$0.45	\$0.05	\$0.98	\$1.71	\$0.27	\$0.40	\$2.39
TA0039	\$0.02	\$0.02	\$0.03	\$0.31	\$0.24	\$1.11	\$1.72	\$0.55	\$0.00	\$2.27
TA0042	\$0.05	\$0.08	\$0.03	\$0.15	\$0.10	\$0.90	\$1.30	\$0.08	\$0.59	\$1.97
TA0043	\$0.02	\$0.03	\$0.00	\$0.34	\$0.07	\$0.83	\$1.30	\$0.12	\$0.00	\$1.41
TA0044	\$0.07	\$0.01	\$0.02	\$0.38	\$0.17	\$1.50	\$2.16	\$0.60	\$0.62	\$3.38
TA0046	\$0.02	\$0.11	\$0.01	\$0.26	\$0.13	\$0.90	\$1.42	\$0.23	\$0.30	\$1.95
TA0047	\$0.08	\$0.06	\$0.04	\$0.28	\$0.16	\$1.33	\$1.95	\$0.22	\$0.30	\$2.47
TA0048	\$0.03	\$0.14	\$0.05	\$0.88	\$0.13	\$0.00	\$1.24	\$0.33	\$1.07	\$2.65
<b><i>TA0050</i></b>	<b><i>\$0.02</i></b>	<b><i>\$0.02</i></b>	<b><i>\$0.01</i></b>	<b><i>\$0.39</i></b>	<b><i>\$0.19</i></b>	<b><i>\$1.05</i></b>	<b><i>\$1.67</i></b>	<b><i>\$0.18</i></b>	<b><i>\$0.00</i></b>	<b><i>\$1.86</i></b>
TA0051	\$0.06	\$0.14	\$0.03	\$0.54	\$0.09	\$0.73	\$1.60	\$0.43	\$0.75	\$2.77
<b><i>TA0052</i></b>	<b><i>\$0.02</i></b>	<b><i>\$0.03</i></b>	<b><i>\$0.00</i></b>	<b><i>\$0.10</i></b>	<b><i>\$0.02</i></b>	<b><i>\$0.91</i></b>	<b><i>\$1.08</i></b>	<b><i>\$0.17</i></b>	<b><i>\$0.00</i></b>	<b><i>\$1.25</i></b>
<b><i>TA0053</i></b>	<b><i>\$0.02</i></b>	<b><i>\$0.03</i></b>	<b><i>\$0.00</i></b>	<b><i>\$0.29</i></b>	<b><i>\$0.08</i></b>	<b><i>\$0.82</i></b>	<b><i>\$1.24</i></b>	<b><i>\$0.20</i></b>	<b><i>\$0.03</i></b>	<b><i>\$1.48</i></b>
TA0054	\$0.07	\$0.10	\$0.00	\$0.28	\$0.07	\$0.15	\$0.67	\$0.35	\$0.94	\$1.96
TA0055	\$0.03	\$0.08	\$0.02	\$0.24	\$0.10	\$0.00	\$0.46	\$0.26	\$1.05	\$1.77
TA0056	\$0.05	\$0.13	\$0.01	\$0.41	\$0.17	\$0.19	\$0.96	\$0.36	\$0.79	\$2.11
TA0057	\$0.04	\$0.07	\$0.14	\$0.24	\$0.14	\$0.43	\$1.06	\$0.19	\$0.55	\$1.81
TA0058	\$0.05	\$0.04	\$0.03	\$0.48	\$0.15	\$0.75	\$1.50	\$0.12	\$0.30	\$1.92
<b><i>TA0060</i></b>	<b><i>\$0.06</i></b>	<b><i>\$0.04</i></b>	<b><i>\$0.03</i></b>	<b><i>\$0.25</i></b>	<b><i>\$0.13</i></b>	<b><i>\$0.00</i></b>	<b><i>\$0.51</i></b>	<b><i>\$0.37</i></b>	<b><i>\$1.27</i></b>	<b><i>\$2.14</i></b>
TA0061	\$0.04	\$0.04	\$0.02	\$0.42	\$0.06	\$0.81	\$1.37	\$0.28	\$0.16	\$1.82
TA0067	\$0.02	\$0.03	\$0.05	\$0.34	\$0.07	\$0.72	\$1.22	\$0.22	\$0.09	\$1.53
<b>Average</b>	<b>\$0.05</b>	<b>\$0.06</b>	<b>\$0.04</b>	<b>\$0.37</b>	<b>\$0.11</b>	<b>\$0.73</b>	<b>\$1.36</b>	<b>\$0.29</b>	<b>\$0.44</b>	<b>\$2.09</b>
<b>Top 25%*</b>	<b>\$0.03</b>	<b>\$0.04</b>	<b>\$0.02</b>	<b>\$0.32</b>	<b>\$0.09</b>	<b>\$0.65</b>	<b>\$1.16</b>	<b>\$0.22</b>	<b>\$0.28</b>	<b>\$1.96</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	2.8%	5.8%	0.5%	3.6%	0.9%	13.7%	9.3%	8.7%	1.1%
<b>TA0006</b>	<b>2.0%</b>	<b>3.1%</b>	<b>1.3%</b>	<b>1.5%</b>	<b>1.7%</b>	<b>9.7%</b>	<b>9.4%</b>	<b>1.6%</b>	<b>1.3%</b>
TA0007	2.0%	1.6%	0.1%	1.4%	0.9%	6.1%	1.2%	3.5%	0.7%
<b>TA0008</b>	<b>2.8%</b>	<b>3.1%</b>	<b>1.2%</b>	<b>1.6%</b>	<b>0.9%</b>	<b>9.6%</b>	<b>5.5%</b>	<b>2.7%</b>	<b>2.3%</b>
TA0010	1.3%	3.1%	2.3%	1.3%	0.7%	8.7%	7.4%	2.7%	2.4%
TA0011	2.2%	3.1%	0.5%	1.9%	1.5%	9.3%	4.7%	5.0%	1.6%
TA0012	2.7%	1.3%	0.4%	2.2%	1.3%	7.9%	11.6%	1.5%	4.9%
TA0015	1.7%	2.8%	1.4%	2.1%	2.3%	10.2%	13.5%	0.6%	0.0%
<b>TA0016</b>	<b>2.0%</b>	<b>3.9%</b>	<b>0.0%</b>	<b>1.9%</b>	<b>1.0%</b>	<b>8.7%</b>	<b>5.1%</b>	<b>2.7%</b>	<b>0.3%</b>
TA0026	2.4%	3.1%	1.7%	1.5%	0.8%	9.6%	5.3%	0.9%	2.1%
TA0031	1.2%	4.2%	0.2%	1.2%	0.8%	7.6%	11.9%	2.8%	3.8%
<b>TA0035</b>	<b>2.6%</b>	<b>3.8%</b>	<b>1.0%</b>	<b>1.3%</b>	<b>0.8%</b>	<b>9.5%</b>	<b>10.4%</b>	<b>4.8%</b>	<b>4.0%</b>
TA0038	0.0%	2.5%	0.2%	1.5%	2.1%	6.3%	11.8%	1.8%	0.8%
TA0039	1.6%	3.5%	0.5%	1.6%	0.7%	7.8%	6.5%	4.9%	1.6%
TA0042	1.3%	2.8%	0.4%	1.2%	3.2%	9.0%	8.5%	2.2%	1.8%
TA0043	2.7%	4.1%	0.6%	4.0%	3.6%	15.0%	9.5%	2.6%	0.0%
TA0044	1.4%	1.8%	0.5%	4.3%	1.5%	9.5%	6.9%	3.2%	0.4%
TA0046	2.9%	2.1%	0.1%	2.3%	1.1%	8.5%	10.1%	5.3%	2.6%
TA0047	1.2%	1.6%	0.0%	3.1%	1.8%	7.7%	7.3%	5.1%	2.1%
TA0048	1.3%	1.5%	1.1%	2.3%	1.3%	7.5%	6.3%	3.4%	3.1%
<b>TA0050</b>	<b>2.8%</b>	<b>4.3%</b>	<b>1.7%</b>	<b>1.5%</b>	<b>1.0%</b>	<b>11.3%</b>	<b>7.7%</b>	<b>3.2%</b>	<b>1.3%</b>
TA0051	1.2%	3.0%	0.3%	1.3%	4.7%	10.4%	4.1%	3.2%	3.4%
<b>TA0052</b>	<b>3.1%</b>	<b>4.6%</b>	<b>1.6%</b>	<b>1.5%</b>	<b>2.1%</b>	<b>12.8%</b>	<b>6.3%</b>	<b>3.0%</b>	<b>0.6%</b>
<b>TA0053</b>	<b>4.7%</b>	<b>4.7%</b>	<b>1.7%</b>	<b>1.4%</b>	<b>1.0%</b>	<b>13.5%</b>	<b>7.3%</b>	<b>3.4%</b>	<b>2.1%</b>
TA0054	2.0%	2.9%	1.8%	1.7%	2.2%	10.6%	8.9%	2.3%	0.4%
TA0055	2.5%	6.0%	0.8%	1.6%	1.3%	12.2%	5.4%	6.0%	0.8%
TA0056	1.6%	4.0%	0.1%	2.8%	2.7%	11.3%	6.3%	6.6%	3.2%
TA0057	1.5%	5.3%	1.2%	1.4%	1.3%	10.6%	6.8%	1.5%	4.5%
TA0058	2.9%	1.4%	0.9%	1.7%	1.7%	8.6%	14.8%	3.2%	4.0%
<b>TA0060</b>	<b>1.3%</b>	<b>1.7%</b>	<b>0.4%</b>	<b>2.1%</b>	<b>1.8%</b>	<b>7.3%</b>	<b>6.9%</b>	<b>0.8%</b>	<b>1.4%</b>
TA0061	1.5%	3.3%	0.6%	2.6%	0.3%	8.3%	11.0%	1.1%	2.2%
TA0067	1.4%	3.7%	1.1%	1.6%	0.9%	8.7%	7.4%	0.7%	0.7%
<b>Average</b>	<b>2.0%</b>	<b>3.2%</b>	<b>0.8%</b>	<b>2.0%</b>	<b>1.6%</b>	<b>9.6%</b>	<b>8.0%</b>	<b>3.2%</b>	<b>1.9%</b>
<b>Top 25%*</b>	<b>2.7%</b>	<b>3.7%</b>	<b>1.1%</b>	<b>1.6%</b>	<b>1.3%</b>	<b>10.3%</b>	<b>7.3%</b>	<b>2.8%</b>	<b>1.7%</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 and water inventory change	Total feed costs	Total variable costs
	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs	% of costs
TA0001	1.6%	1.8%	0.8%	4.1%	14.8%	0.0%	-1.6%	40.5%	54.2%
<b>TA0006</b>	<b>1.7%</b>	<b>3.0%</b>	<b>0.1%</b>	<b>3.6%</b>	<b>23.9%</b>	<b>9.4%</b>	<b>-2.0%</b>	<b>52.1%</b>	<b>61.8%</b>
TA0007	2.1%	0.8%	0.0%	1.4%	10.9%	2.5%	0.9%	24.0%	30.1%
<b>TA0008</b>	<b>1.1%</b>	<b>5.9%</b>	<b>1.8%</b>	<b>2.0%</b>	<b>31.2%</b>	<b>0.0%</b>	<b>-0.3%</b>	<b>52.1%</b>	<b>61.7%</b>
TA0010	1.5%	3.4%	1.0%	7.4%	25.4%	3.5%	-6.4%	48.4%	57.1%
TA0011	1.8%	2.1%	3.3%	2.7%	11.4%	7.6%	0.7%	41.0%	50.3%
TA0012	2.2%	4.0%	0.0%	0.6%	22.1%	0.0%	-0.6%	46.3%	54.2%
TA0015	2.1%	4.6%	0.0%	0.0%	28.5%	0.0%	0.0%	49.4%	59.6%
<b>TA0016</b>	<b>0.8%</b>	<b>1.6%</b>	<b>0.3%</b>	<b>12.8%</b>	<b>21.1%</b>	<b>13.2%</b>	<b>-5.2%</b>	<b>52.7%</b>	<b>61.5%</b>
TA0026	0.5%	4.0%	0.0%	7.2%	24.1%	10.1%	2.2%	56.5%	66.1%
TA0031	1.3%	1.5%	0.0%	1.1%	24.1%	0.0%	3.5%	49.8%	57.4%
<b>TA0035</b>	<b>0.5%</b>	<b>0.1%</b>	<b>0.5%</b>	<b>0.4%</b>	<b>19.6%</b>	<b>7.0%</b>	<b>-0.6%</b>	<b>46.7%</b>	<b>56.2%</b>
TA0038	2.2%	2.5%	0.0%	8.4%	17.0%	0.1%	2.7%	47.2%	55.6%
TA0039	2.1%	3.7%	2.1%	1.6%	21.3%	9.6%	0.4%	53.7%	61.5%
TA0042	1.9%	0.5%	1.1%	0.0%	34.7%	0.0%	2.2%	52.8%	61.8%
TA0043	0.2%	0.7%	0.0%	1.9%	23.1%	17.5%	1.4%	57.0%	72.0%
TA0044	0.8%	0.0%	0.0%	0.0%	8.1%	5.2%	1.0%	25.7%	35.2%
TA0046	1.8%	3.4%	5.7%	0.2%	20.1%	0.0%	1.1%	50.4%	58.9%
TA0047	0.7%	3.9%	3.8%	5.3%	19.9%	0.1%	2.0%	50.0%	57.8%
TA0048	2.2%	3.5%	0.0%	5.7%	20.0%	2.9%	3.1%	50.3%	57.8%
<b>TA0050</b>	<b>1.1%</b>	<b>1.9%</b>	<b>0.0%</b>	<b>1.0%</b>	<b>14.0%</b>	<b>17.0%</b>	<b>0.0%</b>	<b>47.2%</b>	<b>58.5%</b>
TA0051	1.8%	3.2%	0.0%	1.3%	13.5%	11.7%	-7.3%	35.0%	45.4%
<b>TA0052</b>	<b>1.1%</b>	<b>2.4%</b>	<b>0.0%</b>	<b>1.3%</b>	<b>30.9%</b>	<b>9.0%</b>	<b>0.0%</b>	<b>54.4%</b>	<b>67.3%</b>
<b>TA0053</b>	<b>0.7%</b>	<b>1.3%</b>	<b>0.0%</b>	<b>1.4%</b>	<b>16.9%</b>	<b>15.3%</b>	<b>3.1%</b>	<b>51.4%</b>	<b>64.9%</b>
TA0054	0.7%	4.2%	0.0%	4.8%	31.5%	0.0%	-0.7%	52.1%	62.7%
TA0055	1.4%	1.7%	0.0%	5.9%	30.9%	3.6%	-1.8%	53.9%	66.1%
TA0056	2.3%	3.3%	0.0%	5.7%	26.2%	0.0%	-5.2%	48.2%	59.5%
TA0057	1.9%	3.5%	0.9%	3.8%	19.0%	6.4%	0.7%	54.6%	65.2%
TA0058	1.4%	0.7%	0.2%	0.0%	26.1%	0.0%	7.2%	57.6%	66.2%
<b>TA0060</b>	<b>1.6%</b>	<b>3.0%</b>	<b>0.0%</b>	<b>2.8%</b>	<b>30.2%</b>	<b>3.5%</b>	<b>0.0%</b>	<b>50.0%</b>	<b>57.3%</b>
TA0061	1.6%	2.1%	1.6%	2.6%	34.1%	2.8%	-3.5%	55.5%	63.8%
TA0067	0.3%	3.0%	1.1%	9.5%	23.1%	13.6%	-0.7%	58.8%	67.5%
<b>Average</b>	<b>1.4%</b>	<b>2.5%</b>	<b>0.8%</b>	<b>3.3%</b>	<b>22.4%</b>	<b>5.4%</b>	<b>-0.1%</b>	<b>48.9%</b>	<b>58.6%</b>
<b>Top 25%*</b>	<b>1.1%</b>	<b>2.4%</b>	<b>0.3%</b>	<b>3.2%</b>	<b>23.5%</b>	<b>9.3%</b>	<b>-0.6%</b>	<b>50.8%</b>	<b>61.1%</b>

\* The top 25% are bold and italicised



**Table A7** Overhead costs

Farm number	Rates	Farm insurance	Motor vehicle expenses	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	% of costs
TA0001	1.5%	1.4%	2.4%	10.5%	6.0%	4.6%	26.4%	3.9%	15.4%	45.8%
<b>TA0006</b>	<b>1.0%</b>	<b>1.1%</b>	<b>0.1%</b>	<b>6.0%</b>	<b>3.5%</b>	<b>13.5%</b>	<b>25.1%</b>	<b>6.0%</b>	<b>7.1%</b>	<b>38.2%</b>
TA0007	2.2%	2.1%	0.5%	7.6%	1.7%	9.6%	23.7%	15.0%	31.3%	69.9%
<b>TA0008</b>	<b>0.8%</b>	<b>1.8%</b>	<b>0.4%</b>	<b>10.3%</b>	<b>1.3%</b>	<b>11.0%</b>	<b>25.7%</b>	<b>5.8%</b>	<b>6.8%</b>	<b>38.3%</b>
TA0010	0.7%	0.8%	0.5%	6.1%	1.1%	26.0%	35.2%	7.6%	0.0%	42.9%
TA0011	0.6%	1.1%	0.5%	8.3%	2.1%	11.4%	24.0%	8.7%	17.1%	49.7%
TA0012	2.9%	0.9%	2.5%	4.1%	3.4%	28.5%	42.3%	3.5%	0.0%	45.8%
TA0015	0.9%	0.8%	0.2%	8.8%	1.0%	16.0%	27.5%	3.3%	9.6%	40.4%
<b>TA0016</b>	<b>0.4%</b>	<b>1.0%</b>	<b>0.4%</b>	<b>4.4%</b>	<b>0.7%</b>	<b>24.1%</b>	<b>31.0%</b>	<b>4.7%</b>	<b>2.8%</b>	<b>38.5%</b>
TA0026	1.1%	1.0%	0.5%	8.7%	2.2%	16.3%	29.8%	4.1%	0.0%	33.9%
TA0031	0.5%	1.7%	2.2%	10.7%	2.0%	14.6%	31.7%	7.8%	3.1%	42.6%
<b>TA0035</b>	<b>0.5%</b>	<b>1.1%</b>	<b>2.3%</b>	<b>16.5%</b>	<b>1.9%</b>	<b>11.4%</b>	<b>33.6%</b>	<b>4.1%</b>	<b>6.1%</b>	<b>43.8%</b>
TA0038	1.0%	2.3%	1.1%	8.3%	1.0%	18.1%	31.8%	5.1%	7.5%	44.4%
TA0039	0.4%	0.3%	0.4%	5.2%	4.0%	18.9%	29.2%	9.3%	0.0%	38.5%
TA0042	0.9%	1.5%	0.5%	3.0%	2.0%	17.4%	25.2%	1.6%	11.4%	38.2%
TA0043	0.4%	0.6%	0.0%	6.8%	1.3%	16.4%	25.6%	2.3%	0.0%	28.0%
TA0044	1.4%	0.2%	0.5%	7.3%	3.2%	28.9%	41.5%	11.5%	11.9%	64.8%
TA0046	0.5%	2.2%	0.2%	5.4%	2.7%	19.0%	30.1%	4.8%	6.3%	41.1%
TA0047	1.4%	0.9%	0.7%	4.8%	2.8%	22.7%	33.4%	3.8%	5.1%	42.2%
TA0048	0.5%	2.3%	0.8%	14.0%	2.1%	0.0%	19.8%	5.3%	17.1%	42.2%
<b>TA0050</b>	<b>0.5%</b>	<b>0.5%</b>	<b>0.2%</b>	<b>8.6%</b>	<b>4.2%</b>	<b>23.3%</b>	<b>37.4%</b>	<b>4.1%</b>	<b>0.0%</b>	<b>41.5%</b>
TA0051	1.2%	2.8%	0.5%	10.7%	1.8%	14.4%	31.5%	8.4%	14.7%	54.6%
<b>TA0052</b>	<b>0.6%</b>	<b>0.7%</b>	<b>0.1%</b>	<b>2.6%</b>	<b>0.6%</b>	<b>23.7%</b>	<b>28.3%</b>	<b>4.5%</b>	<b>0.0%</b>	<b>32.7%</b>
<b>TA0053</b>	<b>0.5%</b>	<b>0.7%</b>	<b>0.0%</b>	<b>6.9%</b>	<b>1.9%</b>	<b>19.6%</b>	<b>29.5%</b>	<b>4.8%</b>	<b>0.8%</b>	<b>35.1%</b>
TA0054	1.3%	2.0%	0.0%	5.4%	1.3%	2.8%	12.8%	6.7%	17.8%	37.3%
TA0055	0.6%	1.5%	0.3%	4.5%	1.9%	0.0%	8.8%	5.0%	20.1%	33.9%
TA0056	1.0%	2.5%	0.2%	7.9%	3.2%	3.6%	18.5%	6.9%	15.2%	40.5%
TA0057	0.8%	1.4%	2.6%	4.6%	2.7%	8.3%	20.4%	3.7%	10.7%	34.8%
TA0058	0.8%	0.7%	0.5%	8.5%	2.7%	13.1%	26.3%	2.2%	5.3%	33.8%
<b>TA0060</b>	<b>1.2%</b>	<b>0.8%</b>	<b>0.6%</b>	<b>4.9%</b>	<b>2.5%</b>	<b>0.0%</b>	<b>10.1%</b>	<b>7.3%</b>	<b>25.3%</b>	<b>42.7%</b>
TA0061	0.7%	0.7%	0.3%	8.3%	1.3%	16.1%	27.4%	5.5%	3.2%	36.2%
TA0067	0.4%	0.5%	1.1%	7.2%	1.5%	15.2%	26.0%	4.6%	1.9%	32.5%
<b>Average</b>	<b>0.9%</b>	<b>1.2%</b>	<b>0.7%</b>	<b>7.4%</b>	<b>2.2%</b>	<b>14.6%</b>	<b>27.2%</b>	<b>5.7%</b>	<b>8.5%</b>	<b>41.4%</b>
<b>Top 25%*</b>	<b>0.7%</b>	<b>1.0%</b>	<b>0.5%</b>	<b>7.5%</b>	<b>2.1%</b>	<b>15.8%</b>	<b>27.6%</b>	<b>5.1%</b>	<b>6.1%</b>	<b>38.9%</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>	\$20,483	\$8,847	\$1,264	\$550	\$1,020	\$4,723	\$165	\$543	\$26,396
<b>Top 25%*</b>	\$22,763	\$7,941	\$1,554	\$497	\$882	\$6,118	\$125	\$485	\$31,344

	LIABILITIES		ASSETS	
	Liabilities per usable hectare	Liabilities per milking cow	Equity per usable hectare	Average equity
	\$/ha	\$/cow	\$/ha	%
<b>Average</b>	\$10,793	\$4,778	\$16,277	62%
<b>Top 25%*</b>	\$5,598	\$2,059	\$25,747	81%

**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	\$7.33	\$7.59	\$8.10	\$0.28	\$0.29	\$0.23	\$0.25	\$2.51	\$2.68	\$3.02	\$3.22
2014–15	\$6.19	\$6.51	\$6.90	\$7.25	\$0.29	\$0.30	\$0.20	\$0.21	\$2.65	\$2.78	\$3.13	\$3.29
2015–16	\$5.55	\$5.77	\$6.10	\$6.35	\$0.29	\$0.30	\$0.17	\$0.18	\$2.81	\$2.93	\$3.27	\$3.40
2016–17	\$5.03	\$5.13	\$5.84	\$5.96	\$0.28	\$0.29	\$0.20	\$0.21	\$2.38	\$2.43	\$2.87	\$2.93
2017–18	\$5.95	\$5.95	\$6.70	\$6.70	\$0.30	\$0.30	\$0.18	\$0.18	\$2.47	\$2.47	\$2.95	\$2.95
<b>Average</b>		<b>\$6.14</b>		<b>\$6.87</b>		<b>\$0.30</b>		<b>\$0.20</b>		<b>\$2.66</b>		<b>\$3.16</b>

Note: 'Real' dollar values are the nominal values converted to 2017–18 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	\$1.50	\$0.73	\$0.78	\$2.14	\$2.28
2014–15	\$1.34	\$1.41	\$0.60	\$0.63	\$1.94	\$2.04
2015–16	\$1.43	\$1.49	\$0.48	\$0.50	\$1.91	\$1.99
2016–17	\$1.30	\$1.33	\$0.68	\$0.70	\$1.98	\$2.02
2017–18	\$1.36	\$1.36	\$0.73	\$0.73	\$2.09	\$2.09
<b>Average</b>		<b>\$1.42</b>		<b>\$0.66</b>		<b>\$2.08</b>

Note: 'Real' dollar values are the nominal values converted to 2017–18 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		Return on assets	Return on equity
	Nominal (\$/kg MS)	Real (\$/kg MS)	Nominal (\$/kg MS)	Real (\$/kg MS)	Nominal (\$/kg MS)	Real (\$/kg MS)		
2013–14	\$2.44	\$2.60	\$0.47	\$0.50	\$1.97	\$2.10	9.6%	12.9%
2014–15	\$1.84	\$1.93	\$0.42	\$0.45	\$1.41	\$1.48	7.8%	9.9%
2015–16	\$0.92	\$0.96	\$0.56	\$0.58	\$0.36	\$0.37	3.9%	0.8%
2016–17	\$0.99	\$1.01	\$0.63	\$0.65	\$0.36	\$0.37	3.7%	1.9%
2017–18	\$1.80	\$1.80	\$0.66	\$0.66	\$1.14	\$1.14	6.3%	6.7%
		<b>\$1.66</b>		<b>\$0.57</b>		<b>\$1.09</b>	<b>6.3%</b>	<b>6.4%</b>

Note: 'Real' dollar values are the nominal values converted to 2017–18 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	Total water use efficiency	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	tDM/100mm/ha	hd	hd/ha	kg MS/cow	kg MS/ha	t DM/ha	t DM/ha	% of ME	Nominal (\$/t DM)	Real (\$/t DM)
2013-14	260	178	0.6	502	2.1	425	894	9.0	0.6	72%	\$437	\$466
2014-15	280	191	0.8	545	2.1	447	924	9.3	0.7	69%	\$429	\$451
2015–16	302	198	0.7	580	2.1	444	936	10.2	0.5	69%	\$440	\$458
2016–17	268	190	0.6	542	2.2	433	976	9.7	0.7	74%	\$390	\$398
2017–18	289	208	0.9	607	2.3	445	1031	10.1	0.6	71%	\$426	\$426
<b>Average</b>	<b>280</b>	<b>193</b>	<b>0.7</b>	<b>555</b>	<b>2.2</b>	<b>439</b>	<b>952</b>	<b>9.7</b>	<b>0.6</b>	<b>71%</b>		<b>\$440</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.

## Feed inventory change

An estimate of the feed on hand at the start and end of the financial year to capture feed used in the production of milk and livestock.

## Finance costs

See interest and lease costs.

## Full time equivalent (FTE)

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

## Grazed 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 \$30.33 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 total assets (RoTA)**

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

## Standard values

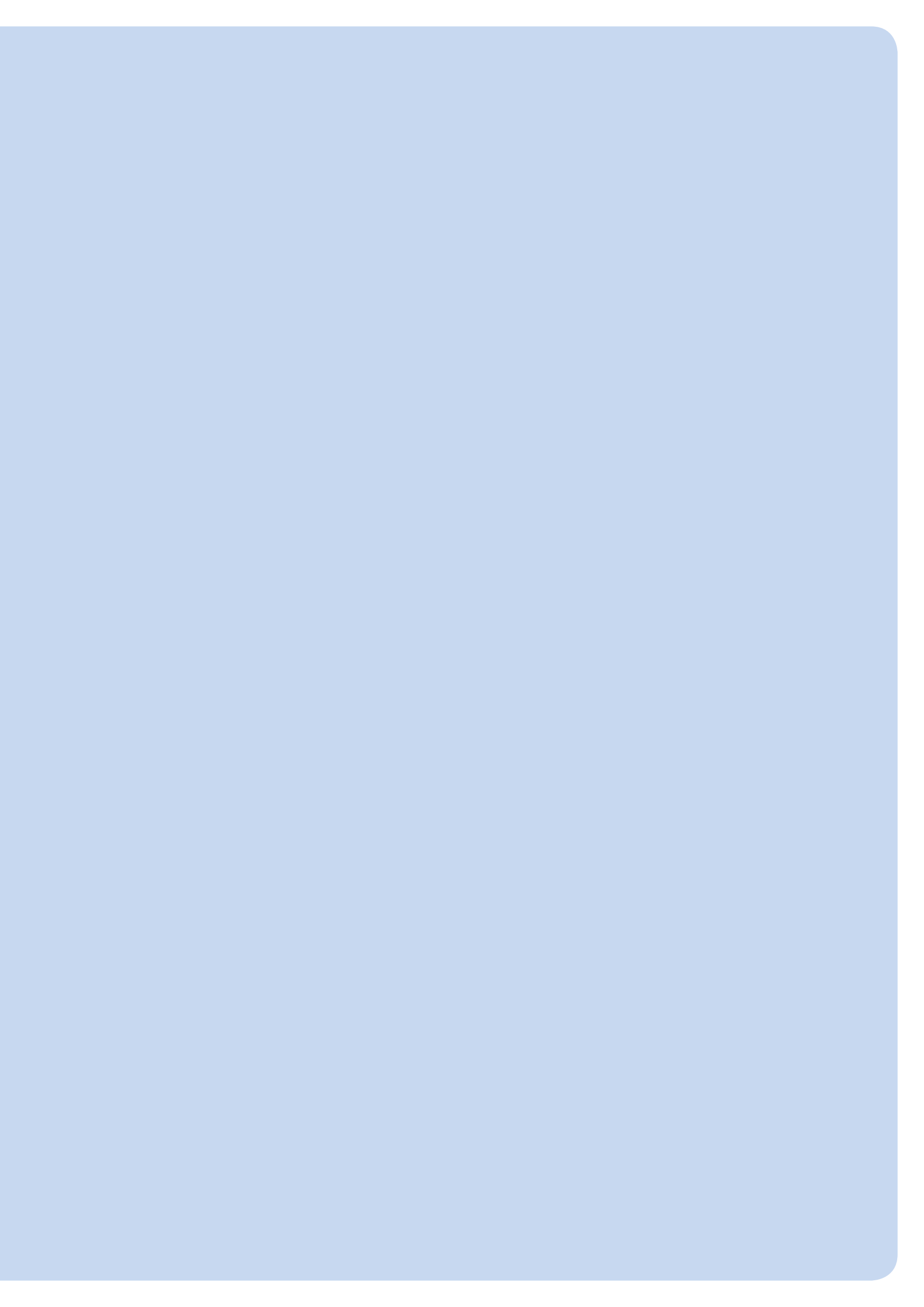
### Livestock values

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

Category	Opening value (\$/hd)	Closing value (\$/hd)
Mature cows	\$1,600	\$1,600
15–16 heifers	\$1,200	\$1,600
16–17 heifers	\$600	\$1,200
17–18 calves		\$600
Mature bulls	\$2,400	\$2,400

### Imputed owner/operator and family labour

In 2017–18 the imputed owner/operator and family labour rate was \$30.33/hr based on a full time equivalent (FTE) working 48 hours/week for 50 weeks of the year. The imputed labour rate was increased from \$67,200/FTE in 2016–17 to \$72,800/FTE in 2017–18.





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