

DAIRY FARM MONITOR PROJECT

TASMANIA ANNUAL REPORT 2020/21



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WHAT'S NEW IN 2020/21

The Dairy Farm Monitor Report for 2020/21 includes a number of changes since last year's report:

- The standard value for imputed owner operator and family labour stands at \$32.00 per hour to reflect industry rates and inflation.
- The standard values used to estimate the value of livestock, irrigation and the imputed operators allowance for labour management are detailed in Appendix D.
- A review of regional land values was undertaken and upward adjustments made based on recent market sales or valuations.

- More information was recorded on the feedbase and feeding system in 2021. The pasture base (percentage of perennial and annual pastures) and the type of feeding system (based on proportion of diet sourced from grazed pasture and where supplements were fed) were included this year.
- Groundwater licences were entered separately in the Dairy Farm Monitor spreadsheet to enable accurate recording of this asset.

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

HOW TO READ THIS REPORT

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

This report is presented in the following sections:

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

Participants 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 2020/21 year. Data are 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 striped 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 30 participants in the 2020/21 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 2019/20 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 2019/20 are in the 2020/21 report. Twenty-seven of the farms that participated in 2019/20 also participated in 2020/21 and there were three new participants. 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.

Summary



Net farm income increased by 3% to an average of \$695,680 per farm in 2020/21. Return on Total Assets decreased from 8.7% to 7.1%.

This is the eighth 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 2020/21, 30 Tasmanian dairy farms participated in the Dairy Farm Monitor Project. The average milk income of these participants was \$6.66, an 8% decrease compared to the previous season.

Earnings before interest and tax (EBIT) averaged \$793,563 per farm, a 2% decrease on the previous year. Return on total assets (RoTA) decreased from 8.7% to 7.1%. The top 25% of farms (as measured by RoTA) had a RoTA of 11.5%.

All participants in the 2020/21 Tasmanian Dairy Farm Monitor Project had a positive RoTA. The range of RoTA was from 1.0% to 14.9%.

Net farm income, calculated after interest and lease charges were deducted from EBIT, was on average \$695,680 per farm, a 3% increase from last year.

All participants recorded a positive return on equity (RoE). The average RoE was 9.4% and 16.6% for the top 25% performers. There was a relatively large increase in equity percentage from 74% to 81%. There was a decrease in debt service ratio from 7% to 5%.

Cost of production including inventory changes decreased marginally from \$5.41/kg MS to \$5.37/kg MS.

Milk income of the top 25% was 1.8% higher than average at \$6.78/kg MS but the top 25% total income was 1 cent/kg MS lower than the average with the top 25% having a total farm income of \$7.61/kg MS compared to the average of \$7.62/kg MS. This was due to a higher livestock trading profit for the average compared to the top 25%.

EBIT for the top 25% was 31% higher than average at \$2.89/kg MS compared to \$2.21/kg MS. The variable costs of the top 25% were 9% lower at \$2.98/kg MS than the average (\$3.26/kg MS). The top 25% spent 19% less than the average on overheads at \$1.74/kgMS compared to \$2.16/kgMS.

Milk production on a per hectare basis was slightly higher in 2020/21 (955 kg MS/ha) compared to the previous year (948 kg MS/ha). Milk production per cow also increased slightly from 423 kg MS/cow to 431 kg MS/cow. The top performers sold more milk per cow and per hectare, 10% and 23% higher, respectively.

Stocking rate, measured as cows per usable hectare remained at 2.2 in 2020/21. Farms in the top 25% had a higher stocking rate than average at 2.5 cows/ha, a decrease from 2.7 cows/ha.

Average milk fat was 4.7% and milk protein was 3.6%. The fat percentage increased by 0.1% while the protein percentage decreased by 0.1% compared to the previous year.

Average homegrown feed consumption was 10.6 t DM/ha on the milking area. Sixty-five percent of the cow's diet comes from direct-grazed pasture.

Forty-eight percent of participants expect their business returns to improve in 2021/22 while a further 48% expect their business returns to remain stable. The remaining 4% expect their business return to decline in 2021/22. Over half of farmers expect milk price to increase in 2021/22 and 52% expect their milk production to increase.

Milk price continues to be ranked as the most important issue 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 Dairy Farm Monitor Project method

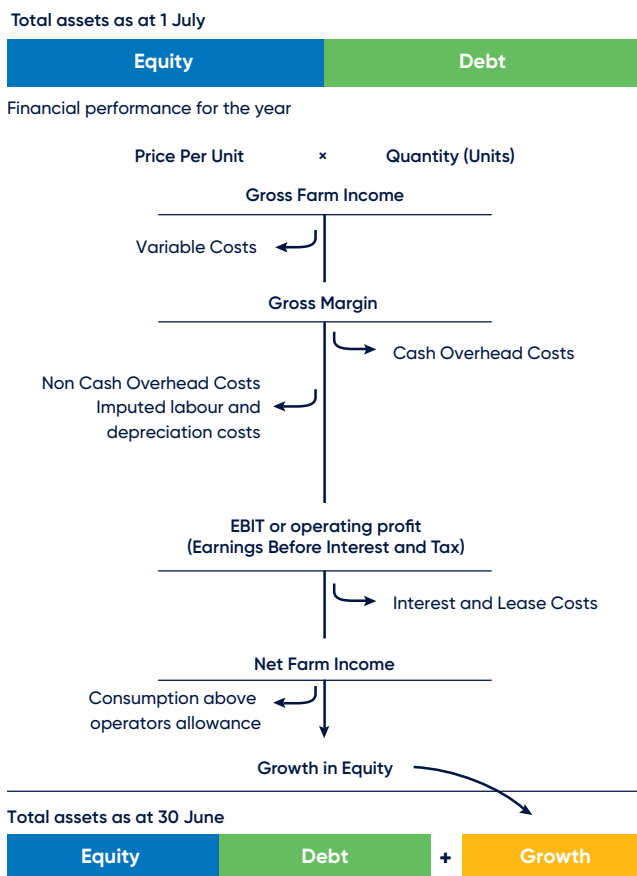


Figure 1 demonstrates how the different farm business economic terms fit together and are calculated. This has been adapted from an initial diagram developed by Bill Malcolm. The diagram shows the different profitability measures as costs are deducted from gross farm income. Growth is achieved by investing 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, wages, and repairs and maintenance. Non-cash overheads include costs that are not actual cash receipts or expenditure; for example the amount of depreciation on a piece of equipment. Imputed operators' allowance for labour and management is also a non-cash overhead that must be costed and deducted from income if a realistic estimate of costs, profit and the return on the capital of the business is to be obtained.



Earnings before interest and tax

Earnings before interest and tax (EBIT) 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.

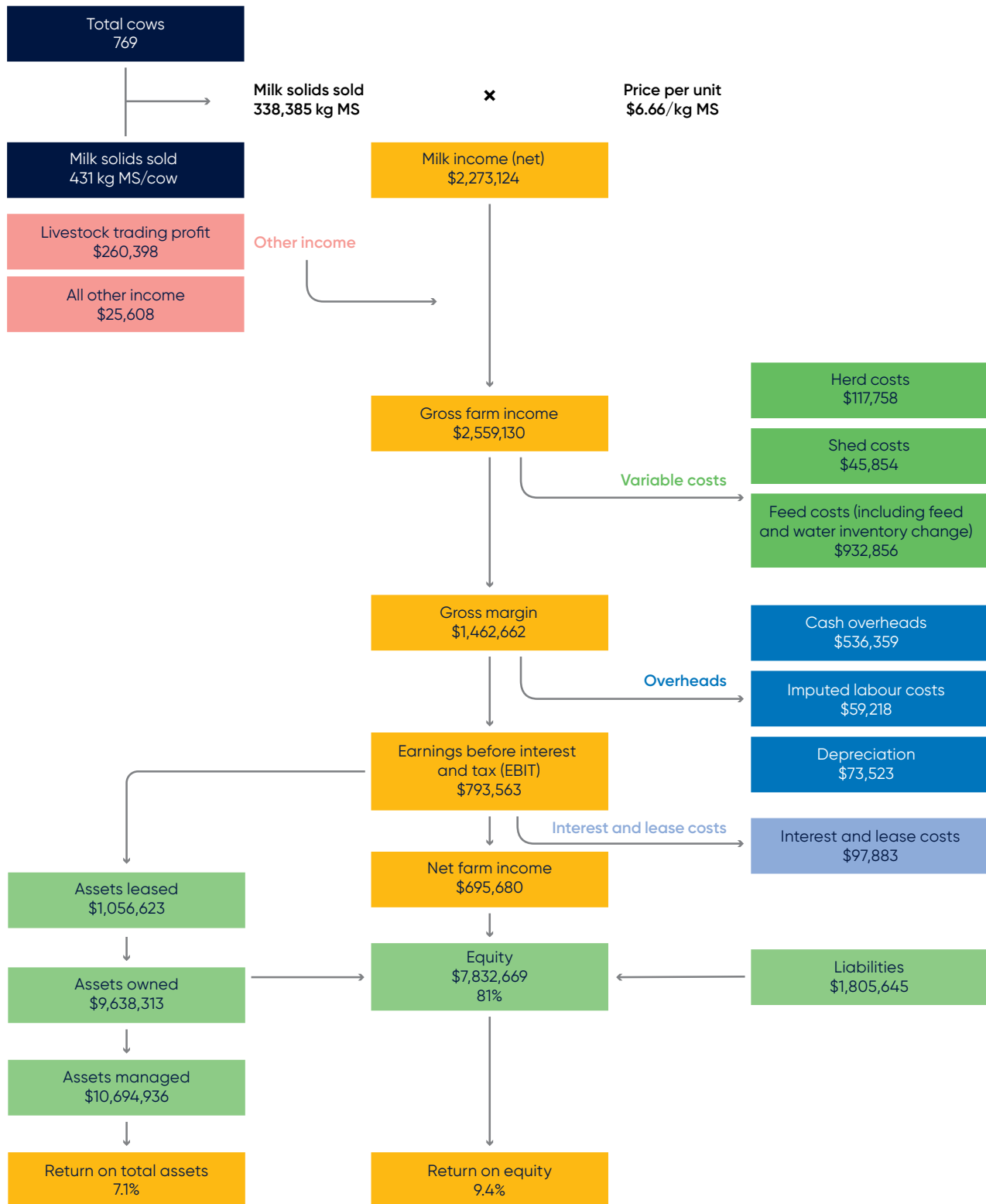
Return on total assets indicates the overall earning of the total farm assets, irrespective of the capital structure of the business. It is EBIT expressed as a percentage of the total assets under management in the farm business, including the value of leased assets. Return on total assets is sometimes 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 2020/21 data*

All 30 farms



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

Tasmania overview



In 2020/21, 961 million litres of milk was sold in Tasmania which is a new record for milk production in the state.

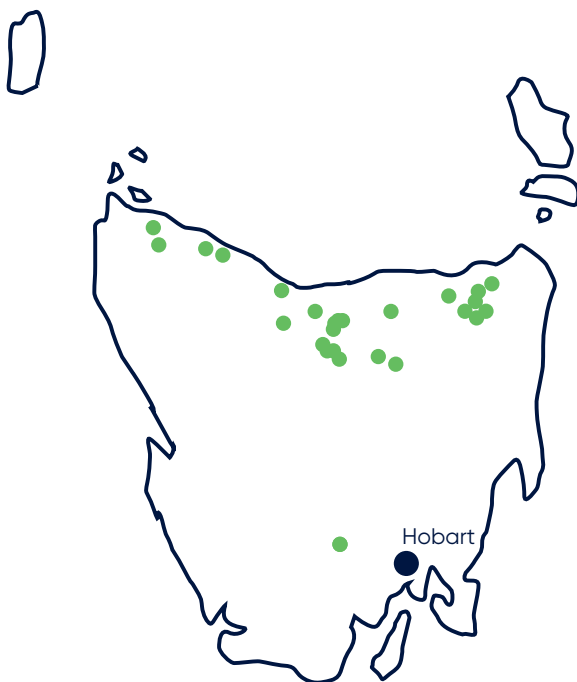
The number of registered dairy farms in Tasmania this year was 378, a decrease from 391 in 2019/20. The majority of farms are located in the higher rainfall (>1000 mm) regions of Tasmania along the northern coastline from Marrawah in the west to Pyengana in the east. There are a small number of farms on King Island and in the lower rainfall regions of the northern midlands and southern Tasmania.

Tasmania has a perennial 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 use cross-breeding in their herds.

Thirty farms provided data for the 2020/21 Tasmanian Dairy Farm Monitor report, 27 of these farms had participated in previous years with 3 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 2020/21 across Tasmania



2020/21 SEASONAL CONDITIONS

Rainfall for the 2020/21 season was slightly below average for most regions in the state. Winter was drier than average but there was above average rainfall during summer.

Figure 4 shows Tasmanian dairy regions experienced below average rainfall during winter and early spring.

North-west Tasmania experienced the second driest July on record.

There was a major snowfall event in winter in the north but in general temperatures were mild to slightly warmer than average.

Rainfall in early spring led to wet conditions for the end of calving and a bit later than normal irrigation start-up.

There were numerous good rainfall events over summer with a false early autumn break experienced. Irrigation had been stopped but needed to be restarted in late autumn because of drier than normal conditions.

Figure 4 Monthly average rainfall

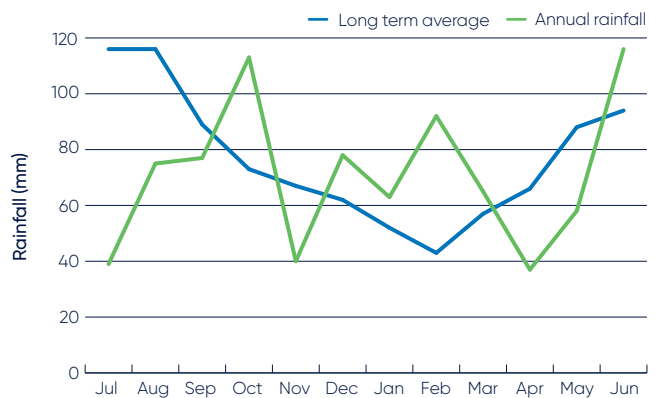
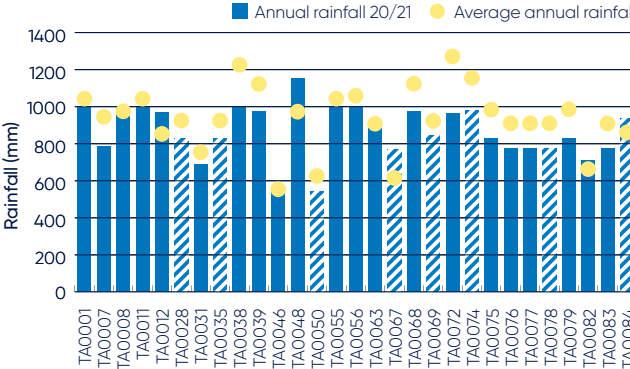




Figure 5 shows the variability in rainfall received by farms participating in the Dairy Farm Monitor Project for 2020/21. It also shows that most farms received below average rainfall for the season. However, for most regions it was the timing of the rainfall that was important, not the total amount received. Tasmania is winter rainfall dominant so less rain during this period (provided there is enough to fill dams) does not impact on pasture growth. There were some rainfall events through the typically drier summer and autumn which assisted with irrigation and dryland pasture growth.

Figure 5 Annual average rainfall (individual farms)



WHOLE FARM ANALYSIS

Thirty farms provided data for the Tasmanian Dairy Farm Monitor Project in 2020/21. The participating farms had an average herd size of 769 cows with an average stocking rate of 2.2 cows per usable hectare. Key whole farm physical parameters for Tasmania are presented below in Table 1.

The average herd size of participating farms was 769 cows. This is higher than the actual state average.

Rainfall was 5% lower in 2020/21 compared to the previous year. Total water use efficiency, a measure of the tonnes (DM) of feed grown on the farm per 100 mm of rainfall or irrigation water received stayed the same at 0.9 t DM/100mm/ha.

The average total usable area increased from 326 ha to 357 ha. Milking cows per usable hectares was 2.2 cows/ha this year, the same as the previous two years. Average milk sold per cow increased by 2% while milk sold per hectare increased by 0.7% from 948 kg MS/ha to 955 kg MS/ha.

The percentage of metabolisable energy (ME) being derived from homegrown feed decreased from 74% to 71% in 2020/21.

Labour efficiency per cow increased from 155 cows/FTE to 163 cows/FTE. Labour efficiency measured as kg MS/FTE increased by 4%. Labour efficiency on Tasmanian dairy farms continues to be the highest of all states participating in the DFMP.

Table 1 presents the average and range 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 season. They have a significantly greater herd size (39% higher) than the Tasmanian average and the stocking rate is higher at 2.5 cows/usable ha compared to the average 2.2 cows/usable ha. Per cow milk production is 10% higher and per hectare milk production is 23% higher. Unlike the past three years, this year the amount of energy coming from homegrown feed is slightly higher for the top 25%.

Labour efficiency is higher on the top 25% farms but where the average was higher this year, the top 25% decreased by 4% (cows/FTE) and 8% (kg MS/FTE).

Table 1 Farm physical data – state overview

| Farm Physical Parameters | State average | Q1 to Q3 range | Top 25% average |
|-------------------------------------|---------------|----------------|-----------------|
| Annual Rainfall 20/21 | 853 | 774–978 | 813 |
| Herd size | 769 | 485–1,019 | 1,070 |
| Total water use efficiency | 0.9 | 0.7–1.0 | 1.0 |
| Total usable area (hectares) | 357 | 246–493 | 442 |
| Milking cows per usable hectares | 2.2 | 1.8–2.7 | 2.5 |
| Milk sold (kg MS/cow) | 431 | 377–481 | 474 |
| Milk sold (kg MS/ha) | 955 | 735–1,221 | 1,176 |
| Home grown feed as % of ME consumed | 71 | 67–77 | 72 |
| Labour efficiency (cows/FTE) | 163 | 129–183 | 175 |
| Labour efficiency (kg MS/FTE) | 69,342 | 57,440–82,963 | 82,049 |

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.

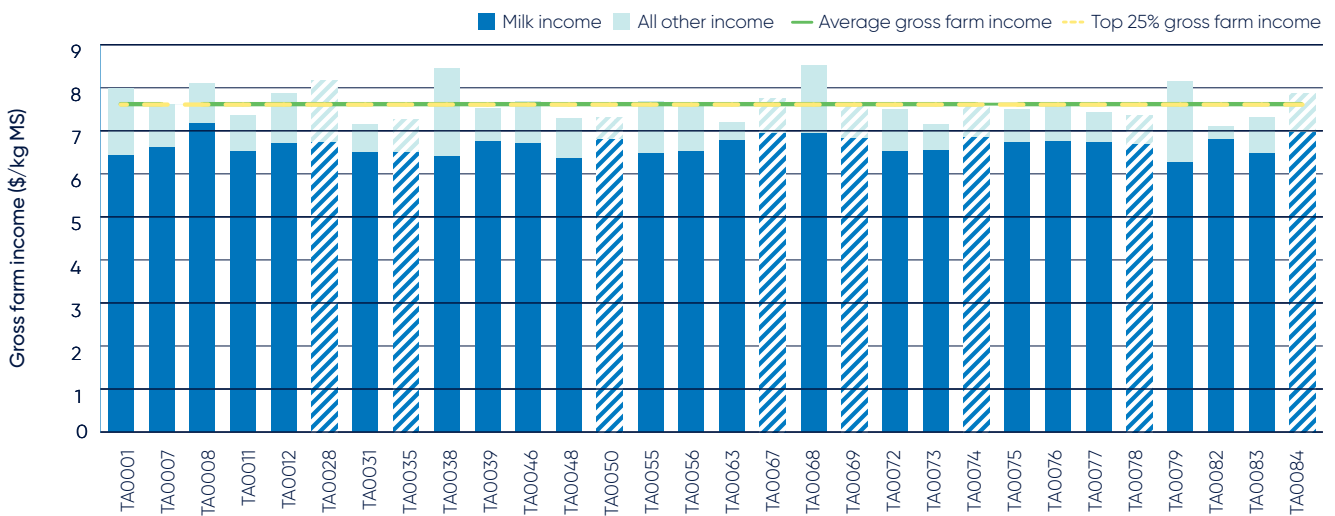
Figure 6 shows how milk income dominates gross farm income, forming 89% of gross farm income in 2020/21. Other income consists of livestock trading profit (10%) and other farm income (1%). This is very similar to last season.

Figure 6 also shows the variation in gross income per kilogram of milk solids from \$7.12/kg MS to \$8.52/kg MS.

Average gross farm income was \$7.62/kg MS, a 4% decrease from last year. The gross income of the top 25% of farms decreased from \$7.93/kg MS to \$7.61/kg MS. The gross farm income of the top 25% was one cent lower at \$7.61/kg MS than the average at \$7.62/kg MS.

The decrease in average gross farm income in 2020/21 was reflective of the lower milk price received. On average, milk price decreased by 6%, from \$7.09/kg MS in 2019/20 to \$6.66/kg MS this year. The top 25% received a milk price of \$6.78/kg MS.

Figure 6 Gross farm income per kilogram of milk solids

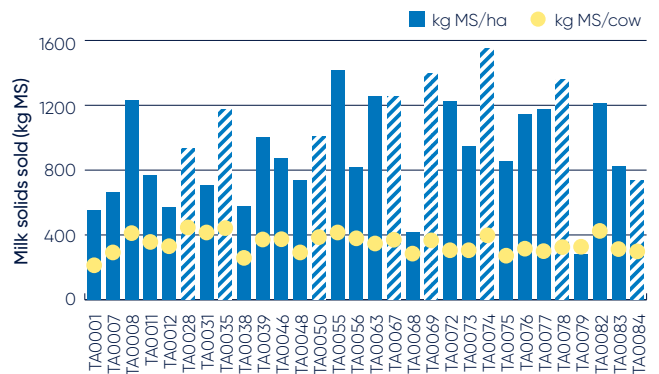


Milk solids sold

The average amount of milk solids sold increased slightly from 948 kg MS/ha to 955 kg MS/ha (Figure 7). The top 25% sold an average of 1,176 kg MS/ha, 23% 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 283 kg MS/ha to 1,551 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 266 kg MS/cow to 558 kg MS/cow. The average milk production per cow is 431 kg MS/cow an increase from 423 kg MS/cow in the previous year.

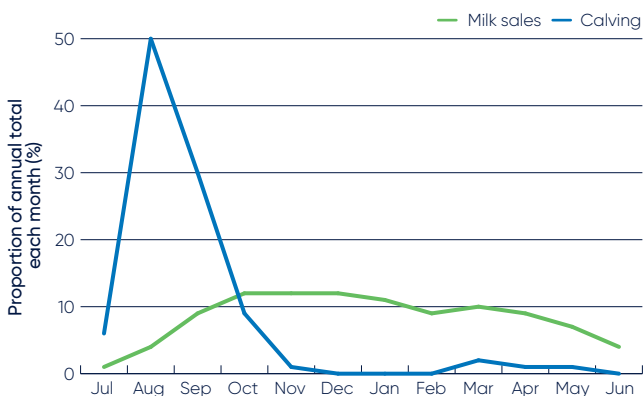
Figure 7 Milk solids sold per hectare



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 95% 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, November and December with 12% of the annual total in each month. Normally peak milk sales only occurs in October and November indicating that milk production decline was slower in 2020/21 than is typical. This trend was also seen in 2019/20.

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 4% higher than last year. This increase was mainly due to purchased feed and agistment costs but also higher herd costs and a smaller change in feed inventory. Home grown feed costs and shed costs decreased from the previous year.

Figure 9 shows the range of variable costs from \$1.19/kg MS to \$4.85/kg MS, with an average of \$3.26/kg MS.

Total feed costs, including home grown feed, purchased feed, agistment and feed inventory change, accounted for 85% of total variable costs.

Concentrates were the largest single feed cost category, costing farmers an average of \$1.28/kg MS in 2020/21, a slight decrease from \$1.30/kg MS in the previous year.

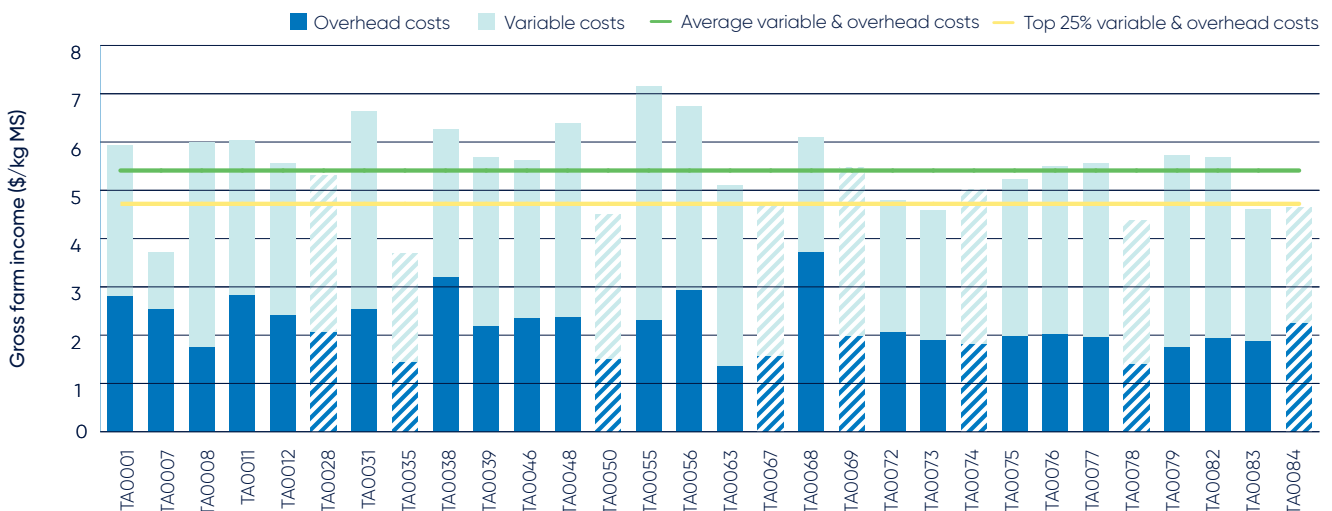
Fertiliser (\$0.48/kg MS) and agistment (\$0.34/kg MS) are the next largest variable costs – consistent with previous seasons.

Variable costs for the top 25% were 9% lower than average at \$2.98/kg MS. This was a 4% decrease from the previous season.

The main areas in which the top 25% spent less than the average were grain/concentrate (-\$0.14/kg MS); and fodder purchases (-\$0.12/kg MS). Similar to previous years, the top 25% spent significantly more than average on agistment (+\$0.13/kg MS).

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

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





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 2020/21 was \$2.16/kg MS compared with \$2.31/kg MS in 2019/20. The range of overhead costs during 2020/21 was between \$1.35/kg MS and \$3.72/kg MS.

Labour costs were on average \$1.23/kg MS which was a decrease from \$1.30/kg MS in the previous year. Employed labour continues to be the largest component of labour costs at \$0.93/kg MS an increase from \$0.86/kg MS the previous year. Imputed labour fluctuates from year-to-year, this year decreasing to \$0.30/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 19% lower than average at \$1.74/kg MS.

The top 25% have cash overhead costs of \$1.52/kg MS compared to the average of \$1.61/kg MS. The largest component of this difference in 2020/21 is repairs and maintenance where the top 25% spend \$0.07/kg MS less than the average. The top 25% also spend \$0.04/kg MS less on other overhead costs, \$0.03/kg MS less on motor vehicle expenses, and \$0.02/kg MS less on farm insurance. However, the top 25% spent \$0.06/kg MS more on employed labour compared to the average.

The top 25% also spent less on non-cash overhead costs. The imputed labour cost was \$0.24/kg MS lower and depreciation was \$0.08/kg MS lower. The lower depreciation cost indicates the top 25% have less depreciable 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.

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 3 shows the average cost of production was \$5.37/kg MS, a decrease of \$0.04/kg MS from the

previous year. Cost of production typically decreases when milk price decreases.

The top 25% decreased their cost of production from \$4.60/kg MS to \$4.58/kg MS.

Table 2 Farm financial performance

Due to rounding, the adding of average cost categories may not equal to the total cost value, which is also rounded off to the nearest cent.

| Farm income and cost category | Average | Q1 to Q3 range | Top 25 % average |
|---|-------------|------------------|------------------|
| Income | \$/kgMS | \$/kgMS | \$/kgMS |
| Milk income (net) | 6.66 | 6.50–6.79 | 6.78 |
| Livestock trading profit | 0.87 | 0.71–0.93 | 0.74 |
| Other farm income | 0.01 | 0–0.15 | 0.01 |
| Total income | 7.62 | 7.32–7.84 | 7.61 |
| Variable costs | | | |
| Herd cost | 0.34 | 0.28–0.41 | 0.34 |
| Shed cost | 0.15 | 0.11–0.19 | 0.11 |
| Home grown feed cost | 0.93 | 0.70–1.12 | 0.81 |
| Purchased feed and agistment | 1.87 | 1.45–2.15 | 1.74 |
| Feed inventory change | -0.05 | -0.10–0 | -0.03 |
| Water inventory change | 0.00 | 0–0 | 0.00 |
| Total feed costs | 2.76 | 2.49–3.09 | 2.53 |
| Total variable costs | 3.26 | 3.00–3.71 | 2.98 |
| Gross margin | 4.37 | 3.90–4.73 | 4.63 |
| Overhead costs | | | |
| Employed labour | 0.93 | 0.69–1.24 | 0.99 |
| Repairs and maintenance | 0.39 | 0.25–0.50 | 0.32 |
| All other overheads | 0.30 | 0.20–0.38 | 0.20 |
| Imputed labour | 0.30 | 0–0.41 | 0.07 |
| Depreciation | 0.24 | 0.16–0.34 | 0.16 |
| Total overhead costs | 2.16 | 1.82–2.40 | 1.74 |
| Variable and overhead costs | 5.41 | 4.76–5.98 | 4.72 |
| Earnings before interest and tax | 2.21 | 1.93–2.69 | 2.89 |

Table 3 Cost of production

| Farm costs (\$/kgMS) | Average | Q1 to Q3 range | Top 25 % average |
|--|-------------|------------------|------------------|
| Cash cost of production | 4.92 | 4.51–5.41 | 4.52 |
| Cost of production (excl inventory changes) | 5.46 | 4.69–5.99 | 4.75 |
| Inventory change | | | |
| +/- feed and water inventory changes | -0.05 | -0.10–0.06 | -0.03 |
| +/- livestock inventory changes minus purchases | -0.04 | -0.20–0.11 | -0.14 |
| Cost of production (incl inventory changes) | 5.37 | 4.64–5.86 | 4.58 |

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.

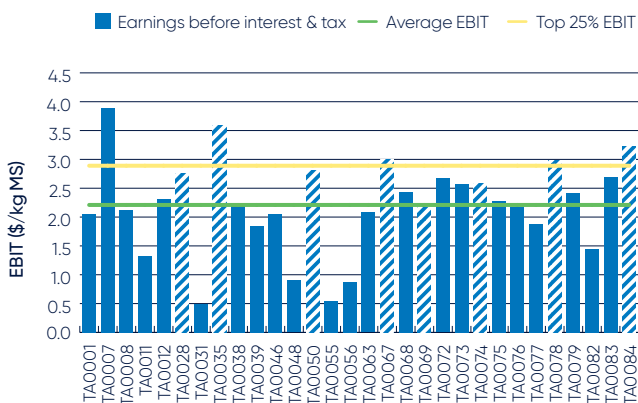
This season the average EBIT decreased from \$2.50/kg MS to \$2.21/kg MS. This is a 12% decrease.

The EBIT of the top 25% was \$2.89/kg MS, a 12% decrease from \$3.27/kg MS in 2019/20.

The difference between the average EBIT and the top 25% EBIT reduced from \$0.77/kg MS in the previous two years to \$0.68/kg MS in 2020/21.

All 30 participants had a positive EBIT in 2020/21 (Figure 10).

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



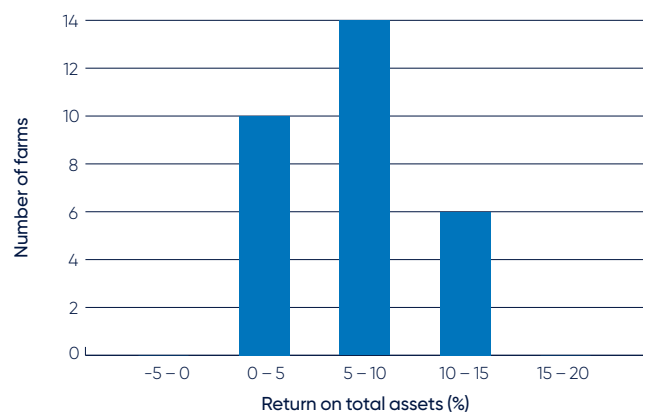
Return on total assets and equity

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 2020/21 was 7.1% with a range from 1.0% to 14.9% (Figure 11 and Appendix Table A1).

Figure 11 Distribution of farms by return on total assets



The average RoTA of 7.1% was a decrease from 8.7% last year. The top 25% have a higher RoTA than average at 11.5% a decrease from 15.1% in 2020/21.

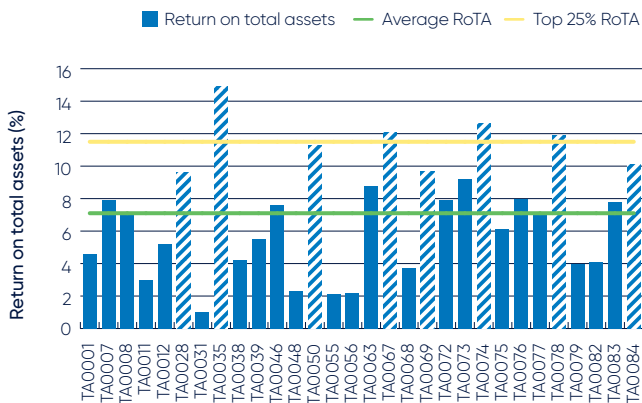
The average per hectare owned asset value this year has increased from \$23,482/ha to \$27,402/ha.

The top 25% have a lower owned asset value of \$25,682/ha but this is an increase from the previous year's \$22,630/ha.

This large increase in asset value was due to a reassessment of assets to ensure they were in-line with market value. The increased asset value impacts on a number of measures including Return on Total Assets.

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 12 Return on total assets

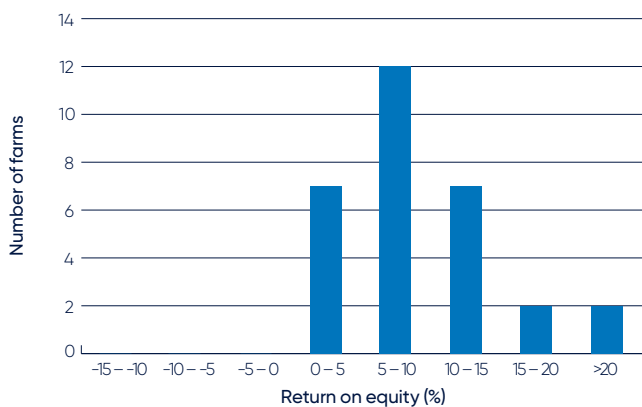


Return on equity (RoE) is the net farm income expressed as a percentage of owners' equity. It is a measure of the owners' rate of return on their investment.

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 30 farms was 9.4%, a decrease from 15.4% in 2019/20. The average RoE is higher than RoTA.

Figure 13 Distribution of farms by return on equity



All 30 participating farms had a positive return on equity in 2020/21 (Figure 13 and Figure 14).

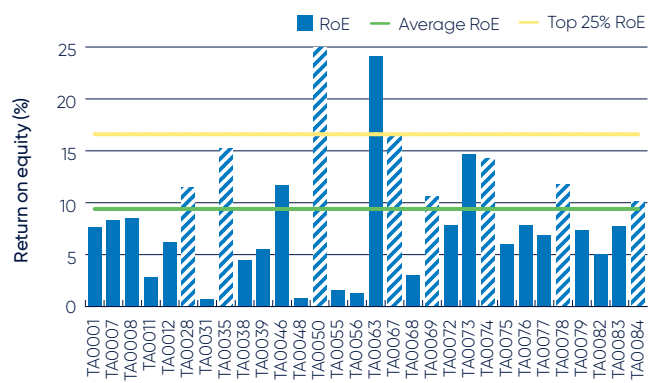
The top 25% group recorded a RoE of 16.6%.

Average interest and lease costs decreased from \$0.58/kg MS in 2019/20 to \$0.37/kg MS in 2020/21.

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 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...”².

Table 4 presents some key risk indicators. Refer to Appendix B for the definition of terms used in Table 4. The indicators in Table 4 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 4, 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, \$0.60 was used to cover variable costs. One hundred minus this gives the proportion of total costs that are overhead costs.

The debt services ratio shows interest and lease costs as a proportion of gross farm income. The ratio decreased from 7% in 2019/20 to 5% this year. This indicates that on average farms repaid \$0.05 to their creditors from every dollar of gross farm income.

The benefit of taking on risk and borrowing money can be seen when farm incomes yield a higher return on equity than on return on assets. This year there were 16 out of the 30 (or 53%) participants who achieved a higher return on equity than return on assets compared to 56% last year.

In 2020/21, the equity percentage was 81%, an increase from 74% in 2019/20 and the highest the equity percentage has been in the past 8 years.

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. This year the amount of imported feed decreased further to 29% of the total ME of the diet.

Table 4 Risk indicators – statewide

| | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 |
|--|---------|---------|---------|---------|---------|---------|---------|---------|
| Cost structure (proportion of total costs that are variable costs) | 59 | 62 | 63 | 60 | 59 | 57 | 58 | 60 |
| Debt servicing ratio (percentage of income as finance costs) | 6 | 6 | 10 | 11 | 9 | 9 | 7 | 5 |
| Debt per cow | \$2,660 | \$2,601 | \$3,141 | \$4,313 | \$4,479 | \$4,060 | \$3,349 | \$2,599 |
| Equity percentage (ownership of total assets managed) | 75 | 74 | 70 | 61 | 62 | 60 | 74 | 81 |
| Percentage of feed imported (as a percentage of total ME) | 28 | 31 | 31 | 26 | 29 | 28 | 26 | 29 |

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

PHYSICAL MEASURES

Grazed pasture provided an average of 65% of the total metabolisable energy (ME) on participant farms this year. Concentrates supplied 23% 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 65% of the diet derived from directly grazed pasture.

The next biggest component of energy in the diet is concentrates at 23%, followed by silage at 6%, hay at 4%, and 1% other feed.

The percentage of ME supplied by concentrates ranged from 10% to 32%.

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 production in 2020/21 was 10.6 t DM/ha consisting of 10.2 t DM/ha grazed pasture and 0.4 t DM/ha conserved pasture. This is a decrease in pasture consumption of 0.1 t DM/ha from 2019/20.

The top 25% achieved average pasture production of 12.3 t DM/ha, consisting of 12.0 t DM/ha grazed pasture and 0.3 t DM conserved pasture. This was a decrease in pasture produced of 0.6 t DM/ha from the previous year.

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

Both Figures 15 and 16 were 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

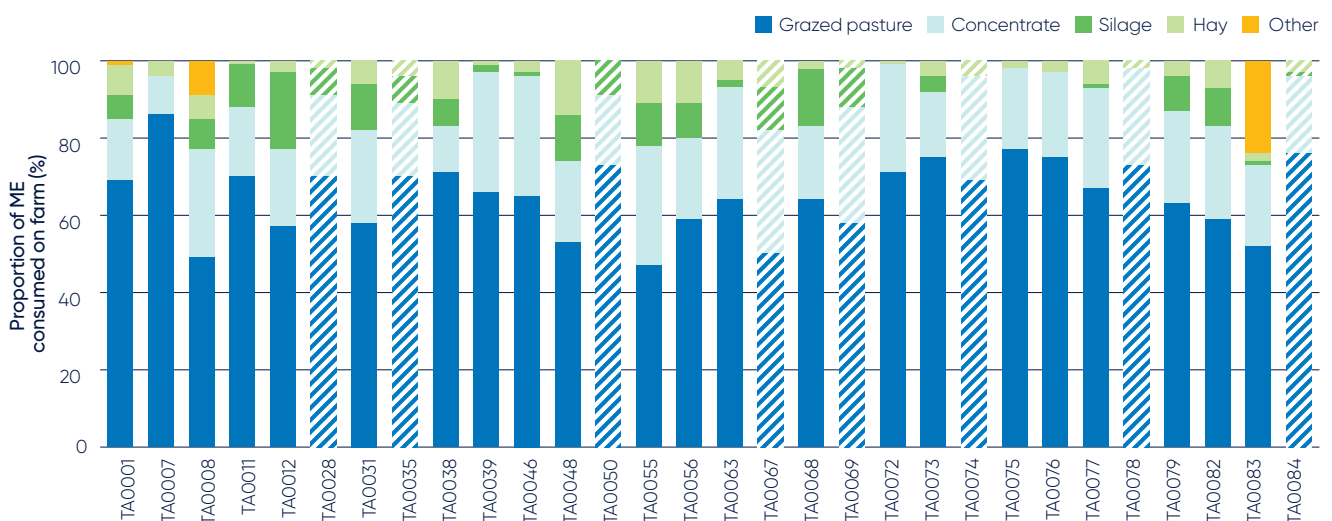
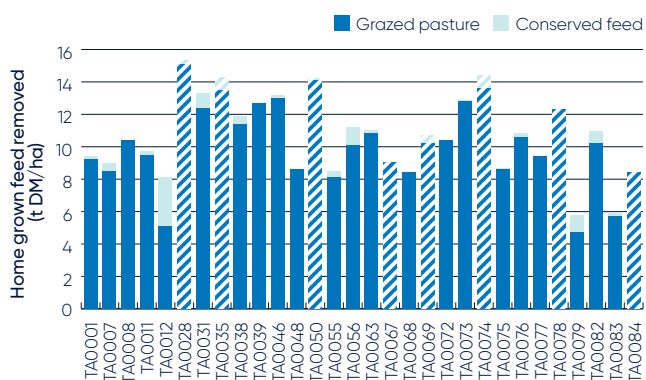


Figure 16 Estimated tonnes of home grown feed consumed per milking hectare



Fertiliser application

Table 5 shows the average application rates of nitrogen, phosphorus, potassium and sulphur per hectare for participants in the DFMP over the past eight seasons.

The total amount of nutrients applied this year was 271 kg/milking ha, 20 kg more than the previous year. 177 kg N/ha was applied in 2020/21, a 5% increase from 2019/20. Typically there has not been much variation in the amount of non-nitrogen fertiliser applied between the different years. In 2020/21, the amount of phosphorus and potassium applied was very similar to the previous year (and most years prior to that) but there was an 10 kg/ha increase in the amount of sulphur applied.

Farms in the top 25% (based on return on total assets) typically apply significantly more nitrogen than average. In 2020/21, the top 25% applied an average of 212 kg N/ha which was 35 kg N/ha more than average. The top 25% applied similar amounts of phosphorus (28 kg P/ha) more potassium (46 kg K/ha) but less sulphur at 27 kg S/ha than the average.

Table 5 Fertiliser use

| Applied fertiliser | 2013/14 | 2014/15 | 2015/16 | 2017 | 2017/18 | 2018/19 | 2019/20 | 2020/21 |
|--------------------|---------|---------|---------|------|---------|---------|---------|---------|
| Nitrogen kg/ha | 152 | 177 | 179 | 202 | 201 | 192 | 169 | 177 |
| Phosphorus kg/ha | 27 | 27 | 27 | 24 | 28 | 37 | 26 | 29 |
| Potassium kg/ha | 35 | 43 | 40 | 46 | 42 | 42 | 34 | 38 |
| Sulphur kg/ha | 21 | 20 | 20 | 19 | 23 | 20 | 22 | 33 |

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.

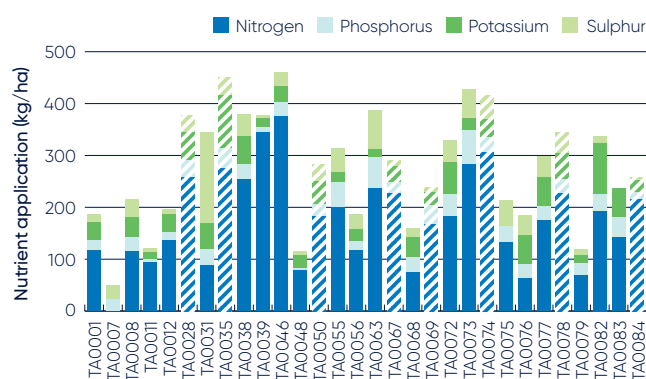
Participant farms in Tasmania used a wide range of fertilisers and fertiliser application rates (Figure 17).

Nitrogen was the main nutrient applied by participant farms, varying from 0 kg/ha up to 375 kg/ha. This range is very similar to previous years.

One farm out of the 30 participants did not use any nitrogen.

All farms applied phosphorus, two farms did not apply any potassium fertiliser and one farm did not apply any sulphur.

Figure 17 Fertiliser application (kg/ha)



Business confidence survey



EXPECTATIONS AND ISSUES

Responses to this business confidence survey were made in August to November 2021 with regard to the 2021/22 financial year and the next five years to 2025/26. Twenty-seven farms provided responses to the business confidence survey.

Expectation for business returns

Most participants expect farm business returns to either improve or remain stable in 2021/22.

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, 48% expect an improvement in their business returns while a further 48% expect their business returns to remain stable. Only 4% expected a decline in business returns. This is lower than last year (20% expected a decline) and the same as the previous year (2018/19).

The 20% of respondents expecting a decline in business returns for the 2020/21 season were correct, with milk price, EBIT and RoTA all declining.

Price and production expectations – Milk

In the previous year's survey, 48% of respondents expected the milk price to decrease which it did. In the 2020/21 survey, 52% of farmers expected milk price to increase for the 2021/22 season with 44% expecting milk price to remain stable and 4% expecting a decrease in milk price.

In the previous survey, 81% of respondents expected their milk production to increase and there was a modest increase in milk production.

This year a much lower percentage of respondents expect their milk production to increase – only 52% with 33% expecting milk production to remain stable and 15% expecting to have lower milk production. In the previous year's survey, no-one thought their milk production would decrease.

Production expectations – Fodder

Only a third of respondents (33%) expect fodder production to increase for 2021/22 (Figure 20). This is lower than the previous survey where 57% expected fodder production to increase. The remaining two-thirds of respondents (67%) expect their fodder production to remain stable in 2021/22. No-one expects fodder production to decrease for 2021/22.

Given the pasture-based nature of the Tasmanian dairy industry, the fodder production expectations do not match the milk production expectations. This is perhaps explained by farmers anticipating additional milk production will be achieved by increasing cow numbers.

Figure 18 Expectation of business returns

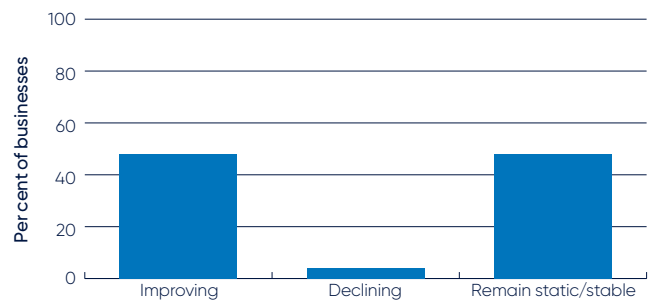


Figure 19 Price and production expectations – milk

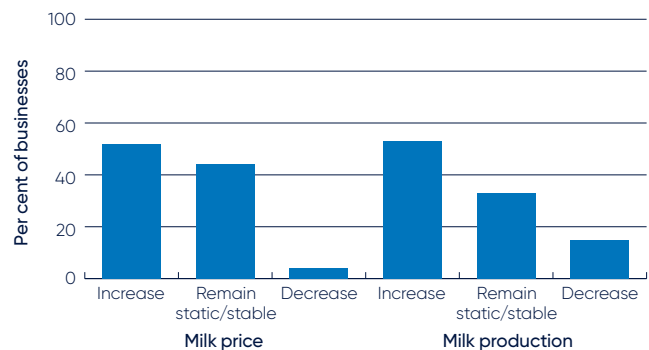
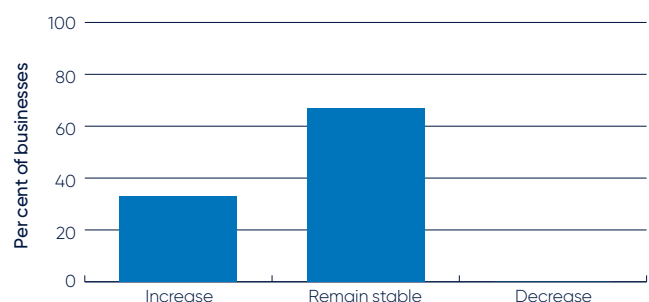


Figure 20 Producer expectations – fodder

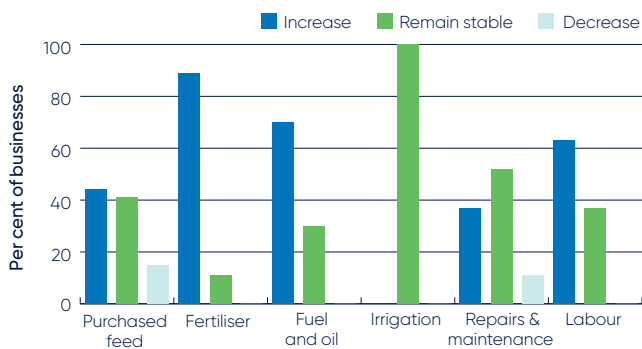


Cost expectations

The vast majority of respondents expect fertiliser costs to increase for the 2021/22 season. Seventy percent expect fuel and oil costs to increase and over 60% of respondents anticipate an increase in labour costs. All respondents expect irrigation costs to remain stable.

The majority of respondents expect purchased feed and repairs and maintenance costs to increase or remain stable. These two cost categories are the only two where a small percentage of respondents expect a decline in costs.

Figure 21 Cost expectations

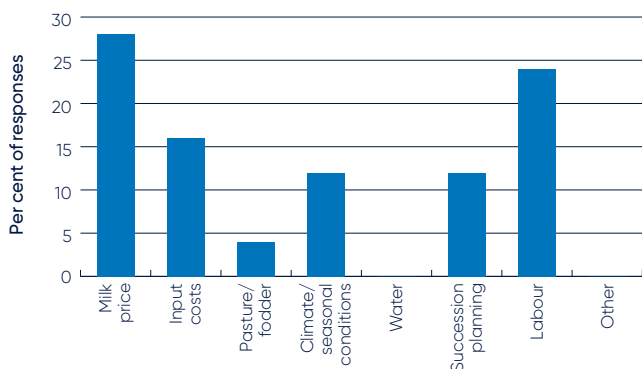


Major issues facing the industry dairy – the next 12 months

Figure 22 provides a summary of the ranking of key issues identified by participants for the 2020/21 season.

As usual, milk price was ranked as the issue of most concern although the rankings were more evenly spread than in the past. For the second year, labour was the second-highest ranked issue of concern with input costs third. Water was not considered a major issue facing the dairy industry in the next 12 months.

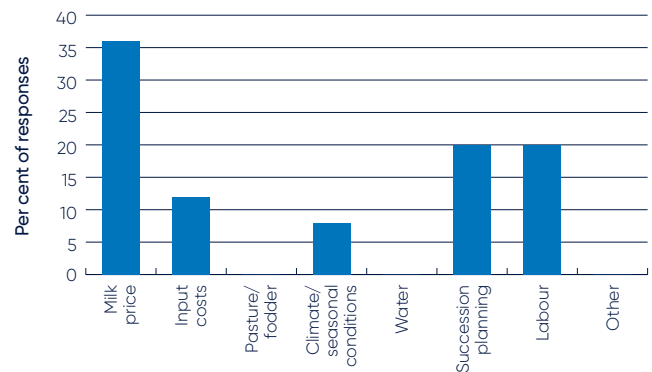
Figure 22 Major issues facing the dairy industry – the next 12 months



Major issues facing the dairy industry – the next 5 years

Milk price is the dominant concern for participants over the next five years, although the percentage of respondents ranking it as the number one issue was lower than in previous years. Succession planning and labour were the next highest (equal) ranked issues facing the dairy industry in the next five years. Input costs and climatic and seasonal conditions were also ranked by some respondents as being of major concern. Pasture and fodder production and water were not listed as being of major concern over the next five years.

Figure 23 Major issues facing the dairy industry – the next five years



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.

Earnings before interest and tax decreased slightly while net farm income increased slightly in 2020/21. Net farm income is at the highest level seen in the past 8 years.

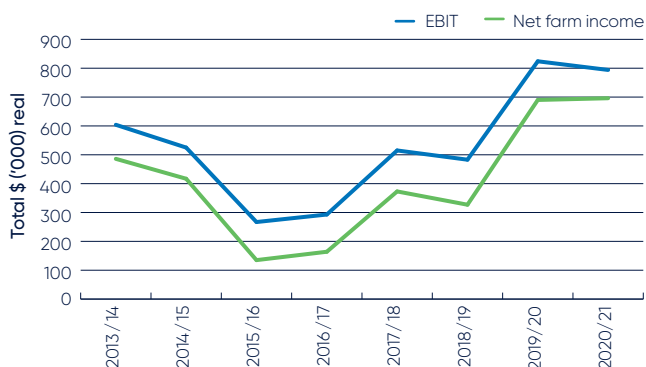
As can be seen in Figure 24, EBIT decreased slightly while net farm income increased slightly in 2020/21.

EBIT decreased from \$824,393 in 2019/20 (adjusted for inflation) to \$793,563. This is due to higher total farm variable and overhead costs compared to the previous year.

Net farm income increased from \$689,817 in 2019/20 (adjusted for inflation) to \$695,680 this season.

This increase in net farm income despite the decrease in EBIT is due to lower interest and lease costs.

Figure 24 Historical EBIT and net farm income

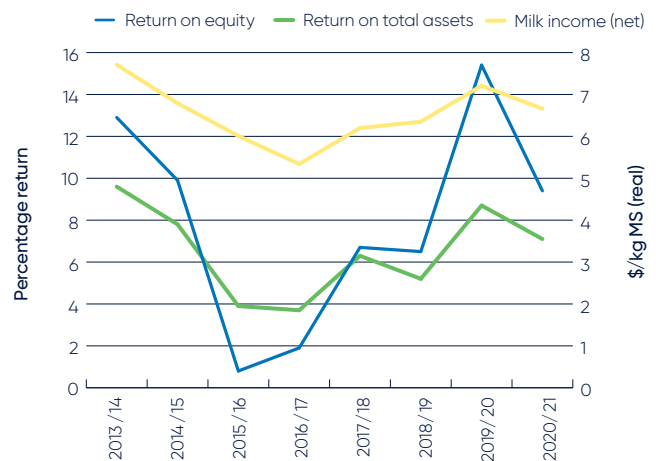


Return on total assets decreased from 8.7% in 2019/20 to an average of 7.1% in 2020/21. This decrease is due to a combination of lower EBIT and a higher value of assets managed.

Return on equity also decreased from 15.4% in 2019/20 to 9.4% in 2020/21. The percentage decrease in RoE was greater than the percentage decrease in RoTA which indicates a lower return from the additional assets than the interest or lease rate.

Milk price decreased from \$7.21/kg MS (adjusted for inflation) in 2019/20 to \$6.66/kg MS in 2020/21. In the 8 years of the Tasmanian Dairy Farm Monitor Project there have been 3 years when the milk price (adjusted for inflation) has been higher than \$6.66 (\$7.71 in 2013/14; \$6.79 in 2014/15; and \$7.21 in 2019/20) and 4 years it has been lower (\$6.01 in 2015/16; \$5.34 in 2016/17; \$6.20 in 2017/18; and \$6.35 in 2018/19).

Figure 25 Historical return on total assets, return on equity and milk income



Appendices



APPENDIX A – 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 total assets (exc. 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 | 6.43 | 1.56 | 7.99 | 3.13 | 2.80 | 53 | 2.06 | 4.6 | 0.42 | 5.3 | 1.64 | 7.7 |
| TA0007 | 6.61 | 1.00 | 7.61 | 1.19 | 2.53 | 32 | 3.89 | 7.9 | 0.27 | 3.6 | 3.61 | 8.3 |
| TA0008 | 7.16 | 0.95 | 8.11 | 4.24 | 1.75 | 71 | 2.12 | 7.2 | 0.15 | 1.8 | 1.97 | 8.5 |
| TA0011 | 6.51 | 0.85 | 7.36 | 3.20 | 2.83 | 53 | 1.33 | 3.0 | 0.66 | 9.0 | 0.66 | 2.8 |
| TA0012 | 6.71 | 1.17 | 7.87 | 3.16 | 2.41 | 57 | 2.31 | 5.2 | 0.32 | 4.0 | 1.99 | 6.2 |
| TA0028 | 6.74 | 1.33 | 8.06 | 3.25 | 2.06 | 61 | 2.76 | 9.6 | 0.28 | 3.4 | 2.48 | 11.5 |
| TA0031 | 6.49 | 0.66 | 7.15 | 4.12 | 2.53 | 62 | 0.49 | 1.0 | 0.25 | 3.5 | 0.25 | 0.7 |
| TA0035 | 6.50 | 0.77 | 7.27 | 2.26 | 1.43 | 61 | 3.58 | 14.9 | 0.01 | 0.2 | 3.56 | 15.2 |
| TA0038 | 6.41 | 2.04 | 8.45 | 3.05 | 3.21 | 49 | 2.19 | 4.2 | 0.03 | 0.3 | 2.16 | 4.5 |
| TA0039 | 6.76 | 0.77 | 7.53 | 3.50 | 2.18 | 62 | 1.84 | 5.5 | 0.00 | 0.0 | 1.84 | 5.5 |
| TA0046 | 6.71 | 0.98 | 7.69 | 3.28 | 2.35 | 58 | 2.06 | 7.6 | 0.26 | 3.4 | 1.80 | 11.7 |
| TA0048 | 6.35 | 0.94 | 7.29 | 4.02 | 2.37 | 63 | 0.90 | 2.3 | 0.77 | 10.6 | 0.12 | 0.8 |
| TA0050 | 6.80 | 0.50 | 7.30 | 3.01 | 1.49 | 67 | 2.80 | 11.3 | 0.94 | 12.9 | 1.86 | 42.8 |
| TA0055 | 6.47 | 1.22 | 7.69 | 4.85 | 2.30 | 68 | 0.54 | 2.1 | 0.27 | 3.6 | 0.27 | 1.6 |
| TA0056 | 6.53 | 1.09 | 7.61 | 3.81 | 2.93 | 57 | 0.87 | 2.2 | 0.61 | 8.0 | 0.26 | 1.3 |
| TA0063 | 6.77 | 0.42 | 7.19 | 3.76 | 1.35 | 74 | 2.08 | 8.8 | 1.25 | 17.4 | 0.83 | 24.1 |
| TA0067 | 6.93 | 0.81 | 7.75 | 3.19 | 1.56 | 67 | 2.99 | 12.1 | 0.19 | 2.5 | 2.80 | 16.7 |
| TA0068 | 6.93 | 1.59 | 8.52 | 2.37 | 3.72 | 39 | 2.43 | 3.7 | 1.38 | 16.1 | 1.05 | 3.0 |
| TA0069 | 6.82 | 0.82 | 7.64 | 3.49 | 1.98 | 64 | 2.17 | 9.7 | 0.19 | 2.5 | 1.98 | 10.6 |
| TA0072 | 6.51 | 0.96 | 7.47 | 2.74 | 2.06 | 57 | 2.67 | 7.9 | 0.00 | 0.0 | 2.67 | 7.9 |
| TA0073 | 6.55 | 0.61 | 7.16 | 2.68 | 1.90 | 59 | 2.58 | 9.2 | 0.35 | 4.8 | 2.23 | 14.7 |
| TA0074 | 6.85 | 0.77 | 7.62 | 3.22 | 1.80 | 64 | 2.59 | 12.6 | 0.13 | 1.8 | 2.45 | 14.3 |
| TA0075 | 6.72 | 0.78 | 7.50 | 3.24 | 1.98 | 62 | 2.28 | 6.1 | 0.03 | 0.4 | 2.25 | 6.0 |
| TA0076 | 6.75 | 0.92 | 7.67 | 3.48 | 2.01 | 63 | 2.17 | 8.0 | 0.03 | 0.4 | 2.14 | 7.9 |
| TA0077 | 6.72 | 0.71 | 7.43 | 3.59 | 1.96 | 65 | 1.88 | 7.0 | 0.04 | 0.6 | 1.84 | 6.9 |
| TA0078 | 6.69 | 0.67 | 7.36 | 2.99 | 1.39 | 68 | 2.98 | 11.9 | 0.03 | 0.3 | 2.95 | 11.8 |
| TA0079 | 6.26 | 1.89 | 8.15 | 3.99 | 1.74 | 70 | 2.42 | 4.0 | 1.97 | 24.2 | 0.45 | 7.4 |
| TA0082 | 6.80 | 0.32 | 7.12 | 3.75 | 1.93 | 66 | 1.45 | 4.1 | 0.15 | 2.2 | 1.29 | 5.1 |
| TA0083 | 6.47 | 0.84 | 7.31 | 2.73 | 1.88 | 59 | 2.70 | 7.8 | 0.00 | 0.0 | 2.70 | 7.8 |
| TA0084 | 6.95 | 0.92 | 7.87 | 2.40 | 2.24 | 52 | 3.23 | 10.1 | 0.00 | 0.0 | 3.23 | 10.1 |
| Average | 6.66 | 0.96 | 7.62 | 3.26 | 2.16 | 60 | 2.21 | 7.1 | 0.37 | 4.8 | 1.84 | 9.4 |
| Top 25% | 6.78 | 0.82 | 7.61 | 2.98 | 1.74 | 63 | 2.89 | 11.5 | 0.22 | 3.0 | 2.66 | 16.6 |

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 | t DM/100mm/ha | hd | hd/ha | kg MS/cow | kg MS/ha | % | % |
| TA0001 | 240 | 144 | 0.6 | 498 | 2.1 | 266 | 552 | 5.1 | 4.0 |
| TA0007 | 212 | 212 | 1.0 | 387 | 1.8 | 365 | 666 | 4.5 | 3.5 |
| TA0008 | 480 | 300 | 0.9 | 1,150 | 2.4 | 514 | 1231 | 4.0 | 3.3 |
| TA0011 | 266 | 185 | 0.7 | 460 | 1.7 | 446 | 770 | 4.5 | 3.5 |
| TA0012 | 442 | 330 | 0.7 | 610 | 1.4 | 413 | 571 | 4.8 | 3.5 |
| TA0028 | 550 | 250 | 1.1 | 920 | 1.7 | 558 | 934 | 3.9 | 3.4 |
| TA0031 | 657 | 236 | 0.9 | 893 | 1.4 | 519 | 705 | 5.2 | 3.8 |
| TA0035 | 520 | 340 | 1.1 | 1,100 | 2.1 | 553 | 1171 | 5.1 | 4.0 |
| TA0038 | 299 | 165 | 0.8 | 532 | 1.8 | 323 | 575 | 4.5 | 3.4 |
| TA0039 | 290 | 166 | 0.7 | 624 | 2.2 | 465 | 1001 | 4.4 | 3.6 |
| TA0046 | 497 | 274 | 1.0 | 930 | 1.9 | 467 | 873 | 4.2 | 3.6 |
| TA0048 | 140 | 90 | 0.5 | 283 | 2.0 | 365 | 739 | 4.3 | 3.3 |
| TA0050 | 605 | 335 | 1.1 | 1,265 | 2.1 | 483 | 1010 | 4.7 | 3.7 |
| TA0055 | 80 | 80 | 0.7 | 218 | 2.7 | 519 | 1414 | 4.5 | 3.5 |
| TA0056 | 145 | 108 | 0.8 | 250 | 1.7 | 474 | 818 | 4.4 | 3.5 |
| TA0063 | 290 | 266 | 1.1 | 840 | 2.9 | 434 | 1257 | 4.4 | 3.3 |
| TA0067 | 518 | 398 | 1.0 | 1,400 | 2.7 | 463 | 1252 | 4.9 | 3.8 |
| TA0068 | 413 | 161 | 0.5 | 480 | 1.2 | 356 | 414 | 4.8 | 3.6 |
| TA0069 | 279 | 249 | 0.9 | 850 | 3.0 | 458 | 1397 | 4.7 | 3.7 |
| TA0072 | 142 | 142 | 0.9 | 455 | 3.2 | 382 | 1224 | 4.9 | 3.7 |
| TA0073 | 505 | 336 | 1.0 | 1,250 | 2.5 | 382 | 945 | 4.9 | 4.0 |
| TA0074 | 336 | 300 | 1.0 | 1,049 | 3.1 | 497 | 1551 | 4.7 | 3.7 |
| TA0075 | 538 | 523 | 0.8 | 1,350 | 2.5 | 340 | 852 | 4.6 | 3.5 |
| TA0076 | 187 | 187 | 1.2 | 542 | 2.9 | 394 | 1143 | 4.9 | 3.7 |
| TA0077 | 235 | 235 | 1.0 | 735 | 3.1 | 375 | 1173 | 4.8 | 3.7 |
| TA0078 | 389 | 389 | 1.1 | 1,300 | 3.3 | 406 | 1358 | 4.7 | 3.6 |
| TA0079 | 265 | 111 | 0.5 | 183 | 0.7 | 409 | 283 | 4.6 | 3.5 |
| TA0082 | 407 | 304 | 0.9 | 930 | 2.3 | 531 | 1214 | 4.7 | 3.6 |
| TA0083 | 438 | 383 | 0.6 | 920 | 2.1 | 391 | 822 | 4.9 | 3.8 |
| TA0084 | 343 | 286 | 0.8 | 675 | 2.0 | 373 | 734 | 4.9 | 3.7 |
| Average | 357 | 249 | 0.9 | 769 | 2.2 | 431 | 955 | 4.7 | 3.6 |
| Top 25% | 442 | 318 | 1.0 | 1,070 | 2.5 | 474 | 1,176 | 4.7 | 3.7 |

| Farm number | Estimated grazed pasture* | Estimated conserved feed* | Home grown feed as of ME consumed | Nitrogen application | Phosphorous application | Potassium application | Sulphur application | Labour efficiency | Labour efficiency |
|-----------------|---------------------------|---------------------------|-----------------------------------|----------------------|-------------------------|-----------------------|---------------------|-------------------|-------------------|
| | t DM/ha | t DM/ha | % of ME | kg/ha | kg/ha | kg/ha | kg/ha | hd/FTE | kg MS/FTE |
| TA0001 | 9.2 | 0.2 | 74 | 116 | 21 | 33 | 17 | 212 | 56,400 |
| TA0007 | 8.5 | 0.5 | 90 | - | 22 | - | 28 | 128 | 46,740 |
| TA0008 | 10.4 | 0.0 | 62 | 115 | 27 | 39 | 34 | 167 | 85,915 |
| TA0011 | 9.5 | 0.2 | 78 | 93 | 6 | 15 | 7 | 111 | 49,259 |
| TA0012 | 5.1 | 3.0 | 75 | 136 | 17 | 34 | 8 | 138 | 57,104 |
| TA0028 | 15.1 | 0.2 | 79 | 258 | 33 | 54 | 32 | 120 | 67,122 |
| TA0031 | 12.4 | 0.9 | 72 | 87 | 32 | 51 | 175 | 110 | 57,181 |
| TA0035 | 13.5 | 0.8 | 77 | 274 | 39 | 102 | 35 | 195 | 108,112 |
| TA0038 | 11.4 | 0.5 | 79 | 253 | 29 | 55 | 42 | 111 | 35,839 |
| TA0039 | 12.7 | 0.0 | 67 | 344 | 11 | 16 | 7 | 162 | 75,413 |
| TA0046 | 13.0 | 0.2 | 68 | 375 | 27 | 32 | 26 | 130 | 60,735 |
| TA0048 | 8.6 | 0.0 | 55 | 78 | 4 | 26 | 6 | 216 | 78,776 |
| TA0050 | 14.1 | 0.1 | 73 | 183 | 22 | 45 | 32 | 180 | 87,145 |
| TA0055 | 8.1 | 0.4 | 50 | 199 | 49 | 20 | 46 | 133 | 69,269 |
| TA0056 | 10.1 | 1.1 | 69 | 116 | 19 | 23 | 28 | 128 | 60,872 |
| TA0063 | 10.8 | 0.2 | 67 | 237 | 60 | 15 | 75 | 187 | 81,004 |
| TA0067 | 9.0 | 0.0 | 59 | 226 | 21 | 32 | 12 | 181 | 83,615 |
| TA0068 | 8.4 | 0.0 | 81 | 75 | 28 | 40 | 17 | 120 | 42,614 |
| TA0069 | 10.2 | 0.5 | 64 | 166 | 37 | 25 | 10 | 199 | 91,163 |
| TA0072 | 10.4 | 0.0 | 71 | 183 | 42 | 62 | 43 | 134 | 51,103 |
| TA0073 | 12.8 | 0.1 | 76 | 282 | 66 | 25 | 55 | 271 | 103,248 |
| TA0074 | 13.6 | 0.8 | 72 | 305 | 30 | 35 | 46 | 121 | 60,269 |
| TA0075 | 8.6 | 0.1 | 77 | 133 | 30 | - | 51 | 171 | 58,214 |
| TA0076 | 10.6 | 0.2 | 77 | 63 | 28 | 54 | 40 | 169 | 66,801 |
| TA0077 | 9.4 | 0.0 | 68 | 175 | 28 | 54 | 42 | 178 | 66,848 |
| TA0078 | 12.3 | 0.0 | 73 | 226 | 27 | 51 | 40 | 228 | 92,688 |
| TA0079 | 4.7 | 1.1 | 74 | 68 | 25 | 14 | 12 | 148 | 60,744 |
| TA0082 | 10.2 | 0.8 | 63 | 193 | 31 | 100 | 13 | 165 | 87,834 |
| TA0083 | 5.7 | 0.2 | 53 | 142 | 39 | 56 | - | 184 | 71,969 |
| TA0084 | 8.4 | 0.0 | 80 | 216 | 13 | 22 | 7 | 178 | 66,277 |
| Average | 10.2 | 0.5 | 71 | 177 | 29 | 38 | 33 | 163 | 69,342 |
| Top 25%* | 12.0 | 0.4 | 72 | 232 | 28 | 46 | 27 | 175 | 82,049 |

*on milking area

Note: Calculation of the average for conserved feed excludes zero values

Table A3 Purchased feed

| Farm number | Purchased feed per milker | Concentrate price | Silage price | Hay price | Other feed price | Average purchased feed price | of total energy imported |
|----------------|---------------------------|-------------------|--------------|------------|------------------|------------------------------|--------------------------|
| | t DM/hd | \$/t DM | \$/t DM | \$/t DM | \$/t DM | \$/t DM | % of ME |
| TA0001 | 1.3 | 390 | 360 | 73 | 300 | 282 | 26 |
| TA0007 | 0.5 | 336 | - | 204 | - | 320 | 10 |
| TA0008 | 2.5 | 621 | 524 | 318 | 572 | 552 | 38 |
| TA0011 | 1.2 | 547 | 332 | 228 | - | 382 | 22 |
| TA0012 | 1.5 | 398 | 363 | 210 | - | 363 | 25 |
| TA0028 | 1.7 | 542 | - | - | - | 542 | 21 |
| TA0031 | 1.9 | 592 | 411 | 326 | - | 543 | 28 |
| TA0035 | 1.4 | 444 | - | 150 | - | 425 | 23 |
| TA0038 | 1.3 | 459 | - | 169 | - | 302 | 21 |
| TA0039 | 1.7 | 385 | 267 | 290 | - | 369 | 33 |
| TA0046 | 2.0 | 449 | - | 148 | 289 | 428 | 32 |
| TA0048 | 2.8 | 470 | 190 | 153 | - | 310 | 45 |
| TA0050 | 1.5 | 397 | 251 | 157 | - | 325 | 27 |
| TA0055 | 3.4 | 579 | 456 | 232 | - | 455 | 50 |
| TA0056 | 2.4 | 522 | - | 216 | - | 410 | 31 |
| TA0063 | 1.8 | 486 | 695 | 200 | - | 445 | 33 |
| TA0067 | 2.2 | 332 | 355 | 255 | - | 333 | 41 |
| TA0068 | 0.9 | 511 | - | - | - | 511 | 19 |
| TA0069 | 1.8 | 406 | 185 | 212 | - | 336 | 36 |
| TA0072 | 1.2 | 362 | 341 | 162 | - | 353 | 29 |
| TA0073 | 1.1 | 361 | 307 | 289 | - | 337 | 24 |
| TA0074 | 1.4 | 472 | - | 195 | - | 461 | 28 |
| TA0075 | 0.9 | 474 | 340 | 194 | - | 404 | 23 |
| TA0076 | 1.0 | 437 | 341 | 196 | - | 412 | 23 |
| TA0077 | 1.4 | 457 | 341 | 196 | - | 392 | 32 |
| TA0078 | 1.3 | 448 | - | 195 | - | 423 | 27 |
| TA0079 | 1.8 | 596 | - | 155 | - | 544 | 26 |
| TA0082 | 2.3 | 504 | 270 | 172 | - | 358 | 37 |
| TA0083 | 2.2 | 380 | - | 133 | 186 | 256 | 47 |
| TA0084 | 0.9 | 507 | - | - | - | 507 | 20 |
| Average | 1.7 | 462 | 352 | 201 | 337 | 403 | 29 |
| Top 25% | 1.5 | 443 | 264 | 194 | - | 419 | 28 |

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

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 |
|----------------|------------------|---------------|--------------|-------------|----------------|---------------------------|-------------|-------------|-----------------------|
| | \$/kgMS | \$/kgMS | \$/kgMS | \$/kgMS | \$/kgMS | \$/kgMS | \$/kgMS | \$/kgMS | \$/kgMS |
| TA0001 | 0.18 | 0.22 | 0.04 | 0.13 | 0.06 | 0.64 | 0.48 | 0.00 | 0.12 |
| TA0007 | 0.05 | 0.10 | 0.03 | 0.03 | 0.05 | 0.25 | 0.20 | 0.03 | 0.03 |
| TA0008 | 0.13 | 0.22 | 0.06 | 0.08 | 0.07 | 0.57 | 0.34 | 0.14 | 0.14 |
| TA0011 | 0.15 | 0.13 | 0.05 | 0.14 | 0.07 | 0.54 | 0.37 | 0.20 | 0.20 |
| TA0012 | 0.12 | 0.06 | 0.05 | 0.08 | 0.09 | 0.40 | 0.78 | 0.42 | 0.42 |
| TA0028 | 0.12 | 0.21 | 0.09 | 0.08 | 0.05 | 0.55 | 0.63 | 0.28 | 0.28 |
| TA0031 | 0.08 | 0.26 | 0.04 | 0.04 | 0.06 | 0.48 | 0.84 | 0.26 | 0.26 |
| TA0035 | 0.11 | 0.16 | 0.03 | 0.04 | 0.02 | 0.36 | 0.55 | 0.16 | 0.16 |
| TA0038 | 0.00 | 0.25 | 0.03 | 0.06 | 0.11 | 0.45 | 0.90 | 0.08 | 0.08 |
| TA0039 | 0.06 | 0.18 | 0.02 | 0.09 | 0.07 | 0.42 | 0.45 | 0.07 | 0.07 |
| TA0046 | 0.19 | 0.12 | 0.03 | 0.09 | 0.04 | 0.47 | 0.51 | 0.06 | 0.06 |
| TA0048 | 0.16 | 0.11 | 0.06 | 0.12 | 0.13 | 0.58 | 0.44 | 0.04 | 0.04 |
| TA0050 | 0.15 | 0.17 | 0.10 | 0.05 | 0.06 | 0.52 | 0.49 | 0.12 | 0.12 |
| TA0055 | 0.25 | 0.22 | 0.18 | 0.05 | 0.09 | 0.79 | 0.35 | 0.05 | 0.05 |
| TA0056 | 0.16 | 0.21 | 0.01 | 0.12 | 0.12 | 0.62 | 0.39 | 0.24 | 0.24 |
| TA0063 | 0.12 | 0.15 | 0.07 | 0.09 | 0.20 | 0.63 | 0.52 | 0.04 | 0.04 |
| TA0067 | 0.08 | 0.14 | 0.01 | 0.04 | 0.06 | 0.33 | 0.45 | 0.07 | 0.07 |
| TA0068 | 0.08 | 0.05 | 0.07 | 0.15 | 0.08 | 0.43 | 0.40 | 0.05 | 0.05 |
| TA0069 | 0.13 | 0.21 | 0.10 | 0.10 | 0.03 | 0.56 | 0.43 | 0.05 | 0.05 |
| TA0072 | 0.05 | 0.19 | 0.07 | 0.11 | 0.14 | 0.57 | 0.24 | 0.00 | 0.00 |
| TA0073 | 0.09 | 0.28 | 0.02 | 0.05 | 0.04 | 0.48 | 0.50 | 0.01 | 0.01 |
| TA0074 | 0.11 | 0.17 | 0.05 | 0.07 | 0.03 | 0.43 | 0.47 | 0.07 | 0.07 |
| TA0075 | 0.16 | 0.16 | 0.04 | 0.09 | 0.05 | 0.50 | 0.62 | 0.01 | 0.01 |
| TA0076 | 0.13 | 0.20 | 0.09 | 0.10 | 0.03 | 0.55 | 0.50 | 0.02 | 0.02 |
| TA0077 | 0.13 | 0.18 | 0.05 | 0.10 | 0.04 | 0.50 | 0.45 | 0.00 | 0.00 |
| TA0078 | 0.09 | 0.15 | 0.05 | 0.06 | 0.03 | 0.38 | 0.45 | 0.00 | 0.00 |
| TA0079 | 0.07 | 0.11 | 0.03 | 0.17 | 0.08 | 0.46 | 0.54 | 0.44 | 0.44 |
| TA0082 | 0.15 | 0.23 | 0.12 | 0.07 | 0.11 | 0.67 | 0.67 | 0.08 | 0.08 |
| TA0083 | 0.05 | 0.19 | 0.02 | 0.01 | 0.03 | 0.30 | 0.21 | 0.03 | 0.03 |
| TA0084 | 0.05 | 0.27 | 0.00 | 0.12 | 0.05 | 0.48 | 0.13 | 0.17 | 0.17 |
| Average | 0.11 | 0.18 | 0.05 | 0.08 | 0.07 | 0.50 | 0.48 | 0.11 | 0.11 |
| Top 25% | 0.11 | 0.18 | 0.05 | 0.07 | 0.04 | 0.45 | 0.45 | 0.12 | 0.12 |

| 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 |
|----------------|--------------|------------------------------|------------------|------------------|--------------------------|-----------------|---------------------------------|------------------|----------------------|
| | \$/kgMS | \$/kgMS | \$/kgMS | \$/kgMS | \$/kgMS | \$/kgMS | \$/kgMS | \$/kgMS | \$/kgMS |
| TA0001 | 0.09 | 0.14 | 0.00 | 0.45 | 0.93 | 0.00 | 0.09 | 2.49 | 3.13 |
| TA0007 | 0.03 | 0.02 | 0.00 | 0.04 | 0.43 | 0.03 | -0.02 | 0.94 | 1.19 |
| TA0008 | 0.05 | 0.23 | 0.11 | 0.37 | 2.35 | 0.01 | -0.04 | 3.68 | 4.24 |
| TA0011 | 0.12 | 0.09 | 0.00 | 0.64 | 1.16 | 0.46 | -0.62 | 2.66 | 3.20 |
| TA0012 | 0.06 | 0.42 | 0.00 | 0.26 | 1.04 | 0.00 | -0.32 | 2.75 | 3.16 |
| TA0028 | 0.03 | 0.10 | 0.00 | 0.00 | 1.66 | 0.00 | -0.12 | 2.70 | 3.25 |
| TA0031 | 0.10 | 0.22 | 0.00 | 0.32 | 1.69 | 0.00 | -0.05 | 3.64 | 4.12 |
| TA0035 | 0.03 | 0.00 | 0.00 | 0.02 | 0.85 | 0.37 | -0.22 | 1.90 | 2.26 |
| TA0038 | 0.15 | 0.22 | 0.00 | 0.34 | 0.80 | 0.00 | 0.08 | 2.61 | 3.05 |
| TA0039 | 0.17 | 0.06 | 0.00 | 0.18 | 1.29 | 0.69 | -0.07 | 3.07 | 3.50 |
| TA0046 | 0.05 | 0.08 | 0.01 | 0.05 | 1.93 | 0.00 | -0.10 | 2.82 | 3.28 |
| TA0048 | 0.06 | 0.50 | 0.00 | 0.56 | 1.29 | 0.10 | 0.29 | 3.44 | 4.02 |
| TA0050 | 0.04 | 0.26 | 0.00 | 0.33 | 0.70 | 0.51 | -0.13 | 2.49 | 3.01 |
| TA0055 | 0.03 | 0.15 | 0.01 | 1.07 | 1.96 | 0.40 | -0.11 | 4.06 | 4.85 |
| TA0056 | 0.11 | 0.15 | 0.00 | 0.36 | 1.49 | 0.00 | 0.12 | 3.19 | 3.81 |
| TA0063 | 0.03 | 0.13 | 0.00 | 0.23 | 1.61 | 0.52 | -0.01 | 3.13 | 3.76 |
| TA0067 | 0.01 | 0.06 | 0.00 | 0.35 | 1.11 | 0.61 | 0.16 | 2.86 | 3.19 |
| TA0068 | 0.20 | 0.06 | 0.00 | 0.00 | 1.42 | 0.00 | -0.42 | 1.94 | 2.37 |
| TA0069 | 0.04 | 0.08 | 0.00 | 0.26 | 1.05 | 0.83 | 0.09 | 2.93 | 3.49 |
| TA0072 | 0.01 | 0.37 | 0.00 | 0.09 | 1.06 | 0.37 | -0.05 | 2.17 | 2.74 |
| TA0073 | 0.02 | 0.05 | 0.00 | 0.30 | 0.59 | 0.18 | 0.18 | 2.20 | 2.68 |
| TA0074 | 0.04 | 0.08 | 0.00 | 0.02 | 1.29 | 0.70 | -0.02 | 2.80 | 3.22 |
| TA0075 | 0.04 | 0.07 | 0.00 | 0.16 | 1.15 | 0.68 | -0.09 | 2.74 | 3.24 |
| TA0076 | 0.03 | 0.10 | 0.00 | 0.11 | 1.04 | 1.01 | -0.03 | 2.94 | 3.48 |
| TA0077 | 0.03 | 0.10 | 0.00 | 0.22 | 1.23 | 0.99 | 0.01 | 3.09 | 3.59 |
| TA0078 | 0.03 | 0.05 | 0.00 | 0.06 | 1.26 | 0.64 | 0.00 | 2.61 | 2.99 |
| TA0079 | 0.06 | 0.16 | 0.00 | 0.08 | 2.33 | 0.00 | -0.08 | 3.53 | 3.99 |
| TA0082 | 0.05 | 0.22 | 0.00 | 0.50 | 1.18 | 0.30 | -0.05 | 3.07 | 3.75 |
| TA0083 | 0.02 | 0.02 | 0.00 | 0.09 | 1.39 | 0.65 | -0.03 | 2.44 | 2.73 |
| TA0084 | 0.04 | 0.25 | 0.00 | 0.00 | 1.19 | 0.12 | 0.00 | 1.92 | 2.40 |
| Average | 0.06 | 0.15 | 0.00 | 0.25 | 1.28 | 0.34 | -0.05 | 2.76 | 3.26 |
| Top 25% | 0.03 | 0.11 | 0.00 | 0.13 | 1.14 | 0.47 | -0.03 | 2.53 | 2.98 |

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 |
|----------------|-------------|----------------|------------------------|-------------------------|-----------------|-----------------|----------------------|--------------|--|-----------------|
| | \$/kgMS | \$/kgMS | \$/kgMS | \$/kgMS | \$/kgMS | \$/kgMS | \$/kgMS | \$/kgMS | \$/kgMS | \$/kgMS |
| TA0001 | 0.08 | 0.06 | 0.26 | 0.51 | 0.35 | 0.82 | 2.07 | 0.16 | 0.58 | 2.80 |
| TA0007 | 0.09 | 0.05 | 0.00 | 0.15 | 0.09 | 0.58 | 0.97 | 0.36 | 1.21 | 2.53 |
| TA0008 | 0.04 | 0.08 | 0.01 | 0.39 | 0.08 | 0.67 | 1.27 | 0.21 | 0.26 | 1.75 |
| TA0011 | 0.04 | 0.08 | 0.25 | 0.33 | 0.19 | 0.78 | 1.67 | 0.39 | 0.77 | 2.83 |
| TA0012 | 0.12 | 0.05 | 0.16 | 0.33 | 0.18 | 1.33 | 2.17 | 0.21 | 0.03 | 2.41 |
| TA0028 | 0.03 | 0.07 | 0.00 | 0.51 | 0.05 | 0.99 | 1.64 | 0.21 | 0.20 | 2.06 |
| TA0031 | 0.03 | 0.15 | 0.18 | 0.39 | 0.09 | 1.12 | 1.96 | 0.29 | 0.28 | 2.53 |
| TA0035 | 0.02 | 0.04 | 0.05 | 0.29 | 0.04 | 0.55 | 0.99 | 0.19 | 0.25 | 1.43 |
| TA0038 | 0.06 | 0.15 | 0.04 | 0.48 | 0.04 | 1.62 | 2.38 | 0.38 | 0.45 | 3.21 |
| TA0039 | 0.01 | 0.04 | 0.10 | 0.19 | 0.23 | 1.20 | 1.78 | 0.41 | 0.00 | 2.18 |
| TA0046 | 0.01 | 0.07 | 0.01 | 0.65 | 0.14 | 0.87 | 1.74 | 0.32 | 0.29 | 2.35 |
| TA0048 | 0.03 | 0.13 | 0.07 | 0.61 | 0.14 | 0.04 | 1.02 | 0.42 | 0.93 | 2.37 |
| TA0050 | 0.02 | 0.03 | 0.05 | 0.25 | 0.08 | 1.02 | 1.46 | 0.03 | 0.00 | 1.49 |
| TA0055 | 0.03 | 0.10 | 0.06 | 0.48 | 0.24 | 0.25 | 1.16 | 0.27 | 0.88 | 2.30 |
| TA0056 | 0.05 | 0.10 | 0.10 | 0.99 | 0.10 | 0.12 | 1.46 | 0.35 | 1.13 | 2.93 |
| TA0063 | 0.04 | 0.02 | 0.01 | 0.26 | 0.09 | 0.62 | 1.04 | 0.03 | 0.27 | 1.35 |
| TA0067 | 0.02 | 0.01 | 0.04 | 0.29 | 0.11 | 0.81 | 1.28 | 0.21 | 0.08 | 1.56 |
| TA0068 | 0.02 | 0.09 | 0.09 | 0.87 | 0.11 | 1.83 | 3.01 | 0.52 | 0.19 | 3.72 |
| TA0069 | 0.03 | 0.06 | 0.01 | 0.51 | 0.09 | 1.01 | 1.72 | 0.27 | 0.00 | 1.98 |
| TA0072 | 0.04 | 0.05 | 0.03 | 0.19 | 0.18 | 1.35 | 1.84 | 0.22 | 0.00 | 2.06 |
| TA0073 | 0.02 | 0.03 | 0.01 | 0.21 | 0.37 | 0.88 | 1.51 | 0.36 | 0.03 | 1.90 |
| TA0074 | 0.03 | 0.03 | 0.05 | 0.26 | 0.09 | 1.24 | 1.70 | 0.10 | 0.00 | 1.80 |
| TA0075 | 0.03 | 0.04 | 0.07 | 0.42 | 0.09 | 1.16 | 1.82 | 0.16 | 0.00 | 1.98 |
| TA0076 | 0.03 | 0.07 | 0.03 | 0.41 | 0.08 | 1.26 | 1.87 | 0.15 | 0.00 | 2.01 |
| TA0077 | 0.03 | 0.08 | 0.03 | 0.32 | 0.07 | 1.32 | 1.84 | 0.13 | 0.00 | 1.96 |
| TA0078 | 0.03 | 0.04 | 0.03 | 0.31 | 0.06 | 0.83 | 1.30 | 0.09 | 0.00 | 1.39 |
| TA0079 | 0.00 | 0.05 | 0.05 | 0.13 | 0.19 | 0.00 | 0.41 | 0.06 | 1.26 | 1.74 |
| TA0082 | 0.02 | 0.06 | 0.01 | 0.57 | 0.17 | 0.84 | 1.67 | 0.26 | 0.00 | 1.93 |
| TA0083 | 0.02 | 0.02 | 0.04 | 0.20 | 0.11 | 1.24 | 1.63 | 0.24 | 0.00 | 1.88 |
| TA0084 | 0.05 | 0.06 | 0.04 | 0.17 | 0.24 | 1.47 | 2.04 | 0.20 | 0.00 | 2.24 |
| Average | 0.04 | 0.06 | 0.06 | 0.39 | 0.14 | 0.93 | 1.61 | 0.24 | 0.30 | 2.16 |
| Top 25% | 0.03 | 0.04 | 0.03 | 0.32 | 0.10 | 0.99 | 1.52 | 0.16 | 0.07 | 1.74 |

Table A6 Variable costs – percentage

| Farm number | AI and herd test | Animal health | Calf rearing | Shed power | Dairy supplies | Total herd & 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 | 3.1 | 3.8 | 0.7 | 2.1 | 1.0 | 10.8 | 8.1 | 0.0 | 2.0 |
| TA0007 | 1.3 | 2.6 | 0.8 | 0.7 | 1.3 | 6.8 | 5.4 | 0.8 | 0.8 |
| TA0008 | 2.2 | 3.7 | 1.0 | 1.4 | 1.1 | 9.5 | 5.7 | 2.3 | 2.3 |
| TA0011 | 2.5 | 2.1 | 0.9 | 2.4 | 1.2 | 9.0 | 6.1 | 3.3 | 3.3 |
| TA0012 | 2.1 | 1.1 | 0.8 | 1.5 | 1.6 | 7.2 | 14.0 | 7.6 | 7.6 |
| TA0028 | 2.3 | 4.0 | 1.7 | 1.5 | 0.9 | 10.3 | 11.8 | 5.2 | 5.2 |
| TA0031 | 1.1 | 4.0 | 0.6 | 0.7 | 0.9 | 7.3 | 12.7 | 4.0 | 4.0 |
| TA0035 | 2.9 | 4.3 | 0.9 | 1.0 | 0.6 | 9.8 | 14.9 | 4.3 | 4.3 |
| TA0038 | 0.0 | 3.9 | 0.5 | 0.9 | 1.8 | 7.1 | 14.4 | 1.2 | 1.2 |
| TA0039 | 1.1 | 3.1 | 0.3 | 1.6 | 1.3 | 7.5 | 7.9 | 1.1 | 1.1 |
| TA0046 | 3.4 | 2.1 | 0.5 | 1.5 | 0.6 | 8.3 | 9.0 | 1.0 | 1.0 |
| TA0048 | 2.4 | 1.7 | 0.9 | 1.9 | 2.1 | 9.0 | 6.8 | 0.7 | 0.7 |
| TA0050 | 3.4 | 3.7 | 2.2 | 1.1 | 1.3 | 11.7 | 10.9 | 2.7 | 2.7 |
| TA0055 | 3.5 | 3.0 | 2.6 | 0.8 | 1.2 | 11.0 | 4.9 | 0.6 | 0.6 |
| TA0056 | 2.4 | 3.1 | 0.2 | 1.8 | 1.8 | 9.2 | 5.8 | 3.6 | 3.6 |
| TA0063 | 2.4 | 2.9 | 1.3 | 1.8 | 3.8 | 12.3 | 10.1 | 0.9 | 0.9 |
| TA0067 | 1.7 | 3.0 | 0.2 | 0.8 | 1.3 | 7.0 | 9.4 | 1.6 | 1.6 |
| TA0068 | 1.4 | 0.7 | 1.1 | 2.5 | 1.4 | 7.1 | 6.5 | 0.8 | 0.8 |
| TA0069 | 2.3 | 3.8 | 1.9 | 1.7 | 0.5 | 10.2 | 7.8 | 1.0 | 1.0 |
| TA0072 | 1.1 | 4.0 | 1.4 | 2.4 | 2.8 | 11.8 | 5.1 | 0.0 | 0.0 |
| TA0073 | 2.1 | 6.1 | 0.4 | 1.0 | 1.0 | 10.6 | 10.9 | 0.2 | 0.2 |
| TA0074 | 2.2 | 3.3 | 0.9 | 1.4 | 0.6 | 8.5 | 9.4 | 1.4 | 1.4 |
| TA0075 | 3.1 | 3.1 | 0.7 | 1.8 | 0.9 | 9.7 | 11.8 | 0.2 | 0.2 |
| TA0076 | 2.3 | 3.6 | 1.6 | 1.8 | 0.6 | 9.9 | 9.2 | 0.4 | 0.4 |
| TA0077 | 2.4 | 3.2 | 0.8 | 1.7 | 0.8 | 9.0 | 8.1 | 0.0 | 0.0 |
| TA0078 | 2.2 | 3.4 | 1.1 | 1.3 | 0.8 | 8.8 | 10.3 | 0.1 | 0.1 |
| TA0079 | 1.3 | 1.9 | 0.5 | 3.0 | 1.3 | 8.0 | 9.4 | 7.7 | 7.7 |
| TA0082 | 2.6 | 4.0 | 2.1 | 1.3 | 2.0 | 11.9 | 11.8 | 1.3 | 1.3 |
| TA0083 | 1.0 | 4.0 | 0.4 | 0.3 | 0.7 | 6.5 | 4.5 | 0.6 | 0.6 |
| TA0084 | 1.0 | 5.7 | 0.0 | 2.5 | 1.1 | 10.3 | 2.7 | 3.6 | 3.6 |
| Average | 2.1 | 3.3 | 1.0 | 1.5 | 1.3 | 9.2 | 8.9 | 1.9 | 2.0 |
| Top 25% | 2.2 | 3.9 | 1.1 | 1.4 | 0.9 | 9.6 | 9.7 | 2.5 | 2.5 |

| 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 | 1.4 | 2.4 | 0.0 | 7.6 | 15.7 | 0.0 | 1.5 | 42.0 | 52.7 |
| TA0007 | 0.8 | 0.5 | 0.0 | 1.0 | 11.5 | 0.9 | -0.5 | 25.2 | 31.9 |
| TA0008 | 0.8 | 3.9 | 1.8 | 6.2 | 39.2 | 0.2 | -0.6 | 61.4 | 70.8 |
| TA0011 | 2.0 | 1.4 | 0.0 | 10.7 | 19.2 | 7.7 | -10.3 | 44.1 | 53.1 |
| TA0012 | 1.1 | 7.5 | 0.0 | 4.8 | 18.7 | 0.0 | -5.7 | 49.5 | 56.7 |
| TA0028 | 0.6 | 1.9 | 0.0 | 0.0 | 31.3 | 0.0 | -2.2 | 50.9 | 61.2 |
| TA0031 | 1.5 | 3.3 | 0.0 | 4.8 | 25.4 | 0.0 | -0.8 | 54.7 | 61.9 |
| TA0035 | 0.9 | 0.0 | 0.0 | 0.5 | 23.2 | 9.9 | -5.9 | 51.4 | 61.2 |
| TA0038 | 2.3 | 3.5 | 0.0 | 5.5 | 12.7 | 0.0 | 1.3 | 41.6 | 48.8 |
| TA0039 | 2.9 | 1.0 | 0.0 | 3.2 | 22.8 | 12.2 | -1.2 | 54.1 | 61.6 |
| TA0046 | 0.9 | 1.4 | 0.2 | 0.8 | 34.2 | 0.0 | -1.8 | 50.0 | 58.3 |
| TA0048 | 0.9 | 7.8 | 0.0 | 8.7 | 20.1 | 1.6 | 4.6 | 53.9 | 62.9 |
| TA0050 | 0.8 | 5.8 | 0.0 | 7.4 | 15.5 | 11.4 | -2.9 | 55.3 | 67.0 |
| TA0055 | 0.4 | 2.1 | 0.2 | 15.0 | 27.5 | 5.6 | -1.5 | 56.8 | 67.8 |
| TA0056 | 1.7 | 2.2 | 0.0 | 5.3 | 22.1 | 0.0 | 1.7 | 47.3 | 56.5 |
| TA0063 | 0.7 | 2.6 | 0.0 | 4.5 | 31.6 | 10.1 | -0.2 | 61.3 | 73.6 |
| TA0067 | 0.3 | 1.4 | 0.0 | 7.4 | 23.4 | 12.7 | 3.4 | 60.2 | 67.1 |
| TA0068 | 3.3 | 1.0 | 0.0 | 0.0 | 23.3 | 0.0 | -6.9 | 31.9 | 38.9 |
| TA0069 | 0.7 | 1.4 | 0.1 | 4.8 | 19.1 | 15.2 | 1.6 | 53.5 | 63.7 |
| TA0072 | 0.2 | 7.7 | 0.0 | 1.9 | 22.2 | 7.7 | -1.0 | 45.3 | 57.1 |
| TA0073 | 0.4 | 1.2 | 0.0 | 6.7 | 13.0 | 4.0 | 3.9 | 48.0 | 58.5 |
| TA0074 | 0.8 | 1.5 | 0.0 | 0.4 | 25.6 | 13.9 | -0.3 | 55.7 | 64.1 |
| TA0075 | 0.9 | 1.3 | 0.0 | 3.0 | 21.9 | 13.0 | -1.8 | 52.4 | 62.1 |
| TA0076 | 0.6 | 1.7 | 0.0 | 2.0 | 18.9 | 18.3 | -0.6 | 53.4 | 63.4 |
| TA0077 | 0.5 | 1.9 | 0.0 | 3.9 | 22.1 | 17.8 | 0.1 | 55.7 | 64.6 |
| TA0078 | 0.8 | 1.2 | 0.0 | 1.3 | 28.7 | 14.6 | 0.0 | 59.5 | 68.2 |
| TA0079 | 1.0 | 2.9 | 0.0 | 1.4 | 40.8 | 0.0 | -1.4 | 61.7 | 69.7 |
| TA0082 | 1.0 | 3.9 | 0.0 | 8.8 | 20.7 | 5.3 | -0.8 | 54.1 | 66.0 |
| TA0083 | 0.4 | 0.5 | 0.0 | 2.0 | 30.2 | 14.0 | -0.7 | 52.9 | 59.3 |
| TA0084 | 0.9 | 5.4 | 0.0 | 0.0 | 25.7 | 2.7 | 0.0 | 41.4 | 51.7 |
| Average | 1.1 | 2.7 | 0.1 | 4.3 | 23.5 | 6.6 | -1.0 | 50.8 | 60.0 |
| Top 25% | 0.7 | 2.3 | 0.0 | 2.7 | 24.1 | 10.0 | -0.8 | 53.5 | 63.0 |

Table A7 Overhead costs – percentage

| Farm number | Rates | Farm insurance | Motor vehicle expenses | Repairs and maintenance | Other | Employed labour | Total cash | Depreciation | Imputed owner/operator and family labour | Total |
|----------------|------------|----------------|------------------------|-------------------------|------------|-----------------|-------------|--------------|--|-------------|
| | % of costs | % of costs | % of costs | % of costs | % of costs | % of costs | % of costs | % of costs | % of costs | % of costs |
| TA0001 | 1.3 | 0.9 | 4.3 | 8.5 | 5.9 | 13.9 | 34.9 | 2.6 | 9.8 | 47.3 |
| TA0007 | 2.5 | 1.3 | 0.0 | 4.2 | 2.5 | 15.6 | 26.0 | 9.6 | 32.4 | 68.1 |
| TA0008 | 0.7 | 1.3 | 0.2 | 6.5 | 1.4 | 11.1 | 21.3 | 3.6 | 4.3 | 29.2 |
| TA0011 | 0.7 | 1.4 | 4.2 | 5.6 | 3.1 | 12.9 | 27.8 | 6.5 | 12.7 | 46.9 |
| TA0012 | 2.2 | 1.0 | 2.9 | 5.9 | 3.3 | 23.8 | 39.0 | 3.8 | 0.5 | 43.3 |
| TA0028 | 0.5 | 1.2 | 0.0 | 9.5 | 1.0 | 18.7 | 30.9 | 4.0 | 3.8 | 38.8 |
| TA0031 | 0.5 | 2.3 | 2.7 | 5.8 | 1.3 | 16.9 | 29.5 | 4.4 | 4.2 | 38.1 |
| TA0035 | 0.5 | 1.0 | 1.4 | 7.8 | 1.1 | 14.8 | 26.7 | 5.2 | 6.8 | 38.8 |
| TA0038 | 1.0 | 2.4 | 0.6 | 7.7 | 0.7 | 25.8 | 38.1 | 6.0 | 7.1 | 51.2 |
| TA0039 | 0.2 | 0.8 | 1.7 | 3.3 | 4.1 | 21.2 | 31.3 | 7.2 | 0.0 | 38.4 |
| TA0046 | 0.2 | 1.2 | 0.2 | 11.5 | 2.5 | 15.4 | 30.9 | 5.7 | 5.2 | 41.7 |
| TA0048 | 0.4 | 2.1 | 1.1 | 9.5 | 2.2 | 0.7 | 15.9 | 6.6 | 14.5 | 37.1 |
| TA0050 | 0.4 | 0.7 | 1.1 | 5.6 | 1.8 | 22.7 | 32.4 | 0.7 | 0.0 | 33.0 |
| TA0055 | 0.4 | 1.3 | 0.8 | 6.7 | 3.3 | 3.5 | 16.1 | 3.7 | 12.3 | 32.2 |
| TA0056 | 0.8 | 1.4 | 1.5 | 14.6 | 1.5 | 1.7 | 21.6 | 5.2 | 16.7 | 43.5 |
| TA0063 | 0.9 | 0.4 | 0.2 | 5.1 | 1.7 | 12.1 | 20.4 | 0.7 | 5.4 | 26.4 |
| TA0067 | 0.4 | 0.3 | 0.8 | 6.1 | 2.2 | 17.0 | 26.9 | 4.4 | 1.6 | 32.9 |
| TA0068 | 0.2 | 1.5 | 1.4 | 14.3 | 1.8 | 30.1 | 49.3 | 8.5 | 3.2 | 61.1 |
| TA0069 | 0.5 | 1.2 | 0.2 | 9.4 | 1.7 | 18.5 | 31.4 | 4.8 | 0.0 | 36.3 |
| TA0072 | 0.8 | 1.0 | 0.6 | 4.0 | 3.8 | 28.1 | 38.4 | 4.5 | 0.0 | 42.9 |
| TA0073 | 0.4 | 0.6 | 0.3 | 4.5 | 8.0 | 19.1 | 32.9 | 7.9 | 0.7 | 41.5 |
| TA0074 | 0.6 | 0.7 | 1.0 | 5.1 | 1.8 | 24.8 | 33.9 | 2.0 | 0.0 | 35.9 |
| TA0075 | 0.7 | 0.8 | 1.4 | 8.1 | 1.7 | 22.2 | 34.9 | 3.0 | 0.0 | 37.9 |
| TA0076 | 0.5 | 1.3 | 0.5 | 7.4 | 1.4 | 22.9 | 34.0 | 2.7 | 0.0 | 36.6 |
| TA0077 | 0.5 | 1.4 | 0.5 | 5.7 | 1.3 | 23.8 | 33.1 | 2.3 | 0.0 | 35.4 |
| TA0078 | 0.6 | 0.9 | 0.8 | 7.0 | 1.5 | 19.0 | 29.7 | 2.0 | 0.0 | 31.8 |
| TA0079 | 0.0 | 0.8 | 0.8 | 2.3 | 3.3 | 0.0 | 7.2 | 1.0 | 22.1 | 30.3 |
| TA0082 | 0.3 | 1.1 | 0.2 | 10.1 | 3.0 | 14.8 | 29.4 | 4.6 | 0.0 | 34.0 |
| TA0083 | 0.5 | 0.5 | 0.9 | 4.3 | 2.4 | 26.9 | 35.4 | 5.3 | 0.0 | 40.7 |
| TA0084 | 1.1 | 1.4 | 0.9 | 3.7 | 5.2 | 31.7 | 43.9 | 4.3 | 0.0 | 48.3 |
| Average | 0.7 | 1.1 | 1.1 | 7.0 | 2.5 | 17.7 | 30.1 | 4.4 | 5.4 | 40.0 |
| Top 25% | 0.6 | 0.9 | 0.8 | 6.8 | 2.0 | 20.9 | 32.0 | 3.4 | 1.5 | 37.0 |

Table A8 Capital structure

| Farm assets | | | | | Other farm assets (per usable hectare) | | | | |
|----------------|------------|------------|-----------------------|-----------------------|--|-----------|---------------|--------------|--------------|
| | Land value | Land value | Permanent water value | Permanent water value | Plant and equipment | Livestock | Hay and grain | Other assets | Total assets |
| | \$/ha | \$/cow | \$/ha | \$/cow | \$/ha | \$/ha | \$/ha | \$/ha | \$/ha |
| Average | 21,121 | 9,907 | 967 | 487 | 860 | 4,198 | 149 | 107 | 27,402 |
| Top 25% | 19,368 | 7,874 | 680 | 300 | 728 | 4,729 | 152 | 25 | 25,682 |

| Liabilities | | | Equity | |
|----------------|--------------------------------|-----------------------------|---------------------------|----------------|
| | Liabilities per usable hectare | | Equity per usable hectare | Average equity |
| | \$/ha | Liabilities per milking cow | \$/ha | % |
| | | \$/cow | | |
| Average | 5,043 | 2,599 | 22,358 | 81.4 |
| Top 25% | 2,801 | 1,196 | 22,881 | 90.5 |

Table A9 Historical data – 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 (\$/kgMS) | Real (\$/kgMS) | Nominal (\$/kgMS) | Real (\$/kgMS) | Nominal (\$/kgMS) | Real (\$/kgMS) | Nominal (\$/kgMS) | Real (\$/kgMS) | Nominal (\$/kgMS) | Real (\$/kgMS) | Nominal (\$/kgMS) | Real (\$/kgMS) |
| 2013/14 | 6.87 | 7.71 | 7.59 | 8.52 | 0.28 | 0.31 | 0.23 | 0.26 | 2.51 | 2.82 | 3.02 | 3.39 |
| 2014/15 | 6.19 | 6.79 | 6.90 | 7.57 | 0.29 | 0.32 | 0.20 | 0.22 | 2.65 | 2.91 | 3.13 | 3.43 |
| 2015/16 | 5.55 | 6.01 | 6.10 | 6.60 | 0.29 | 0.31 | 0.17 | 0.18 | 2.81 | 3.04 | 3.27 | 3.54 |
| 2016/17 | 5.03 | 5.34 | 5.84 | 6.20 | 0.28 | 0.30 | 0.20 | 0.21 | 2.38 | 2.53 | 2.87 | 3.05 |
| 2017/18 | 5.95 | 6.20 | 6.70 | 6.99 | 0.30 | 0.31 | 0.18 | 0.19 | 2.47 | 2.58 | 2.95 | 3.08 |
| 2018/19 | 6.16 | 6.35 | 6.90 | 7.10 | 0.30 | 0.31 | 0.18 | 0.19 | 2.78 | 2.86 | 3.27 | 3.36 |
| 2019/20 | 7.09 | 7.21 | 7.94 | 8.08 | 0.28 | 0.28 | 0.18 | 0.18 | 2.68 | 2.72 | 3.13 | 3.18 |
| 2020/21 | 6.66 | 6.66 | 7.62 | 7.62 | 0.34 | 0.34 | 0.15 | 0.15 | 2.76 | 2.76 | 3.26 | 3.26 |
| Average | | 6.53 | | 7.34 | | 0.31 | | 0.20 | | 2.78 | | 3.29 |

| Year | Overhead costs | | | | | | Profit | | | | | | | |
|----------------|---------------------|----------------|-------------------------|----------------|----------------------|----------------|----------------------------------|----------------|----------------------------|----------------|-------------------|----------------|--------------------------|--------------------|
| | Cash overhead costs | | Non-cash overhead costs | | Total overhead costs | | Earnings before interest and tax | | Interest and lease charges | | Net farm income | | | |
| | Nominal (\$/kgMS) | Real (\$/kgMS) | Nominal (\$/kgMS) | Real (\$/kgMS) | Nominal (\$/kgMS) | Real (\$/kgMS) | Nominal (\$/kgMS) | Real (\$/kgMS) | Nominal (\$/kgMS) | Real (\$/kgMS) | Nominal (\$/kgMS) | Real (\$/kgMS) | Return on total assets % | Return on equity % |
| 2013/14 | 1.41 | 1.58 | 0.73 | 0.82 | 2.14 | 2.40 | 2.44 | 2.74 | 0.47 | 0.53 | 1.97 | 2.21 | 9.6 | 12.9 |
| 2014/15 | 1.34 | 1.47 | 0.60 | 0.66 | 1.94 | 2.13 | 1.84 | 2.02 | 0.42 | 0.47 | 1.42 | 1.55 | 7.8 | 9.9 |
| 2015/16 | 1.43 | 1.55 | 0.48 | 0.52 | 1.91 | 2.07 | 0.92 | 1.00 | 0.56 | 0.61 | 0.36 | 0.39 | 3.9 | 0.8 |
| 2016/17 | 1.30 | 1.38 | 0.68 | 0.72 | 1.98 | 2.10 | 0.99 | 1.05 | 0.63 | 0.67 | 0.36 | 0.38 | 3.7 | 1.9 |
| 2017/18 | 1.36 | 1.42 | 0.73 | 0.76 | 2.09 | 2.18 | 1.80 | 1.88 | 0.66 | 0.69 | 1.14 | 1.19 | 6.3 | 6.7 |
| 2018/19 | 1.35 | 1.39 | 0.84 | 0.86 | 2.19 | 2.25 | 1.44 | 1.48 | 0.66 | 0.68 | 0.78 | 0.80 | 5.2 | 6.5 |
| 2019/20 | 1.57 | 1.59 | 0.74 | 0.75 | 2.31 | 2.35 | 2.50 | 2.55 | 0.58 | 0.59 | 1.92 | 1.96 | 8.7 | 15.4 |
| 2020/21 | 1.61 | 1.61 | 0.54 | 0.54 | 2.16 | 2.16 | 2.21 | 2.21 | 0.37 | 0.37 | 1.84 | 1.84 | 7.1 | 9.4 |
| Average | | 1.50 | | 0.71 | | 2.21 | | 1.87 | | 0.58 | | 1.29 | 6.5 | 7.9 |

Note: 'Real' dollar values are the nominal values converted to 2020/21 dollar equivalents by the consumer price index (CPI) to allow for inflation. From 2017/18 gross farm income did not include feed inventory changes and changes to the value of carry-over water. These are now included in feed costs.

| Year | Total usable area | Milking area | Total water use efficiency | Number of milking cows | Milking cows per useable area | Milk sold |
|----------------|-------------------|--------------|----------------------------|------------------------|-------------------------------|------------|
| | ha | ha | tDM/100mm/ha | hd | hd/ha | kg MS/cow |
| 2013/14 | 260 | 178 | 0.6 | 502 | 2.1 | 425 |
| 2014/15 | 280 | 191 | 0.8 | 545 | 2.1 | 447 |
| 2015/16 | 302 | 198 | 0.7 | 580 | 2.1 | 444 |
| 2016/17 | 268 | 190 | 0.6 | 542 | 2.2 | 433 |
| 2017/18 | 289 | 208 | 0.9 | 607 | 2.3 | 445 |
| 2018/19 | 305 | 210 | 0.8 | 639 | 2.2 | 418 |
| 2019/20 | 326 | 236 | 0.8 | 707 | 2.2 | 423 |
| 2020/21 | 357 | 249 | 0.9 | 769 | 2.2 | 431 |
| Average | 298 | 208 | 0.8 | 612 | 2.2 | 433 |

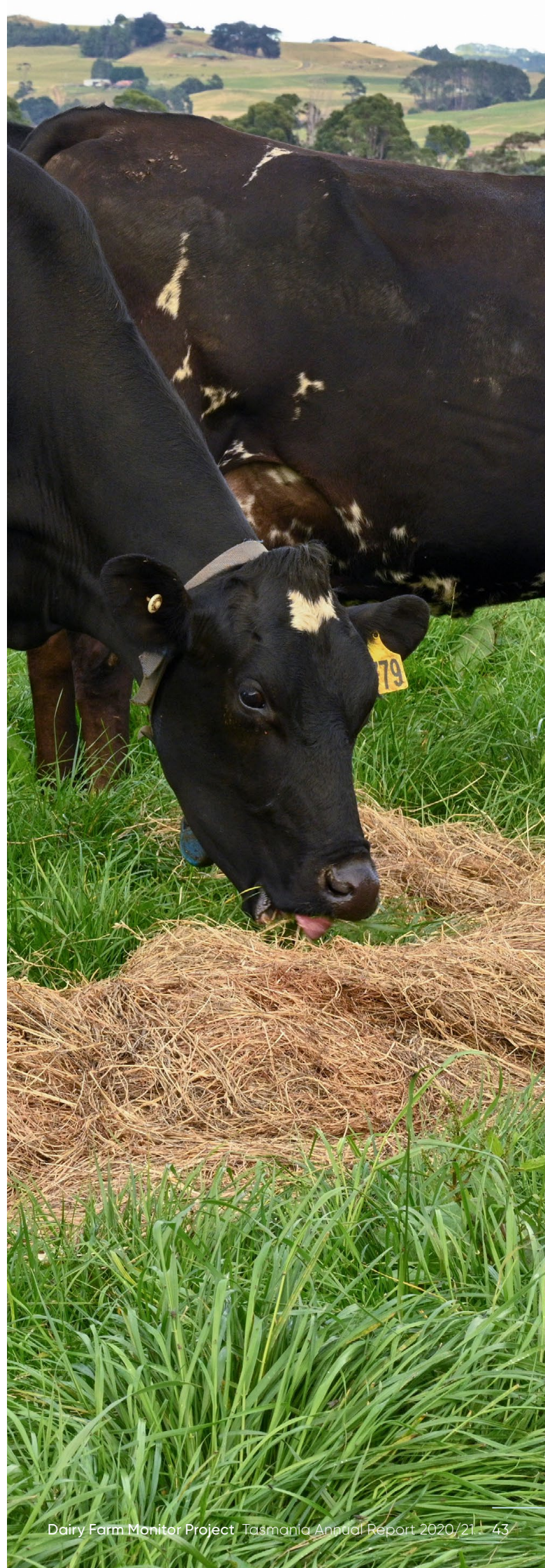
| Year | Milk sold | Estimated grazed pasture* | Estimated conserved feed* | Home grown feed as % of ME consumed | Concentrate price | |
|----------------|------------|---------------------------|---------------------------|-------------------------------------|-------------------|----------------|
| | kg MS/ha | t DM/ha | t DM/ha | % of ME | Nominal (\$/T DM) | Real (\$/T DM) |
| 2013/14 | 894 | 9.0 | 0.6 | 72% | 437 | 490 |
| 2014/15 | 924 | 9.3 | 0.7 | 69% | 429 | 470 |
| 2015/16 | 936 | 10.2 | 0.5 | 69% | 440 | 476 |
| 2016/17 | 976 | 9.7 | 0.7 | 74% | 390 | 414 |
| 2017/18 | 1,031 | 10.1 | 0.6 | 71% | 426 | 444 |
| 2018/19 | 947 | 10.4 | 1.1 | 76% | 550 | 566 |
| 2019/20 | 948 | 10.1 | 0.7 | 74% | 519 | 527 |
| 2020/21 | 955 | 10.2 | 0.5 | 71% | 462 | 462 |
| Average | 951 | 9.9 | 0.7 | 72% | 457 | 481 |



Appendix B Glossary of terms, abbreviations and standard values

| | | | |
|---------------------------------------|--|----------------------------|---|
| All other income | Income to the farm from all sources except milk. Includes livestock trading profit, dividends, interest payments received, and rent from farm cottages. | 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. |
| Annual hours | Total hours worked by a person during the given twelve-month period. | Finance costs | See interest and lease costs. |
| Appreciation | An increase in the value of an asset in the marketplace. Often only applicable to land value. | 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. |
| Asset | Anything managed by the farm, whether it is owned or not. Assets include owned land and buildings, leased land, plant and machinery, fixtures and fittings, trading stock, farm investments (i.e. Farm Management Deposits), debtors, and cash. | Grazed area | Total usable area minus any area used only for fodder production during the year. |
| Cash overheads | All fixed costs that have a cash cost to the business. Includes all overhead costs except imputed labour costs and depreciation. | 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, 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)). |
| 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; <ul style="list-style-type: none"> • 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 | Gross farm income | Farm income including milk sales, livestock trading and other income such as income from grants and rebates. |
| Cost structure | Variable costs as a percentage of total costs, where total costs equals variable costs plus overhead costs. | Gross margin | Gross farm income minus total variable costs. |
| Debt servicing ratio | Interest and lease costs as a percentage of gross farm income. | Herd costs | Cost of artificial insemination (AI) and herd tests, animal health and calf rearing. |
| 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. | Imputed | An estimated amount, introduced into economic management analysis to allow reasonable comparisons between years and between other businesses. |
| Earnings before interest & tax (EBIT) | Gross income minus total variable and total overhead costs. | Imputed labour cost | An allocated allowance for the cost of owner/operator, family and sharefarmer time in the business, valued at \$32 per hour. |
| EBIT % | The ratio of EBIT compared to gross income. Indicates the percentage of each dollar of gross income that is retained as EBIT. | Interest and lease costs | Total interest plus total lease costs paid. |
| Employed labour cost | Cash cost of any paid employee, including on-costs such as superannuation and Workcover. | Labour cost | Cost of the labour resource on farm. Includes both imputed and employed labour costs. |
| Equity | Total assets minus total liabilities. Equal to the total value of capital invested in the farm business by the owner/ operator(s). | Labour efficiency | FTEs per cow and per kilogram of milk solid. Measures of productivity of the total labour resources in the business. |
| Equity % | Total equity as a percentage of the total assets owned. The proportion of the total assets owned by the business. | Labour resource | Any person who works in the business, be they the owner, family, sharefarmer or employed on a permanent, part time or contract basis. |
| Farm income | See gross farm income. | Liability | Money owed to someone else, e.g. family or a financial institute such as a bank. |
| 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. | 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 | <i>Previously reported as business profit.</i> 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 e.g. herd, shed and feed costs (including feed inventory change). |



List of abbreviations

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

Standard values

Livestock values

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

| Category | Opening value (\$/hd) | Closing value (\$/hd) |
|-----------------------|-----------------------|-----------------------|
| Mature cows | \$1,600 | \$1,600 |
| Rising 2 year heifers | \$1,200 | \$1,600 |
| Rising 1 year heifers | \$600 | \$1,200 |
| Calves | | \$600 |
| Bulls | \$2,400 | \$2,400 |

Imputed owner/operator and family labour

In 2020/21 the imputed owner/operator and family labour rate was \$32/hr based on a full time equivalent (FTE) working 48 hours/week for 50 weeks of the year.



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