

Balancing dairy production and profits in northern Australia



Queensland Dairy Accounting Scheme - 2022

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QDAS Financial and production trends – 2022

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Introduction

This report contains physical and financial data from 49 farms and includes data from the South Queensland (incorporating the SouthEast Coastal and Darling Downs regions), Central Queensland and North Queensland dairy regions (Figure 1).

The steady decline in Queensland milk production has continued with production decreasing by 10 million litres from 309 million litres in 2020-21 to 299 million litres in 2021-22 (Table 1). This declining trend was consistent across all states in Australia for the 2021-22 period, with Queensland contributing 3.5% of total production in 2021-22.

Figure 2 shows Queensland’s monthly milk production for 2021-22 and 2021-22.

Despite challenging seasonal conditions and rising input costs in most areas of eastern Australia, profitability of farms remained high for the second consecutive year.

A thorough analysis of Queensland dairy businesses can be undertaken by reviewing performance using four business traits – liquidity, profitability, solvency and efficiency. These traits cover both the financial and physical aspects of the business.

Section 1 of this report presents a summary of the key findings. Three business traits – profitability, solvency and efficiency, were used to measure farm performance. The results for these traits are presented using 15 key performance indicators.

Section 2 displays the distribution of the Queensland Dairy Accounting Scheme (QDAS) data for cow numbers, land area, labour, production, income, costs and profitability.

Section 3 details the characteristics of the most profitable farms in QDAS. Production per cow, the effect of herd size and milk from home grown feed are examined.

Section 4 details the amounts fed to milking cows in each of the regional production systems.

Regional production system statistics are summarised in Section 5 and are then examined individually in Sections 6 to 9.

Appendices contain summary reports for all QDAS farms, the top 25% farms and each regional production system. The appendices also contain a list of definitions for the business traits and key performance indicators used in QDAS.

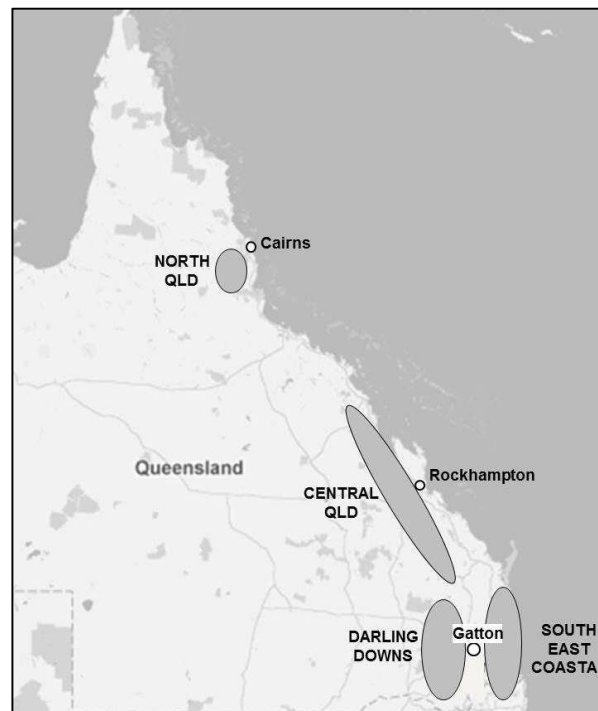


Figure 1. The location of dairy farms in Queensland

Table 1. Annual milk production for Queensland (2018-19 to 2021-22)

Year	Annual production
2018-19	358 ML
2019-20	315 ML
2020-21	309 ML
2021-22	299 ML

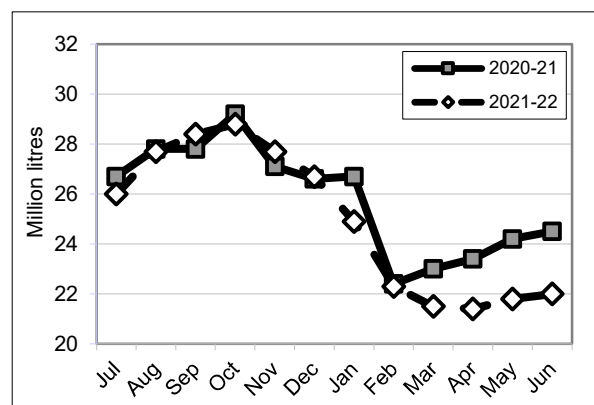


Figure 2. Queensland monthly milk production (2020-21 and 2021-22)

Objectives

The objectives of this book are to:

- Provide QDAS participants with a summary of physical and financial data from each regional production system. This, together with their own farm reports, will give dairy farming families/enterprises information that will enable them to make more informed business decisions.
- Act as a resource guide for local advisers, consultants and other industry service personnel who wish to encourage positive change.
- Provide background material for industry participants negotiating with banks, governments, suppliers or other agents.

About QDAS

QDAS was established in 1976 to improve the understanding of business principles among advisors and dairy farmers by providing farm management accounting and analysis. Originally the basis of the analysis was an examination of the annual variable costs. The data was used to answer questions such as, “Is the production of an extra unit of milk profitable?” QDAS has evolved to now examine the business traits of profitability, solvency and efficiency but still maintains a similar aim to help dairy farmers make informed decisions based on business information.

Officers of the Department of Agriculture and Fisheries Queensland (DAF) supervise the collection and processing of data between August and November.

Farmer participation in QDAS is voluntary and free. Results and trends need to be interpreted carefully as QDAS farms have larger herds and produce more milk per farm than the Queensland average.

QDAS data is used by DairyBase, Dairy Australia’s web-based farm comparative analysis tool, as their verified farm data for Queensland. Using DairyBase, farmers can calculate their financial performance and compare this to averages for Queensland (QDAS data) or verified data from other states. For more information go to: www.dairybase.com.au.

Acknowledgements

The authors wish to thank all cooperating farmers who supplied data and provided valuable feedback in discussion groups held during late 2022.

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1. 2021-22 Key findings

Fifteen Key Performance Indicators (KPI) are used to highlight the results for profitability, solvency and efficiency. Table 2 shows these results for 2021-22 and the preceding three years. Further to this is the calculation of these KPI for the top 25% of farms. These top farms have been identified as the farms with the highest Earnings Before Interest & Tax (EBIT) measured in dollars per cow.

EBIT highlights the amount of profit retained after paying all expenses except finance costs and taxes. These expenses include the non-cash items

of depreciation and an allowance for the manager's time and skill (called imputed labour). Cattle trading profit and inventory adjustments are also included.

Table 2 has been presented to show the general industry trend. The participating farms have not been selected randomly. If using this data to compare with an individual farm situation, consideration needs to be given to the individual's position in the business lifecycle, personal goals, farming system and asset base.

Table 2. Financial and performance ratios for QDAS farms (2018-19 to 2021-22)

Business traits and indicators ⁽¹⁾	Top 25%	QDAS average	Past QDAS averages		
	2021-22	2021-22	2020-21	2019-20	2018-19
Profitability					
Return on assets managed (%)	6.8	4.0	4.1	1.3	0.6
Return on equity (%)	8.4	4.4	4.5	0.0	-1.0
EBIT margin (%)	25.8	16.4	15.8	5.3	2.7
EBIT (\$/cow)	1,613	861	787	246	113
Solvency					
Equity (%)	80	78	77	76	79
Debt to equity ratio	0.24	0.28	0.30	0.31	0.26
Efficiency – Capital/Finance					
Asset turnover ratio	0.31	0.30	0.32	0.30	0.27
Total liabilities per cow (\$)	3,975	3,846	3,638	3,555	3,255
Interest paid/cow (\$)	133	125	125	147	161
Efficiency – Productivity					
Feed related costs (c/L)	37.7	36.0	35.8	42.0	35.8
Margin over feed related costs (c/L)	36.2	36.6	34.3	26.2	25.8
Margin over feed related costs (\$/cow)	2,556	2,287	2,171	1,614	1,591
Farm operating cash surplus (c/L)	27.9	23.2	21.8	14.7	13.4
Efficiency – Physical					
Production per cow (L)	7,055	6,254	6,330	6,151	6,158
Litres per labour unit					
- On farms <1.5 m L	402,232	371,426	381,284	368,138	381,969
- On farms >1.5 m L	551,942	446,724	456,011	449,845	485,808

⁽¹⁾ The definition of each indicator and how it is calculated can be found in Appendix 10.10

Profitability

Despite severe wet weather events across the majority of eastern Queensland, profitability for Queensland dairy farms remained high for a second consecutive year. Table 2 shows that Earnings Before Interest & Tax (EBIT) per cow was \$861, up from \$787 per cow in 2020-21. However, return on assets managed has decreased marginally from 4.1% in 2020-21 back to 4.0% in 2021-22.

The increase in profitability is a combination of increased milk income, increased cattle trading profit, and low feed related costs. Milk income has increased by 2.5 c/L and cattle trading profit has increased by 1.9 c/L. The challenging seasonal conditions had minimal impact on feed related costs increasing from 35.8 c/L in 2020-21 to 36.0 c/L in 2021-22.

Purchased feed costs were 0.6 c/L lower in 2021-22 compared to 2020-21. The higher feed related costs were a result of home grown feed costs increasing from 9.2 c/L in 2020-21 to 10.0 c/L in 2021-22. The combination of higher income and low feed related costs equated to an increase in margin over feed related costs of 2.3 c/L, up from 34.3 c/L in 2020-21 to 36.6 c/L in 2021-22.

Detailed profit and cash flow reports can be found in Section 10 Appendices.

Production per cow

Table 2 shows that production per cow has decreased from 6,330 litres to 6,254 in 2021-22, which likely reflects some of the negative impacts of the wet weather in the south-east Queensland. The top 25% farms (sorted by EBIT per cow) achieved a production per cow of 7,055 litres in 2021-22, 801 litres higher than the QDAS average.

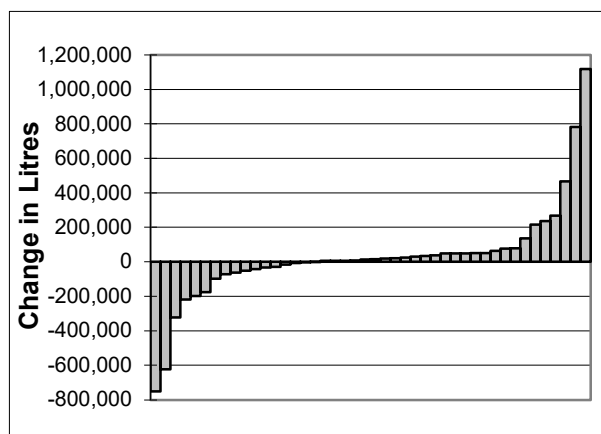


Figure 3. Change in milk production on individual farms between 2020-21 and 2021-22.

Production and prices

The average production of the QDAS farms was 1,727,022 litres in 2021-22, increasing from the 2020-21 average of 1,640,603. Figure 3 shows the changes in milk production between 2020-21 and 2021-22 for individual QDAS farms.

While the average milk production on all 49 QDAS farms was 1,727,022 litres, the production of the top 25% farms (sorted by EBIT per cow) was 2,219,895 litres. This is the result of milking 39 more cows producing 801 litres more milk per cow.

QDAS average milk income increased by 2.5 c/L to 72.6 c/L. The increase was observed across all regions, with 90% of participating farms realising a milk income increase (Figure 4).

Figure 4 shows the changes in average milk income per litre between 2020-21 and 2021-22 for individual QDAS farms. The farms with negative changes in milk income are the result of milk quality issues.

Consecutive good years

The 2021-22 results are pleasing and illustrate that the industry can bounce back after a challenging drought period. The average EBIT per cow from 2017-18 to 2019-20 was \$253, whereas over the last two years farms were able to achieve an average EBIT per cow of \$824. Feed related costs are higher in 2021-22 than 2018-19 when EBIT was as low as \$113 per cow. Therefore, the higher EBIT in recent years is driven by both increases in milk income and cattle trading profit.

One of the effects of the three years of low profitability is that equity dropped from 80% in 2017-18 to 76% in 2019-20, however this has increased over the past two years up to 78% in 2021-22.

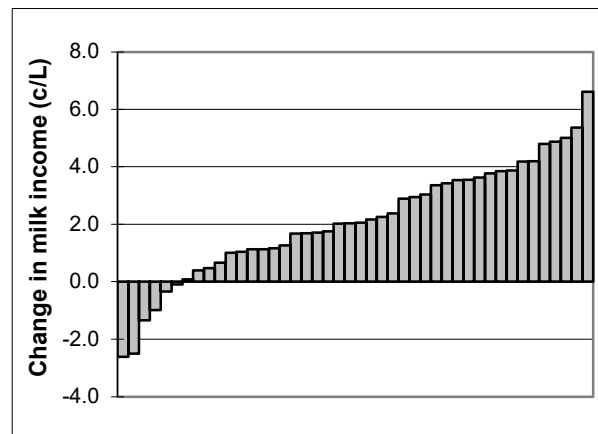


Figure 4. Change in average milk income on individual farms between 2020-21 and 2021-22.

Production costs

Table 2 shows that feed related costs increased marginally by 0.2 c/L, from 35.8 c/L in 2020-21 to 36.0 c/L in 2021-22. This was driven by home grown feed costs increasing by 0.8 c/L where fertiliser costs increased by 1.0 c/L, fuel & oil costs increased by 0.5 c/L and irrigation costs decreasing by 0.4 c/L.

The top 25% of farms' (sorted by EBIT per cow) feed related costs were 37.7 c/L. This is 1.7 c/L higher than the average of all farms. Likewise, margin over feed related costs for the top 25% group was also lower at 36.2 c/L in comparison to the average of all farms at 36.6 c/L. Therefore, the top 25% group (sorted by EBIT per cow) were able to generate higher profits through higher milk income (1.3 c/L), higher cattle trading profits (sales + inventory, 3.6 c/L), higher feed inventory increases (2.6 c/L), and lower operating costs (4.6 c/L). The farm operating cash surplus for the top 25% group was 27.69c/L, which is 4.7 c/L higher than the average of all farms.

With increased cashflow in 2021-22, farms either continued with "catch up" repairs or carried out forced repairs of flood damage that increased repairs and maintenance costs by 0.8 c/L, to 4.8 c/L, which is the most spent in the last five years.

Table 3 shows the prices of major farm inputs. These prices are sourced in southern Queensland and vary depending on contractual arrangements.

Table 4 shows the cash income and cash costs of production for QDAS farms for 2021-22. Full details of QDAS average cash income and cash costs can be found in Appendix 10.1.

Table 3. Indicative prices per tonne of major farm inputs (June 2019 to June 2022)

Farm input	June 2019	June 2020	June 2021	June 2022
Concentrates				
Sorghum	\$370	\$360	\$300	\$360
Barley	\$430	\$360	\$325	\$425
Wheat	\$435	\$405	\$340	\$440
Soybean meal	\$645	\$650	\$778	\$1025
Canola meal	\$535	\$550	\$540	\$670
14% dairy pellet	\$550	\$580	\$520	\$620
Fertiliser				
Urea	\$580	\$550	\$740	\$1200
Diesel				
Bowser price	\$1.47	\$1.18	\$1.39	\$2.31



Table 4. Cash analysis of the costs of production (2021-22)

<u>Farm income and costs</u>	c/L
<u>Farm income</u>	
Milk income (Net)	72.6
Other farm income	10.9
Total farm income	83.5
<u>Production costs</u>	
Purchased feed	26.0
Home grown feed	10.0
Total feed related costs	36.0
Herd costs	3.8
Shed costs	2.1
Employed labour	9.9
Repairs & maintenance	4.8
Other overheads	3.7
Farm working expenses	60.4
Farm operating cash surplus	23.2
Interest, principal, lease	9.7
Capital purchases (unfinanced)	3.8
Net cash flow before tax & drawings	9.7

Labour

Average employed labour costs for all QDAS farms was \$170,747 for 2.5 paid labour units. This equates to 9.9 c/L, which is 1.3 c/L higher than in 2020-21. As farms milk more cows there are opportunities to utilise labour more effectively. Table 5 shows that farms producing less than 0.75 ML (110 cows) do so at 241,921 litres per labour unit, whereas farms producing more than 2.0 ML (624 cows) do so at 440,272 litres per labour unit.

Table 5 also shows the increase in labour used, both paid and unpaid (owner/operator), as production increases. It is not surprising that the greater than 2.0 ML group has the largest use of paid labour at 5.7 full time equivalents (FTE).

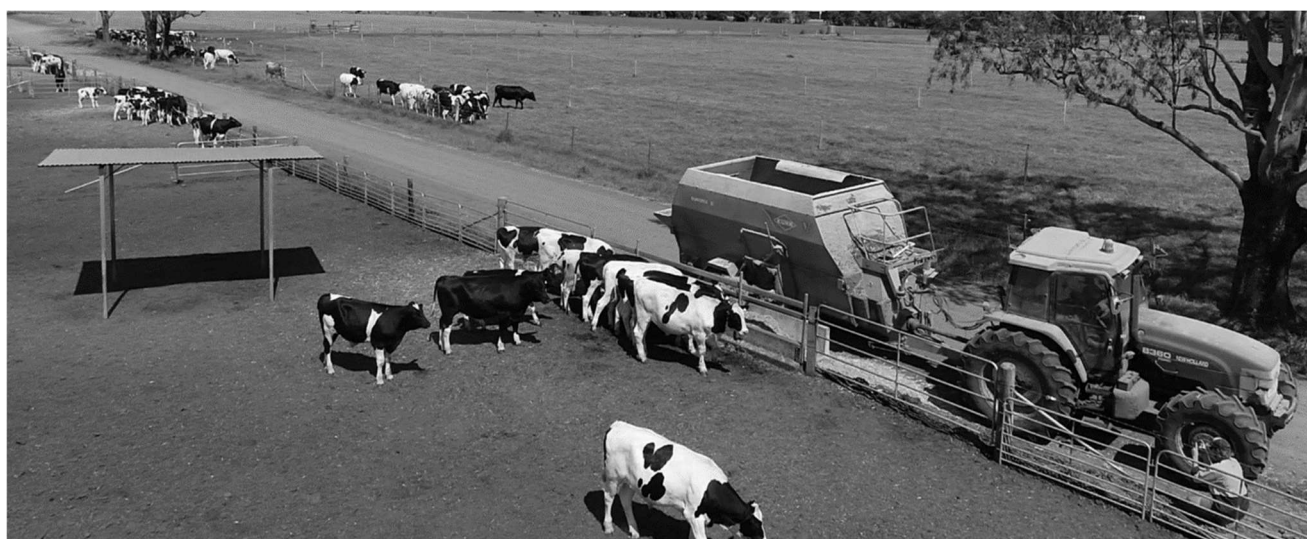
Repairs and other overheads

The QDAS average repairs and maintenance costs are \$82,464 (4.8 c/L). Table 5 shows that repairs and maintenance are 5.5 c/L for the farms that produce less than 0.75 ML and 4.3 c/L for the farms that produce more than 2.0 ML of milk.

The QDAS average for other overhead costs is \$64,296 (3.7 c/L). While overhead costs increase as production increases, the costs get proportionately lower per litre. Table 5 shows other overhead costs falling from 4.7 c/L to 3.2 c/L as production increases. Other overhead costs include rates, insurance, registration, office expenses, accounting, industry levies, phone and internet.

Table 5. Analysis of overhead costs (2021-2022)

Overhead costs	<0.75 ML	0.75 – 1.25 ML	1.25 – 2.0 ML	>2.0 ML
Milk production (L)	548,354	964,128	1,471,548	3,377,514
Cows (milkers + dry)	110	169	265	489
Overheads				
Repairs & Maintenance (\$)	29,887	54,536	75,449	144,923
Repairs & Maintenance (c/L)	5.5	5.7	5.1	4.3
Other overheads (\$)	25,768	41,035	64,049	109,264
Other overheads (c/L)	4.7	4.3	4.4	3.2
Labour				
Unpaid labour (FTE)	1.5	1.7	1.7	2.0
Paid labour (FTE)	0.7	1.0	1.9	5.7
Paid labour cost (\$)	43,204	61,270	124,178	398,259
Litres per labour unit	247,378	365,852	400,421	440,272



2. The distribution of QDAS cooperating farms

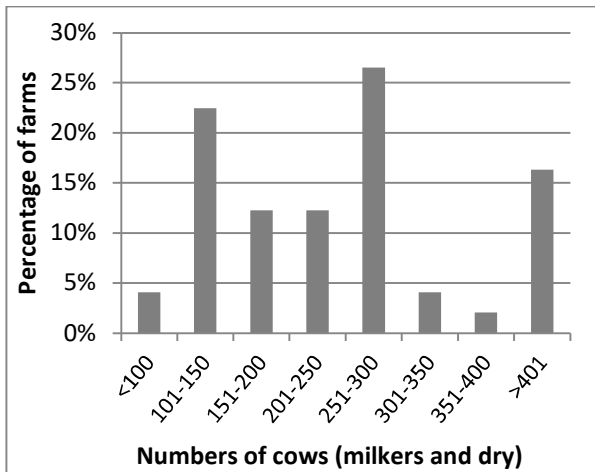


Figure 5. The distribution of QDAS farms by cow numbers

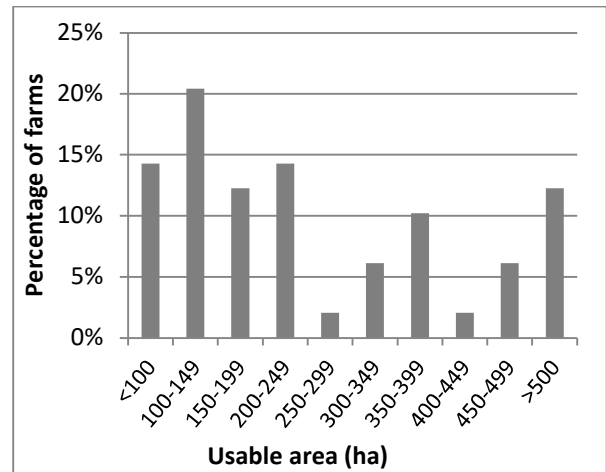


Figure 8. The distribution of QDAS farms by usable area

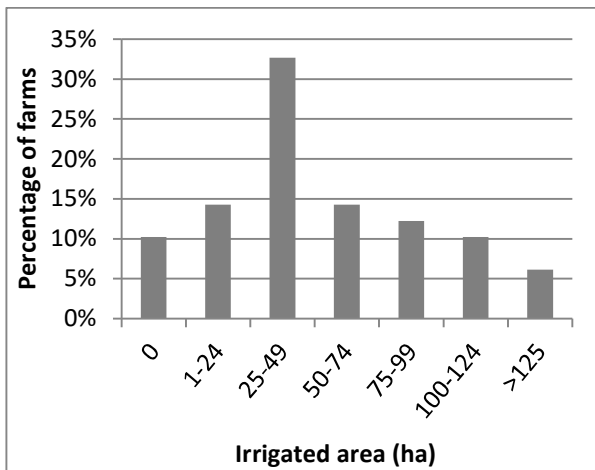


Figure 6. The distribution of QDAS farms by irrigated area

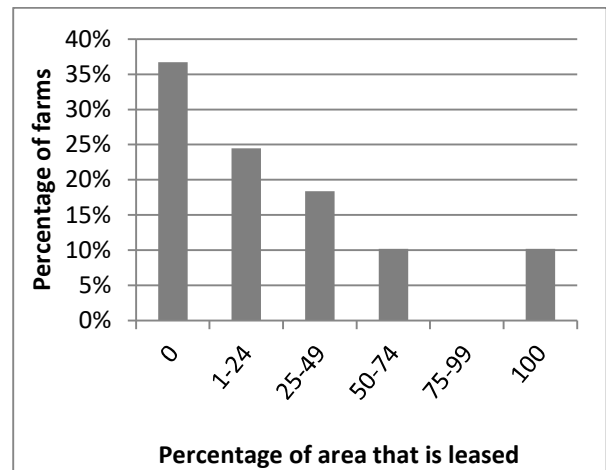


Figure 9. The distribution of QDAS farms by the percentage of total area that is leased

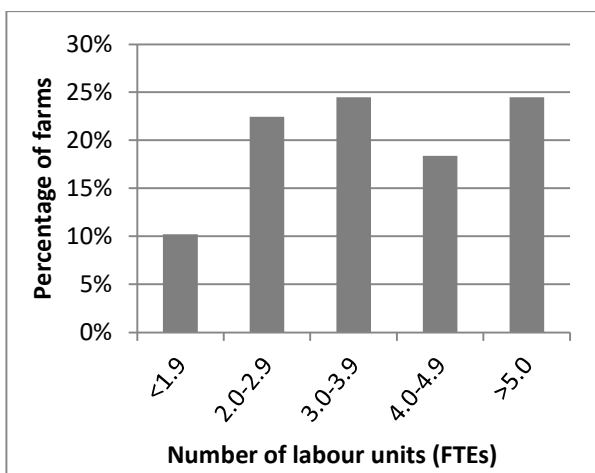


Figure 7. The distribution of QDAS farms by number of labour units

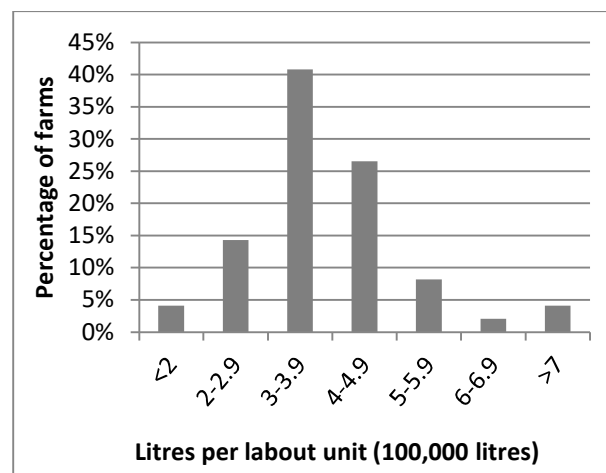


Figure 10. The distribution of QDAS farms by litres per labour unit

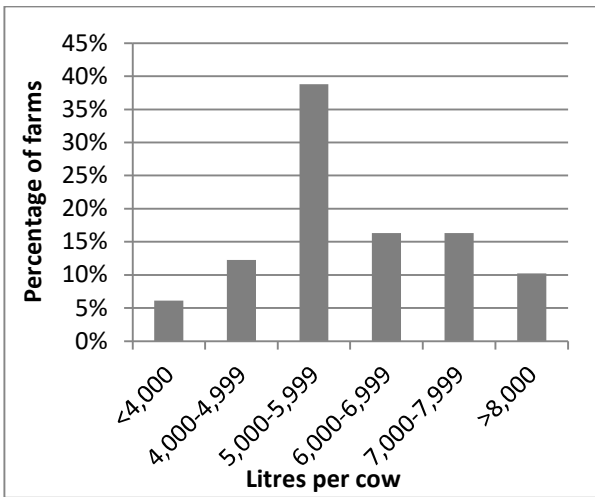


Figure 11. The distribution of QDAS farms by production per cow

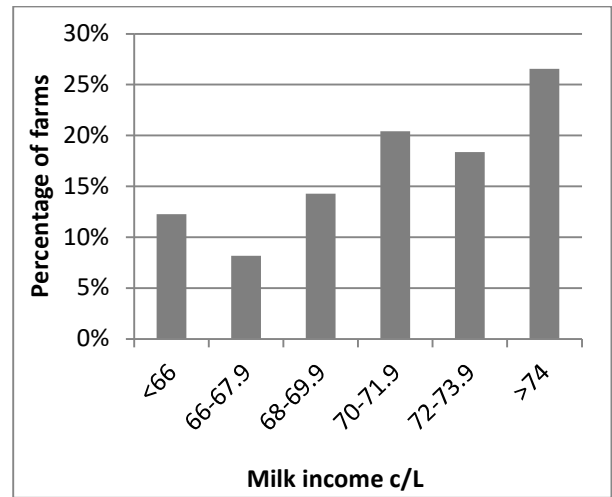


Figure 14. The distribution of QDAS farms by average milk income

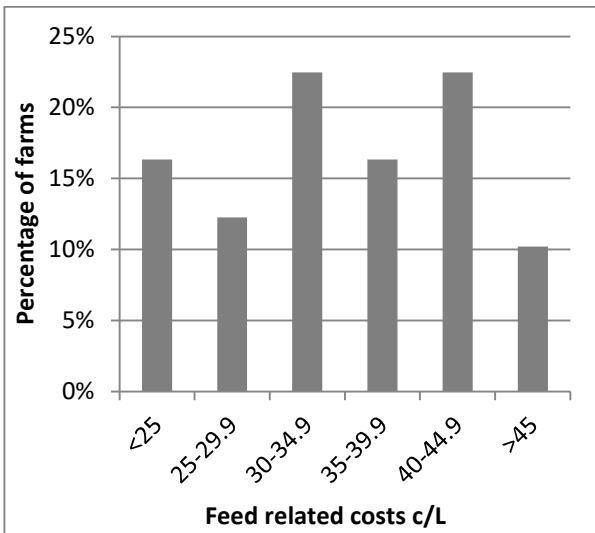


Figure 12. The distribution of QDAS farms by feed related costs

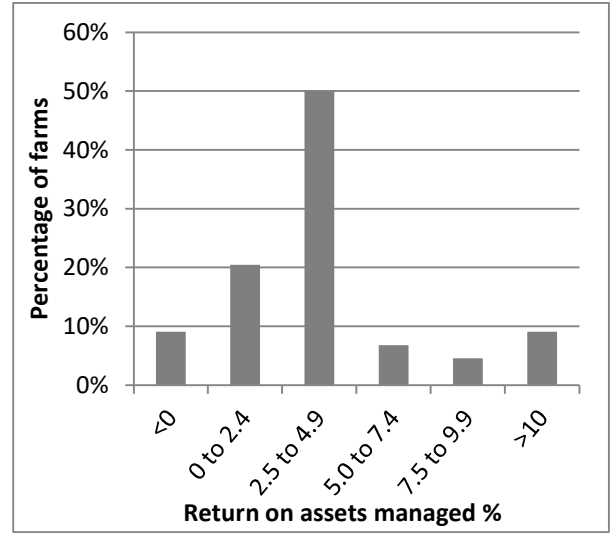


Figure 15. The distribution of QDAS farms by return on assets managed

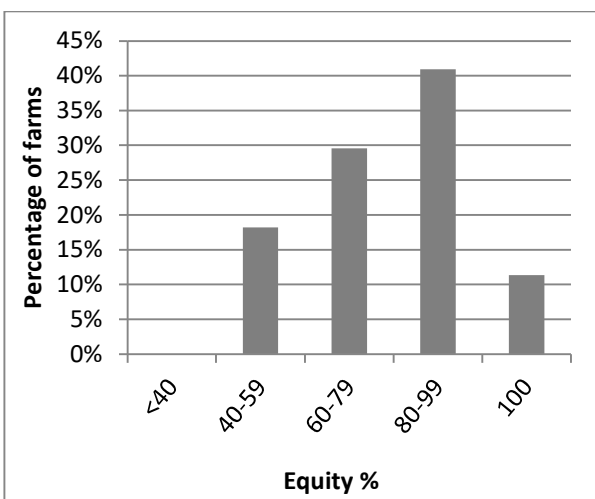


Figure 13. The distribution of QDAS farms by equity percentage

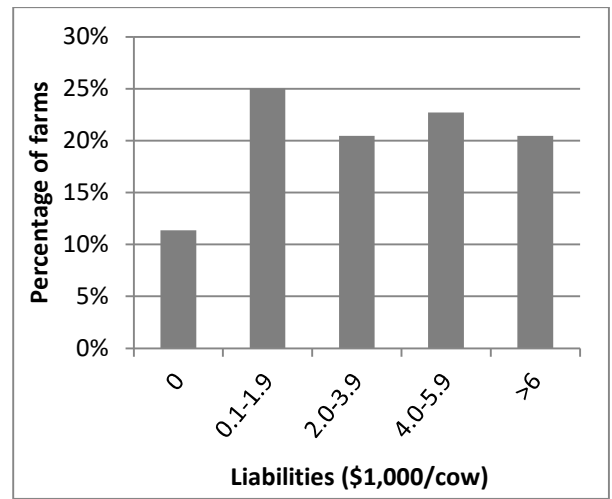


Figure 16. The distribution of QDAS farms by liabilities per cow

3. Factors affecting profitability

To investigate the factors affecting profitability, the QDAS results of the top 25% group (sorted by EBIT per cow) are compared with the results of the remaining 75% of farms (Table 6).

The higher EBIT per cow achieved by the top 25% group is directly linked to the following profit drivers:

- Higher production per cow. The top 25% group produced 1,111 litres per cow more than the remaining 75% group.
- Selling more litres of milk. The top 25% group sold 652,724 more litres of milk than the remaining 75% group. This is driven by production per cow and by having 51 more cows (milkers and dry).
- Better labour efficiency. The top 25% group runs 5 more cows and produce 105,917 L more milk per labour unit than the other group
- Higher income. The top 25% group had milk income 1.9 c/L higher and livestock sales 3.1 c/L higher than the other group.
- Lower farm working expenses. The top 25% group had farm working expenses 2.6 c/L lower than the other group.

Table 6. KPI for top 25% and the remaining 75% of farms (2021-22)

Profitability factors	Top 25%	Remaining 75%
Physical traits		
Cows (milkers + dry)	315	264
Farm production (L)	2,219,895	1,567,171
Efficiency - Physical		
Production per cow (L)	7,055	5,944
Milk from home grown feed (L/day)	10.8	10.0
Cows per labour unit	68	63
Litres per labour unit	481,713	375,796
Profit Analysis		
EBIT (\$/cow)	1,613	570
Cash Analysis		
Milk income (c/L)	73.9	72.0
Livestock sales (c/L)	10.1	7.0
Feed related costs (c/L)	37.7	35.3
Farm working expenses (c/L)	58.6	61.2
Margin over FRC (c/L)	36.2	36.7



Production per cow

QDAS reports have always shown that farms with higher production per cow have higher profitability. Table 7 shows that EBIT per cow is highest in the 7,000 litres group. The other three groups show EBIT per cow declines as litres per cow declines. Interestingly, it is the larger farms that are achieving the highest production per cow.

The margin over feed related costs per litre is the highest in the <5,000 litres group at 45.5 c/L and decreases to 34.2 c/L in the >7,000 litres group. The margin over feed related costs per cow is highest in the >7,000 litres group at \$2,668/cow, decreases to \$1,966/cow in the <6,000 litres group and \$2,019/cow in the <5,000 litres group.

Table 7. KPI for four production groups (L per cow) in Queensland (2021-22)

Farm production	<5,000	5,000 - 6,000	6,000 - 7,000	>7,000
Farm milk production (L)	974,013	1,526,619	1,760,207	2,478,302
Cows (milkers + dry)	220	274	268	319
Production per cow (L)	4,432	5,569	6,565	7,771
Milk income (c/L)	71.8	72.5	72.4	73.0
Margin over FRC (c/L)	45.5	35.3	39.5	34.3
Margin over FRC (\$/cow)	2,019	1,966	2,591	2,668
EBIT (\$/cow)	430	606	928	1,347

Herd size

An important profit driver is the scale of operation. Increasing the scale of a farm's operation can lead to efficiencies in overheads and the use of labour. Table 8 shows the effect that increasing herd size has on profitability indicators.

In previous years QDAS reports have shown a steady increase in EBIT per cow as the herd size increases. This trend continued in 2021-22 with the >300 cow group having the highest EBIT per cow at \$1,096 and the <150 cow group the lowest EBIT at \$372 per cow.

Previously three groups with more than 150 cows had significantly higher margin over feed related costs per cow than the less than 150 cows group.

In 2021-22 however, margin over feed related costs per cow was similar across all groups.

Labour efficiency increases significantly from 56 cows per labour unit on farms with <150 cows to 63, 69 and 65 for all other three groups respectively.

The farms with more than 300 cows (milkers and dry) had the highest production per cow at 6,638 litres. However, production per cow was similar across the other three groups, with the farms with <150 cows having the second highest production per cow at 6,243 L.

Therefore, the increase in EBIT with increasing herd size is driven by the efficiencies in overheads and operating costs gained with scale.

Table 8. KPI for four herd size groups (number of milking and dry cows) in Queensland (2021-22)

Profitability indicators	< 150	150 - 240	240 - 300	> 300
Farm milk production (L)	752,069	1,006,969	1,631,176	3,495,084
Cows (milkers + dry)	120	185	271	527
Production per cow (L)	6,243	5,434	6,018	6,638
Margin over feed related costs (\$/cow)	2,222	1,931	2,354	2,367
Cows per labour unit	57	63	69	65
Return on assets managed (%)	1.5	2.1	3.5	6.2
EBIT (\$/cow)	372	643	777	1,096

4. Feed analysis

Feed related costs require significant attention by dairy farmers, especially in a subtropical environment. In 2021-22 feed related costs represented 50% of milk income on the QDAS average farm. On south Queensland total mixed ration (TMR) farms it represents 56% of milk income. This is a large decrease from 2019-20 where feed related costs represented 74% of milk income on south Queensland TMR farms.

QDAS allows farmers to investigate their feeding system and compare their feed inputs and milk responses with other farmers from the same regional production system. Table 9 shows the average amount of various feeds fed to milking cows over the 2021-22 year. This information is displayed as pie charts in Appendix 10.9.

Milk responses are allocated to each concentrate and conserved forage fed to milking cows to determine the milk produced from these feed sources. The remaining milk produced is then assumed to be as a result of grazing and the kilograms of dry matter (DM) required to be grazed to produce this milk is calculated.

The calculations of intake (kg DM/cow/day) and milk production (L/cow/day) in Table 9 assume a 300 day lactation.

Grain used on-farm is predominately wheat, barley and maize. Custom made pellets are popular on farms with no grain milling equipment.

Protein is fed mainly as canola meal and soybean meal on partial mixed ration (PMR) and TMR farms. Whole cottonseed is a popular protein supplement on north Queensland farms when it is available at a reasonable price.

Molasses is a significant feed, especially in north Queensland.

Other concentrates include brewer's grain, bread, dough, flour and several other by-products.

Good quality silages include maize, cereals, legumes and ryegrass. Medium quality silages include forage sorghum and tropical grasses.

Good quality hays are predominately lucerne and cereals. Medium quality hays are mainly forage sorghum, millet and tropical grasses. Straw is also an important fibre source on some farms.

Table 9. Amounts fed to milking cows in each of the regional production systems (2021-22)

Feed type	South Qld Grazing	South Qld PMR	South Qld TMR	North Qld All	All Qld
Grazing (kg DM/cow/day)	11.5	5.7	0.1	10.1	6.8
Grain and pellets (kg DM/cow/day)	4.9	5.6	6.4	4.0	5.3
Protein (kg DM/cow/day)	0.4	1.4	4.0	0.7	1.6
Molasses (kg DM/cow/day)	0.0	0.1	0.0	1.0	0.3
Other concentrates (kg DM/cow/day)	0.5	1.3	1.1	0.0	0.8
Silage good quality (kg DM/cow/day)	0.2	4.7	5.1	2.0	3.2
Silage medium quality (kg DM/cow/day)	0.4	0.9	4.8	0.0	1.4
Hay good quality (kg DM/cow/day)	0.3	0.5	0.4	0.0	0.3
Hay medium quality & straw (kg DM/cow/day)	0.3	0.4	0.8	0.0	0.3
Total intake (kg DM/cow/day)	18.7	20.4	22.7	17.9	19.9
Production (L/cow/day)	18.6	21.8	25.5	17.2	20.8
Forage to concentrate ratio	68:32	59:41	49:51	68:32	61:39

5. Production system analysis

QDAS data collection concentrates on gaining a “snap-shot” into different production systems in the regions. The three systems are:

Grazing (GRA) – Milk production principally from grazing, with grain and concentrates fed in the dairy. Less than 15% of dry matter intake is from hay or silage.

Partial Mixed Ration (PMR) – Milk production from a combination of grazing, grain, concentrates, hay and silage. More than 15% of dry matter intake is from hay or silage and at least 10% of dry matter intake is from grazing.

Total Mixed Ration (TMR) – Milk production principally from a silage based mixed ration fed on a pad. Less than 10% of dry matter intake is from grazing.

Table 10 shows the distribution of the participating QDAS farms among the regional production systems.

Table 10. The number of farms collected in each regional production system (2021-22)

Region	GRA	PMR	TMR	Total
North Queensland	5	6	0	11
Central Queensland	0	1	0	1
South Queensland	15	14	8	37
Total	20	21	8	49

Table 11 presents a summary of the KPI for each regional production system. There are several points of interest.

- Milk income varies from 69.4 c/L in north Queensland to 73.8 c/L on south Queensland TMR farms.
- Production per cow increases as the feeding system intensifies. South Queensland grazing farms averaged 5,568 L/cow, PMR farms averaged 6,551 L/cow and TMR farms averaged 7,639 L/cow. Conversely, margin over feed related costs decreased from 38.8 c/L for grazing farms to 32.2 c/L for TMR farms.
- South Queensland TMR farms achieved the highest EBIT of \$1,325/cow. Both other production systems in South Queensland achieved an EBIT of at least \$750/cow, however the average EBIT in north Queensland farms was \$360/cow.

This data should not be interpreted as a definitive guide for changing a farming system. It should be noted that even if a regional production system is shown here to be more profitable, the skills, infrastructure and resources required on alternative systems are quite different. Farmers contemplating a change should seek help with the phasing and sizing of that change.

Table 11. KPI for farming systems (2021-22)

KPI	South Qld	South Qld	South Qld	North Qld
	Grazing	PMR	TMR	All farms
Cows (milkers + dry)	181	318	354	290
Farm production (L)	1,009,970	2,084,540	2,701,217	1,498,305
Production per cow (L)	5,568	6,551	7,639	5,175
Milk income (c/L)	72.9	73.0	73.8	69.4
Feed related costs (c/L)	34.2	34.8	41.6	31.9
Total variable costs (c/L)	39.9	40.9	46.6	38.5
Margin over feed related costs (c/L)	38.8	38.2	32.2	37.5
EBIT (\$/cow)	756	922	1,325	360
Return on assets managed (%)	3.5	4.3	5.9	1.6

6. South Queensland - Grazing

South Queensland grazing farms in the QDAS sample are found around Gympie, Sunshine Coast, Brisbane Valley and Darling Downs. These grazing farms either have high and reliable rainfall or significant areas of reliable irrigation. Permanent summer pastures are mainly kikuyu, panics and setaria, with irrigation areas planted to ryegrass, clover and lucerne. Kikuyu pastures are also oversown to winter forages with grazing crops of forage sorghum and oats also grown. Grain and molasses are readily available as supplements, fed at milking time.

The farms in this group have invested \$14,931 per cow in their operation, of which 69% is in the land value. Equity levels are high, averaging at 83%, and a return on assets managed of 3.5% was achieved.

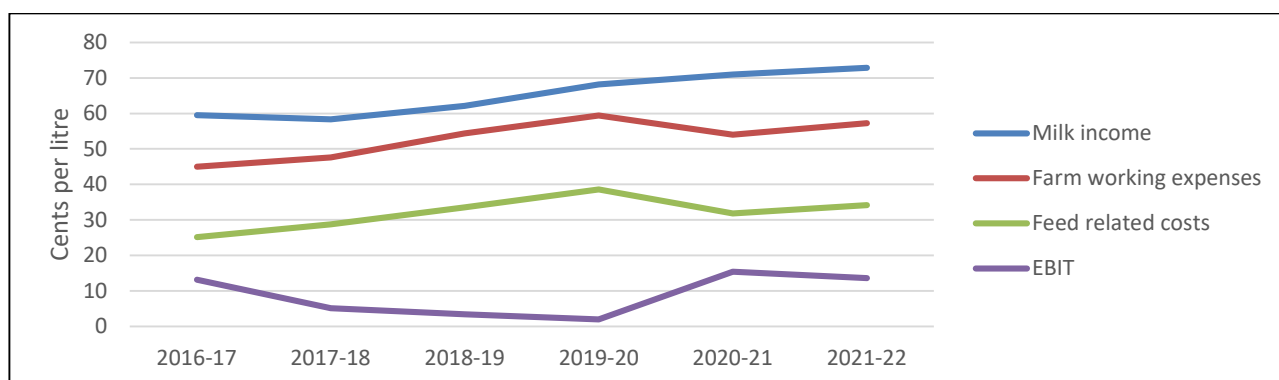
Figure 17 shows the data trends for south Queensland grazing farms between 2016-17 and 2021-22. There are several points of interest:

- Milk income has increased by 23% from 59.5 c/L in 2016-17 to 72.9 c/L in 2021-22.
- Feed related costs have increased by 36% from a low of 25.2 c/L in 2016-17 to 34.2 c/L in 2021-22 and as high as 38.6 c/L in 2019-20.
- Farm working expenses have increased by 27% from a low of 45.0 c/L in 2016-17 to 57.3 c/L in 2021-22 and as high as 59.5 c/L in 2019-20.
- EBIT has increased by 3% from 13.2 c/L in 2016-17 to 13.6 c/L in 2021-22 but was as low as 2.0 c/L in 2019-20.

Table 12. Statistics for South Queensland grazing farms – 15 farms (2021-22)

Resources	
Cows (milkers + dry)	181
Heifers >1 year old	72
Heifers <1 year old	64
Total dairy herd	320
Milking cow area (ha)	71
Usable area (ha)	166
Labour units	2.9
Assets and Liabilities	
Land, buildings, irrigation (\$)	1,882,364
Livestock (\$)	442,686
Machinery (\$)	224,667
Other (\$)	158,844
TOTAL (\$)	2,708,560
Liabilities (\$)	461,100
Equity (%)	83
Investment per cow (\$)	14,931
Debt per cow (\$)	2,542
Productivity	
Milk production (L)	1,009,970
Production per cow (L)	5,568
Financial	
Milk income (c/L)	72.9
Feed related costs (c/L)	34.2
Total variable costs (c/L)	39.9
Margin over feed related costs (c/L)	38.8
EBIT (\$/cow)	756
Return on assets managed (%)	3.5

Figure 17. Trends for South Queensland grazing farms (2016-17 to 2021-22)



7. South Queensland - PMR

South Queensland PMR farms in the QDAS sample are found around Gympie, Sunshine Coast, Beaudesert, Moreton, Brisbane Valley and Darling Downs. They have the ability to grow similar forages to the prior group, but supplement their milkers with silage made from maize, sorghum, lucerne and/or ryegrass.

These farms have a higher investment in stock and plant. This production system usually results in higher production per cow than that of grazing farms.

The farms in this group have invested \$16,673 per cow in their operation with 69% tied to the land. Equity levels are high, averaging at 82% and a return on assets managed of 4.3% was achieved.

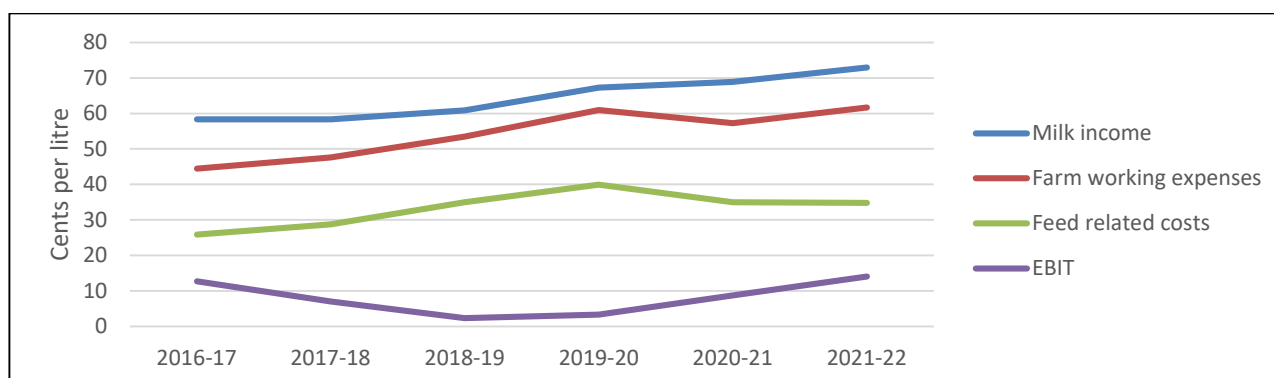
Figure 18 shows the data trends for south Queensland PMR farms between 2016-17 and 2021-22. There are several points of interest:

- Milk income has increased by 25% from 58.4 c/L in 2016-17 to 73.0 c/L in 2021-22.
- Feed related costs have increased by 34% from a low of 25.9 c/L in 2016-17 to 34.8 c/L in 2021-22 and as high as 40.0 c/L in 2019-20.
- Farm working expenses have increased by 39% from a low of 44.5 c/L in 2016-17 to 61.7 c/L in 2021-22, the highest value recorded over the past six years.
- EBIT has increased by 11% from 12.7 c/L in 2016-17 to 14.1 c/L in 2021-22 but was as low as 2.3 c/L in 2018-19.

Table 13. Statistics for South Queensland PMR farms – 14 farms (2021-22)

Resources	
Cows (milkers + dry)	318
Heifers >1 year old	120
Heifers <1 year old	105
Total dairy herd	547
Milking cow area (ha)	120
Usable area (ha)	329
Labour units	5.4
Assets and Liabilities	
Land & buildings (\$)	3,664,073
Livestock (\$)	808,470
Machinery (\$)	547,011
Other (\$)	286,168
TOTAL (\$)	5,305,722
Liabilities (\$)	941,564
Equity (%)	82
Investment per cow (\$)	16,673
Debt per cow (\$)	2,959
Productivity	
Milk production (L)	2,084,540
Production per cow (L)	6,551
Financial	
Milk income (c/L)	73.0
Feed related costs (c/L)	34.8
Total variable costs (c/L)	40.9
Margin over feed related costs (c/L)	38.3
EBIT (\$/cow)	922
Return on assets managed (%)	4.3

Figure 18. Trends for South Queensland PMR farms (2016-17 to 2021-22)



8. South Queensland - TMR

South Queensland TMR farms in the QDAS sample are found in the Darling Downs and South Burnett and are mostly dryland farms with large cropping areas. Most farmers concentrate on growing large volumes of summer forages for silage. Winter crops are opportunistic in years when sub-soil moisture is available.

These farms have commodity sheds. Grain, by-products and protein meals are purchased in bulk and forward contracting is common. They are ideally situated in relation to the grain growing areas of Queensland which reduces freight costs.

They have invested \$21,551 per cow in their operation with 64% tied to the land. With the large investment in infrastructure that is required, they have a high debt per cow of \$5,532 and equity of 74%, the lowest equity of all groups. A return on assets managed of 5.9% was achieved.

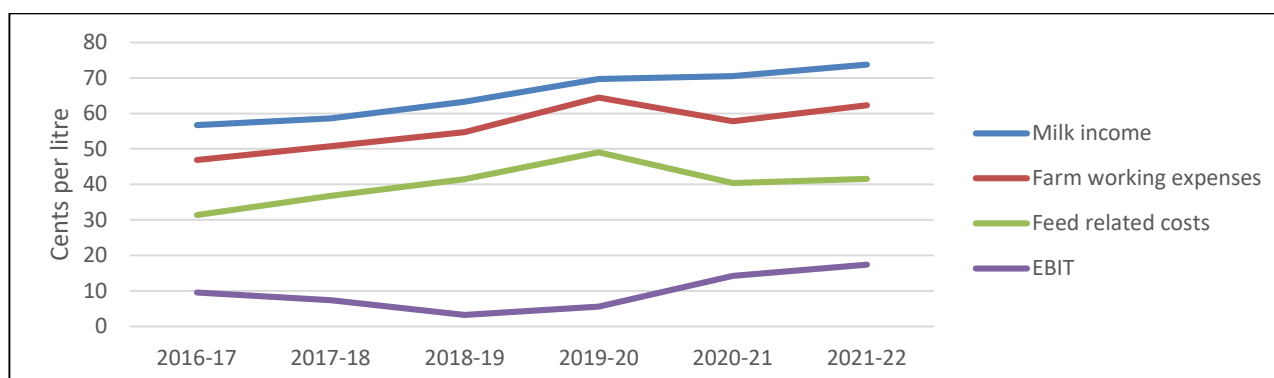
Figure 19 shows the data trends for south Queensland TMR between 2016-17 and 2021-22. There are several points of interest:

- Milk income has increased by 30% from 56.8 c/L in 2016-17 to 73.8 c/L in 2021-22.
- Feed related costs have increased by 32% from 31.4 c/L in 2016-17 to 41.6 c/L in 2021-22 and were as high as 49.1 c/L in 2019-20.
- Farm working expenses have increased by 33% from 46.9c/L in 2016-17 to 62.3 c/L in 2021-22 and were as high as 64.5 c/L in 2019-20.
- EBIT has increased by 82% from 9.5 c/L in 2016-17 to 17.4 c/L in 2021-22 but was as low as 3.3 c/L in 2018-19.

Table 14. Statistics for South Queensland TMR farms – 8 farms (2021-22)

Resources	
Cows (milkers + dry)	354
Heifers >1 year old	162
Heifers <1 year old	169
Total dairy herd	700
Milking cow area (ha)	1
Usable area (ha)	442
Labour units	5.1
Assets and Liabilities	
Land & buildings (\$)	4,852,820
Livestock (\$)	1,140,864
Machinery (\$)	1,029,763
Other (\$)	597,430
TOTAL (\$)	7,620,876
Liabilities (\$)	1,956,230
Equity (%)	74
Investment per cow (\$)	21,551
Debt per cow (\$)	5,532
Productivity	
Milk production (L)	2,701,217
Production per cow (L)	7,639
Financial	
Milk income (c/L)	73.8
Feed related costs (c/L)	41.6
Total variable costs (c/L)	46.6
Margin over feed related costs (c/L)	32.3
EBIT (\$/cow)	1,325
Return on assets managed (%)	5.9

Figure 19. Trends for South Queensland TMR farms (2016-17 to 2021-22)



9. North Queensland – Grazing and PMR

These farms are located in tropical North Queensland around the areas of Malanda, Millaa Millaa and Ravenshoe.

Grazing with grain fed in the dairy is the predominant production system in the tropics. This means the upper limit for daily grain intake is 6-8 kg. Some farms feed silage, hay and whole cottonseed to fill feed gaps.

The farms in this group have invested \$18,650 per cow in their operation, of which 77% is in the land value. Equity levels varied across the sample, with the average being 75%, and a return on assets managed of 1.6% was recorded.

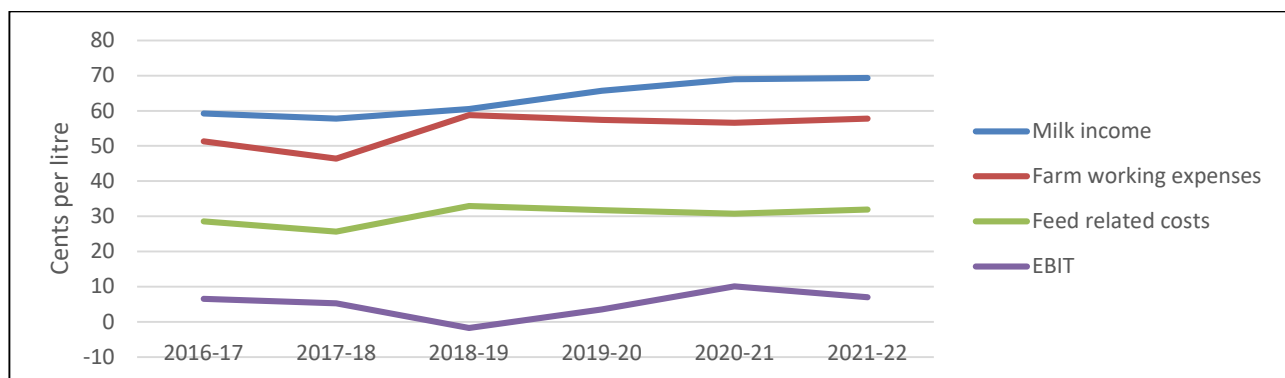
Figure 20 shows the data trends for north Queensland farms between 2016-17 and 2021-22. There are several points of interest:

- Milk income has increased by 17% from 59.2 c/L in 2016-17 to 69.4 c/L in 2021-22.
- Feed related costs have increased by 12% from of 28.6 c/L in 2016-17 to 31.9 c/L in 2021-22 and were as high as 33.0 c/L in 2018-19.
- Farm working expenses have increased by 13% from 51.3 c/L in 2016-17 to 57.8 c/L in 2021-22.
- EBIT has increased by 7% from 6.6 c/L in 2016-17 to 7.0 c/L in 2021-22 but was as low as -1.7 c/L in 2018-19.

Table 15. Statistics for North Queensland grazing and PMR farms – 11 farms (2021-22)

Resources	
Cows (milkers + dry)	290
Heifers >1 year old	74
Heifers <1 year old	82
Total dairy herd	451
Milking cow area (ha)	105
Usable area (ha)	254
Labour units	4.3
Assets and Liabilities	
Land & buildings (\$)	4,175,829
Livestock (\$)	664,300
Machinery (\$)	325,386
Other (\$)	234,533
TOTAL (\$)	5,400,048
Liabilities (\$)	1,355,799
Equity (%)	75
Investment per cow (\$)	18,650
Debt per cow (\$)	4,683
Productivity	
Milk production (L)	1,498,305
Production per cow (L)	5,175
Financial	
Milk income (c/L)	69.4
Feed related costs (c/L)	31.9
Total variable costs (c/L)	38.5
Margin over feed related costs (c/L)	37.6
EBIT (\$/cow)	360
Return on assets managed (%)	1.6

Figure 20. Trends for North Queensland farms (2016-17 to 2021-22)



10. Appendices

10.1 Group cash flow – All 49 QDAS farms (2021-22)

Group cash flow					
All farms					2021/2022
Farm Cash Income	c/L	\$/cow	\$/kg MS		Total \$ Earned
Milk Income (net)	72.6	4,540.2	9.86		1,253,828
- Livestock sales less purchases (dairy)	8.0	497.7	1.08		137,460
- Feed sales	0.1	6.6	0.01		1,835
- Other farm cash income	2.9	179.8	0.39		49,660
Total Farm Cash Income	83.5	5,224.4	11.34		1,442,783
Farm Cash Costs	c/L	\$/cow	\$/kg MS	% Milk receipts	Total \$ Spent
- Purchased grain, concentrates	21.0	1,313.6	2.85	28.9	362,756
- Purchased fodder, silage, hay	2.9	181.5	0.39	4.0	50,119
- Other purchased feed	2.1	132.6	0.29	2.9	36,609
Total Purchased Feed	26.0	1,627.6	3.53	35.8	449,484
- Fertiliser	3.8	237.2	0.52	5.2	65,505
- Fuel & oil	1.8	112.9	0.25	2.5	31,183
- Pasture & crop costs	1.8	111.9	0.24	2.5	30,913
- Irrigation costs	0.7	44.5	0.10	1.0	12,292
- Hay and silage making costs	1.7	104.4	0.23	2.3	28,828
- Agistment	0.1	7.4	0.02	0.2	2,055
- Other feed costs	0.1	7.3	0.02	0.2	2,004
Feed Related Costs	36.0	2,253.3	4.89	49.6	622,265
Margin Over Feed Related Costs	36.6	2,286.9	4.97	50.4	631,563
- Animal health	2.1	130.6	0.28	2.9	36,075
- Herd improvement	1.0	60.8	0.13	1.3	16,778
- Calf rearing	0.8	47.7	0.10	1.1	13,167
Herd Costs	3.8	239.1	0.52	5.3	66,020
- Dairy shed - power	1.1	67.7	0.15	1.5	18,695
- Dairy shed - supplies	1.0	65.3	0.14	1.4	18,044
Shed Costs	2.1	133.0	0.29	2.9	36,738
Total Variable Costs	42.0	2,625.3	5.70	57.8	725,023
- Employed labour costs	9.9	618.3	1.34	13.6	170,747
- Repairs & maintenance	4.8	298.6	0.65	6.6	82,464
- Other overhead costs	3.7	232.8	0.51	5.1	64,296
Total Cash Overhead Costs	18.4	1,149.7	2.50	25.3	317,507
Total Farm Working Expenses	60.4	3,775.0	8.20	83.1	1,042,530
Farm Operating Cash Surplus	23.2	1,449.3	3.15	31.9	400,253
- Interest costs	2.0	125.2	0.27	2.8	34,577
- Loan principal repayments	5.8	361.7	0.79	8.0	99,889
- Land lease costs	1.9	117.1	0.25	2.6	32,338
- Other capital purchases (unfinanced)	3.8	237.4	0.52	5.2	65,565
Net Cashflow Before Tax & Drawings	9.7	607.9	1.32	13.4	167,885

Labour inputs	Stock	Production
Paid labour	2.5 Cows (milking and dry)	276 Total litres sold 1,727,022
Unpaid labour	1.8 Total herd	513 Litres / cow 6,254
Total labour units	4.3 Areas	Butterfat (kg) 4.04% 69,822
Litres / Labour unit	403,741 Useable area (ha)	282 Protein (kg) 3.32% 57,373
Cows / labour unit	65 Irrigation area (ha)	58 Milk solids / cow (kg) 461

Farms in this report: 49

10.2 Group cash flow – Top 25% of farms (2021-22)

Group cash flow



Top 25%

2021/2022

Farm Cash Income	c/L	\$/cow	\$/kg MS		Total \$ Earned
Milk Income (net)	73.9	5,214.2	10.16		1,640,738
└ Livestock sales less purchases (dairy)	10.1	710.6	1.38		223,615
└ Feed sales	0.0	0.8	0.00		256
└ Other farm cash income	2.6	180.0	0.35		56,632
Total Farm Cash Income	86.5	6,105.6	11.89		1,921,241
Farm Cash Costs	c/L	\$/cow	\$/kg MS	% Milk receipts	Total \$ Spent
└ Purchased grain, concentrates	21.2	1,493.1	2.91	28.6	469,835
└ Purchased fodder, silage, hay	2.3	164.3	0.32	3.2	51,702
└ Other purchased feed	3.5	244.1	0.48	4.7	76,826
Total Purchased Feed	27.0	1,901.6	3.70	36.5	598,362
└ Fertiliser	3.0	214.9	0.42	4.1	67,623
└ Fuel & oil	2.3	161.2	0.31	3.1	50,728
└ Pasture & crop costs	2.2	156.9	0.31	3.0	49,374
└ Irrigation costs	0.6	40.5	0.08	0.8	12,742
└ Hay and silage making costs	2.4	170.8	0.33	3.3	53,752
└ Agistment	0.0	3.1	0.01	0.1	985
└ Other feed costs	0.1	8.7	0.02	0.2	2,747
Feed Related Costs	37.7	2,657.8	5.18	51.0	836,312
Margin Over Feed Related Costs	36.2	2,556.4	4.98	49.0	804,426
└ Animal health	1.5	109.1	0.21	2.1	34,326
└ Herd improvement	0.9	62.7	0.12	1.2	19,736
└ Calf rearing	0.8	53.9	0.11	1.0	16,969
Herd Costs	3.2	225.7	0.44	4.3	71,031
└ Dairy shed - power	1.1	78.8	0.15	1.5	24,790
└ Dairy shed - supplies	0.9	62.7	0.12	1.2	19,745
Shed Costs	2.0	141.5	0.28	2.7	44,535
Total Variable Costs	42.9	3,025.0	5.89	58.0	951,878
└ Employed labour costs	8.1	570.7	1.11	10.9	179,584
└ Repairs & maintenance	4.2	297.4	0.58	5.7	93,585
└ Other overhead costs	3.4	241.4	0.47	4.6	75,949
Total Cash Overhead Costs	15.7	1,109.5	2.16	21.3	349,119
Total Farm Working Expenses	58.6	4,134.5	8.05	79.3	1,300,997
Farm Operating Cash Surplus	27.9	1,971.1	3.84	37.8	620,244
└ Interest costs	1.9	133.4	0.26	2.6	41,980
└ Loan principal repayments	6.8	482.5	0.94	9.3	151,816
└ Land lease costs	1.4	101.3	0.20	1.9	31,890
└ Other capital purchases (unfinanced)	4.1	289.2	0.56	5.5	91,001
Net Cashflow Before Tax & Drawings	13.7	964.7	1.88	18.5	303,557

Labour inputs		Stock		Production	
Paid labour	2.7	Cows (milking and dry)	315	Total litres sold	2,219,895
Unpaid labour	1.9	Total herd	640	Litres / cow	7,055
Total labour units	4.6	Areas		Butterfat (kg)	3.95% 87,625
Litres / Labour unit	481,713	Useable area (ha)	406	Protein (kg)	3.33% 73,927
Cows / labour unit	68	Irrigation area (ha)	64	Milk solids / cow (kg)	513

Farms in this report: 12

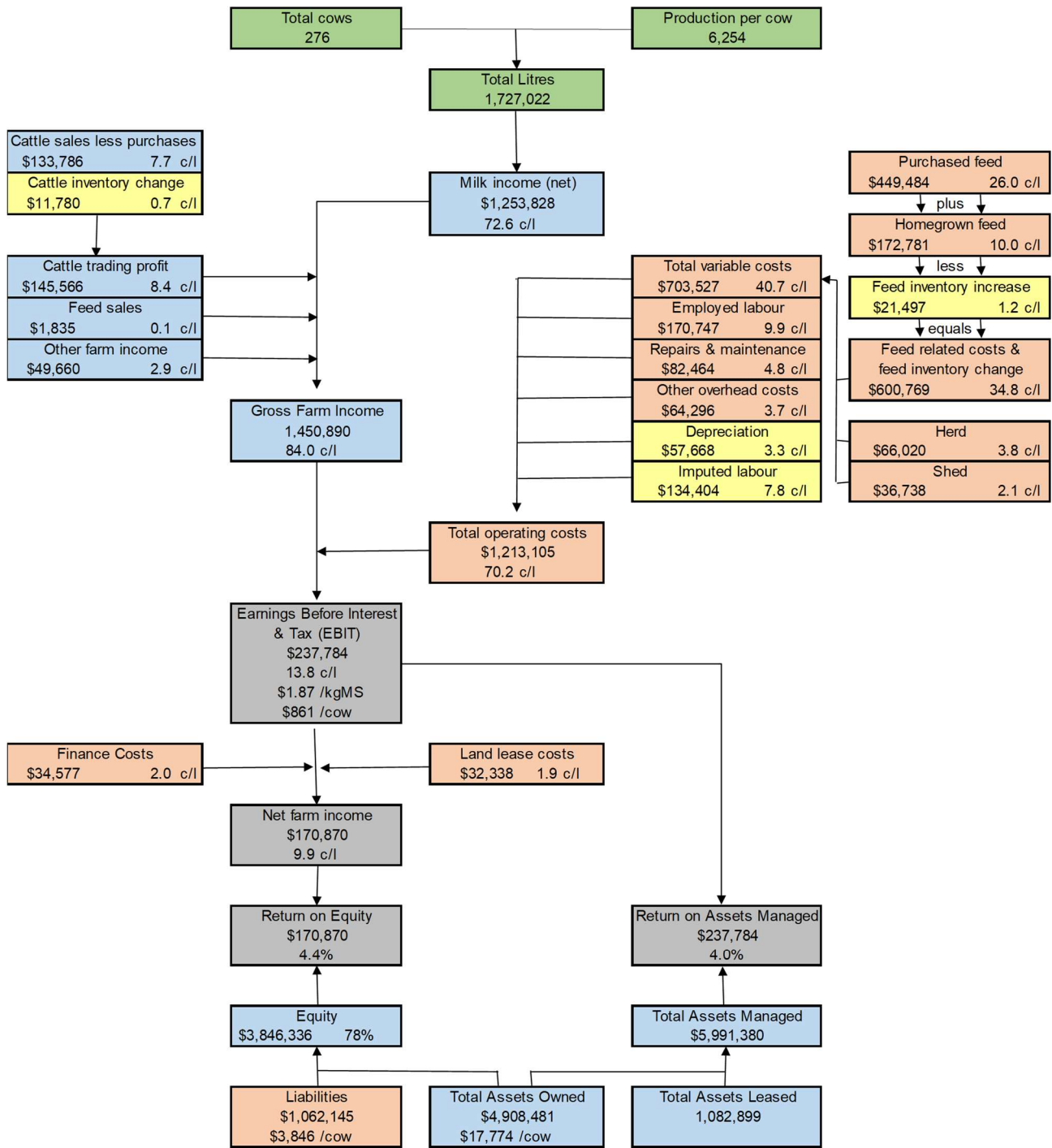
10.3 Group dairy farm profit map – All 49 QDAS farms (2021-22)

Group dairy farm profit map



All farms

2021/2022



Farms in this report: 49

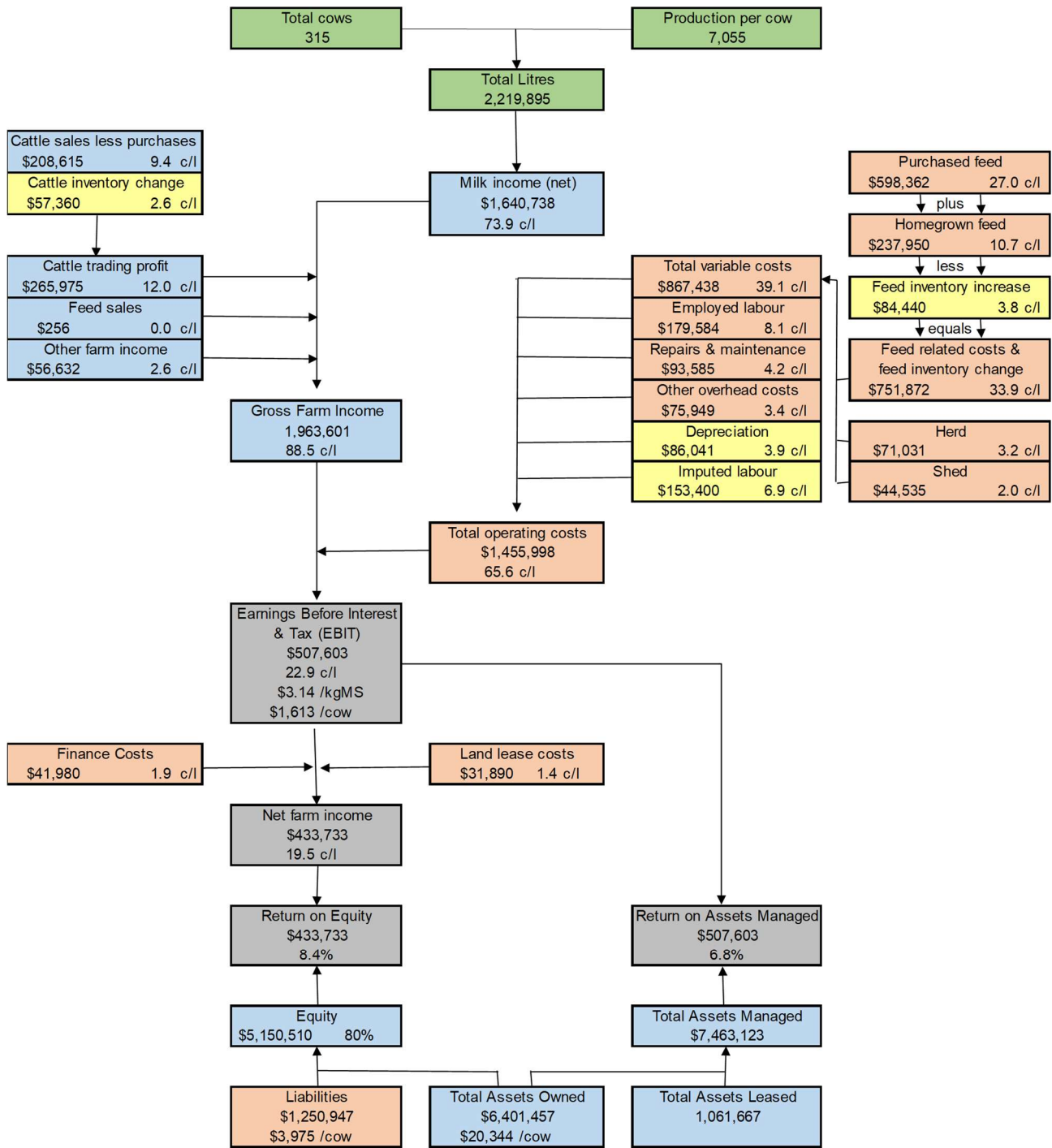
10.4 Group dairy farm profit map – Top 25% of farms (2021-22)

Group dairy farm profit map



Top 25%

2021/2022



Farms in this report: 12

10.5 Group cash flow – South Queensland Grazing (2021-22)

Group cash flow

South Queensland Grazing



2021/2022

Farm Cash Income	c/L	\$/cow	\$/kg MS		Total \$ Earned
Milk Income (net)	72.9	4,059.7	9.80		736,421
-Livestock sales less purchases (dairy)	7.7	429.3	1.04		77,874
-Feed sales	0.1	3.4	0.01		609
-Other farm cash income	3.2	179.0	0.43		32,469
Total Farm Cash Income	83.9	4,671.3	11.28		847,372
Farm Cash Costs	c/L	\$/cow	\$/kg MS	% Milk receipts	Total \$ Spent
-Purchased grain, concentrates	19.3	1,073.4	2.59	26.4	194,716
-Purchased fodder, silage, hay	2.3	128.9	0.31	3.2	23,379
-Other purchased feed	2.1	115.8	0.28	2.9	21,011
Total Purchased Feed	23.7	1,318.1	3.18	32.5	239,107
-Fertiliser	5.6	314.3	0.76	7.7	57,016
-Fuel & oil	1.3	74.7	0.18	1.8	13,546
-Pasture & crop costs	2.0	110.3	0.27	2.7	20,003
-Irrigation costs	1.0	53.9	0.13	1.3	9,783
-Hay and silage making costs	0.5	25.6	0.06	0.6	4,651
-Agistment	0.0	2.5	0.01	0.1	446
-Other feed costs	0.0	2.5	0.01	0.1	451
Feed Related Costs	34.2	1,901.9	4.59	46.8	345,003
Margin Over Feed Related Costs	38.8	2,157.8	5.21	53.2	391,418
-Animal health	2.1	117.4	0.28	2.9	21,296
-Herd improvement	0.9	50.6	0.12	1.2	9,185
-Calf rearing	0.6	32.6	0.08	0.8	5,914
Herd Costs	3.6	200.6	0.48	4.9	36,396
-Dairy shed - power	1.1	62.0	0.15	1.5	11,238
-Dairy shed - supplies	1.1	58.9	0.14	1.4	10,678
Shed Costs	2.2	120.8	0.29	3.0	21,916
Total Variable Costs	39.9	2,223.3	5.37	54.8	403,314
-Employed labour costs	8.2	455.2	1.10	11.2	82,580
-Repairs & maintenance	5.4	299.9	0.72	7.4	54,409
-Other overhead costs	3.8	212.3	0.51	5.2	38,508
Total Cash Overhead Costs	17.4	967.5	2.34	23.8	175,497
Total Farm Working Expenses	57.3	3,190.8	7.70	78.6	578,811
Farm Operating Cash Surplus	26.6	1,480.5	3.57	36.5	268,561
-Interest costs	1.7	97.3	0.23	2.4	17,646
-Loan principal repayments	4.6	254.1	0.61	6.3	46,096
-Land lease costs	3.2	178.3	0.43	4.4	32,344
-Other capital purchases (unfinanced)	2.5	139.7	0.34	3.4	25,338
Net Cashflow Before Tax & Drawings	14.6	811.1	1.96	20.0	147,136

Labour inputs		Stock		Production	
Paid labour	1.2	Cows (milking and dry)	181	Total litres sold	1,009,970
Unpaid labour	1.6	Total herd	347	Litres / cow	5,568
Total labour units	2.9	Areas		Butterfat (kg)	41,254
Litres / Labour unit	353,962	Useable area (ha)	166	Protein (kg)	33,899
Cows / labour unit	64	Irrigation area (ha)	39	Milk solids / cow (kg)	414

Farms in this report: 15

10.6 Group cash flow – South Queensland PMR (2021-22)

Group cash flow

South Queensland PMR



2021/2022

Farm Cash Income	c/L	\$/cow	\$/kg MS		Total \$ Earned
Milk Income (net)	73.0	4,784.1	9.86		1,522,361
- Livestock sales less purchases (dairy)	7.4	483.3	1.00		153,805
- Feed sales	0.1	9.7	0.02		3,072
- Other farm cash income	3.5	230.4	0.47		73,311
Total Farm Cash Income	84.1	5,507.5	11.35		1,752,550
Farm Cash Costs	c/L	\$/cow	\$/kg MS	% Milk receipts	Total \$ Spent
- Purchased grain, concentrates	19.2	1,259.3	2.60	26.3	400,714
- Purchased fodder, silage, hay	2.6	173.0	0.36	3.6	55,042
- Other purchased feed	1.9	121.3	0.25	2.5	38,598
Total Purchased Feed	23.7	1,553.5	3.20	32.5	494,353
- Fertiliser	3.5	227.9	0.47	4.8	72,506
- Fuel & oil	2.0	128.8	0.27	2.7	40,974
- Pasture & crop costs	2.2	141.7	0.29	3.0	45,095
- Irrigation costs	1.0	66.6	0.14	1.4	21,197
- Hay and silage making costs	2.3	148.1	0.31	3.1	47,117
- Agistment	0.1	5.4	0.01	0.1	1,719
- Other feed costs	0.1	6.2	0.01	0.1	1,958
Feed Related Costs	34.8	2,278.1	4.70	47.6	724,918
Margin Over Feed Related Costs	38.3	2,506.0	5.16	52.4	797,444
- Animal health	2.2	145.4	0.30	3.0	46,280
- Herd improvement	1.0	64.6	0.13	1.3	20,544
- Calf rearing	1.0	65.3	0.13	1.4	20,776
Herd Costs	4.2	275.3	0.57	5.8	87,600
- Dairy shed - power	0.8	54.4	0.11	1.1	17,300
- Dairy shed - supplies	1.0	68.5	0.14	1.4	21,791
Shed Costs	1.9	122.8	0.25	2.6	39,090
Total Variable Costs	40.9	2,676.2	5.52	55.9	851,608
- Employed labour costs	12.1	795.4	1.64	16.6	253,111
- Repairs & maintenance	5.0	324.3	0.67	6.8	103,190
- Other overhead costs	3.7	245.6	0.51	5.1	78,156
Total Cash Overhead Costs	20.8	1,365.3	2.81	28.5	434,457
Total Farm Working Expenses	61.7	4,041.5	8.33	84.5	1,286,064
Farm Operating Cash Surplus	22.4	1,465.9	3.02	30.6	466,486
- Interest costs	1.6	107.5	0.22	2.2	34,215
- Loan principal repayments	5.9	388.8	0.80	8.1	123,707
- Land lease costs	2.2	144.7	0.30	3.0	46,041
- Other capital purchases (unfinanced)	4.4	291.1	0.60	6.1	92,640
Net Cashflow Before Tax & Drawings	8.1	533.9	1.10	11.2	169,884

Labour inputs		Stock		Production	
Paid labour	3.7	Cows (milking and dry)	318	Total litres sold	2,084,540
Unpaid labour	1.7	Total herd	569	Litres / cow	6,551
Total labour units	5.4	Areas		Butterfat (kg)	4.07% 84,868
Litres / Labour unit	388,596	Useable area (ha)	329	Protein (kg)	3.34% 69,527
Cows / labour unit	59	Irrigation area (ha)	91	Milk solids / cow (kg)	485

Farms in this report: 14

10.7 Group cash flow – South Queensland TMR (2021-22)

Group cash flow

South Queensland TMR



2021/2022

Farm Cash Income	c/L	\$/cow	\$/kg MS		Total \$ Earned
Milk Income (net)	73.8	5,639.3	10.04		1,994,190
-Livestock sales less purchases (dairy)	10.4	792.0	1.41		280,065
-Feed sales	0.0	0.0	0.00		0
-Other farm cash income	2.5	189.5	0.34		67,020
Total Farm Cash Income	86.7	6,620.8	11.79		2,341,275
Farm Cash Costs	c/L	\$/cow	\$/kg MS	% Milk receipts	Total \$ Spent
-Purchased grain, concentrates	23.8	1,815.5	3.23	32.2	642,010
-Purchased fodder, silage, hay	3.7	280.7	0.50	5.0	99,265
-Other purchased feed	3.4	259.2	0.46	4.6	91,662
Total Purchased Feed	30.8	2,355.4	4.20	41.8	832,937
-Fertiliser	3.2	242.0	0.43	4.3	85,595
-Fuel & oil	2.5	190.3	0.34	3.4	67,286
-Pasture & crop costs	1.7	132.7	0.24	2.4	46,942
-Irrigation costs	0.4	27.2	0.05	0.5	9,618
-Hay and silage making costs	2.8	216.9	0.39	3.8	76,702
-Agistment	0.0	2.9	0.01	0.1	1,041
-Other feed costs	0.1	7.8	0.01	0.1	2,743
Feed Related Costs	41.6	3,175.3	5.66	56.3	1,122,863
Margin Over Feed Related Costs	32.3	2,464.0	4.39	43.7	871,327
-Animal health	1.7	132.2	0.24	2.3	46,755
-Herd improvement	0.7	52.6	0.09	0.9	18,584
-Calf rearing	0.4	30.7	0.05	0.5	10,866
Herd Costs	2.8	215.5	0.38	3.8	76,205
-Dairy shed - power	1.3	100.8	0.18	1.8	35,637
-Dairy shed - supplies	0.9	71.0	0.13	1.3	25,100
Shed Costs	2.2	171.8	0.31	3.0	60,737
Total Variable Costs	46.6	3,562.5	6.35	63.2	1,259,805
-Employed labour costs	7.2	548.8	0.98	9.7	194,054
-Repairs & maintenance	5.0	379.4	0.68	6.7	134,169
-Other overhead costs	3.6	271.5	0.48	4.8	96,024
Total Cash Overhead Costs	15.7	1,199.7	2.14	21.3	424,248
Total Farm Working Expenses	62.3	4,762.3	8.48	84.4	1,684,053
Farm Operating Cash Surplus	24.3	1,858.5	3.31	33.0	657,222
-Interest costs	2.1	156.9	0.28	2.8	55,492
-Loan principal repayments	7.6	581.4	1.04	10.3	205,606
-Land lease costs	0.7	52.8	0.09	0.9	18,655
-Other capital purchases (unfinanced)	4.8	368.4	0.66	6.5	130,288
Net Cashflow Before Tax & Drawings	9.2	699.0	1.24	12.4	247,182

Labour inputs		Stock		Production	
Paid labour	2.7	Cows (milking and dry)	354	Total litres sold	2,701,217
Unpaid labour	2.3	Total herd	748	Litres / cow	7,639
Total labour units	5.1	Areas		Butterfat (kg)	107,754
Litres / Labour unit	534,894	Useable area (ha)	442	Protein (kg)	3.36%
Cows / labour unit	70	Irrigation area (ha)	70	Milk solids / cow (kg)	561

Farms in this report: 8

10.8 Group cash flow – North Queensland all farms (2021-22)

Group cash flow

North Queensland ALL



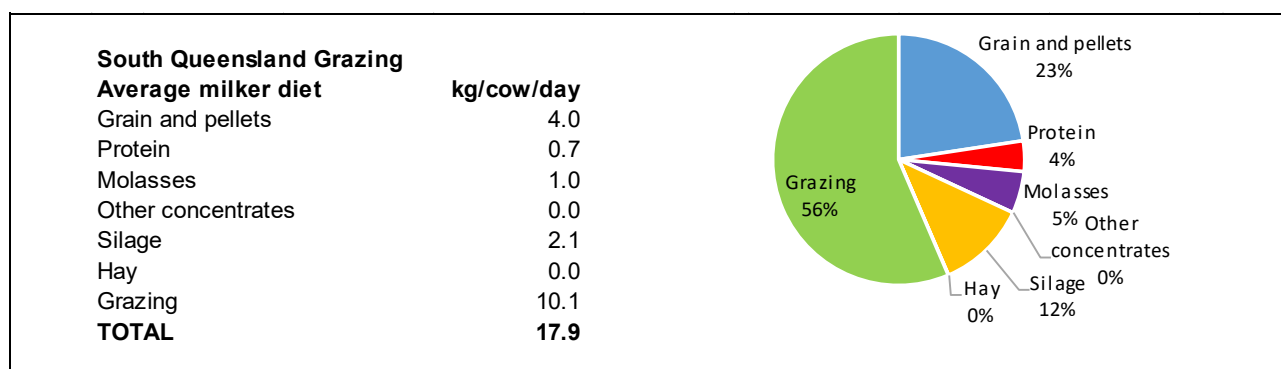
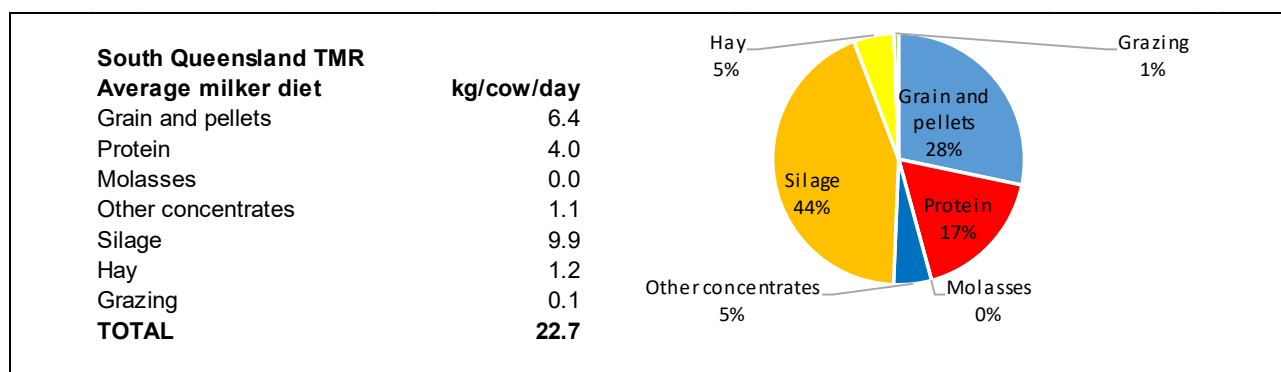
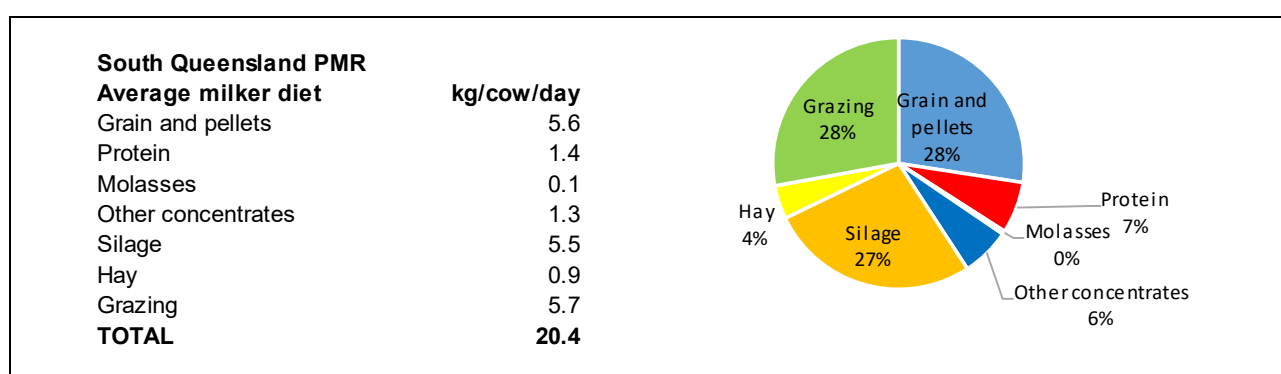
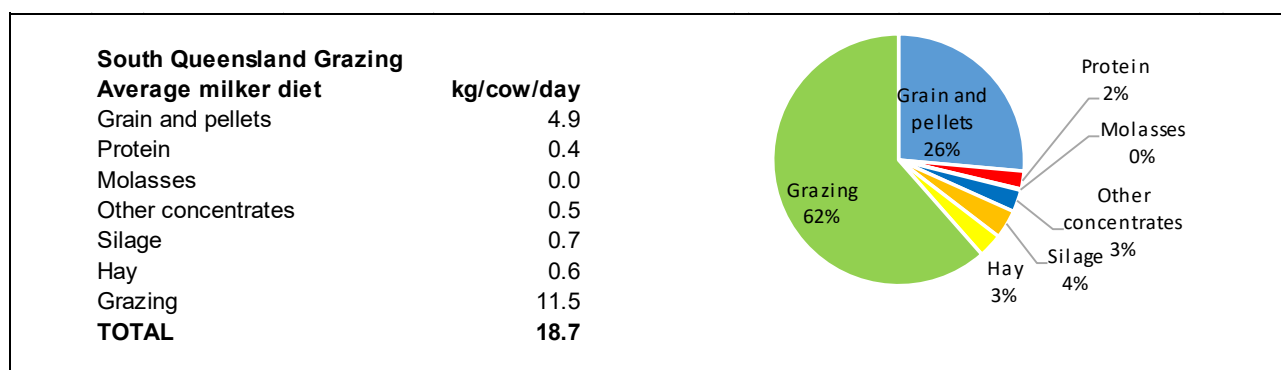
2021/2022

Farm Cash Income	c/L	\$/cow	\$/kg MS		Total \$ Earned
Milk Income (net)	69.4	3,593.6	9.59		1,040,522
- Livestock sales less purchases (dairy)	6.5	336.3	0.90		97,376
- Feed sales	0.2	11.1	0.03		3,200
- Other farm cash income	1.4	71.7	0.19		20,770
Total Farm Cash Income	77.5	4,012.7	10.71		1,161,868
Farm Cash Costs	c/L	\$/cow	\$/kg MS	% Milk receipts	Total \$ Spent
- Purchased grain, concentrates	22.2	1,147.8	3.06	31.9	332,329
- Purchased fodder, silage, hay	3.1	162.8	0.43	4.5	47,138
- Other purchased feed	0.4	21.5	0.06	0.6	6,220
Total Purchased Feed	25.7	1,332.0	3.56	37.1	385,687
- Fertiliser	3.4	178.1	0.48	5.0	51,563
- Fuel & oil	1.0	52.5	0.14	1.5	15,210
- Pasture & crop costs	0.7	38.2	0.10	1.1	11,054
- Irrigation costs	0.3	13.2	0.04	0.4	3,814
- Hay and silage making costs	0.1	6.5	0.02	0.2	1,869
- Agistment	0.4	19.3	0.05	0.5	5,601
- Other feed costs	0.2	10.6	0.03	0.3	3,071
Feed Related Costs	31.9	1,650.4	4.41	45.9	477,869
Margin Over Feed Related Costs	37.6	1,943.2	5.19	54.1	562,653
- Animal health	2.2	116.4	0.31	3.2	33,692
- Herd improvement	1.3	65.7	0.18	1.8	19,018
- Calf rearing	0.6	30.2	0.08	0.8	8,750
Herd Costs	4.1	212.3	0.57	5.9	61,460
- Dairy shed - power	1.2	62.5	0.17	1.7	18,106
- Dairy shed - supplies	1.3	65.9	0.18	1.8	19,090
Shed Costs	2.5	128.5	0.34	3.6	37,196
Total Variable Costs	38.5	1,991.1	5.32	55.4	576,525
- Employed labour costs	11.5	593.4	1.58	16.5	171,803
- Repairs & maintenance	4.0	207.2	0.55	5.8	60,006
- Other overhead costs	3.8	197.9	0.53	5.5	57,307
Total Cash Overhead Costs	19.3	998.5	2.67	27.8	289,116
Total Farm Working Expenses	57.8	2,989.7	7.98	83.2	865,641
Farm Operating Cash Surplus	19.8	1,023.1	2.73	28.5	296,227
- Interest costs	2.8	144.1	0.38	4.0	41,709
- Loan principal repayments	3.9	199.4	0.53	5.5	57,739
- Land lease costs	1.8	91.8	0.25	2.6	26,579
- Other capital purchases (unfinanced)	2.5	128.0	0.34	3.6	37,067
Net Cashflow Before Tax & Drawings	8.9	459.8	1.23	12.8	133,132

Labour inputs		Stock		Production	
Paid labour	2.6	Cows (milking and dry)	290	Total litres sold	1,498,305
Unpaid labour	1.6	Total herd	483	Litres / cow	5,175
Total labour units	4.3	Areas		Butterfat (kg)	60,300
Litres / Labour unit	352,166	Useable area (ha)	254	Protein (kg)	48,148
Cows / labour unit	68	Irrigation area (ha)	32	Milk solids / cow (kg)	375

Farms in this report: 11

10.9 Average milker diets (kg DM/cow/day) for regional production systems (2021-22)



10.10 Business traits, key performance indicators and definitions

Key performance indicators (KPI) are used in QDAS to monitor farm performance. Table 16 shows these indicators grouped under the three key business trait headings:

- Solvency
- Profitability
- Efficiency

A further business trait, liquidity, is essential to measuring a business' ability to meet short term debts. QDAS does not report on this business trait as it concentrates reporting into the longer-term business traits.

Why use KPI

Put simply, a KPI is a calculation used for measurement, comparison and evaluation. Their use eliminates many simple dollar value comparisons, which can often be misleading and confusing. They can also be used to identify problems and opportunities.

Table 16. Key performance indicators used in QDAS

<p>Profitability</p> <ul style="list-style-type: none"> • Return on asset managed – % • Return on equity – % • EBIT – \$/cow • EBIT margin – % <p>Solvency</p> <ul style="list-style-type: none"> • Equity% • Debt to equity ratio <p>Efficiency - Capital</p> <ul style="list-style-type: none"> • Asset turnover ratio • Total liabilities per cow – \$/cow • Interest per cow – \$/cow <p>Efficiency - Production</p> <ul style="list-style-type: none"> • Feed related cost – c/L • Margin over feed related costs – \$/cow • Total variable cost – c/L • Gross margin milk – \$/cow <p>Efficiency – Physical</p> <ul style="list-style-type: none"> • Litres of milk from home grown feed • Production per cow – Litres • Litres per labour unit
--

Profitability KPI used in QDAS

Profitability ratios measure the ability of the business manager to generate a satisfactory profit. These ratios are typically a good indicator of management's overall effectiveness in producing milk from the land and stock.

Return on asset managed

This measures the profit generating capacity of the total assets managed by the business. It measures the farm's effectiveness in using the available total assets (owned, financed and leased).

Calculation

$$(\text{EBIT} / \text{Total assets managed}) * 100$$

Return on equity

This KPI measures the return on the owner's investment in the business. Interest costs, land lease and rent are deducted from EBIT to make the calculation. It takes the investor's point of view and can be a good way to encourage further investment in a business; it also allows a comparison to be made with the returns available from external investments.

Calculation

$$(\text{Net farm income} / \text{Equity}) * 100$$

EBIT per cow

Earnings Before Interest and Tax (EBIT) is a calculation that highlights the amount of profit retained after all expenses are paid except debt servicing and taxation payments. It is a measure of the effectiveness of operations to generate and retain profits. Depreciation and a management allowance are included as expenses in this profit KPI.

Calculation

$$\text{EBIT} / \text{Number of cows}$$

EBIT margin

Similar to the above calculation but is expressed as a percentage of farm income.

Calculation

$$(\text{EBIT} / \text{Total gross farm income}) * 100$$

Solvency KPI used in QDAS

Solvency ratios indicate how the business is financed, e.g. by owner's equity or by external debt. Lenders of long-term funds and equity investors have an interest in solvency ratios. They can highlight:

- Possible problems for the business in meeting its long-term obligations.
- Show how much of the business' capital is provided by lenders versus owners.
- The asset liability statement will indicate to the lenders the potential risks in the recovery of their money.
- The potential amount of long-term funds that a business can borrow.

This KPI is often referred to as the 'sleep at night' factor – how comfortable do you feel with the current debt level?

Equity%

Lenders see an increased risk associated with borrowing as this percentage figure falls below a predetermined or agreed figure. To assess the risk potential it is important to look at both the debt and the business cash flow.

Calculation

$((\text{Assets} - \text{Liabilities}) / \text{Assets}) * 100$

Debt to equity ratio

This is another way of expressing equity.

Calculation

$\text{Liabilities} / (\text{Assets} - \text{Liabilities})$

Efficiency KPI used in QDAS

When examining a business these KPIs are often the starting point in an analysis; however, it is recommended that the emphasis should be on the first three business traits. Efficiency ratios show how well business resources are being used to achieve other KPI.

Efficiency - Capital

Asset turnover ratio (ATO)

This measures the amount of revenue generated per dollar of assets invested. It is a measure of the manager's effectiveness to generate revenues (capital efficiency). The calculation does not include any costs.

Calculation

$\text{Total gross farm income} / \text{Assets}$

Total liabilities per cow

A high value could indicate potential difficulties with both liquidity and solvency.

Calculation

$\text{Liabilities} / \text{Number of cows}$

Interest per cow

The total amount of dollars being paid in interest per cow is used to highlight one risk aspect for the business. Generally farms in a rapid development phase will have a higher figure than well established businesses.

Calculation

$\text{Total interest payments} / \text{Number of cows}$

Efficiency - Production

Feed related cost per litre

Feed related costs are variable cash costs and includes purchased as well as all home grown feed input costs.

Calculation

Total of all feed related costs / Milk sold

Margin over feed related costs

Only the milk income is used in this calculation, which avoids the fluctuations that occur in annual cattle sales.

Calculation

(Milk income – Feed related costs) / Number of cows

(Milk income – Feed related costs) / Milk sold

Total variable cost per litre

In QDAS total variable costs are compiled under three headings – feed related, herd and shed costs.

Calculation

(Feed related + shed + herd costs) / Milk sold

Efficiency - Physical

Litres of milk from home grown feed

Home grown feed includes grazed pasture, home produced hay, grain and silage. QDAS uses milk conversion factors to calculate the milk from all feed sources including concentrates.

Calculation

The milk from home grown feed is expressed as litres per cow per day

Production per cow

In QDAS the milking cow numbers used in all calculations includes milkers plus dry cows. This implies each cow has a calf annually.

Calculation

Milk sold / Number of cows

Litres per labour unit

The inference is made that as margins have reduced, technology should be used to gain efficiency. The number of cows milked per labour unit will impact on profitability.

Calculation

Milk sold / Number of labour units (paid + unpaid)

General comments

Many of these KPI are representative of KPI that are used in most business reporting. A great number of additional KPI can be calculated from the vast amount of data collated in QDAS if and when required.

Other measures are important when examining an individual plan especially liquidity traits e.g. cash surpluses. Environmental KPI and other sustainability considerations are also important.

The change in net worth is also an important indicator for every farm owner and should be calculated regularly.