

Balancing dairy production and profits in northern Australia



Queensland Dairy Accounting Scheme - 2012



Back cover

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QDAS Financial and production trends – 2012

Compiled by

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This publication has been compiled by Ray Murphy, Gordon Simpson and Melissa Matthews of Animal Science, Department of Agriculture, Fisheries and Forestry.

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Introduction

This report contains physical and financial data from 62 farms and includes data from the South East Coastal, Darling Downs and North Queensland dairy regions (Figure 1).

Milk production in Queensland stayed constant in 2011-12 at 485 million litres, having decreased by 8.1% in 2010-11 due to a very wet summer which included flooding and cyclones in some areas.

The number of dairies has declined to 548. Table 1 shows the trend in milk supply and farm numbers for Queensland over the last four years.

In 2011-12 Australian milk production was 9.5 billion litres with Queensland contributing 5.1% of this.

Figure 2 shows Queensland's monthly milk production with 2011-12 showing less variation than 2010-11.

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 details the characteristics of the most profitable farms in QDAS. Production per cow and the effect of herd size are examined.

Regional production system statistics are summarised in Section 3 and then are examined individually in Sections 4 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.

Changes to QDAS

Calculations in this report, including calculations of past data, now use a new methodology. Comparisons with previous QDAS reports need to be undertaken with care. Details of the changes to QDAS calculations can be found in Section 2.

Changes have been made to bring QDAS in line with similar services in other states. By using common language and calculations, easier comparisons can be made of the financial position of farmers across the states.

Figure 1. The location of dairy farms in Queensland

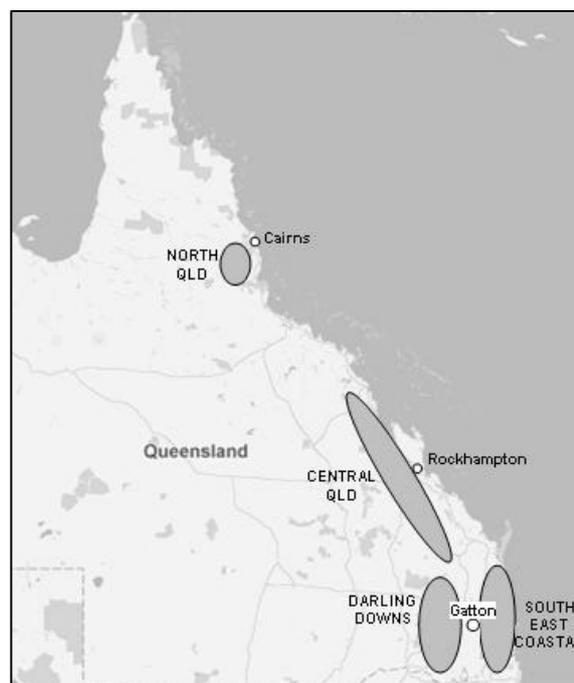
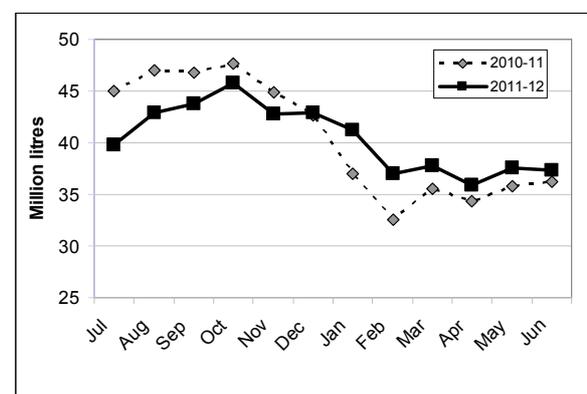


Table 1. Dairy farm numbers and annual production for Queensland (2008-09 to 2011-12)

	Farms	Annual production
2008-09	610	512 m L
2009-10	595	529 m L
2010-11	566	485 m L
2011-12	548	485 m L

Figure 2. Queensland monthly milk production (2010-11 and 2011-12)



Objectives

The objectives of this book are to:

- Provide Queensland Dairy Accounting Scheme (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

The Queensland Dairy Accounting Scheme (QDAS) was established 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, Fisheries and Forestry 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.

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1. 2011–2012 Key findings

Fifteen Key Performance Indicators (KPI) are used to highlight the results for profitability, solvency and efficiency. Table 2 shows these results for 2011-2012 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 dairy operating profit measured in dollars per cow.

Dairy operating profit 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 (2008-09 to 2011-12)

Business traits and indicators ⁽¹⁾	Top 25%	QDAS average	Past QDAS averages		
	2011-12	2011-12	2010-11	2009-10	2008-09
Profitability					
Return on assets managed (%)	5.4	2.5	na	na	na
Return on assets owned (%)	6.4	2.9	2.7	4.2	4.6
Return on equity (%)	5.6	1.4	1.4	3.7	4.1
Operating profit margin (%)	26.6	14.1	14.1	20.5	21.2
Dairy operating profit (\$/cow)	1,065	482	471	754	804
Solvency					
Equity (%)	79	82	83	85	84
Debt to equity ratio	0.26	0.22	0.21	0.18	0.20
Efficiency – Capital/Finance					
Asset turnover ratio	0.24	0.21	0.19	0.21	0.22
Total liabilities per cow (\$)	3,419	2,937	3,050	2,705	2,805
Interest paid/cow (\$)	266	232	236	176	188
Efficiency – Productivity					
Feed related costs (c/L)	23.5	26.2	26.5	27.2	29.1
Margin over feed related costs (c/L)	30.8	27.3	27.0	28.5	26.8
Total variable costs (c/L)	26.6	29.8	30.2	30.4	32.2
Gross margin - milk (\$/cow)	1,815	1,383	1,341	1,551	1,427
Efficiency – Physical					
Production per cow (L)	6,568	5,858	5,789	6,248	6,146
Litres per labour unit					
- On farms <1.0 m L	319,947	299,579	290,952	281,304	303,131
- On farms >1.0 m L	468,113	450,953	477,611	488,665	502,885

⁽¹⁾ The definition of each indicator and how it is calculated can be found in Appendix 10.11

Profitability

The profitability of Queensland dairy farms has not fully rebounded from the effects of the 2010-11 natural disasters. Dairy operating profit decreased from \$754/cow in 2009-10 to \$471/cow in 2010-11. There has been a small increase to \$482/cow in 2011-12.

2011-12 results show a decline in cattle sales and an increase in cattle inventories as farmers rebuild herds after severe culling in 2010-11 to manage mastitis issues caused by the excessive wet conditions.

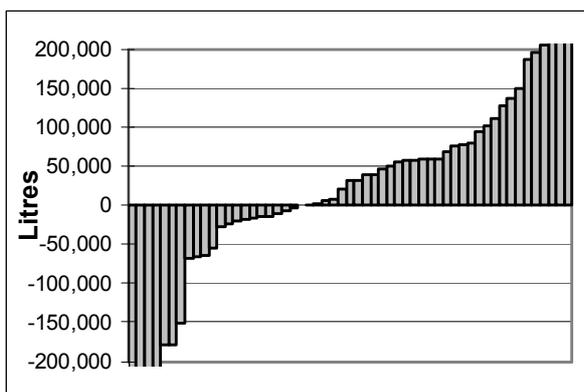
QDAS now calculates return on assets managed by dividing dairy operating profit by the value of assets owned and leased. The average value of leased assets for 2011-12 is \$553,081. The return on assets managed for 2011-12 is 2.4% while the return on assets owned is 2.8%. In this report, return on assets results for years before 2011-12 are return on assets owned since the value of leased land was not recorded before 2011-12.

Production and prices

In 2011-12 QDAS average milk production increased by 9,972 litres to 1,232,939 litres. This was the result of total cows decreasing from 211 to 210 and production per cow increasing by 69 litres.

The milk production changes on individual farms are more varied with four QDAS farms decreasing production by more than 200,000 litres and four other farms increasing production by more than 200,000 litres. Figure 3 shows the changes in milk production between 2010-11 and 2011-12 for individual QDAS farms.

Figure 3. Change in milk production on individual farms between 2010-11 and 2011-12

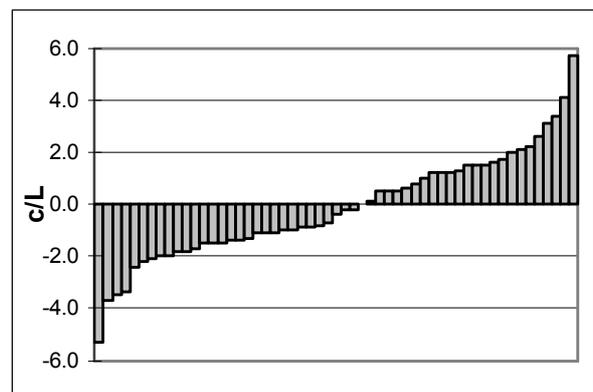


QDAS average milk receipts (milk price) decreased by 0.1c/L but include a 0.9 c/L price decrease in southern Queensland and a 2.0 c/L price increase in North Queensland. Price changes on individual farms have been dramatic. One farm had a price decrease of 5.7 c/L caused by reductions in Tier 1 milk allocations leading to more of their milk being paid at Tier 2 prices, while another farm achieved a price increase of 5.3 c/L by buying allocation. Figure 4 shows the changes in average milk receipts per litre between 2010-11 and 2011-12 for individual QDAS farms.

Production per cow

Production per cow increased slightly from 5,789 litres in 2010-11 to 5,858 litres in 2011-12. The large decrease in 2010-11 (down 459 litres) was caused by harsh climatic conditions and these effects have flowed through into the 2011-12 result. Farmers have been rebuilding herds with heifers after the larger than normal cow culls in 2010-11 and this was compounded by pasture production not fully recovering from damage caused in 2010-11.

Figure 4. Change in average milk receipts on individual farms between 2010-11 and 2011-12



Variable costs

Feed related costs decreased by 0.3 c/L, from 26.5 c/L to 26.2 c/L in 2011-12. The change in feed related costs is the sum of a 0.9 c/L decrease in purchased feeds, a 0.2 c/L decrease in seed and agricultural chemical costs, a 0.4 c/L increase in fertiliser costs and small increases in fuel, hay and silage making and agistment costs.

There was a 0.1 c/L decrease in herd costs, which when combined with the decrease in feed related costs, results in variable costs decreasing by 0.4 c/L. The margin over feed related costs increased by 0.3 c/L to 27.3 c/L.

The top 25% group achieved feed related costs of 23.5 c/L (2.7 c/L lower than the QDAS average) and a margin over feed related costs of 30.8 c/L (3.5 c/L higher than the average).

Once again the importance of feed related costs is evident in this year's data, with feed related costs consuming 49% of milk income.

The cost of grain was lower and protein meals were higher at the end of June. Fertiliser prices fluctuated through the year and ended higher. Table 3 shows the prices of major farm inputs, with some increasing and others easing. These prices are sourced in southern Queensland and vary depending on contractual arrangements.



Table 3. Indicative prices per tonne of major farm inputs (2011-12)

	June 2011	June 2012
Concentrates		
Sorghum	\$225	\$180
Barley	\$260	\$205
Wheat	\$260	\$225
Soybean meal	\$505	\$635
Canola meal	\$340	\$370
14% dairy pellet	\$330	\$345
Fertiliser		
Urea	\$640	\$705
Starter Z	\$890	\$915
Diesel		
Bowser price	\$1.50	\$1.45

Production costs

Table 4 shows the cash costs of production for QDAS farms from 2008-09 through to 2011-12. Living expenses have been allocated at \$60,000 per farm (4.9 c/L). However, if the living expenses were allocated at the management allowance figure of \$89,035 (6.9 c/L) found in the profit map in Appendices 10.3, the cost of production would increase by 2.0 c/L to 55.5 c/L. It should be noted that many of the QDAS farms have more than one family working on the farm and drawing a living from the farm.

Past QDAS reports have included milk cartage, milk levies and livestock selling costs as variable costs. These three items usually total to 0.6 c/L. QDAS now deducts these costs from milk income and livestock sales. The effect is that production costs for 2010-11 that were reported at 56.0 c/L are reported here at 55.4 c/L.

Table 4. Cash analysis of the costs of production (2011-12)

	2008-09	2009-10	2010-11	2011-12
Total farm receipts (c/L)	60.8	59.5	59.1	57.3
Variable costs (c/L)	32.2	30.4	30.2	29.8
Administration (c/L)	2.1	2.1	2.4	2.4
Repairs & maintenance (c/L)	3.3	3.7	3.6	3.3
Paid labour (c/L)	5.1	5.6	6.0	5.4
Interest + principal (c/L)	6.6	6.2	8.3	7.7
Living expenses (c/L) ⁽¹⁾	5.4	4.6	4.9	4.9
Total production costs (c/L)	54.7	52.6	55.4	53.5

⁽¹⁾ \$60,000 per farm is used as living expenses

Labour

Average paid labour costs are \$66,221 for 1.4 labour units. This is a \$7,679 (0.6 c/L) decrease from the previous year. As farms milk more cows there are opportunities to utilise labour more effectively. Table 5 shows that farms producing less than 0.75 m L (103 cows) do so at 280,162 litres per labour unit; where as farms producing more than 1.75 m L (376 cows) do so at 463,231 litres per labour unit.

Table 5 also shows the increase in labour used, both paid and unpaid (family), as production increases. It is not surprising that the greater than 1.75 m L group has the largest use of paid labour at 3.6 full time equivalents (FTE). This is twice the paid labour use of the 1.25 m L to 1.75 m L group. The greater than 1.75 m L group also uses 0.5 FTE more unpaid labour than the 1.25 m L to 1.75 m L group.

Administration efficiencies

The QDAS average administration cost was \$29,060 (2.4 c/L) and repairs and maintenance was \$40,366 (3.3 c/L). While administration costs increase as production increases, the costs get proportionately lower per litre. Table 5 shows administration falling from 4.1 c/L to 1.8 c/L as production increases. Repairs and maintenance decreases from 4.4 c/L to 2.9 c/L but jumps to 3.5 c/L for the largest farms.

Administration costs include rates, insurance, registration, office expenses, accounting, levies and telephone.

Changes to QDAS calculations

Changes to QDAS have been made to bring QDAS in line with similar services in other states. By using common language and calculations, easier comparisons can be made of the financial position of farmers across the states. This will show the higher costs of year round milk production in a subtropical environment, when compared to year round or seasonal production in the southern states. The major changes are listed below.

- Milk production is now always milk sold and no longer includes milk used on farm.
- Milk income and cattle sales are now displayed net of cartage, levies and other selling expenses.
- Government or community grants are now non farm income and are not included in gross margin or profit calculations.
- Livestock trading profit is now calculated using the opening cattle values only. This will remove cattle trading profit or losses that are created because cattle values are changed.
- Repairs and maintenance of machinery are no longer included in variable cost. All repairs and maintenance are included as overheads in the profit map.
- Imputed labour is now calculated by multiplying the hours of unpaid labour per year by \$20/hour. This was previously 6 c/L with a maximum of \$54,000.
- Return on assets managed is now calculated rather than a return on assets owned.

Table 5. Analysis of administration costs and labour inputs and costs (2011-12)

	<0.75 m L	0.75 – 1.25m L	1.25 – 1.75m L	>1.75m L
Milk production (L)	522,969	1,019,088	1,452,107	2,645,566
Cows (milkers + dry)	103	196	245	376
Overheads				
Admin (\$)	21,491	24,488	33,081	47,615
Admin (c/L)	4.1	2.4	2.3	1.8
Repairs & Maintenance (c/L)	4.4	3.0	2.9	3.5
Labour				
Unpaid labour (FTE)	1.4	1.5	1.6	2.1
Paid labour (FTE)	0.4	1.0	1.8	3.6
Paid labour cost (c/L)	2.9	4.5	6.5	6.1
Litres per labour unit	280,162	408,998	427,090	463,231

2. Factors affecting profitability

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

The higher dairy operating profit 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 1,058 litres per cow more than the remaining 75% group.
- Selling more litres of milk. The top 25% group sold 709,700 more litres of milk than the remaining 75% group. This is driven by production per cow and by having 77 more cows (milkers and dry).
- Higher milk receipts. The top 25% group received 1.3 c/L more for their milk which was due to processor payment structures and rewards for quality.
- Lower feed related costs. The top 25% group had feed related costs 4.2 c/L lower than the other group. The margin over feed related costs is 5.6 c/L higher.
- Better labour efficiency. The top 25% group achieved 72,356 more litres per labour unit, that is a 19% advantage over the other group.

Production per cow

QDAS reports have always shown that farms with higher production per cow have higher profitability. Table 7 shows that as production per cow increases from below 5,000 litres to above 7,000 litres profits increase. Interestingly, it is the larger farms that are achieving the highest production per cow.

Table 6. KPI for top 25% and the remaining 75% of farms (2011-12)

	Top 25%	Remaining 75%
Physical traits		
Cows (milkers + dry)	268	191
Farm production (L)	1,759,491	1,049,791
Efficiency - Physical		
Production per cow (L)	6,568	5,510
Milk from home grown feed (%) ⁽¹⁾	56	57
Litres per labour unit	457,754	385,398
Profit Analysis		
Dairy operating profit (\$/cow)	1,066	197
Average investment (\$/cow)	16,587	16,241
Cash Analysis		
Milk receipts (c/L)	54.3	53.0
Feed related costs (c/L)	23.5	27.7
Total variable costs (c/L)	26.6	31.7
Margin over FRC (c/L)	30.8	25.2
Gross margin – milk only (\$/cow)	1,814	1,171

⁽¹⁾ Milk from home grown feed results are for North Queensland only

Dairy operating profit per cow increased from \$129 to \$1,055 as production per cow increased.

While the margin over feed related costs per litre was not the highest in the above 7,000 litres group, the additional volume produced per cow drove the profitability and the highest margin over feed costs per cow of \$2,081.

Table 7. KPI for four production (L) per cow groups in Queensland (2011-12)

	<5,000	5,000 - 6,000	6,000 - 7,000	>7,000
Farm milk production (L)	923,566	998,517	1,551,174	2,466,078
Cows (milkers + dry)	201	178	237	299
Production per cow (L)	4,480	5,535	6,442	8,090
Milk receipts (c/L)	52.5	53.6	52.8	55.1
Margin over FRC (c/L)	24.0	29.2	28.5	25.7
Margin over FRC (\$/cow)	1,073	1,616	1,837	2,081
Dairy operating profit (\$/cow)	129	437	586	1,055

Herd size

An important profit driver is the scale of operation. Table 8 shows the effect that increasing milk production has on profitability indicators.

Increasing the scale of a farm's operation can lead to efficiencies in administration and the use of labour. The farms producing more than 2 million litres had the highest production per cow at 7,289 litres whereas the farms producing less than 750,000 litres, produced 5,074 litres per cow.

The larger herds had the highest margin over feed related costs per cow at \$1,971. This is an indicator of their attention to detail and recognition of the need for efficient feeding systems.

The return on assets managed increased as the scale of operation increased, with the farms who produced more than 2 million litres achieving 4.8%.

Labour usage was excellent in the larger herds with 479,421 litres produced per labour unit. Labour efficiency dropped to 280,162 litres per labour unit in the smaller herds.

With a dairy operating profit of \$873/cow, the farms that produced more than 2 million litres had the highest dairy operating profit per cow. This was nearly four times the result of the 0.75 million litre farms.

Table 8. KPI for farms with increasing annual production (2011-12)

	<0.75 m L	0.75 – 1.25 m L	1.25 – 2.0 m L	>2.0 m L
Farm milk production (L)	532,562	1,040,194	1,526,988	2,906,319
Cows (milkers + dry)	103	196	253	394
Production per cow (L)	5,074	5,204	5,942	7,289
Margin over feed related costs (\$/cow)	1,432	1,370	1,672	1,971
Litres per labour unit	280,162	408,998	421,223	479,421
Return on assets (%)	0.9	1.4	3.0	4.8
Dairy operating profit (\$/cow)	220	249	586	873

Milk from home grown feed

In 2011-12 an analysis of home grown feed was conducted in North Queensland by recording the amount of concentrates, hay and silage that were fed to milking cows. Table 9 shows that as farms increased the percentage of their milk from home grown feed, their feed related costs decreased from 29.6 c/L to 22.3 c/L and margin over feed costs increased from 22.0 c/L to 28.6 c/L.

It is important to note that the >65% group has only 163 cows, as opposed to 216 and 198 for the other groups. With the smaller herd comes the

reduced ability to achieve scale efficiencies and contributed to the dairy operating profit per cow being lowest in the >65% group and highest in the 55-65% group. This indicates the need for balance between purchased and home grown feeds. If the percentage of home grown feed is too low, then purchased feed costs rise dramatically. If not enough purchased feed is used, efficiencies of scale and profitability targets may not be achieved.

Table 9. KPI for farms with increasing percentages of litres from home grown feed (2011-12)

	<55%	55% - 65%	>65%
Feed related costs (c/L)	29.6	26.3	22.6
Margin over FRC (c/L)	22.0	24.3	28.6
Margin over FRC (\$/cow)	1,323	1,176	1,511
Dairy operating profit (\$/cow)	127	337	-4
Cows (milkers + dry)	216	198	163

3. 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 and grain and concentrates fed in the dairy. Less than 5% 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 5% of dry matter intake is from hay or silage and at least 1% 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 1% of dry matter intake is from grazing.

Table 10 shows the break up of the participating QDAS farms among the regional production systems. No reports are generated for a regional production system when less than 5 farms are surveyed in that system.

Table 10. The number of farms collected in each regional production system (2011-12)

Region	GRA	PMR	TMR	Total
North Queensland	13	1	0	14
Central Queensland	1	1	0	2
Darling Downs	5	5	9	19
South East Coastal	13	14	0	27
Total	32	21	9	62

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

- While North Queensland had the lowest milk receipts at 51.0 c/L, the gap between prices in North Queensland and the other regions has reduced. For instance Darling Downs TMR farms received 3.8 c/L more for milk this year, but in 2010-11 they received 6.8 c/L more.
- Darling Downs data showed a progressive increase in production per cow and feed related costs as farms intensified feeding systems through to TMR. However, South East Coastal PMR and grazing farms had similar production per cow. In many cases this is the result of South East Coastal PMR farms using silage to fill feed gaps rather than to boost milk production all year round. The use of silage to fill feed gaps will become more important in the future as processors push farms towards a flat monthly milk supply.
- PMR farms achieved the highest dairy operating profit per cow at \$930.

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 (2011-12)

	Sth East Coastal	Sth East Coastal	Darling Downs	Darling Downs	Darling Downs	North Qld
	Grazing	PMR	Grazing	PMR	TMR	Grazing
Cows (milkers + dry)	213	235	111	200	249	192
Farm production (L)	1,195,347	1,321,908	564,412	1,354,294	1,777,511	1,008,507
Production per cow (L)	5,604	5,617	5,094	6,765	7,132	5,265
Milk receipts (c/L)	53.8	53.0	51.9	54.1	54.8	51.0
Feed related costs(c/L)	23.8	24.8	21.9	25.2	30.1	26.3
Total variable costs (c/L)	28.0	28.1	25.2	28.0	33.2	30.9
Margin over feed related costs (c/L)	30.0	28.2	30.0	28.9	24.7	24.7
Dairy operating profit (\$/cow)	550	447	349	930	648	193
Return on assets managed (%)	3.0	2.2	1.4	4.8	4.2	0.9

4. South East Coastal - Grazing

Farms obtaining a large proportion of their milk from grazing and which are located in the areas of Beaudesert, Moreton, Brisbane Valley and Gympie have been grouped under the heading of South East Coastal. These areas have higher and more reliable rainfall and have a higher proportion of irrigation than the Darling Downs farms. Permanent summer pastures are mainly kikuyu, panics and setaria. Irrigation areas are planted to ryegrass, clover and lucerne. Kikuyu pastures are also oversown to winter forages. Grazing crops of forage sorghum and oats are also grown. Grain and molasses are readily available as supplements, fed at milking time.

The farms in this group have invested \$14,282 per cow in their operation, of which 70% is in the land value. Equity levels are high, averaging at 78.0%, and a return on assets managed of 3.0% was achieved.

Table 13 shows the data trends for farms with continuous participation in QDAS over the last 4 years, 2007-08 to the present. This sample of farms is slightly smaller than the sample used in Table 12. There are several points of interest.

- Milk receipts have decreased for the third year to be 5.4 c/L lower than in 2008-09.
- Cow numbers have increased in 2011-12.
- Production per cow has increased to 5,661 which is the highest in these four years.
- Dairy operating profit has recovered slightly from 2010-11.

Table 12. Statistics for South East Coastal grazing farms (2011-12)

Resources	
Cows (milkers + dry)	213
Mated heifers	53
Other heifers	106
Total dairy herd	373
Milking cow area (ha)	87
Effective dairy area (ha)	160
Labour units	3.0
Assets and Liabilities	
Land & buildings (\$)	2,137,151
Stock (\$)	482,338
Plant (\$)	184,885
Other (\$)	241,990
TOTAL (\$)	3,046,365
Liabilities (\$)	670,589
Equity (%)	78.0
Investment per cow (\$)	14,282
Debt per cow (\$)	3,144
Productivity	
Milk production (L)	1,195,347
Production per cow (L)	5,604
Financial	
Milk receipts (c/L)	53.8
Feed related costs (c/L)	23.8
Total variable costs (c/L)	28.0
Margin over feed related costs (c/L)	30.0
Dairy operating profit (\$/cow)	550
Return on assets managed (%)	3.0

Table 13. Trends for South East Coastal grazing farms (2008-09 to 2011-12)

	2008-2009	2009-2010	2010-2011	2011-2012
Milk receipts (c/L)	58.0	57.7	53.1	52.6
Cows (milkers and dry)	201	198	195	211
Production per cow (L)	5,570	5,476	5,461	5,661
Feed related costs (c/L)	26.9	25.5	25.4	23.6
Margin over feed related costs (c/L)	31.0	32.2	27.8	28.9
Total variable costs (c/L)	31.1	30.1	30.4	27.9
Dairy operating profit (\$/cow)	864	783	427	496

5. South East Coastal - PMR

South East Coastal PMR farms are located alongside the grazing properties in this region. 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 on grazing farms but the wet conditions have led to production being only slightly higher.

The farms in this group have invested \$15,771 per cow in their operation with 67% tied to the land. Equity levels are high, averaging at 86.1% and a return on assets managed of 2.2% was achieved.

Table 15 shows the data trends for farms with continuous participation in QDAS over the last 4 years, 2007-08 to the present. This sample of farms is slightly smaller than the sample used in Table 14. There are several points of interest.

- Milk receipts have decreased by 1.4 c/L in 2011-12 to be at their lowest in these four years.
- Cow numbers have fluctuated around 270 over these four years.
- Production per cow increased by 66 litres in 2011-12.
- Feed related costs increased by 0.8 c/L and total variable costs increased by 0.9 c/L in 2011-12.
- Dairy operating profit has decreased to \$433 per cow.

Table 14. Statistics for South East Coastal PMR farms (2011-12)

Resources	
Cows (milkers + dry)	235
Mated heifers	44
Other heifers	110
Total dairy herd	390
Milking cow area (ha)	99
Effective dairy area (ha)	219
Labour units	3.5
Assets and Liabilities	
Land & buildings (\$)	2,485,714
Stock (\$)	541,232
Plant (\$)	314,286
Other (\$)	370,627
TOTAL (\$)	3,711,859
Liabilities (\$)	517,003
Equity (%)	86.1
Investment per cow (\$)	15,771
Debt per cow (\$)	2,197
Productivity	
Milk production (L)	1,321,908
Production per cow (L)	5,617
Financial	
Milk receipts (c/L)	53.0
Feed related costs (c/L)	24.8
Total variable costs (c/L)	28.1
Margin over feed related costs (c/L)	28.2
Dairy operating profit (\$/cow)	448
Return on assets managed (%)	2.2

Table 15. Trends for South East Coastal PMR farms (2008-09 to 2011-12)

	2008-2009	2009-2010	2010-2011	2011-2012
Milk receipts (c/L)	57.4	57.0	54.8	53.4
Cows (milkers and dry)	263	278	275	270
Production per cow (L)	5,743	5,756	5,523	5,589
Feed related costs (c/L)	26.8	24.0	24.0	24.8
Margin over feed related costs (c/L)	30.6	33.0	30.9	28.6
Total variable costs (c/L)	29.3	26.6	26.9	27.8
Dairy operating profit (\$/cow)	823	883	547	433

6. Darling Downs - Grazing

Darling Downs farms are located west of the Great Dividing Range in an area stretching from Warwick in the south to Nanango in the north and west to Dalby. Most are located in the Condamine river catchment.

The rainfall received on the Downs is less than on the coast and more patchy. Dryland cropping is a major feature of the region with forage sorghum, lablab, oats and barley being the major crops. These farms are close to the grain production belt.

The farms in this group had the smallest herds with 111 cows, but the highest investment per cow at \$24,076 of any regional production system. Land made up 73% of the asset value. Equity levels are high, averaging at 84.7% and a return on assets managed of 1.4% was achieved.

Table 17 shows the data trends for farms with continuous participation in QDAS over the last 4 years, 2007-08 to the present. This sample of farms is slightly smaller than the sample used in Table 16. There are several points of interest.

- Milk receipts have decreased for the third year and are 6.1 c/L lower than in 2008-09.
- Cow numbers have steadily increased over these years.
- Production per cow increased by 424 litres in 2011-12.
- Dairy operating profit decreased over these four years.

Table 16. Statistics for Darling Downs grazing farms (2011-12)

Resources	
Cows (milkers + dry)	111
Mated heifers	19
Other heifers	59
Total dairy herd	189
Milking cow area (ha)	170
Effective dairy area (ha)	242
Labour units	1.8
Assets and Liabilities	
Land & buildings (\$)	1,951,000
Stock (\$)	222,568
Plant (\$)	225,000
Other (\$)	269,061
TOTAL (\$)	2,667,629
Liabilities (\$)	408,443
Equity (%)	84.7
Investment per cow (\$)	24,076
Debt per cow (\$)	3,686
Productivity	
Milk production (L)	564,412
Production per cow (L)	5,094
Financial	
Milk receipts (c/L)	51.9
Feed related costs (c/L)	21.9
Total variable costs (c/L)	25.2
Margin over feed related costs (c/L)	30.0
Dairy operating profit (\$/cow)	349
Return on assets managed (%)	1.4

Table 17. Trends for Darling Downs grazing farms (2008-09 to 2011-12)

	2008-2009	2009-2010	2010-2011	2011-2012
Milk receipts (c/L)	58.0	56.0	52.9	51.9
Cows (milkers and dry)	102	107	110	114
Production per cow (L)	5,335	5,677	4,909	5,333
Feed related costs (c/L)	21.3	24.6	20.1	21.3
Margin over feed related costs (c/L)	36.7	31.4	32.9	30.6
Total variable costs (c/L)	23.9	27.4	23.4	24.6
Dairy operating profit (\$/cow)	1,082	905	861	489

7. Darling Downs - PMR

PMR farms on the Downs plant similar crops to the grazing group but sorghum silage is a major component of the feed base, fed on a feed pad. Corn silage is also grown or sourced from contract growers. Farms in this group are located across the Downs and include both dryland and irrigated operations.

The cow numbers, farm production and production per cow of the Darling Downs PMR group are all higher than the grazing group but lower than the TMR group.

They have invested \$18,750 per cow in their operation with 70% tied to the land. Equity levels of this group averaged at 81.9% and a return on assets managed of 4.8% was achieved.

Table 19 shows the data trends for farms with continuous participation in QDAS over the last 4 years, 2007-08 to the present. This sample of farms is slightly smaller than the sample used in Table 18. There are several points of interest.

- Milk receipts have decreased for the third year to be at 54.2 c/L, 3.2 c/L lower than in 2008-09.
- Cow numbers have increased over these four years.
- Production per cow has recovered from the 2010-11 low to be at 7,691 litres in 2011-12.
- Feed related costs increased by 2.1 c/L in 2011-12 which contributed to a decrease in the margin over feed related costs of 2.7 c/L.
- Dairy operating profit recovered from the low in 2010-11 to be at \$1,263 in 2011-12.

Table 18. Statistics for Darling Downs PMR farms (2011-12)

Resources	
Cows (milkers + dry)	200
Mated heifers	46
Other heifers	135
Total dairy herd	381
Milking cow area (ha)	217
Effective dairy area (ha)	349
Labour units	3.2
Assets and Liabilities	
Land & buildings (\$)	2,610,000
Stock (\$)	512,440
Plant (\$)	392,000
Other (\$)	239,215
TOTAL (\$)	3,753,655
Liabilities (\$)	678,808
Equity (%)	81.9
Investment per cow (\$)	18,750
Debt per cow (\$)	3,391
Productivity	
Milk production (L)	1,354,294
Production per cow (L)	6,765
Financial	
Milk receipts (c/L)	54.1
Feed related costs (c/L)	25.2
Total variable costs (c/L)	28.0
Margin over feed related costs (c/L)	28.9
Dairy operating profit (\$/cow)	930
Return on assets managed (%)	4.8

Table 19. Trends for Darling Downs PMR farms (2008-09 to 2011-12)

	2008-2009	2009-2010	2010-2011	2011-2012
Milk receipts (c/L)	57.4	57.3	54.8	54.2
Cows (milkers and dry)	214	219	219	223
Production per cow (L)	6,884	7,534	6,876	7,691
Feed related costs (c/L)	30.9	27.4	23.4	25.5
Margin over feed related costs (c/L)	26.5	29.9	31.4	28.7
Total variable costs (c/L)	33.0	30.3	26.8	28.4
Dairy operating profit (\$/cow)	817	995	395	1,263

8. Darling Downs - TMR

The majority of the TMR farms are located north of the Warrego Highway 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. In reasonable years they grow all their own forage requirements.

These farms have commodity sheds. Grain, byproducts 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 on grain. It is common to feed up to 12 -14 kilograms of concentrate per cow per day.

They have invested \$14,035 per cow in their operation with 58% tied to the land. With the large investment in infrastructure that is required, they have a high debt per cow of \$4,041 and equity of 71.2%, the lowest equity of all groups. A return on assets managed of 4.2% was achieved.

Table 21 shows the data trends for farms with continuous participation in QDAS over the last 4 years, 2007-08 to the present. This sample of farms is slightly smaller than the sample used in Table 20. There are several points of interest.

- Milk receipts have decreased for the third year to be 3.7 c/L lower than in 2008-09.
- Feed related costs decreased by 4.5 c/L in 2011-12.
- Cow numbers have steadily increased over these four years.
- Dairy operating profit per cow increased by \$350 in 2011-12.

Table 20. Statistics for Darling Downs TMR farms (2011-12)

Resources	
Cows (milkers + dry)	249
Mated heifers	58
Other heifers	119
Total dairy herd	426
Milking cow area (ha)	206
Effective dairy area (ha)	486
Labour units	3.6
Assets and Liabilities	
Land & buildings (\$)	2,027,616
Stock (\$)	651,723
Plant (\$)	532,611
Other (\$)	285,830
TOTAL (\$)	3,497,780
Liabilities (\$)	1,006,995
Equity (%)	71.2
Investment per cow (\$)	14,035
Debt per cow (\$)	4,041
Productivity	
Milk production (L)	1,777,511
Production per cow (L)	7,132
Financial	
Milk receipts (c/L)	54.8
Feed related costs (c/L)	30.1
Total variable costs (c/L)	33.2
Margin over feed related costs (c/L)	24.7
Dairy operating profit (\$/cow)	648
Return on assets managed (%)	4.2

Table 21. Trends for Darling Downs TMR farms (2008-09 to 2011-12)

	2008-2009	2009-2010	2010-2011	2011-2012
Milk receipts (c/L)	58.8	57.1	55.6	55.1
Cows (milkers and dry)	222	251	265	270
Production per cow (L)	7,411	7,577	7,016	7,254
Feed related costs (c/L)	33.4	32.0	33.7	29.2
Margin over feed related costs (c/L)	25.4	25.0	21.9	25.9
Total variable costs (c/L)	35.5	34.6	36.7	32.4
Dairy operating profit (\$/cow)	1,419	806	498	848

9. North Queensland - Grazing

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 grain intake is 6-8 kgs. Some farms feed whole cottonseed and many feed rhodes grass hay for limited periods.

The farms in this group have invested \$19,667 per cow in their operation, of which 73% is in the land value. Equity levels are high, averaging at 89.1% (the highest of the regional production systems) and a return on assets managed of 0.9% was achieved (the lowest of the regional production systems).

Milk receipts are lower and feed concentrates are more expensive (due the freight component) than in the South East Coastal and Darling Downs systems.

Table 23 shows the data trends for farms with continuous participation in QDAS over the last 4 years, 2007-08 to the present. This sample of farms is slightly smaller than the sample used in Table 22. There are several points of interest.

- This is the only regional production system that achieved increases in milk receipts, up 2.4 c/L in 2011-12.
- Production per cow has been stable over these years.
- Cow numbers have been steadily decreasing.
- Feed related costs increased to 25.4 c/L in 2011-12.

Table 22. Statistics for North Queensland grazing farms (2011-12)

Resources	
Cows (milkers + dry)	192
Mated heifers	34
Other heifers	112
Total dairy herd	337
Milking cow area (ha)	98
Effective dairy area (ha)	197
Labour units	2.5
Assets and Liabilities	
Land & buildings (\$)	2,755,385
Stock (\$)	475,273
Plant (\$)	223,077
Other (\$)	313,311
TOTAL (\$)	3,767,046
Liabilities (\$)	411,575
Equity (%)	89.1
Investment per cow (\$)	19,667
Debt per cow (\$)	2,149
Productivity	
Milk production (L)	1,008,507
Production per cow (L)	5,265
Financial	
Milk receipts (c/L)	51.0
Feed related costs (c/L)	26.3
Total variable costs (c/L)	30.9
Margin over feed related costs (c/L)	24.7
Dairy operating profit (\$/cow)	193
Return on assets managed (%)	0.9

Table 23. Trends for North Queensland grazing farms (2008-09 to 2011-12)

	2008-2009	2009-2010	2010-2011	2011-2012
Milk receipts (c/L)	51.0	48.8	48.7	51.1
Cows (milkers and dry)	182	177	176	173
Production per cow (L)	5,767	5,661	5,483	5,505
Feed related costs (c/L)	26.4	25.5	23.3	25.4
Margin over feed related costs (c/L)	24.6	23.3	25.4	25.7
Total variable costs (c/L)	30.4	29.3	27.7	30.0
Dairy operating profit (\$/cow)	440	288	227	88

10. Appendices

10.1 Group cash gross margin – All 62 QDAS farms (2011–12)

Queensland dairy accounting scheme					
Group cash gross margin					Year: 2012
All Farms					
Cash receipts	Cents/litre	\$/cow	\$/kg MS	Total \$ earned	
Milk	1,232,939 litres	47.3	2,768.1	6.47	582,648
Milk bonuses/incentives/rebates/other		6.6	389.1	0.91	81,891
Milk Receipts		53.9	3,157.2	7.38	664,539
Cartage and levies		-0.5	-27.0	-0.06	-5,686
Milk receipts - net of cartage and levies		53.4	3,130.2	7.31	658,852
Stock sales - dairy		2.8	162.0	0.38	34,093
Stock sales - other		0.2	9.5	0.02	2,007
Produce sales		0.1	4.2	0.01	877
Other receipts		0.9	51.2	0.12	10,775
Other farm receipts		1.1	64.9	0.15	13,658
Total Farm Receipts		57.3	3,357.0	7.84	706,603
Production costs	Cents/litre	\$/Cow	\$/kg MS	% Milk Receipts	Total \$ spent
Purchased grain, concentrates, additives	16.2	950.0	2.22	30.4	199,969
Purchased fodder, silage, hay	2.0	115.5	0.27	3.7	24,321
Total purchased feeds	18.2	1,065.6	2.49	34.0	224,290
Fertiliser	2.8	165.4	0.39	5.3	34,813
Fuel & oil	1.7	101.6	0.24	3.2	21,375
Seed and ag chemicals	0.8	49.5	0.12	1.6	10,423
Irrigation costs	0.5	31.2	0.07	1.0	6,567
Hay and silage making costs	1.4	81.0	0.19	2.6	17,059
Agistment costs	0.6	34.6	0.08	1.1	7,280
Other feed costs	0.1	3.4	0.01	0.1	706
Feed Related Costs	26.2	1,532.2	3.58	49.0	322,513
Margin over feed related costs	27.3	1,597.9	3.73	51.0	336,339
Animal health	1.5	88.8	0.21	2.8	18,695
Herd improvement	0.6	32.5	0.08	1.0	6,832
Herd costs	2.1	121.3	0.28	3.9	25,527
Dairy shed costs - electricity	0.9	52.5	0.12	1.7	11,047
Dairy shed costs - chemicals	0.7	41.5	0.10	1.3	8,728
Shed costs	1.6	94.0	0.22	3.0	19,775
Total Variable Costs	29.8	1,747.5	4.08	55.8	367,815
Gross Margin - milk only	23.6	1,382.7	3.23	44.2	291,037
Gross Margin - whole farm	27.5	1,609.6	3.76	51.4	338,788

Labour inputs		Stock		Production	
Unpaid labour	1.6	Cows (milking and dry)	210	Total litres sold	1,232,939
Paid labour	1.4	Mated heifers	44	Litres/cow	5,858
Total labour units	3.0	Other heifers	108		
		Areas			
Litres/labour unit	409,220	Useable area (ha)	256	Protein Total (kg)	3.33% 41,085
kg MS/labour unit	29,902	Milking area (ha)	131	Butterfat Total (kg)	3.97% 49,007
Cows/labour unit	70	Irrigation (ha)	38	Milk solids (kg)	90,092
		Stocking rate (cows/useable ha)	0.8	Milk solids/cow	428
		Stocking rate (cows/milking ha)	1.6		

Farms in report: 62

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10.2 Group cash gross margin – Top 25% of farms (2011–12)

Queensland dairy accounting scheme

Group cash gross margin

Year: 2012

Top 25%

Cash receipts	Cents/litre	\$/cow	\$/kg MS	Total \$ earned	
Milk	1,759,491 litres	45.8	3,011.2	6.28	806,623
Milk bonuses/incentives/rebates/other	8.8	578.8	1.21		155,033
Milk Receipts	54.7	3,589.9	7.49		961,656
Cartage and levies	-0.4	-25.1	-0.05		-6,733
Milk receipts - net of cartage and levies	54.3	3,564.8	7.43		954,923
Stock sales - dairy	3.1	204.7	0.43		54,827
Stock sales - other	0.1	7.6	0.02		2,029
Produce sales	0.1	7.0	0.01		1,869
Other receipts	0.8	51.0	0.11		13,649
Other farm receipts	1.0	65.5	0.14		17,547
Total Farm Receipts	58.4	3,835.0	8.00		1,027,296
Production costs	Cents/litre	\$/Cow	\$/kg MS	% Milk Receipts	Total \$ spent
Purchased grain, concentrates, additives	14.3	941.5	1.96	26.4	252,216
Purchased fodder, silage, hay	1.3	83.7	0.17	2.3	22,428
Total purchased feeds	15.6	1,025.3	2.14	28.8	274,644
Fertiliser	2.7	177.0	0.37	5.0	47,421
Fuel & oil	1.8	120.0	0.25	3.4	32,151
Seed and ag chemicals	0.8	52.3	0.11	1.5	14,022
Irrigation costs	0.6	41.8	0.09	1.2	11,202
Hay and silage making costs	1.4	91.9	0.19	2.6	24,614
Agistment costs	0.5	30.9	0.06	0.9	8,273
Other feed costs	0.0	1.7	0.00	0.0	451
Feed Related Costs	23.5	1,540.9	3.21	43.2	412,778
Margin over feed related costs	30.8	2,023.9	4.22	56.8	542,145
Animal health	1.3	87.6	0.18	2.5	23,478
Herd improvement	0.4	28.1	0.06	0.8	7,533
Herd costs	1.8	115.8	0.24	3.2	31,011
Dairy shed costs - electricity	0.8	52.8	0.11	1.5	14,149
Dairy shed costs - chemicals	0.6	40.8	0.09	1.1	10,929
Shed costs	1.4	93.6	0.20	2.6	25,078
Total Variable Costs	26.6	1,750.3	3.65	49.1	468,867
Gross Margin - milk only	27.6	1,814.5	3.78	50.9	486,056
Gross Margin - whole farm	31.7	2,084.7	4.35	58.5	558,430

Labour inputs		Stock		Production	
Unpaid labour	1.5	Cows (milking and dry)	268	Total litres sold	1,759,491
Paid labour	2.3	Mated heifers	65	Litres/cow	6,568
Total labour units	3.8	Other heifers	152		
		Areas			
Litres/labour unit	457,754	Useable area (ha)	357	Protein Total (kg)	3.35% 59,022
kg MS/labour unit	33,423	Milking area (ha)	160	Butterfat Total (kg)	3.95% 69,446
Cows/labour unit	70	Irrigation (ha)	52	Milk solids (kg)	128,468
		Stocking rate (cows/useable ha)	0.7	Milk solids/cow	480
		Stocking rate (cows/milking ha)	1.7		

Farms in report: 16

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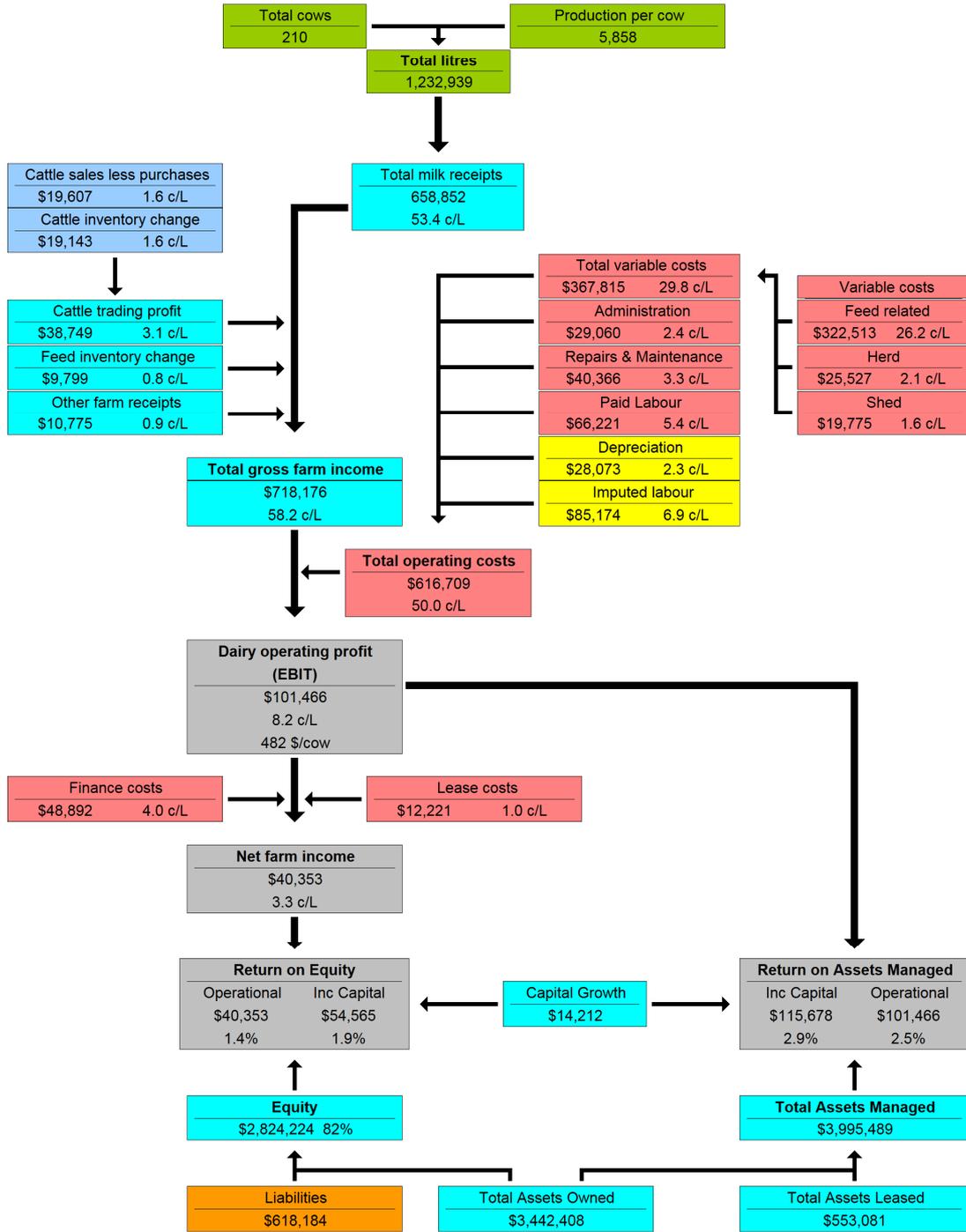
10.3 Map of farm performance – All 62 QDAS farms (2011–12)

Queensland dairy accounting scheme

Group dairy farm profit map

7/2011 - 6/2012

All Farms



Farms in report: 62

Asset and liability values are the average of opening and closing values for this year

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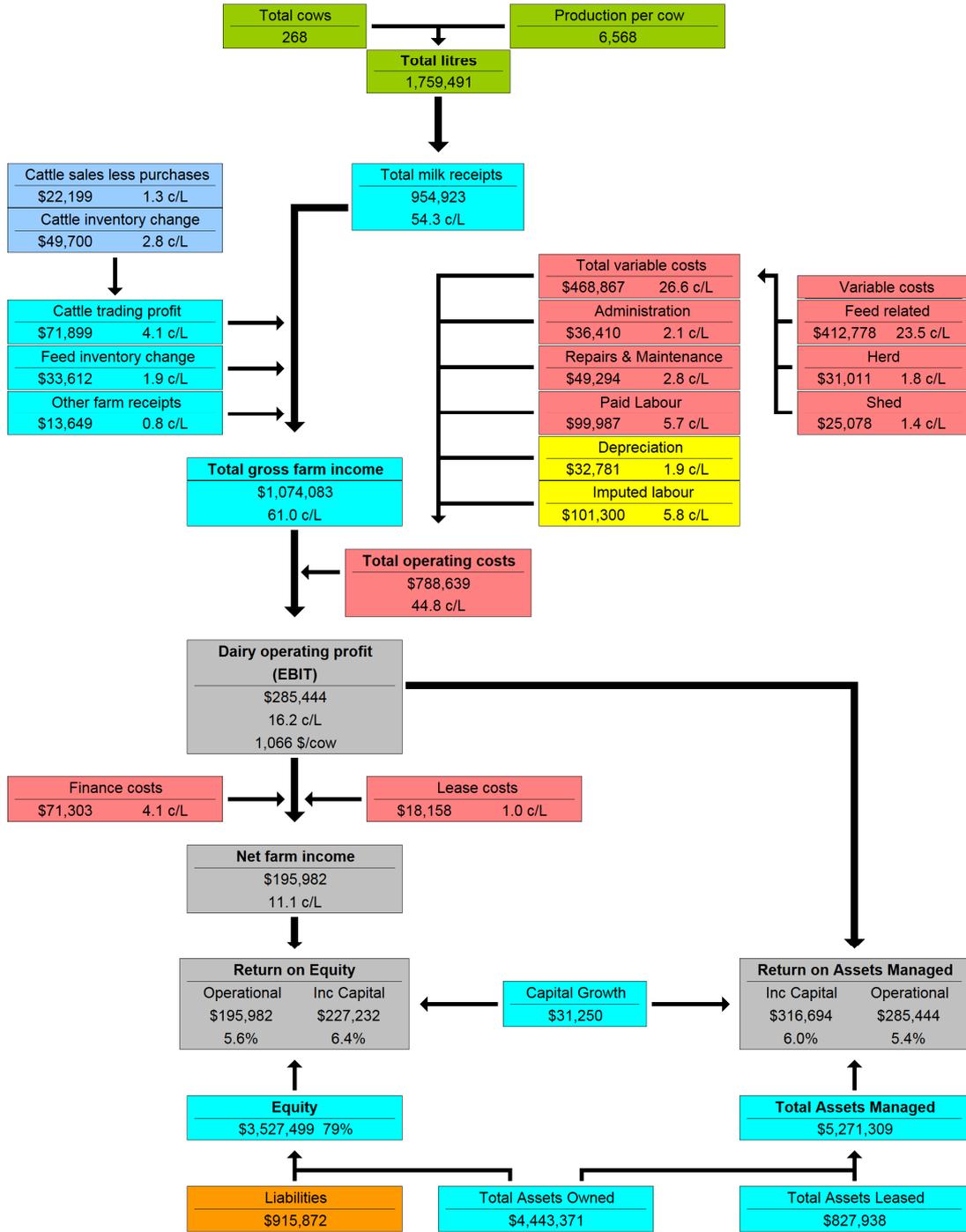
10.4 Map of farm performance – Top 25% of farms (2011–12)

Queensland dairy accounting scheme

Group dairy farm profit map

7/2011 - 6/2012

Top 25%



Farms in report: 16

Asset and liability values are the average of opening and closing values for this year

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10.5 Group cash gross margin – South East Coastal – Grazing (2011–12)

Queensland dairy accounting scheme

Group cash gross margin

Year: 2012

South East Coastal Grazing

Cash receipts	Cents/litre	\$/cow	\$/kg MS		Total \$ earned
Milk	1,195,347 litres	49.0	2,743.5	6.51	585,201
Milk bonuses/incentives/rebates/other		5.3	298.0	0.71	63,572
Milk Receipts	54.3	3,041.5	7.22		648,774
Cartage and levies		-0.5	-26.2	-0.06	-5,597
Milk receipts - net of cartage and levies	53.8	3,015.3	7.16		643,176
Stock sales - dairy	2.3	129.8	0.31		27,690
Stock sales - other		0.0	0.0	0.00	0
Produce sales		0.1	4.5	0.01	953
Other receipts		0.9	53.1	0.13	11,319
Other farm receipts	1.0	57.5	0.14		12,272
Total Farm Receipts	57.1	3,202.6	7.60		683,138
Production costs	Cents/litre	\$/Cow	\$/kg MS	% Milk Receipts	Total \$ spent
Purchased grain, concentrates, additives	16.4	919.0	2.18	30.5	196,020
Purchased fodder, silage, hay	0.7	40.3	0.10	1.3	8,595
Total purchased feeds	17.1	959.2	2.28	31.8	204,615
Fertiliser	3.6	202.4	0.48	6.7	43,173
Fuel & oil	1.4	79.2	0.19	2.6	16,896
Seed and ag chemicals	0.7	40.4	0.10	1.3	8,617
Irrigation costs	0.6	34.7	0.08	1.2	7,408
Hay and silage making costs	0.2	13.5	0.03	0.4	2,883
Agistment costs	0.1	3.1	0.01	0.1	653
Other feed costs	0.0	1.0	0.00	0.0	223
Feed Related Costs	23.8	1,333.6	3.16	44.2	284,468
Margin over feed related costs	30.0	1,681.6	3.99	55.8	358,708
Animal health	1.8	103.7	0.25	3.4	22,112
Herd improvement	0.8	46.8	0.11	1.6	9,977
Herd costs	2.7	150.4	0.36	5.0	32,089
Dairy shed costs - electricity	0.8	43.6	0.10	1.4	9,309
Dairy shed costs - chemicals	0.8	43.0	0.10	1.4	9,180
Shed costs	1.5	86.7	0.21	2.9	18,489
Total Variable Costs	28.0	1,570.7	3.73	52.1	335,045
Gross Margin - milk only	25.8	1,444.5	3.43	47.9	308,131
Gross Margin - whole farm	29.1	1,631.9	3.87	54.1	348,093

Labour inputs		Stock		Production	
Unpaid labour	1.5	Cows (milking and dry)	213	Total litres sold	1,195,347
Paid labour	1.5	Mated heifers	53	Litres/cow	5,604
Total labour units	3.0	Other heifers	106		
		Areas			
Litres/labour unit	399,473	Useable area (ha)	160	Protein Total (kg)	3.46% 41,346
kg MS/labour unit	30,041	Milking area (ha)	87	Butterfat Total (kg)	4.06% 48,546
Cows/labour unit	71	Irrigation (ha)	37	Milk solids (kg)	89,891
		Stocking rate (cows/useable ha)	1.3	Milk solids/cow	421
		Stocking rate (cows/milking ha)	2.5		

Farms in report: 13

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10.6 Group cash gross margin – South East Coastal – PMR (2011–12)

Queensland dairy accounting scheme

Group cash gross margin

Year: 2012

South East Coastal PMR

Cash receipts	Cents/litre	\$/cow	\$/kg MS	Total \$ earned	
Milk	1,321,908 litres	45.9	2,575.9	6.30	606,253
Milk bonuses/incentives/rebates/other		7.5	423.4	1.04	99,648
Milk Receipts	53.4	2,999.3	7.33		705,902
Cartage and levies	-0.4	-23.5	-0.06		-5,529
Milk receipts - net of cartage and levies	53.0	2,975.8	7.28		700,373
Stock sales - dairy	2.4	135.2	0.33		31,813
Stock sales - other	0.1	4.6	0.01		1,071
Produce sales	0.0	0.1	0.00		25
Other receipts	0.6	34.8	0.08		8,179
Other farm receipts	0.7	39.4	0.10		9,275
Total Farm Receipts	56.1	3,150.4	7.70		741,461
Production costs	Cents/litre	\$/Cow	\$/kg MS	% Milk Receipts	Total \$ spent
Purchased grain, concentrates, additives	13.9	780.9	1.91	26.2	183,795
Purchased fodder, silage, hay	2.3	131.8	0.32	4.4	31,012
Total purchased feeds	16.2	912.7	2.23	30.7	214,806
Fertiliser	2.2	125.5	0.31	4.2	29,549
Fuel & oil	1.6	92.3	0.23	3.1	21,733
Seed and ag chemicals	1.0	58.9	0.14	2.0	13,857
Irrigation costs	1.0	57.2	0.14	1.9	13,464
Hay and silage making costs	1.8	99.2	0.24	3.3	23,359
Agistment costs	0.8	47.3	0.12	1.6	11,133
Other feed costs	0.0	1.5	0.00	0.1	355
Feed Related Costs	24.8	1,394.7	3.41	46.9	328,255
Margin over feed related costs	28.2	1,581.1	3.87	53.1	372,118
Animal health	1.3	72.3	0.18	2.4	17,013
Herd improvement	0.5	29.7	0.07	1.0	6,988
Herd costs	1.8	102.0	0.25	3.4	24,001
Dairy shed costs - electricity	0.8	45.6	0.11	1.5	10,730
Dairy shed costs - chemicals	0.6	36.2	0.09	1.2	8,527
Shed costs	1.5	81.8	0.20	2.7	19,257
Total Variable Costs	28.1	1,578.5	3.86	53.0	371,514
Gross Margin - milk only	24.9	1,397.3	3.42	47.0	328,859
Gross Margin - whole farm	28.0	1,571.9	3.84	52.8	369,948

Labour inputs		Stock		Production	
Unpaid labour	1.4	Cows (milking and dry)	235	Total litres sold	1,321,908
Paid labour	2.1	Mated heifers	44	Litres/cow	5,617
Total labour units	3.5	Other heifers	110		
		Areas			
Litres/labour unit	379,236	Useable area (ha)	219	Protein Total (kg)	3.33% 44,016
kg MS/labour unit	27,614	Milking area (ha)	99	Butterfat Total (kg)	3.95% 52,237
Cows/labour unit	68	Irrigation (ha)	51	Milk solids (kg)	96,253
		Stocking rate (cows/useable ha)	1.1	Milk solids/cow	409
		Stocking rate (cows/milking ha)	2.4		

Farms in report: 14

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10.7 Group cash gross margin – Darling Downs – Grazing (2011–12)

Queensland dairy accounting scheme

Group cash gross margin

Year: 2012

Darling Downs Grazing

Cash receipts	Cents/litre	\$/cow	\$/kg MS	Total \$ earned	
Milk	564,412 litres	43.6	2,220.1	6.02	245,986
Milk bonuses/incentives/rebates/other		8.8	450.0	1.22	49,863
Milk Receipts	52.4	2,670.1	7.24		295,850
Cartage and levies		-0.5	-25.8	-0.07	-2,858
Milk receipts - net of cartage and levies	51.9	2,644.3	7.17		292,992
Stock sales - dairy	1.9	96.2	0.26		10,655
Stock sales - other		0.0	0.0	0.00	0
Produce sales		0.5	27.6	0.07	3,063
Other receipts		0.6	32.6	0.09	3,610
Other farm receipts	1.2	60.2	0.16		6,673
Total Farm Receipts	55.0	2,800.7	7.59		310,320
Production costs	Cents/litre	\$/Cow	\$/kg MS	% Milk Receipts	Total \$ spent
Purchased grain, concentrates, additives	12.9	655.6	1.78	24.8	72,636
Purchased fodder, silage, hay	1.7	86.1	0.23	3.3	9,543
Total purchased feeds	14.6	741.7	2.01	28.0	82,179
Fertiliser	1.9	96.2	0.26	3.6	10,657
Fuel & oil	2.1	105.5	0.29	4.0	11,690
Seed and ag chemicals	1.2	63.3	0.17	2.4	7,010
Irrigation costs	0.7	34.6	0.09	1.3	3,830
Hay and silage making costs	1.3	64.8	0.18	2.5	7,182
Agistment costs	0.1	2.8	0.01	0.1	314
Other feed costs	0.1	7.2	0.02	0.3	803
Feed Related Costs	21.9	1,116.1	3.02	42.2	123,664
Margin over feed related costs	30.0	1,528.2	4.14	57.8	169,328
Animal health	1.3	64.3	0.17	2.4	7,126
Herd improvement	0.3	16.9	0.05	0.6	1,876
Herd costs	1.6	81.2	0.22	3.1	9,001
Dairy shed costs - electricity	1.0	52.5	0.14	2.0	5,813
Dairy shed costs - chemicals	0.7	36.2	0.10	1.4	4,016
Shed costs	1.7	88.7	0.24	3.4	9,829
Total Variable Costs	25.2	1,286.1	3.49	48.6	142,495
Gross Margin - milk only	26.7	1,358.3	3.68	51.4	150,497
Gross Margin - whole farm	29.7	1,514.7	4.11	57.3	167,825

Labour inputs		Stock		Production	
Unpaid labour	1.4	Cows (milking and dry)	111	Total litres sold	564,412
Paid labour	0.4	Mated heifers	19	Litres/cow	5,094
Total labour units	1.8	Other heifers	59		
		Areas			
Litres/labour unit	306,746	Useable area (ha)	242	Protein Total (kg)	3.33% 18,801
kg MS/labour unit	22,218	Milking area (ha)	170	Butterfat Total (kg)	3.91% 22,080
Cows/labour unit	60	Irrigation (ha)	16	Milk solids (kg)	40,881
		Stocking rate (cows/useable ha)	0.5	Milk solids/cow	369
		Stocking rate (cows/milking ha)	0.7		

Farms in report: 5

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10.8 Group cash gross margin – Darling Downs – PMR (2011–12)

Queensland dairy accounting scheme

Group cash gross margin

Year: 2012

Darling Downs PMR

Cash receipts	Cents/litre	\$/cow	\$/kg MS	Total \$ earned	
Milk	1,354,294 litres	44.1	2,980.6	6.20	596,725
Milk bonuses/incentives/rebates/other		10.5	708.2	1.47	141,782
Milk Receipts	54.5	3,688.8	7.68		738,507
Cartage and levies	-0.4	-29.4	-0.06		-5,895
Milk receipts - net of cartage and levies	54.1	3,659.4	7.62		732,612
Stock sales - dairy	4.0	267.5	0.56		53,563
Stock sales - other	0.0	0.0	0.00		0
Produce sales	0.0	2.9	0.01		584
Other receipts	1.0	67.4	0.14		13,488
Other farm receipts	1.0	70.3	0.15		14,071
Total Farm Receipts	59.1	3,997.2	8.32		800,246
Production costs	Cents/litre	\$/Cow	\$/kg MS	% Milk Receipts	Total \$ spent
Purchased grain, concentrates, additives	14.2	959.1	2.00	26.2	192,006
Purchased fodder, silage, hay	1.4	92.6	0.19	2.5	18,530
Total purchased feeds	15.5	1,051.6	2.19	28.7	210,536
Fertiliser	1.9	126.3	0.26	3.5	25,295
Fuel & oil	2.8	188.5	0.39	5.2	37,740
Seed and ag chemicals	0.9	62.4	0.13	1.7	12,485
Irrigation costs	0.5	32.5	0.07	0.9	6,503
Hay and silage making costs	3.2	214.4	0.45	5.9	42,923
Agistment costs	0.4	29.7	0.06	0.8	5,942
Other feed costs	0.0	0.0	0.00	0.0	0
Feed Related Costs	25.2	1,705.4	3.55	46.6	341,424
Margin over feed related costs	28.9	1,954.0	4.07	53.4	391,188
Animal health	0.9	62.5	0.13	1.7	12,511
Herd improvement	0.2	14.9	0.03	0.4	2,975
Herd costs	1.1	77.4	0.16	2.1	15,486
Dairy shed costs - electricity	1.0	66.7	0.14	1.8	13,350
Dairy shed costs - chemicals	0.6	42.6	0.09	1.2	8,525
Shed costs	1.6	109.3	0.23	3.0	21,875
Total Variable Costs	28.0	1,892.0	3.94	51.7	378,785
Gross Margin - milk only	26.1	1,767.4	3.68	48.3	353,827
Gross Margin - whole farm	31.1	2,105.2	4.38	57.5	421,461

Labour inputs		Stock		Production	
Unpaid labour	1.3	Cows (milking and dry)	200	Total litres sold	1,354,294
Paid labour	1.9	Mated heifers	46	Litres/cow	6,765
Total labour units	3.2	Other heifers	135		
		Areas			
Litres/labour unit	423,217	Useable area (ha)	349	Protein Total (kg)	3.29% 44,516
kg MS/labour unit	30,059	Milking area (ha)	217	Butterfat Total (kg)	3.82% 51,673
Cows/labour unit	63	Irrigation (ha)	56	Milk solids (kg)	96,189
		Stocking rate (cows/useable ha)	0.6	Milk solids/cow	480
		Stocking rate (cows/milking ha)	0.9		

Farms in report: 5

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10.9 Group cash gross margin – Darling Downs – TMR (2011–12)

Queensland dairy accounting scheme

Group cash gross margin

Year: 2012

Darling Downs TMR

Cash receipts	Cents/litre	\$/cow	\$/kg MS	Total \$ earned	
Milk	1,777,511 litres	46.3	3,304.1	6.27	823,466
Milk bonuses/incentives/rebates/other	8.9	634.2	1.20		158,051
Milk Receipts	55.2	3,938.3	7.48		981,516
Cartage and levies	-0.5	-33.0	-0.06		-8,214
Milk receipts - net of cartage and levies	54.8	3,905.4	7.42		973,303
Stock sales - dairy	3.4	242.1	0.46		60,326
Stock sales - other	0.2	14.5	0.03		3,608
Produce sales	0.1	10.4	0.02		2,598
Other receipts	0.4	25.8	0.05		6,428
Other farm receipts	0.7	50.7	0.10		12,634
Total Farm Receipts	58.9	4,198.1	7.97		1,046,262
Production costs	Cents/litre	\$/Cow	\$/kg MS	% Milk Receipts	Total \$ spent
Purchased grain, concentrates, additives	17.6	1,257.1	2.39	32.2	313,292
Purchased fodder, silage, hay	4.3	308.2	0.59	7.9	76,804
Total purchased feeds	21.9	1,565.3	2.97	40.1	390,097
Fertiliser	2.0	145.8	0.28	3.7	36,326
Fuel & oil	2.4	174.1	0.33	4.5	43,402
Seed and ag chemicals	0.9	60.6	0.12	1.6	15,114
Irrigation costs	0.0	1.5	0.00	0.0	371
Hay and silage making costs	2.7	194.2	0.37	5.0	48,407
Agistment costs	0.0	3.0	0.01	0.1	752
Other feed costs	0.0	0.5	0.00	0.0	113
Feed Related Costs	30.1	2,145.0	4.07	54.9	534,582
Margin over feed related costs	24.7	1,760.4	3.34	45.1	438,721
Animal health	1.2	89.0	0.17	2.3	22,186
Herd improvement	0.3	19.8	0.04	0.5	4,943
Herd costs	1.5	108.9	0.21	2.8	27,129
Dairy shed costs - electricity	0.8	59.4	0.11	1.5	14,795
Dairy shed costs - chemicals	0.7	53.3	0.10	1.4	13,294
Shed costs	1.6	112.7	0.21	2.9	28,089
Total Variable Costs	33.2	2,366.6	4.49	60.6	589,799
Gross Margin - milk only	21.6	1,538.8	2.92	39.4	383,503
Gross Margin - whole farm	25.7	1,831.5	3.48	46.9	456,463

Labour inputs	Stock	Production
Unpaid labour	2.3 Cows (milking and dry)	249 Total litres sold
Paid labour	1.3 Mated heifers	58 Litres/cow
Total labour units	3.6 Other heifers	119
	Areas	
Litres/labour unit	499,925 Useable area (ha)	486 Protein Total (kg)
kg MS/labour unit	36,914 Milking area (ha)	206 Butterfat Total (kg)
Cows/labour unit	70 Irrigation (ha)	46 Milk solids (kg)
	Stocking rate (cows/useable ha)	0.5 Milk solids/cow
	Stocking rate (cows/milking ha)	1.2

Farms in report: 9

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10.10 Group cash gross margin – North Queensland – Grazing (2011–12)

Queensland dairy accounting scheme

Group cash gross margin

Year: 2012

North Queensland Grazing

Cash receipts	Cents/litre	\$/cow	\$/kg MS	Total \$ earned	
Milk	1,008,507 litres	50.2	2,644.6	7.09	506,541
Milk bonuses/incentives/rebates/other	1.3	70.6	0.19		13,517
Milk Receipts	51.6	2,715.2	7.27		520,058
Cartage and levies	-0.5	-28.3	-0.08		-5,417
Milk receipts - net of cartage and levies	51.0	2,686.9	7.20		514,641
Stock sales - dairy	2.2	118.0	0.32		22,602
Stock sales - other	0.6	30.9	0.08		5,921
Produce sales	0.0	0.0	0.00		0
Other receipts	1.7	89.3	0.24		17,098
Other farm receipts	2.3	120.2	0.32		23,018
Total Farm Receipts	55.6	2,925.1	7.84		560,261
Production costs	Cents/litre	\$/Cow	\$/kg MS	% Milk Receipts	Total \$ spent
Purchased grain, concentrates, additives	18.0	950.0	2.55	35.4	181,966
Purchased fodder, silage, hay	0.2	8.1	0.02	0.3	1,543
Total purchased feeds	18.2	958.1	2.57	35.7	183,509
Fertiliser	4.7	246.7	0.66	9.2	47,244
Fuel & oil	0.8	41.7	0.11	1.6	7,993
Seed and ag chemicals	0.4	22.0	0.06	0.8	4,213
Irrigation costs	0.3	18.1	0.05	0.7	3,459
Hay and silage making costs	0.0	1.5	0.00	0.1	297
Agistment costs	1.6	85.0	0.23	3.2	16,280
Other feed costs	0.2	11.7	0.03	0.4	2,239
Feed Related Costs	26.3	1,384.8	3.71	51.5	265,234
Margin over feed related costs	24.7	1,302.1	3.49	48.5	249,407
Animal health	2.0	106.6	0.29	4.0	20,424
Herd improvement	0.8	43.3	0.12	1.6	8,295
Herd costs	2.8	149.9	0.40	5.6	28,719
Dairy shed costs - electricity	1.0	53.6	0.14	2.0	10,266
Dairy shed costs - chemicals	0.8	39.6	0.11	1.5	7,577
Shed costs	1.8	93.2	0.25	3.5	17,843
Total Variable Costs	30.9	1,627.8	4.36	60.6	311,796
Gross Margin - milk only	20.1	1,059.0	2.84	39.4	202,845
Gross Margin - whole farm	24.6	1,297.2	3.48	48.3	248,465

Labour inputs		Stock		Production	
Unpaid labour	1.5	Cows (milking and dry)	192	Total litres sold	1,008,507
Paid labour	1.0	Mated heifers	34	Litres/cow	5,265
Total labour units	2.5	Other heifers	112		
		Areas			
Litres/labour unit	404,648	Useable area (ha)	197	Protein Total (kg)	3.18%
kg MS/labour unit	28,683	Milking area (ha)	98	Butterfat Total (kg)	3.90%
Cows/labour unit	77	Irrigation (ha)	21	Milk solids (kg)	71,486
		Stocking rate (cows/useable ha)	1.0	Milk solids/cow	373
		Stocking rate (cows/milking ha)	2.0		

Farms in report: 13

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10.11 Business traits, key performance indicators and definitions

Key performance indicators (KPI) are used in QDAS to monitor farm performance. Table 24 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's ability to meet short term debts. QDAS does not report on this business trait as it concentrates its efforts into the longer term business traits.

Why use KPI

Put simply, KPI are calculations 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 24. Key performance indicators used in QDAS

<p>Profitability</p> <ul style="list-style-type: none"> • Return on asset managed – % • Return on equity – % • Operating profit margin – % • Dairy operating profit –\$/cow <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 - operational

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). This does not include any capital (land and improvements) appreciation.

Calculation

$(\text{Dairy operating profit} / \text{Total assets managed}) * 100$

Return on asset managed – including capital appreciation

Return on assets managed including capital appreciation, measures the profit-generating capacity of the total assets of the business including the growth in the value of these assets. When large companies such as BHP report a RoA, they include the growth in the value of their assets.

Calculation

$((\text{Dairy operating profit} + \text{change in the value of land and improvements}) / \text{Total assets managed}) * 100$

Return on equity - operational

This KPI measures the return on the owner's investment in the business (not including any appreciation in the value of land or improvements). Interest costs and land lease and rent are deducted from the operating profit 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

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

Return on equity (RoE) - including capital appreciation

This KPI takes the RoE operational, discussed above, and adds in the appreciation in the value of land and improvements.

Calculation

(Net farm income + change in the value of land and improvements) / Equity * 100

Operating profit margin

This calculation 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 from revenues. Depreciation and a management allowance are included as expenses in this profit KPI.

Calculation

(Dairy operating profit / Total gross farm income) * 100

Dairy operating profit per cow

Similar to the above calculation but is expressed as dollars per cow.

Calculation

Dairy operating profit / Number of cows

Solvency KPI used in QDAS

Solvency ratios indicate how the business is financed, eg 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's 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

((Assets – Liabilities) / Assets) * 100

Debt to equity ratio

This is another way of expressing equity.

Calculation

Liabilities / (Assets – Liabilities)

Efficiency KPI used in QDAS

When examining a business these KPI 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

Total gross farm income / Assets

Total liabilities per cow

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

Calculation

Liabilities / 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

Total interest payments / Number of cow

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 per cow

Only the net milk receipts are used in this calculation, this avoids the fluctuations that occur in annual cattle sales.

Calculation

(Net milk receipts – Feed related costs) / Number of cows

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

Gross margin – milk only per cow

This highlights the milk production efficiency; the resulting dollars are available to pay fixed, financial, living and future development costs.

Calculation

(Net milk receipts – Total variable costs) / Number of cows

Efficiency - Physical

Litres of milk from home grown feed

Home grown feed includes grazed pasture, home produced hay 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 cow

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

Total litres of milk / Number of labour units (paid + unpaid)

General comments

Many of these 15 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 eg 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.