

# Balancing dairy production and profits in northern Australia



## Queensland Dairy Accounting Scheme - 2013



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QDAS Financial and production trends – 2013

Compiled by

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Department of Agriculture, Fisheries and Forestry 2013

## Department of Agriculture, Fisheries and Forestry

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

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# Introduction

This report contains physical and financial data from 65 farms and includes data from the South East Coastal, Darling Downs, Central Queensland and North Queensland dairy regions (Figure 1).

Milk production in Queensland decreased by 28 millions litres from 485 millions litres in 2011-12 to 457 million litres in 2012-13. This decrease is reflected in a 7% decrease in farm numbers from 548 in 2011-12 to 510 in 2012-13. Table 1 shows the trend in milk supply and farm numbers for Queensland over the last four years.

In 2012-13 Australian milk production was 9.2 billion litres with Queensland contributing 5.0% of this.

Figure 2 shows Queensland’s monthly milk production for 2011-12 and 2012-13.

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.

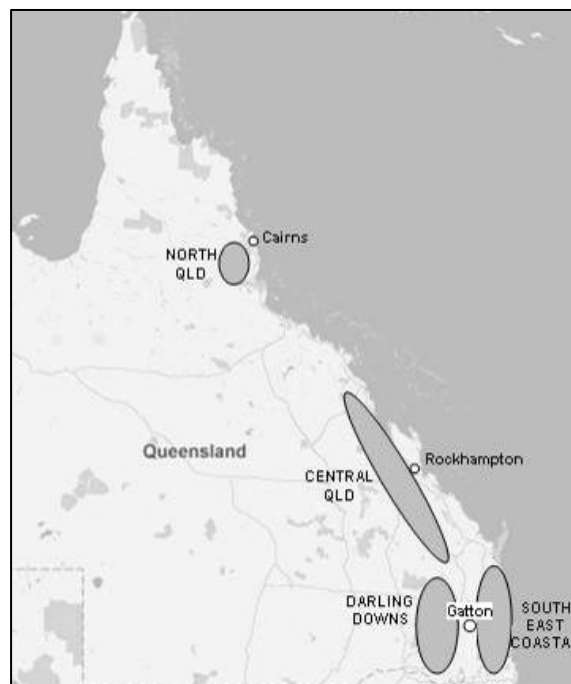
Section 2 examines 10 years of cash income and costs.

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.

Regional production system statistics are summarised in Section 4 and then are examined individually in Sections 5 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.

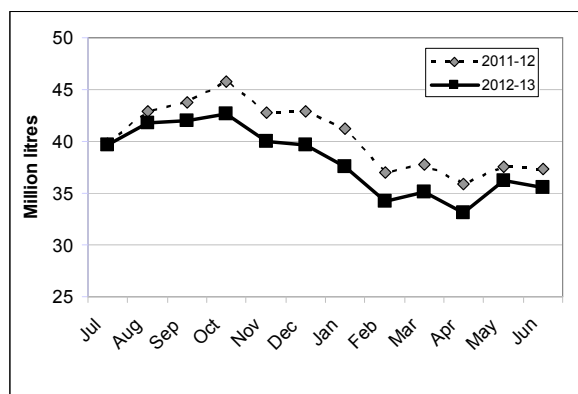
**Figure 1.** The location of dairy farms in Queensland



**Table 1.** Dairy farm numbers and annual production for Queensland (2009-10 to 2012-13)

	Farms	Annual production
<b>2009-10</b>	595	529 m L
<b>2010-11</b>	566	485 m L
<b>2011-12</b>	548	485 m L
<b>2012-13</b>	510	457 m L

**Figure 2.** Queensland monthly milk production (2011-12 and 2012-13)



## **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.

## **Acknowledgements**

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# Contents

Introduction .....	iv
Objectives .....	v
About QDAS .....	v
Acknowledgements .....	v
1. 2012–13 Key findings .....	1
2. Farm cash flow over the years .....	5
3. Factors affecting profitability .....	6
Production per cow .....	6
Herd size .....	7
Milk from home grown feed .....	7
4. Production system analysis .....	8
5. South East Coastal - Grazing .....	9
6. South East Coastal - PMR .....	10
7. Darling Downs - PMR .....	11
8. Darling Downs - TMR .....	12
9. North Queensland - Grazing .....	13
10. Appendices .....	14
10.1 Group cash gross margin – All 65 QDAS farms (2012–13) .....	14
10.2 Group cash gross margin – Top 25% of farms (2012–13) .....	15
10.3 Map of farm performance – All 62 QDAS farms (2012–13) .....	16
10.4 Map of farm performance – Top 25% of farms (2012–13) .....	17
10.5 Group cash gross margin – South East Coastal – Grazing (2012–13) .....	18
10.6 Group cash gross margin – South East Coastal – PMR (2012–13) .....	19
10.7 Group cash gross margin – Darling Downs – PMR (2012–13) .....	20
10.8 Group cash gross margin – Darling Downs – TMR (2012–13) .....	21
10.9 Group cash gross margin – North Queensland – Grazing (2012–13) .....	22
10.10 Business traits, key performance indicators and definitions .....	23

## Tables

<b>Table 1.</b> Dairy farm numbers and annual production for Queensland (2009-10 to 2012-13).....	iv
<b>Table 2.</b> Financial and performance ratios for QDAS farms (2009-10 to 2012-13).....	1
<b>Table 3.</b> Indicative prices per tonne of major farm inputs (2012-13).....	3
<b>Table 4.</b> Cash analysis of the costs of production (2012-13).....	3
<b>Table 5.</b> Analysis of administration costs and labour inputs and costs (2012-13).....	4
<b>Table 6.</b> Operating cash surplus (2003-04 to 2012-13).....	5
<b>Table 7.</b> Cash surplus / deficit of (2003-04 to 2012-13).....	5
<b>Table 8.</b> KPI for top 25% and the remaining 75% of farms (2012-13).....	6
<b>Table 9.</b> KPI for four production (L) per cow groups in Queensland (2012-13).....	6
<b>Table 10.</b> KPI for farms with increasing annual production (2012-13).....	7
<b>Table 11.</b> KPI for farms with increasing litres from home grown feed (2012-13).....	7
<b>Table 12.</b> The number of farms collected in each regional production system (2012-13).....	8
<b>Table 13.</b> KPI for farming systems (2012-13).....	8
<b>Table 14.</b> Statistics for South East Coastal grazing farms (2012-13).....	9
<b>Table 15.</b> Trends for South East Coastal grazing farms (2009-10 to 2012-13).....	9
<b>Table 16.</b> Statistics for South East Coastal PMR farms (2012-13).....	10
<b>Table 17.</b> Trends for South East Coastal PMR farms (2009-10 to 2012-13).....	10
<b>Table 18.</b> Statistics for Darling Downs PMR farms (2012-13).....	11
<b>Table 19.</b> Trends for Darling Downs PMR farms (2009-10 to 2012-13).....	11
<b>Table 20.</b> Statistics for Darling Downs TMR farms (2012-13).....	12
<b>Table 21.</b> Trends for Darling Downs TMR farms (2009-10 to 2012-13).....	12
<b>Table 22.</b> Statistics for North Queensland grazing farms (2012-13).....	13
<b>Table 23.</b> Trends for North Queensland grazing farms (2009-10 to 2012-13).....	13
<b>Table 24.</b> Key performance indicators used in QDAS.....	23

## Figures

<b>Figure 1.</b> The location of dairy farms in Queensland.....	iv
<b>Figure 2.</b> Queensland monthly milk production (2011-12 and 2012-13).....	iv
<b>Figure 3.</b> Change in milk production on individual farms between 2011-12 and 2012-13.....	2
<b>Figure 4.</b> Change in average milk receipts on individual farms between 2011-12 and 2012-13.....	2
<b>Figure 5.</b> Total farm receipts and total cash costs from 2003-04 to 2012-13.....	5



# 1. 2012–13 Key findings

Fifteen Key Performance Indicators (KPI) are used to highlight the results for profitability, solvency and efficiency. Table 2 shows these results for 2012-13 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 (2009-10 to 2012-13)

Business traits and indicators <sup>(1)</sup>	Top 25%	QDAS average	Past QDAS averages		
			2011-12	2010-11	2009-10
<b>Profitability</b>	<b>2012-13</b>	<b>2012-13</b>	<b>2011-12</b>	<b>2010-11</b>	<b>2009-10</b>
Return on assets managed (%)	4.8	1.4	2.5	na	na
Return on assets owned (%)	5.7	1.6	2.9	2.7	4.2
Return on equity (%)	4.5	-0.2	1.4	1.4	3.7
Operating profit margin (%)	21.7	7.7	14.1	14.1	20.5
Dairy operating profit (\$/cow)	832	247	482	471	754
<b>Solvency</b>					
Equity (%)	76	81	82	83	85
Debt to equity ratio	0.32	0.23	0.22	0.21	0.18
<b>Efficiency – Capital/Finance</b>					
Asset turnover ratio	0.26	0.21	0.21	0.19	0.21
Total liabilities per cow (\$)	3,496	2,856	2,937	3,050	2,705
Interest paid/cow (\$)	248	206	232	236	176
<b>Efficiency – Productivity</b>					
Feed related costs (c/L)	25.9	26.8	26.2	26.5	27.2
Margin over feed related costs (c/L)	27.1	24.5	27.3	27.0	28.5
Total variable costs (c/L)	29.2	30.7	29.8	30.2	30.4
Gross margin - milk (\$/cow)	1,561	1,200	1,383	1,341	1,551
<b>Efficiency – Physical</b>					
Production per cow (L)	6,541	5,833	5,858	5,789	6,248
Litres per labour unit					
- On farms <1.0 m L	343,923	301,030	299,579	290,952	281,304
- On farms >1.0 m L	542,980	478,436	450,953	477,611	488,665

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



## Profitability

The profitability of Queensland dairy farms declined significantly during 2012-13. Dairy operating profit decreased from \$482 per cow in 2011-12 to \$247 per cow in 2012-13. This result is also much lower than the 2010-11 dairy operating profit of \$471 per cow, a year that was affected by floods, cyclones and extended wet periods.

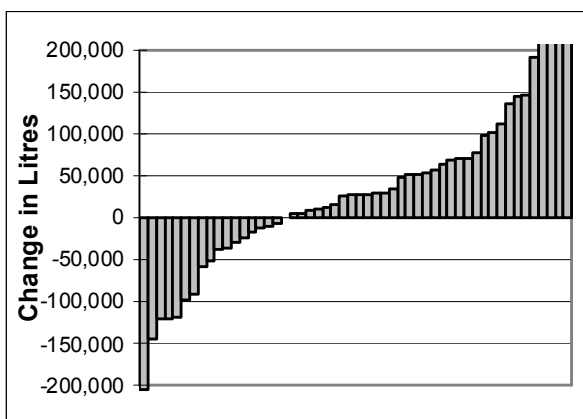
The 2012-13 year included severe flooding which affected dairy farmers in central Queensland, Gympie and other areas as well as drought conditions in western Queensland that affected central Queensland dairy farmers. Feed prices increased dramatically during the last few months of 2012-13.

The other major effect on profitability was the 2.1 c/L decrease in average milk receipts. This is the fourth consecutive decrease in average milk receipts from 55.9 c/L in 2008-09 to 51.5 c/L in 2012-13. The effect on individual farmers has been more dramatic, with several QDAS farms having an 8c/L decrease and one farm experiencing a 11.2 c/L decrease over these years. In the past few years many farmers have avoided larger decreases in average milk receipts by buying volume allocations from farmers leaving the industry. In some cases farmers have spent over \$100,000 to maintain their volume allocations.

## Production and prices

In 2012-13 QDAS average milk production increased by 73,632 litres to 1,306,571 litres. This was the result of total cows increasing from 210 to 232 and production per cow decreasing by 25 litres.

**Figure 3.** Change in milk production on individual farms between 2011-12 and 2012-13



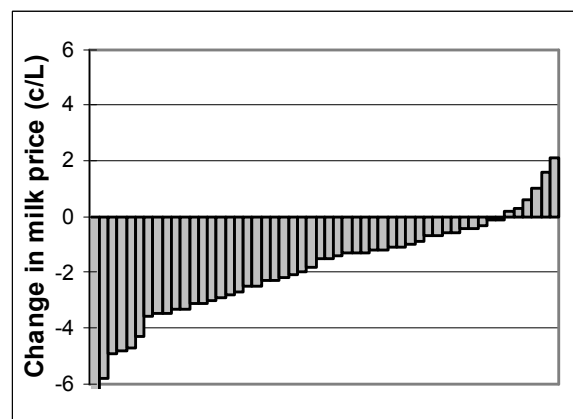
The milk production changes on individual farms are more varied with four QDAS farms increasing production by more than 200,000 litres and one farm decreasing production by more than 200,000 litres. Figure 3 shows the changes in milk production between 2011-12 and 2012-13 for individual QDAS farms.

QDAS average milk receipts (milk price) decreased by 2.1c/L. The hardest hit area was North Queensland where milk price decreased by 2.4c/L from 51.0c/L in 2011-12 to 48.6c/L in 2012-13. Increased penalties for milk quality issues also made an impact, with two QDAS farms suffering milk price decreases of 6.8c/L and 5.8c/L. Figure 4 shows the changes in average milk receipts per litre between 2011-12 and 2012-13 for individual QDAS farms.

## Production per cow

Production per cow decreased slightly from 5,858 litres in 2011-12 to 5,833 litres in 2012-13. In response to dramatically increasing purchased feed prices, some farmers reduced the amount of concentrates fed to their cows. The result was a saving in purchased feed costs but also a decrease in production per cow. In one case this decrease was in excess of 1,000 L/cow.

**Figure 4.** Change in average milk receipts on individual farms between 2011-12 and 2012-13



## Variable costs

Feed related costs increased by 0.6 c/L, from 26.2 c/L to 26.8 c/L in 2012-13. The change in feed related costs is primarily due to a 1.2 c/L increase in the cost of purchased feeds. The price of grains, protein and other concentrates increased dramatically in the last four months of 2012-13. This was offset by a 0.5 c/L decrease in fertiliser expenditure. Table 3 shows the prices of major farm inputs, including the dramatic increase in concentrate prices. These prices are sourced in southern Queensland and vary depending on contractual arrangements.

Irrigation costs increased from 0.5 c/L to 0.8 c/L due to increased electricity charges and dry conditions. While a 0.3 c/L change is not large in a QDAS average, the effect on those farms with irrigation has been large. One QDAS farm's irrigation cost increased by over \$20,000.

Herd and shed costs increased marginally. Total variable costs, the sum of feed related costs, herd costs and shed costs, increased by 0.9c/L. The margin over feed related costs decreased by 2.8 c/L from 27.3 c/L to 24.5 c/L.

The top 25% group achieved feed related costs of 25.9 c/L (0.9 c/L lower than the QDAS average) and a margin over feed related costs of 27.1 c/L (2.6 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 52% of milk income.

**Table 3.** Indicative prices per tonne of major farm inputs (2012-13)

	June 2012	June 2013
<b>Concentrates</b>		
Sorghum	\$180	\$325
Barley	\$205	\$365
Wheat	\$225	\$365
Soybean meal	\$635	\$746
Canola meal	\$370	\$545
14% dairy pellet	\$345	\$375
<b>Fertiliser</b>		
Urea	\$705	\$615
<b>Diesel</b>		
Bowser price	\$1.45	\$1.52

## Production costs

It would be expected that total cash costs would increase with the jump in purchased feed prices at the end of 2012-13. However, three issues have resulted in total cash costs remaining similar to the 2011-12 result.

Firstly, the dramatic increase in purchased feed prices occurred in the last four months of 2012-13 and some farmers had favourable feed contracts that covered all or part of this period.

Secondly, the lack of confidence among many farmers has resulted in few new investments and debts, so farmers are paying off existing debts and expenditure on interest and principal has decreased.

Finally, average milk production increased by 73,632 litres and this has diluted overhead costs, which is one of the aims of increasing production.

Table 4 shows the cash costs of production for QDAS farms for 2012-13. Tables 6 and 7 show the costs for the last ten years.

**Table 4.** Cash analysis of the costs of production (2012-13)

	c/L
<b>Farm receipts</b>	
Milk receipts (Net)	51.3
Other farm receipts	4.1
<b>Total farm receipts</b>	<b>55.4</b>
<b>Production costs</b>	
Purchased feed	19.4
Home grown feed	7.4
Total feed related costs	26.8
Herd costs	2.2
Shed costs	1.7
Administration	2.4
Repairs & maintenance	3.2
Employed labour	5.4
<b>Total production costs</b>	<b>41.7</b>
Interest, principal, lease	7.3
Owners labour	6.6
<b>Total cash costs</b>	<b>55.6</b>
Surplus / Deficit	-0.2

## Labour

Average paid labour costs are \$70,073 for 1.4 labour units. This is a \$3,852 increase 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 (110 cows) do so at 258,199 litres per labour unit; where as farms producing more than 1.75 m L (395 cows) do so at 519,725 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 more than double the paid labour use of the 1.25 m L to 1.75 m L group.

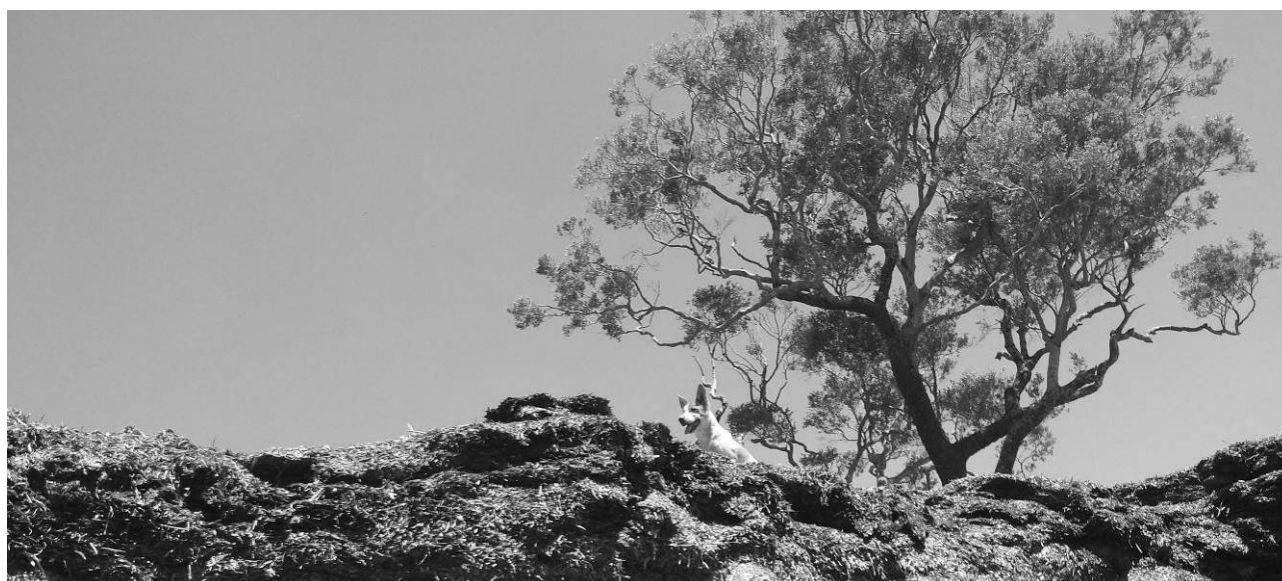
## Administration efficiencies

The QDAS average administration cost is \$31,730 (2.4 c/L) and repairs and maintenance is \$42,167 (3.3 c/L). While administration costs increase as production increases, the costs get proportionately lower per litre. Table 5 shows administration falling from 3.8 c/L to 1.8 c/L as production increases. Repairs and maintenance decreases from 4.8 c/L for the small farms to 2.9 c/L for the largest farms.

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

**Table 5.** Analysis of administration costs and labour inputs and costs (2012-13)

	<0.75 m L	0.75 – 1.25m L	1.25 – 1.75m L	>1.75m L
<b>Milk production (L)</b>	520,742	1,037,420	1,451,014	2,805,865
<b>Cows (milkers + dry)</b>	110	207	234	395
<b>Overheads</b>				
<b>Admin (\$)</b>	19,505	28,497	34,034	51,496
<b>Admin (c/L)</b>	3.8	2.8	2.4	1.8
<b>Repairs &amp; Maintenance (\$)</b>	25,119	33,886	43,060	81,738
<b>Repairs &amp; Maintenance (c/L)</b>	4.8	3.3	3.0	2.9
<b>Labour</b>				
<b>Unpaid labour (FTE)</b>	1.5	1.7	1.7	1.7
<b>Paid labour (FTE)</b>	0.5	0.8	1.4	3.6
<b>Paid labour cost (c/L)</b>	3.6	3.7	7.0	6.0
<b>Litres per labour unit</b>	258,199	403,477	461,327	519,725

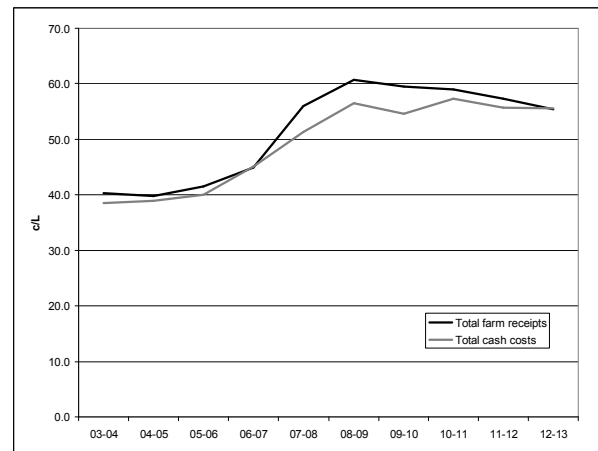


## 2. Farm cash flow over the years

This page shows time series data to calculate operating cash surplus and a cash surplus/deficit from 2003-04 to 2012-13. Milk receipts peaked in 2008-09 and have declined since. 2006-07 saw feed costs increase with dry seasonal conditions and since then fluctuate with commodity, fuel and fertiliser prices. Herd, shed, administration, repairs and labour costs have all increased over these ten years.

To cope with declining terms of trade, dairy farmers have continued to increase production. Nineteen farms in southern Queensland have submitted data for 10 years without interruption. In 2003-04 the average of these farms was 1,072,116 litres produced from 187 cows. In 2012-13 the same farms produced 1,360,865 litres from 229 cows. This represents a 27% increase in litres and a 22% increase in cows.

**Figure 5.** Total farm receipts and total cash costs from 2003-04 to 2012-13



**Table 6.** Operating cash surplus (2003-04 to 2012-13)

	2003 -04	2004 -05	2005 -06	2006 -07	2007 -08	2008 -09	2009 -10	2010 -11	2011 -12	2012 -13
Milk receipts (Net)	33.7	34.4	35.8	37.6	51.0	55.9	55.7	53.5	53.4	51.3
<b>Total farm receipts</b>	<b>40.3</b>	<b>39.8</b>	<b>41.5</b>	<b>45.0</b>	<b>56.0</b>	<b>60.8</b>	<b>59.5</b>	<b>59.0</b>	<b>57.3</b>	<b>55.4</b>
<u>Production costs</u>										
Purchased feed	11.5	11.9	12.6	16.2	17.9	19.7	20.0	19.1	18.2	19.4
Home grown feed	6.0	6.2	6.2	6.8	9.3	9.4	7.2	7.4	8.0	7.4
<b>Feed related costs</b>	<b>17.5</b>	<b>18.1</b>	<b>18.8</b>	<b>23.0</b>	<b>27.2</b>	<b>29.1</b>	<b>27.2</b>	<b>26.5</b>	<b>26.2</b>	<b>26.8</b>
Herd costs	1.4	1.4	1.5	1.5	1.7	1.9	1.9	2.2	2.1	2.2
Shed costs	0.9	1.0	1.0	1.0	1.1	1.2	1.3	1.6	1.6	1.7
Administration	1.9	1.8	1.9	1.8	2.0	2.2	2.1	2.3	2.4	2.4
Repairs & maintenance	2.5	2.2	2.3	2.4	2.7	3.3	3.7	3.6	3.3	3.2
Employed labour	3.0	3.2	3.4	3.6	4.0	5.1	5.6	6.0	5.4	5.4
<b>Farm working expenses</b>	<b>27.2</b>	<b>27.7</b>	<b>28.9</b>	<b>33.3</b>	<b>38.7</b>	<b>42.8</b>	<b>41.8</b>	<b>42.2</b>	<b>41.0</b>	<b>41.7</b>
<b>Operating cash surplus</b>	<b>13.1</b>	<b>12.1</b>	<b>12.6</b>	<b>11.7</b>	<b>17.3</b>	<b>18.0</b>	<b>17.7</b>	<b>16.8</b>	<b>16.3</b>	<b>13.7</b>

**Table 7.** Cash surplus / deficit of (2003-04 to 2012-13)

	2003 -04	2004 -05	2005 -06	2006 -07	2007 -08	2008 -09	2009 -10	2010 -11	2011 -12	2012 -13
<b>Total Farm Receipts</b>	<b>40.3</b>	<b>39.8</b>	<b>41.5</b>	<b>45.0</b>	<b>56.0</b>	<b>60.8</b>	<b>59.5</b>	<b>59.0</b>	<b>57.3</b>	<b>55.4</b>
Farm working expenses	27.2	27.7	28.9	33.3	38.7	42.8	41.8	42.2	41.0	41.7
Interest, principal	5.6	5.4	5.2	5.6	6.3	7.2	6.2	8.3	7.8	7.3
Owners' Labour	5.7	5.9	6.0	6.2	6.3	6.5	6.6	6.8	6.9	6.6
<b>Total cash costs</b>	<b>38.5</b>	<b>39.0</b>	<b>40.1</b>	<b>45.1</b>	<b>51.3</b>	<b>56.5</b>	<b>54.6</b>	<b>57.3</b>	<b>55.7</b>	<b>55.6</b>
<b>Cash surplus / deficit</b>	<b>1.8</b>	<b>0.8</b>	<b>1.4</b>	<b>-0.1</b>	<b>4.7</b>	<b>4.3</b>	<b>4.9</b>	<b>1.7</b>	<b>1.6</b>	<b>-0.2</b>

### 3. 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 8 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 1,199 litres per cow more than the remaining 75% group.
- Selling more litres of milk. The top 25% group sold 908,261 more litres of milk than the remaining 75% group. This is driven by production per cow and by having 101 more cows (milkers and dry).
- Higher milk receipts. The top 25% group received 2.0 c/L more for their milk which was due to processor payment structures and rewards for quality and volume.
- Lower feed related costs. The top 25% group had feed related costs 3.8 c/L lower than the other group. The margin over feed related costs is 5.7 c/L higher.
- Better labour efficiency. The top 25% group achieved 77,055 more litres per labour unit, that is a 20% advantage over the other group.

**Table 8.** KPI for top 25% and the remaining 75% of farms (2012-13)

	Top 25%	Remaining 75%
<b>Physical traits</b>		
Cows (milkers + dry)	288	187
Farm production (L)	1,940,038	1,031,777
<b>Efficiency - Physical</b>		
Production per cow (L)	6,731	5,532
Milk from home grown feed (%) <sup>(1)</sup>	10.2	9.9
Litres per labour unit	455,244	378,189
<b>Profit Analysis</b>		
Dairy operating profit (\$/cow)	1,115	208
Average investment (\$/cow)	17,250	15,692
<b>Cash Analysis</b>		
Milk receipts (c/L)	54.7	52.7
Feed related costs (c/L)	23.7	27.5
Total variable costs (c/L)	26.9	31.4
Margin over FRC (c/L)	31.0	25.3
Gross margin – milk only (\$/cow)	1,868	1,180

<sup>(1)</sup> Milk from home grown feed results are for North Queensland only

#### **Production per cow**

QDAS reports have always shown that farms with higher production per cow have higher profitability. Table 9 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.

Dairy operating profit per cow increased from -\$36 to \$473 as production per cow increased.

The margin over feed related costs per litre is the highest in the 5,000-6,000 litres group, while the margin over feed related costs per cow is highest in the 6,000-7,000 litres group.

**Table 9.** KPI for four production (L) per cow groups in Queensland (2012-13)

	<5,000	5,000 - 6,000	6,000 - 7,000	>7,000
Farm milk production (L)	901,164	1,015,222	1,732,686	2,334,453
Cows (milkers + dry)	211	179	264	298
Production per cow (L)	4,181	5,601	6,518	7,776
Milk receipts (c/L)	50.4	51.7	51.2	51.8
Margin over FRC (c/L)	24.3	27.3	25.5	19.7
Margin over FRC (\$/cow)	1,018	1,527	1,663	1,532
Dairy operating profit (\$/cow)	-36	209	422	473

## Herd size

An important profit driver is the scale of operation. Table 10 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 7,012 litres whereas the farms producing less than 750,000 litres, produced 4,708 litres per cow.

The larger herds had the highest margin over feed related costs per cow at \$1,654. 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 3.1%.

Labour usage was excellent in the larger herds with 516,163 litres produced per labour unit. Labour efficiency dropped to 258,199 litres per labour unit in the smaller herds.

With a dairy operating profit of \$535/cow, the farms that produced more than 2 million litres had the highest dairy operating profit per cow. The 0.75 million litre farms received a \$148 per cow loss.

**Table 10.** KPI for farms with increasing annual production (2012-13)

	<0.75 m L	0.75 – 1.25 m L	1.25 – 2.0 m L	>2.0 m L
<b>Farm milk production (L)</b>	520,742	1,037,420	1,470,239	2,910,590
<b>Cows (milkers + dry)</b>	110	207	233	412
<b>Production per cow (L)</b>	4,708	4,947	6,219	7,012
<b>Margin over feed related costs (\$/cow)</b>	1,173	1,229	1,557	1,654
<b>Litres per labour unit</b>	258,199	403,477	468,896	516,163
<b>Return on assets managed (%)</b>	-0.8	0.9	1.2	3.1
<b>Dairy operating profit (\$/cow)</b>	-148	146	231	535

## Milk from home grown feed

In 2012-13 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. This allows the calculation of the KPI shown below in Table 11.

The group of farms that achieved more than 11 litres from home grown feed did have higher feed

related costs per litre, but this paid off with \$340 more in margin over feed costs per cow. This shows that increasing the litres from home grown feed is not about limiting purchased feed but feeding a balance diet that gets the most out of cows.

**Table 11.** KPI for farms with increasing litres from home grown feed (2012-13)

	<11.0 litres per cow per day	>11.0 litres per cow per day
<b>Milk from home grown feed (%)</b>	53.9	56.8
<b>Production per cow (L)</b>	4,465	6,652
<b>Feed related costs (c/L)</b>	25.9	27.4
<b>Margin over FRC (c/L)</b>	22.6	20.3
<b>Margin over FRC (\$/cow)</b>	1,009	1,349

## 4. 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 12 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 12.** The number of farms collected in each regional production system (2012-13)

Region	GRA	PMR	TMR	Total
North Queensland	14	2	0	16
Central Queensland	1	1	0	2
Darling Downs	2	7	9	18
South East Coastal	13	15	1	29
<b>Total</b>	30	25	10	65

**Table 13.** KPI for farming systems (2012-13)

	Sth East Coastal Grazing	Sth East Coastal PMR	Darling Downs PMR	Darling Downs TMR	North Qld Grazing
Cows (milkers + dry)	232	224	185	276	212
Farm production (L)	1,195,704	1,286,179	1,117,453	1,950,603	1,137,012
Production per cow (L)	5,145	5,746	6,036	7,070	5,109
Milk receipts (c/L)	51.5	51.6	52.5	53.2	48.6
Feed related costs(c/L)	24.8	23.2	25.5	32.2	24.8
Total variable costs (c/L)	29.2	26.5	29.2	35.2	29.7
Margin over feed related costs (c/L)	26.7	28.4	27.0	21.0	23.8
Dairy operating profit (\$/cow)	325	220	219	646	-21
Return on assets managed (%)	1.9	1.1	1.2	4.8	-0.1

Table 13 presents a summary of the KPI for each regional production system. There are several points of interest.

- The difference between average milk receipts in different regions as widened during 2012-13. Darling Downs TMR farmers received 4.6c/L more for milk than North Queensland farmers. These TMR farmers receive incentive payments for high volumes. North Queensland farmers faced cuts to their Tier 1 milk volumes allocations which have reduced average milk receipts.
- Production per cow increases as the feeding system intensifies. The grazing farms in South East Coastal and North Queensland achieve 5,145 L/cow and 5,109 L/cow. The PMR regional production systems averaged 5,746 and 6,036 L/cow while the Darling Downs TMR farms achieved 7,070 L/cow.
- The 2012-13 dairy operating profit of TMR farms is considerably higher than the other regional production systems.

*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.*



## 5. 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 \$12,766 per cow in their operation, of which 68% is in the land value. Equity levels are high, averaging at 77%, and a return on assets managed of 1.9% was achieved.

Table 15 shows the data trends for farms with continuous participation in QDAS over the last 4 years, 2009-10 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 for the fourth year to be 7.2 c/L lower than in 2009-10.
- Cow numbers have increased slightly in 2012-13.
- Production per cow has decreased to 5,444.
- Dairy operating profit is at the lowest level of these four years.

**Table 14.** Statistics for South East Coastal grazing farms (2012-13)

<b>Resources</b>	
Cows (milkers + dry)	232
Mated heifers	55
Other heifers	124
Total dairy herd	411
Milking cow area (ha)	92
Effective dairy area (ha)	173
Labour units	3.0
<b>Assets and Liabilities</b>	
Land & buildings (\$)	2,020,000
Stock (\$)	522,522
Plant (\$)	198,846
Other (\$)	221,240
TOTAL (\$)	2,962,608
Liabilities (\$)	674,606
Equity (%)	77
Investment per cow (\$)	12,766
Debt per cow (\$)	2,907
<b>Productivity</b>	
Milk production (L)	1,193,954
Production per cow (L)	5,145
<b>Financial</b>	
Milk receipts (c/L)	51.5
Feed related costs (c/L)	24.8
Total variable costs (c/L)	29.2
Margin over feed related costs (c/L)	26.7
Dairy operating profit (\$/cow)	325
Return on assets managed (%)	1.9

**Table 15.** Trends for South East Coastal grazing farms (2009-10 to 2012-13)

	2009-10	2010-11	2011-12	2012-13
<b>Milk receipts (c/L)</b>	58.7	53.7	52.9	51.5
<b>Cows (milkers and dry)</b>	207	202	219	222
<b>Production per cow (L)</b>	5,331	5,345	5,563	5,444
<b>Feed related costs (c/L)</b>	24.3	24.6	23.2	24.7
<b>Margin over feed related costs (c/L)</b>	34.4	29.1	29.7	26.8
<b>Total variable costs (c/L)</b>	29.0	29.8	27.4	29.1
<b>Dairy operating profit (\$/cow)</b>	881	479	534	364

## 6. 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 \$15,752 per cow in their operation with 71% tied to the land. Equity levels are high, averaging at 89% and a return on assets managed of 1.1% was achieved.

Table 17 shows the data trends for farms with continuous participation in QDAS over the last 4 years, 2009-10 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 fourth straight year to be 51.5 c/L in 2012-13.
- Cow numbers have fluctuated around 240 over these four years.
- Production per cow increased by 150 litres in 2012-13.
- Dairy operating profit has decreased to \$165 per cow to be the lowest in these four years.

**Table 16.** Statistics for South East Coastal PMR farms (2012-13)

<b>Resources</b>	
Cows (milkers + dry)	224
Mated heifers	40
Other heifers	99
Total dairy herd	363
Milking cow area (ha)	104
Effective dairy area (ha)	227
Labour units	3.3
<b>Assets and Liabilities</b>	
Land & buildings (\$)	2,488,000
Stock (\$)	505,068
Plant (\$)	326,633
Other (\$)	205,677
TOTAL (\$)	3,525,379
Liabilities (\$)	405,731
Equity (%)	88
Investment per cow (\$)	15,752
Debt per cow (\$)	1,813
<b>Productivity</b>	
Milk production (L)	1,285,846
Production per cow (L)	5,746
<b>Financial</b>	
Milk receipts (c/L)	51.6
Feed related costs (c/L)	23.2
Total variable costs (c/L)	26.5
Margin over feed related costs (c/L)	28.4
Dairy operating profit (\$/cow)	220
Return on assets managed (%)	1.1

**Table 17.** Trends for South East Coastal PMR farms (2009-10 to 2012-13)

	2009-10	2010-11	2011-12	2012-13
<b>Milk receipts (c/L)</b>	56.9	54.9	53.3	51.5
<b>Cows (milkers and dry)</b>	242	241	239	247
<b>Production per cow (L)</b>	5,785	5,543	5,671	5,821
<b>Feed related costs (c/L)</b>	24.5	23.2	24.6	23.0
<b>Margin over feed related costs (c/L)</b>	32.4	31.8	28.7	28.6
<b>Total variable costs (c/L)</b>	27.2	26.1	27.5	25.8
<b>Dairy operating profit (\$/cow)</b>	800	606	444	279

## 7. Darling Downs - PMR

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.

Sorghum silage is a major component of the feed base of PMR farms, fed on a feed pad. Corn silage is also grown or sourced from contract growers. Farms in this group include both dryland and irrigated operations.

They have invested \$18,190 per cow in their operation with 70% tied to the land. Equity levels of this group averaged at 81% and a return on assets managed of 1.2% was achieved.

Table 19 shows the data trends for farms with continuous participation in QDAS over the last 4 years, 2009-10 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 fourth year to be at 52.9 c/L, 3.8 c/L lower than in 2009-10.
- Production per cow decreased to 6,740 as some PMR farms decreased purchased feed inputs, in response to increased feed prices.
- Dairy operating profit decreased in 2012-13 to be \$373/cow.

**Table 18.** Statistics for Darling Downs PMR farms (2012-13)

<b>Resources</b>	
Cows (milkers + dry)	185
Mated heifers	39
Other heifers	121
Total dairy herd	345
Milking cow area (ha)	185
Effective dairy area (ha)	277
Labour units	2.8
<b>Assets and Liabilities</b>	
Land & buildings (\$)	2,370,714
Stock (\$)	439,436
Plant (\$)	386,500
Other (\$)	171,086
TOTAL (\$)	3,367,736
Liabilities (\$)	628,453
Equity (%)	81
Investment per cow (\$)	18,190
Debt per cow (\$)	3,394
<b>Productivity</b>	
Milk production (L)	1,117,453
Production per cow (L)	6,036
<b>Financial</b>	
Milk receipts (c/L)	52.5
Feed related costs (c/L)	25.5
Total variable costs (c/L)	29.2
Margin over feed related costs (c/L)	27.0
Dairy operating profit (\$/cow)	219
Return on assets managed (%)	1.2

**Table 19.** Trends for Darling Downs PMR farms (2009-10 to 2012-13)

	2009-10	2010-11	2011-12	2012-13
<b>Milk receipts (c/L)</b>	56.7	54.5	53.7	52.9
<b>Cows (milkers and dry)</b>	182	186	188	194
<b>Production per cow (L)</b>	7,135	6,435	7,259	6,740
<b>Feed related costs (c/L)</b>	27.2	23.9	26.3	25.9
<b>Margin over feed related costs (c/L)</b>	29.5	30.6	27.4	26.9
<b>Total variable costs (c/L)</b>	30.4	27.7	29.8	30.0
<b>Dairy operating profit (\$/cow)</b>	950	404	875	373

## 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 \$11,996 per cow in their operation with 61% tied to the land. With the large investment in infrastructure that is required, they have a high debt per cow of \$3,359 and equity of 72%, the lowest equity of all groups. A return on assets managed of 4.8% was achieved.

Table 21 shows the data trends for farms with continuous participation in QDAS over the last 4 years, 2009-10 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 fourth year to be 3.9 c/L lower than in 2009-10.
- Feed related costs increased by 3.3 c/L in 2012-13.
- Cow numbers have steadily increased over these four years.
- Dairy operating profit per cow decreased by \$461 in 2012-13.

**Table 20.** Statistics for Darling Downs TMR farms (2012-13)

<b>Resources</b>	
Cows (milkers + dry)	276
Mated heifers	57
Other heifers	131
Total dairy herd	464
Milking cow area (ha)	222
Effective dairy area (ha)	475
Labour units	3.4
<b>Assets and Liabilities</b>	
Land & buildings (\$)	2,009,556
Stock (\$)	706,540
Plant (\$)	433,889
Other (\$)	159,562
TOTAL (\$)	3,309,546
Liabilities (\$)	926,650
Equity (%)	72
Investment per cow (\$)	11,996
Debt per cow (\$)	3,359
<b>Productivity</b>	
Milk production (L)	1,950,603
Production per cow (L)	7,070
<b>Financial</b>	
Milk receipts (c/L)	53.2
Feed related costs (c/L)	32.2
Total variable costs (c/L)	35.2
Margin over feed related costs (c/L)	21.0
Dairy operating profit (\$/cow)	646
Return on assets managed (%)	4.8

**Table 21.** Trends for Darling Downs TMR farms (2009-10 to 2012-13)

	2009-10	2010-11	2011-12	2012-13
<b>Milk receipts (c/L)</b>	57.5	56.2	55.3	53.6
<b>Cows (milkers and dry)</b>	263	275	277	295
<b>Production per cow (L)</b>	7,548	7,016	7,348	7,268
<b>Feed related costs (c/L)</b>	32.0	34.4	30.1	33.4
<b>Margin over feed related costs (c/L)</b>	25.5	21.8	25.3	20.2
<b>Total variable costs (c/L)</b>	34.4	37.2	33.3	36.4
<b>Dairy operating profit (\$/cow)</b>	1,067	583	983	522

## 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 \$17,209 per cow in their operation, of which 72% is in the land value. Equity levels are high, averaging at 85% (the highest of the regional production systems) and a return on assets managed of -0.1% was achieved (the lowest of the regional production systems).

Milk receipts are lower and feed concentrates are more expensive (due to 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, 2009-10 to the present. This sample of farms is slightly smaller than the sample used in Table 22. There are several points of interest.

- After a price increase in 2011-12, price decreased by 3.0c/L in 2012-13, due to cuts in Tier 1 milk volume allocations.
- Production per cow has increased over the past 2 years.
- Feed related costs increased to 25.9 c/L in 2012-13.
- Dairy operating profit is negative in 2012-13.

**Table 22.** Statistics for North Queensland grazing farms (2012-13)

<b>Resources</b>	
Cows (milkers + dry)	212
Mated heifers	38
Other heifers	107
Total dairy herd	357
Milking cow area (ha)	99
Effective dairy area (ha)	205
Labour units	2.6
<b>Assets and Liabilities</b>	
Land & buildings (\$)	2,611,500
Stock (\$)	506,120
Plant (\$)	260,357
Other (\$)	273,957
TOTAL (\$)	3,651,934
Liabilities (\$)	540,622
Equity (%)	85
Investment per cow (\$)	17,209
Debt per cow (\$)	2,548
<b>Productivity</b>	
Milk production (L)	1,084,191
Production per cow (L)	5,109
<b>Financial</b>	
Milk receipts (c/L)	48.6
Feed related costs (c/L)	24.8
Total variable costs (c/L)	29.7
Margin over feed related costs (c/L)	23.8
Dairy operating profit (\$/cow)	-21
Return on assets managed (%)	-0.1

**Table 23.** Trends for North Queensland grazing farms (2009-10 to 2012-13)

	2009-10	2010-11	2011-12	2012-13
<b>Milk receipts (c/L)</b>	48.9	49.3	51.3	48.3
<b>Cows (milkers and dry)</b>	178	182	178	178
<b>Production per cow (L)</b>	5,548	5,280	5,437	5,534
<b>Feed related costs (c/L)</b>	26.0	23.7	25.6	25.9
<b>Margin over feed related costs (c/L)</b>	22.9	25.5	25.7	22.4
<b>Total variable costs (c/L)</b>	29.9	28.3	30.5	30.2
<b>Dairy operating profit (\$/cow)</b>	294	253	78	-132

# 10. Appendices

## 10.1 Group cash gross margin – All 65 QDAS farms (2012–13)

Queensland dairy accounting scheme						
<b>Group cash gross margin</b>						Year: 2013
All Farms						
<b>Cash receipts</b>		<b>Cents/litre</b>	<b>\$/cow</b>	<b>\$/kg MS</b>	<b>Total \$ earned</b>	
Milk	1,306,571 litres	45.8	2,672.1	6.28		598,587
Milk bonuses/incentives/rebates/other		5.9	346.3	0.81		77,578
<b>Milk Receipts</b>		<b>51.8</b>	<b>3,018.4</b>	<b>7.09</b>		<b>676,165</b>
Cartage and levies		-0.5	-26.5	-0.06		-5,948
<b>Milk receipts - net of cartage and levies</b>		<b>51.3</b>	<b>2,991.8</b>	<b>7.03</b>		<b>670,218</b>
<b>Stock sales - dairy</b>		<b>2.8</b>	<b>162.2</b>	<b>0.38</b>		<b>36,326</b>
Stock sales - other		0.2	12.2	0.03		2,736
Produce sales		0.2	11.4	0.03		2,543
Other receipts		0.9	52.2	0.12		11,704
<b>Other farm receipts</b>		<b>1.3</b>	<b>75.8</b>	<b>0.18</b>		<b>16,984</b>
<b>Total Farm Receipts</b>		<b>55.4</b>	<b>3,229.8</b>	<b>7.58</b>		<b>723,528</b>
<b>Production costs</b>		<b>Cents/litre</b>	<b>\$/Cow</b>	<b>\$/kg MS</b>	<b>% Milk Receipts</b>	<b>Total \$ spent</b>
Purchased grain, concentrates, additives		17.3	1,007.1	2.37	33.7	225,608
Purchased fodder, silage, hay		2.1	123.3	0.29	4.1	27,617
<b>Total purchased feeds</b>		<b>19.4</b>	<b>1,130.4</b>	<b>2.65</b>	<b>37.8</b>	<b>253,225</b>
Fertiliser		2.3	137.0	0.32	4.6	30,690
Fuel & oil		1.7	98.0	0.23	3.3	21,957
Seed and ag chemicals		0.9	52.6	0.12	1.8	11,774
Irrigation costs		0.8	46.1	0.11	1.5	10,323
Hay and silage making costs		1.3	76.9	0.18	2.6	17,218
Agistment costs		0.3	19.2	0.05	0.6	4,309
Other feed costs		0.1	4.5	0.01	0.2	1,019
<b>Feed Related Costs</b>		<b>26.8</b>	<b>1,564.7</b>	<b>3.67</b>	<b>52.3</b>	<b>350,514</b>
<b>Margin over feed related costs</b>		<b>24.5</b>	<b>1,427.2</b>	<b>3.35</b>	<b>47.7</b>	<b>319,704</b>
Animal health		1.5	86.9	0.20	2.9	19,471
Herd improvement		0.7	41.3	0.10	1.4	9,258
<b>Herd costs</b>		<b>2.2</b>	<b>128.2</b>	<b>0.30</b>	<b>4.3</b>	<b>28,729</b>
Dairy shed costs - electricity		1.0	55.4	0.13	1.9	12,413
Dairy shed costs - chemicals		0.7	43.7	0.10	1.5	9,796
<b>Shed costs</b>		<b>1.7</b>	<b>99.1</b>	<b>0.23</b>	<b>3.3</b>	<b>22,209</b>
<b>Total Variable Costs</b>		<b>30.7</b>	<b>1,792.1</b>	<b>4.21</b>	<b>59.9</b>	<b>401,452</b>
<b>Gross Margin - milk only</b>		<b>20.6</b>	<b>1,199.8</b>	<b>2.82</b>	<b>40.1</b>	<b>268,766</b>
<b>Gross Margin - whole farm</b>		<b>24.7</b>	<b>1,437.7</b>	<b>3.38</b>	<b>48.1</b>	<b>322,076</b>

<b>Labour inputs</b>		<b>Stock</b>		<b>Production</b>		
Unpaid labour	1.7	Cows (milking and dry)	224	Total litres sold		1,306,571
Paid labour	1.4	Mated heifers	46	Litres/cow		5,833
Total labour units	3.0	Other heifers	116			
		<b>Areas</b>				
Litres/labour unit	431,233	Useable area (ha)	256	Protein Total (kg)	3.30%	43,107
kg MS/labour unit	31,483	Milking area (ha)	132	Butterfat Total (kg)	4.00%	52,283
Cows/labour unit	74	Irrigation (ha)	36	Milk solids (kg)		95,390
		Stocking rate (cows/useable ha)	0.9	Milk solids/cow		426
		Stocking rate (cows/milking ha)	1.7			

Farms in report: 65

Report created: 11/11/2013 10:01 AM

## 10.2 Group cash gross margin – Top 25% of farms (2012–13)

Queensland dairy accounting scheme

### Group cash gross margin

Year: 2013

Top 25%

Cash receipts	Cents/litre	\$/cow	\$/kg MS	Total \$ earned	
Milk	1,834,962 litres	46.4	3,037.9	6.25	852,216
Milk bonuses/incentives/rebates/other		7.0	459.0	0.95	128,774
<b>Milk Receipts</b>	<b>53.5</b>	<b>3,496.9</b>	<b>7.20</b>		<b>980,990</b>
Cartage and levies	-0.4	-28.4	-0.06		-7,972
<b>Milk receipts - net of cartage and levies</b>	<b>53.0</b>	<b>3,468.5</b>	<b>7.14</b>		<b>973,018</b>
<b>Stock sales - dairy</b>	<b>3.2</b>	<b>212.6</b>	<b>0.44</b>		<b>59,635</b>
Stock sales - other	0.1	6.0	0.01		1,681
Produce sales	0.1	5.0	0.01		1,396
Other receipts	0.5	33.8	0.07		9,476
<b>Other farm receipts</b>	<b>0.7</b>	<b>44.7</b>	<b>0.09</b>		<b>12,552</b>
<b>Total Farm Receipts</b>	<b>57.0</b>	<b>3,725.8</b>	<b>7.67</b>		<b>1,045,205</b>
Production costs	Cents/litre	\$/Cow	\$/kg MS	% Milk Receipts	Total \$ spent
Purchased grain, concentrates, additives	16.2	1,061.5	2.19	30.6	297,782
Purchased fodder, silage, hay	2.6	172.9	0.36	5.0	48,493
<b>Total purchased feeds</b>	<b>18.9</b>	<b>1,234.4</b>	<b>2.54</b>	<b>35.6</b>	<b>346,275</b>
Fertiliser	2.1	134.8	0.28	3.9	37,803
Fuel & oil	1.8	116.6	0.24	3.4	32,714
Seed and ag chemicals	0.8	55.6	0.11	1.6	15,587
Irrigation costs	0.6	40.7	0.08	1.2	11,423
Hay and silage making costs	1.6	102.8	0.21	3.0	28,826
Agistment costs	0.1	7.6	0.02	0.2	2,137
Other feed costs	0.0	0.6	0.00	0.0	181
<b>Feed Related Costs</b>	<b>25.9</b>	<b>1,693.0</b>	<b>3.49</b>	<b>48.8</b>	<b>474,945</b>
<b>Margin over feed related costs</b>	<b>27.1</b>	<b>1,775.5</b>	<b>3.66</b>	<b>51.2</b>	<b>498,073</b>
Animal health	1.2	80.2	0.17	2.3	22,485
Herd improvement	0.4	27.5	0.06	0.8	7,728
<b>Herd costs</b>	<b>1.6</b>	<b>107.7</b>	<b>0.22</b>	<b>3.1</b>	<b>30,213</b>
Dairy shed costs - electricity	0.9	58.7	0.12	1.7	16,454
Dairy shed costs - chemicals	0.7	47.8	0.10	1.4	13,400
<b>Shed costs</b>	<b>1.6</b>	<b>106.4</b>	<b>0.22</b>	<b>3.1</b>	<b>29,854</b>
<b>Total Variable Costs</b>	<b>29.2</b>	<b>1,907.1</b>	<b>3.93</b>	<b>55.0</b>	<b>535,012</b>
<b>Gross Margin - milk only</b>	<b>23.9</b>	<b>1,561.4</b>	<b>3.21</b>	<b>45.0</b>	<b>438,006</b>
<b>Gross Margin - whole farm</b>	<b>27.8</b>	<b>1,818.7</b>	<b>3.74</b>	<b>52.4</b>	<b>510,193</b>

Labour inputs		Stock		Production	
Unpaid labour	1.7	Cows (milking and dry)	281	Total litres sold	1,834,962
Paid labour	1.7	Mated heifers	64	Litres/cow	6,541
Total labour units	3.5	Other heifers	152		
		Areas			
Litres/labour unit	527,823	Useable area (ha)	359	Protein Total (kg)	3.37% 61,837
kg MS/labour unit	39,194	Milking area (ha)	180	Butterfat Total (kg)	4.06% 74,418
Cows/labour unit	81	Irrigation (ha)	42	Milk solids (kg)	136,256
		Stocking rate (cows/useable ha)	0.8	Milk solids/cow	486
		Stocking rate (cows/milking ha)	1.6		

Farms in report: 17

Report created: 11/11/2013 10:06 AM



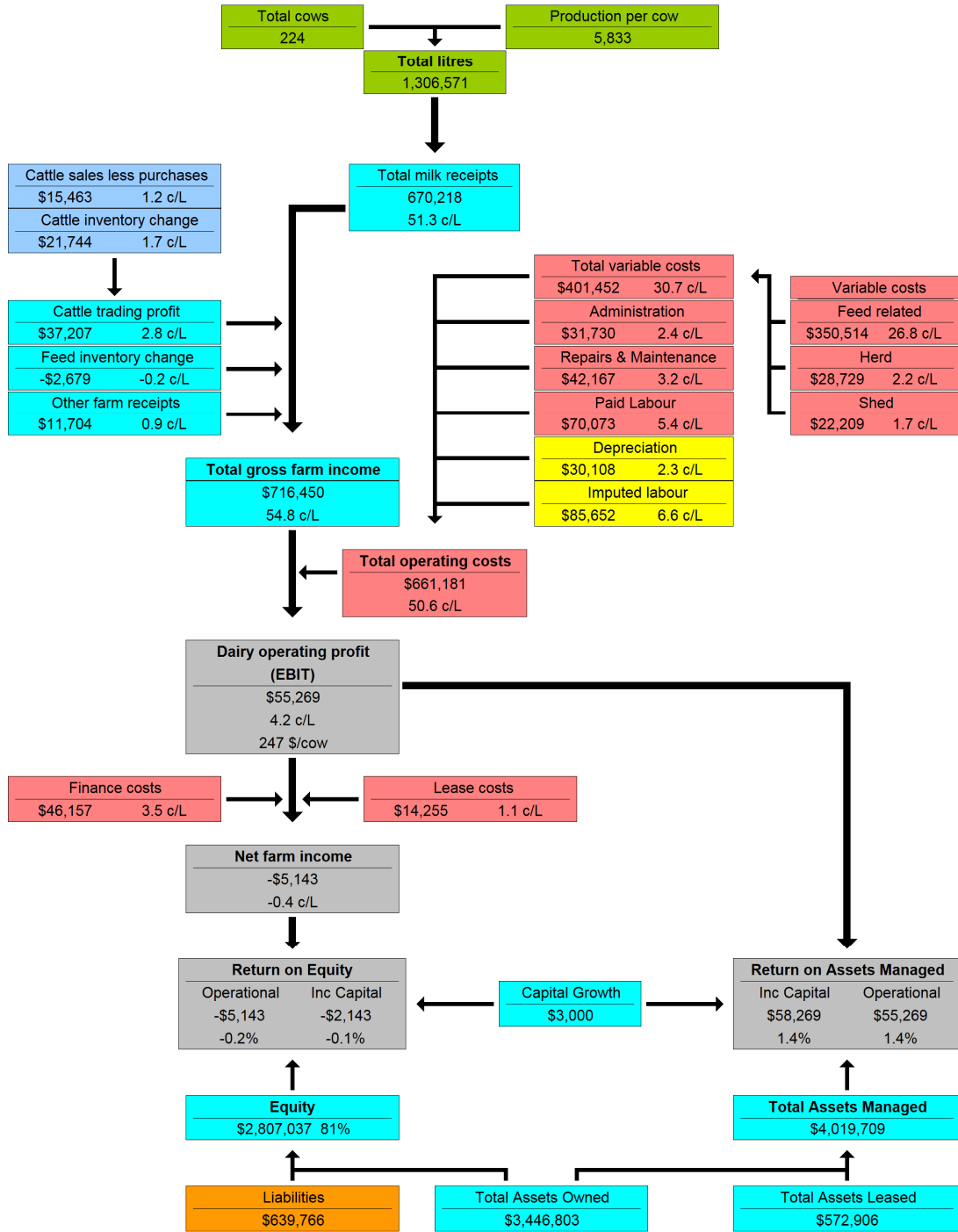
# 10.3 Map of farm performance – All 62 QDAS farms (2012–13)

Queensland dairy accounting scheme

## Group dairy farm profit map

7/2012 - 6/2013

All Farms



Farms in report: 65

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

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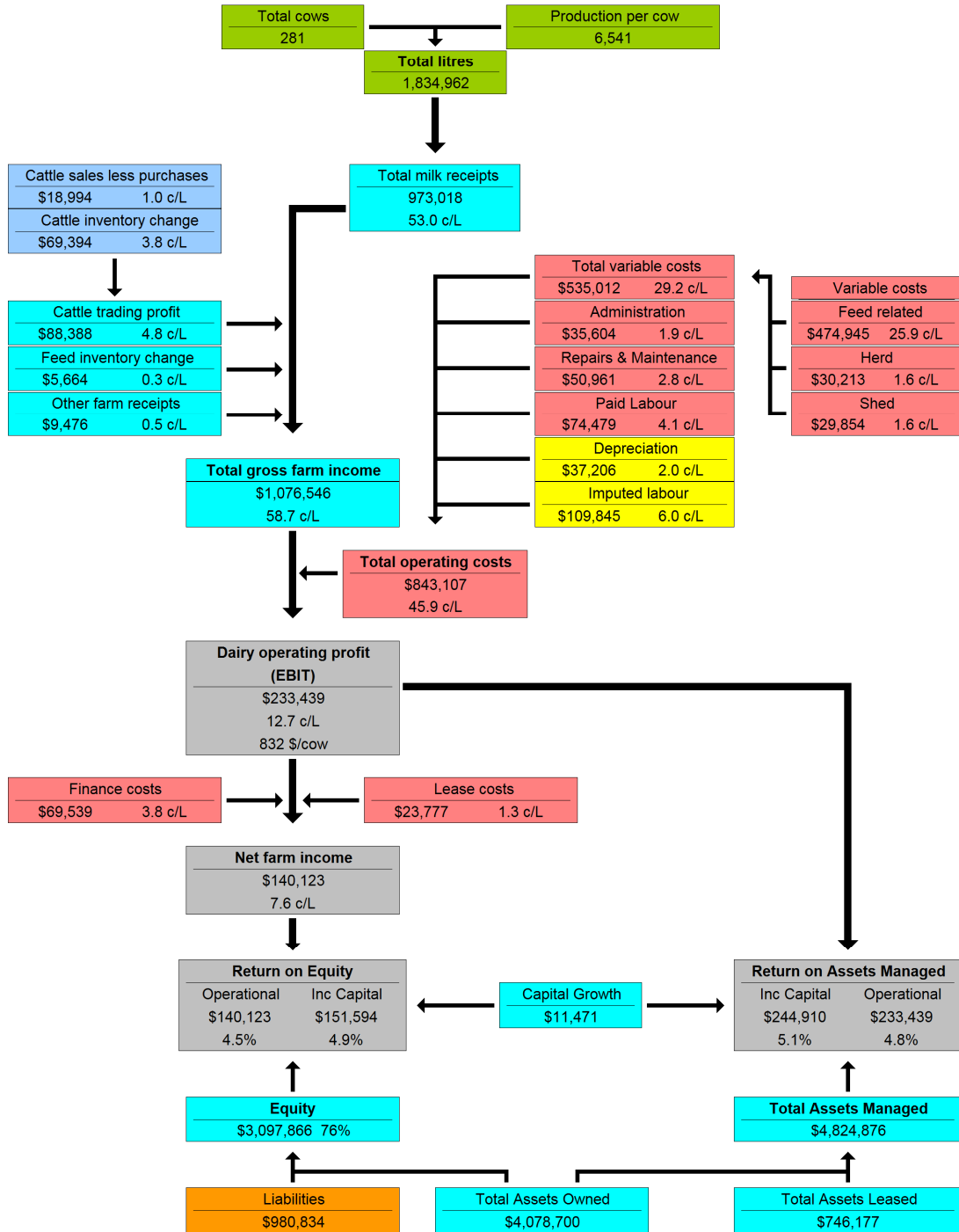
# 10.4 Map of farm performance – Top 25% of farms (2012–13)

Queensland dairy accounting scheme

## Group dairy farm profit map

7/2012 - 6/2013

Top 25%



Farms in report: 17

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 (2012–13)

Queensland dairy accounting scheme

### Group cash gross margin

Year: 2013

South East Coastal Grazing

Cash receipts	Cents/litre	\$/cow	\$/kg MS	Total \$ earned	
Milk	1,193,954 litres	47.4	2,436.5	6.41	565,461
Milk bonuses/incentives/rebates/other		4.6	235.3	0.62	54,607
<b>Milk Receipts</b>	<b>51.9</b>	<b>2,671.8</b>	<b>7.03</b>		<b>620,068</b>
Cartage and levies	-0.4	-22.1	-0.06		-5,124
<b>Milk receipts - net of cartage and levies</b>	<b>51.5</b>	<b>2,649.7</b>	<b>6.97</b>		<b>614,944</b>
<b>Stock sales - dairy</b>	<b>2.2</b>	<b>114.6</b>	<b>0.30</b>		<b>26,588</b>
Stock sales - other	0.0	1.5	0.00		346
Produce sales	0.0	1.2	0.00		274
Other receipts	0.8	40.7	0.11		9,456
<b>Other farm receipts</b>	<b>0.8</b>	<b>43.4</b>	<b>0.11</b>		<b>10,076</b>
<b>Total Farm Receipts</b>	<b>54.6</b>	<b>2,807.7</b>	<b>7.39</b>		<b>651,608</b>
Production costs	Cents/litre	\$/Cow	\$/kg MS	% Milk Receipts	Total \$ spent
Purchased grain, concentrates, additives	17.5	899.5	2.37	33.9	208,742
Purchased fodder, silage, hay	0.6	31.2	0.08	1.2	7,235
<b>Total purchased feeds</b>	<b>18.1</b>	<b>930.6</b>	<b>2.45</b>	<b>35.1</b>	<b>215,978</b>
Fertiliser	3.0	155.6	0.41	5.9	36,117
Fuel & oil	1.3	68.9	0.18	2.6	15,980
Seed and ag chemicals	0.8	39.5	0.10	1.5	9,156
Irrigation costs	1.0	49.5	0.13	1.9	11,488
Hay and silage making costs	0.3	15.2	0.04	0.6	3,521
Agistment costs	0.3	14.2	0.04	0.5	3,296
Other feed costs	0.0	0.9	0.00	0.0	215
<b>Feed Related Costs</b>	<b>24.8</b>	<b>1,274.4</b>	<b>3.35</b>	<b>48.1</b>	<b>295,749</b>
<b>Margin over feed related costs</b>	<b>26.7</b>	<b>1,375.4</b>	<b>3.62</b>	<b>51.9</b>	<b>319,194</b>
Animal health	1.9	96.2	0.25	3.6	22,329
Herd improvement	0.9	48.0	0.13	1.8	11,136
<b>Herd costs</b>	<b>2.8</b>	<b>144.2</b>	<b>0.38</b>	<b>5.4</b>	<b>33,465</b>
Dairy shed costs - electricity	0.8	43.5	0.11	1.6	10,087
Dairy shed costs - chemicals	0.8	40.4	0.11	1.5	9,365
<b>Shed costs</b>	<b>1.6</b>	<b>83.8</b>	<b>0.22</b>	<b>3.2</b>	<b>19,451</b>
<b>Total Variable Costs</b>	<b>29.2</b>	<b>1,502.4</b>	<b>3.95</b>	<b>56.7</b>	<b>348,666</b>
<b>Gross Margin - milk only</b>	<b>22.3</b>	<b>1,147.4</b>	<b>3.02</b>	<b>43.3</b>	<b>266,278</b>
<b>Gross Margin - whole farm</b>	<b>25.4</b>	<b>1,305.3</b>	<b>3.43</b>	<b>49.3</b>	<b>302,941</b>

Labour inputs		Stock		Production	
Unpaid labour	1.5	Cows (milking and dry)	232	Total litres sold	1,193,954
Paid labour	1.5	Mated heifers	55	Litres/cow	5,145
Total labour units	3.0	Other heifers	124		
		Areas			
Litres/labour unit	392,549	Useable area (ha)	173	Protein Total (kg)	3.34% 39,918
kg MS/labour unit	29,002	Milking area (ha)	92	Butterfat Total (kg)	4.04% 48,292
Cows/labour unit	76	Irrigation (ha)	43	Milk solids (kg)	88,210
		Stocking rate (cows/useable ha)	1.3	Milk solids/cow	380
		Stocking rate (cows/milking ha)	2.5		

Farms in report: 13

Report created: 11/11/2013 10:10 AM

## 10.6 Group cash gross margin – South East Coastal – PMR (2012–13)

Queensland dairy accounting scheme

### Group cash gross margin

Year: 2013

South East Coastal PMR

Cash receipts	Cents/litre	\$/cow	\$/kg MS	Total \$ earned	
Milk	1,285,846 litres	45.7	2,624.1	6.23	587,264
Milk bonuses/incentives/rebates/other		6.4	365.9	0.87	81,880
<b>Milk Receipts</b>	<b>52.0</b>	<b>2,989.9</b>	<b>7.10</b>		<b>669,144</b>
Cartage and levies	-0.4	-23.9	-0.06		-5,340
<b>Milk receipts - net of cartage and levies</b>	<b>51.6</b>	<b>2,966.1</b>	<b>7.05</b>		<b>663,804</b>
<b>Stock sales - dairy</b>	<b>2.2</b>	<b>126.2</b>	<b>0.30</b>		<b>28,243</b>
Stock sales - other	0.3	16.3	0.04		3,646
Produce sales	0.3	19.3	0.05		4,319
Other receipts	0.7	39.6	0.09		8,869
<b>Other farm receipts</b>	<b>1.3</b>	<b>75.2</b>	<b>0.18</b>		<b>16,834</b>
<b>Total Farm Receipts</b>	<b>55.1</b>	<b>3,167.5</b>	<b>7.53</b>		<b>708,881</b>
Production costs	Cents/litre	\$/Cow	\$/kg MS	% Milk Receipts	Total \$ spent
Purchased grain, concentrates, additives	14.1	811.3	1.93	27.4	181,573
Purchased fodder, silage, hay	1.5	84.6	0.20	2.9	18,941
<b>Total purchased feeds</b>	<b>15.6</b>	<b>896.0</b>	<b>2.13</b>	<b>30.2</b>	<b>200,514</b>
Fertiliser	1.8	105.8	0.25	3.6	23,678
Fuel & oil	1.8	102.5	0.24	3.5	22,937
Seed and ag chemicals	1.2	68.6	0.16	2.3	15,353
Irrigation costs	1.4	80.7	0.19	2.7	18,070
Hay and silage making costs	1.2	68.5	0.16	2.3	15,332
Agistment costs	0.2	11.2	0.03	0.4	2,504
Other feed costs	0.0	0.2	0.00	0.0	39
<b>Feed Related Costs</b>	<b>23.2</b>	<b>1,333.5</b>	<b>3.17</b>	<b>45.0</b>	<b>298,427</b>
<b>Margin over feed related costs</b>	<b>28.4</b>	<b>1,632.6</b>	<b>3.88</b>	<b>55.0</b>	<b>365,376</b>
Animal health	1.1	63.0	0.15	2.1	14,098
Herd improvement	0.6	34.8	0.08	1.2	7,781
<b>Herd costs</b>	<b>1.7</b>	<b>97.8</b>	<b>0.23</b>	<b>3.3</b>	<b>21,879</b>
Dairy shed costs - electricity	0.8	46.9	0.11	1.6	10,486
Dairy shed costs - chemicals	0.7	42.2	0.10	1.4	9,453
<b>Shed costs</b>	<b>1.6</b>	<b>89.1</b>	<b>0.21</b>	<b>3.0</b>	<b>19,938</b>
<b>Total Variable Costs</b>	<b>26.5</b>	<b>1,520.3</b>	<b>3.61</b>	<b>51.3</b>	<b>340,245</b>
<b>Gross Margin - milk only</b>	<b>25.2</b>	<b>1,445.8</b>	<b>3.44</b>	<b>48.7</b>	<b>323,559</b>
<b>Gross Margin - whole farm</b>	<b>28.7</b>	<b>1,647.2</b>	<b>3.91</b>	<b>55.5</b>	<b>368,636</b>

Labour inputs		Stock		Production	
Unpaid labour	1.5	Cows (milking and dry)	224	Total litres sold	1,285,846
Paid labour	1.8	Mated heifers	40	Litres/cow	5,746
Total labour units	3.3	Other heifers	99		
		Areas			
Litres/labour unit	385,754	Useable area (ha)	227	Protein Total (kg)	3.32% 42,655
kg MS/labour unit	28,258	Milking area (ha)	104	Butterfat Total (kg)	4.01% 51,539
Cows/labour unit	67	Irrigation (ha)	60	Milk solids (kg)	94,194
		Stocking rate (cows/useable ha)	1.0	Milk solids/cow	421
		Stocking rate (cows/milking ha)	2.1		

Farms in report: 15

Report created: 11/11/2013 10:13 AM

## 10.7 Group cash gross margin – Darling Downs – PMR (2012–13)

Queensland dairy accounting scheme

### Group cash gross margin

Year: 2013

Darling Downs PMR

Cash receipts	Cents/litre	\$/cow	\$/kg MS	Total \$ earned	
Milk	1,117,453 litres	45.6	2,751.4	6.28	509,404
Milk bonuses/incentives/rebates/other	7.4	449.1	1.02		83,150
<b>Milk Receipts</b>	<b>53.0</b>	<b>3,200.5</b>	<b>7.30</b>		<b>592,554</b>
Cartage and levies	-0.5	-29.9	-0.07		-5,540
<b>Milk receipts - net of cartage and levies</b>	<b>52.5</b>	<b>3,170.6</b>	<b>7.24</b>		<b>587,013</b>
<b>Stock sales - dairy</b>	<b>3.1</b>	<b>184.3</b>	<b>0.42</b>		<b>34,117</b>
Stock sales - other	0.0	0.6	0.00		112
Produce sales	0.1	8.0	0.02		1,487
Other receipts	0.9	54.4	0.12		10,074
<b>Other farm receipts</b>	<b>1.0</b>	<b>63.1</b>	<b>0.14</b>		<b>11,674</b>
<b>Total Farm Receipts</b>	<b>56.6</b>	<b>3,417.9</b>	<b>7.80</b>		<b>632,805</b>
Production costs	Cents/litre	\$/Cow	\$/kg MS	% Milk Receipts	Total \$ spent
Purchased grain, concentrates, additives	14.2	855.0	1.95	27.0	158,289
Purchased fodder, silage, hay	1.5	93.0	0.21	2.9	17,225
<b>Total purchased feeds</b>	<b>15.7</b>	<b>948.0</b>	<b>2.16</b>	<b>29.9</b>	<b>175,514</b>
Fertiliser	1.9	116.6	0.27	3.7	21,581
Fuel & oil	2.6	157.2	0.36	5.0	29,098
Seed and ag chemicals	1.3	79.3	0.18	2.5	14,674
Irrigation costs	1.0	61.7	0.14	1.9	11,424
Hay and silage making costs	2.5	153.8	0.35	4.9	28,481
Agistment costs	0.4	22.1	0.05	0.7	4,091
Other feed costs	0.0	0.0	0.00	0.0	0
<b>Feed Related Costs</b>	<b>25.5</b>	<b>1,538.6</b>	<b>3.51</b>	<b>48.5</b>	<b>284,864</b>
<b>Margin over feed related costs</b>	<b>27.0</b>	<b>1,632.0</b>	<b>3.72</b>	<b>51.5</b>	<b>302,150</b>
Animal health	1.4	83.5	0.19	2.6	15,462
Herd improvement	0.6	33.8	0.08	1.1	6,266
<b>Herd costs</b>	<b>1.9</b>	<b>117.4</b>	<b>0.27</b>	<b>3.7</b>	<b>21,728</b>
Dairy shed costs - electricity	1.0	59.7	0.14	1.9	11,049
Dairy shed costs - chemicals	0.8	49.6	0.11	1.6	9,180
<b>Shed costs</b>	<b>1.8</b>	<b>109.3</b>	<b>0.25</b>	<b>3.4</b>	<b>20,229</b>
<b>Total Variable Costs</b>	<b>29.2</b>	<b>1,765.2</b>	<b>4.03</b>	<b>55.7</b>	<b>326,820</b>
<b>Gross Margin - milk only</b>	<b>23.3</b>	<b>1,405.4</b>	<b>3.21</b>	<b>44.3</b>	<b>260,193</b>
<b>Gross Margin - whole farm</b>	<b>27.4</b>	<b>1,652.7</b>	<b>3.77</b>	<b>52.1</b>	<b>305,984</b>

Labour inputs		Stock		Production	
Unpaid labour	1.3	Cows (milking and dry)	185	Total litres sold	1,117,453
Paid labour	1.5	Mated heifers	39	Litres/cow	6,036
Total labour units	2.8	Other heifers	121		
		Areas			
Litres/labour unit	395,059	Useable area (ha)	277	Protein Total (kg)	3.31% 36,978
kg MS/labour unit	28,681	Milking area (ha)	185	Butterfat Total (kg)	3.95% 44,149
Cows/labour unit	65	Irrigation (ha)	48	Milk solids (kg)	81,127
		Stocking rate (cows/useable ha)	0.7	Milk solids/cow	438
		Stocking rate (cows/milking ha)	1.0		

Farms in report: 7

Report created: 11/11/2013 10:17 AM

## 10.8 Group cash gross margin – Darling Downs – TMR (2012–13)

Queensland dairy accounting scheme

### Group cash gross margin

Year: 2013

Darling Downs TMR

Cash receipts	Cents/litre	\$/cow	\$/kg MS	Total \$ earned	
Milk	1,950,603 litres	47.2	3,340.6	6.36	921,643
Milk bonuses/incentives/rebates/other	6.4	451.9	0.86		124,670
<b>Milk Receipts</b>	<b>53.6</b>	<b>3,792.5</b>	<b>7.23</b>		<b>1,046,313</b>
Cartage and levies	-0.5	-32.5	-0.06		-8,976
<b>Milk receipts - net of cartage and levies</b>	<b>53.2</b>	<b>3,760.0</b>	<b>7.16</b>		<b>1,037,337</b>
<b>Stock sales - dairy</b>	<b>4.1</b>	<b>289.9</b>	<b>0.55</b>		<b>79,970</b>
Stock sales - other	0.3	20.9	0.04		5,756
Produce sales	0.0	0.1	0.00		28
Other receipts	0.3	24.6	0.05		6,778
<b>Other farm receipts</b>	<b>0.6</b>	<b>45.5</b>	<b>0.09</b>		<b>12,561</b>
<b>Total Farm Receipts</b>	<b>57.9</b>	<b>4,095.4</b>	<b>7.80</b>		<b>1,129,869</b>
Production costs	Cents/litre	\$/Cow	\$/kg MS	% Milk Receipts	Total \$ spent
Purchased grain, concentrates, additives	19.0	1,342.0	2.56	35.7	370,246
Purchased fodder, silage, hay	5.0	352.5	0.67	9.4	97,262
<b>Total purchased feeds</b>	<b>24.0</b>	<b>1,694.6</b>	<b>3.23</b>	<b>45.1</b>	<b>467,508</b>
Fertiliser	1.8	130.6	0.25	3.5	36,040
Fuel & oil	2.2	154.3	0.29	4.1	42,567
Seed and ag chemicals	0.9	64.8	0.12	1.7	17,871
Irrigation costs	0.1	5.6	0.01	0.1	1,537
Hay and silage making costs	3.1	220.0	0.42	5.9	60,708
Agistment costs	0.1	3.8	0.01	0.1	1,053
Other feed costs	0.0	1.0	0.00	0.0	271
<b>Feed Related Costs</b>	<b>32.2</b>	<b>2,274.7</b>	<b>4.33</b>	<b>60.5</b>	<b>627,555</b>
<b>Margin over feed related costs</b>	<b>21.0</b>	<b>1,485.3</b>	<b>2.83</b>	<b>39.5</b>	<b>409,783</b>
Animal health	1.1	78.6	0.15	2.1	21,689
Herd improvement	0.2	12.5	0.02	0.3	3,451
<b>Herd costs</b>	<b>1.3</b>	<b>91.1</b>	<b>0.17</b>	<b>2.4</b>	<b>25,140</b>
Dairy shed costs - electricity	0.9	66.8	0.13	1.8	18,436
Dairy shed costs - chemicals	0.8	54.3	0.10	1.4	14,974
<b>Shed costs</b>	<b>1.7</b>	<b>121.1</b>	<b>0.23</b>	<b>3.2</b>	<b>33,410</b>
<b>Total Variable Costs</b>	<b>35.2</b>	<b>2,486.9</b>	<b>4.74</b>	<b>66.1</b>	<b>686,104</b>
<b>Gross Margin - milk only</b>	<b>18.0</b>	<b>1,273.1</b>	<b>2.43</b>	<b>33.9</b>	<b>351,233</b>
<b>Gross Margin - whole farm</b>	<b>22.8</b>	<b>1,608.5</b>	<b>3.06</b>	<b>42.8</b>	<b>443,764</b>

Labour inputs	Stock	Production
Unpaid labour	2.2 Cows (milking and dry)	276 Total litres sold
Paid labour	1.2 Mated heifers	57 Litres/cow
Total labour units	3.4 Other heifers	131
	<b>Areas</b>	
Litres/labour unit	566,304 Useable area (ha)	475 Protein Total (kg)
kg MS/labour unit	42,043 Milking area (ha)	222 Butterfat Total (kg)
Cows/labour unit	80 Irrigation (ha)	3 Milk solids (kg)
	Stocking rate (cows/useable ha)	0.6 Milk solids/cow
	Stocking rate (cows/milking ha)	1.2

Farms in report: 9

Report created: 11/11/2013 10:20 AM

## 10.9 Group cash gross margin – North Queensland – Grazing (2012–13)

Queensland dairy accounting scheme

### Group cash gross margin

Year: 2013

North Queensland Grazing

Cash receipts	Cents/litre	\$/cow	\$/kg MS		Total \$ earned
Milk	1,084,191 litres	44.5	2,274.7	6.24	482,720
Milk bonuses/incentives/rebates/other		4.6	234.7	0.64	49,799
<b>Milk Receipts</b>	<b>49.1</b>	<b>2,509.3</b>	<b>6.88</b>		<b>532,518</b>
Cartage and levies		-0.5	-26.5	-0.07	-5,630
<b>Milk receipts - net of cartage and levies</b>	<b>48.6</b>	<b>2,482.8</b>	<b>6.81</b>		<b>526,888</b>
<b>Stock sales - dairy</b>	<b>2.4</b>	<b>122.8</b>	<b>0.34</b>		<b>26,051</b>
Stock sales - other		0.2	12.1	0.03	2,576
Produce sales		0.0	0.0	0.00	0
Other receipts		1.2	59.1	0.16	12,535
<b>Other farm receipts</b>	<b>1.4</b>	<b>71.2</b>	<b>0.20</b>		<b>15,111</b>
<b>Total Farm Receipts</b>	<b>52.4</b>	<b>2,676.8</b>	<b>7.34</b>		<b>568,050</b>
Production costs	Cents/litre	\$/Cow	\$/kg MS	% Milk Receipts	Total \$ spent
Purchased grain, concentrates, additives	18.7	953.8	2.62	38.4	202,413
Purchased fodder, silage, hay	0.4	18.4	0.05	0.7	3,913
<b>Total purchased feeds</b>	<b>19.0</b>	<b>972.3</b>	<b>2.67</b>	<b>39.2</b>	<b>206,326</b>
Fertiliser	3.1	160.1	0.44	6.4	33,978
Fuel & oil	0.8	43.1	0.12	1.7	9,148
Seed and ag chemicals	0.3	13.3	0.04	0.5	2,813
Irrigation costs	0.3	15.7	0.04	0.6	3,322
Hay and silage making costs	0.0	1.2	0.00	0.0	253
Agistment costs	0.9	43.8	0.12	1.8	9,300
Other feed costs	0.3	17.8	0.05	0.7	3,781
<b>Feed Related Costs</b>	<b>24.8</b>	<b>1,267.2</b>	<b>3.48</b>	<b>51.0</b>	<b>268,921</b>
<b>Margin over feed related costs</b>	<b>23.8</b>	<b>1,215.6</b>	<b>3.33</b>	<b>49.0</b>	<b>257,967</b>
Animal health	1.8	89.9	0.25	3.6	19,088
Herd improvement	1.2	59.3	0.16	2.4	12,595
<b>Herd costs</b>	<b>2.9</b>	<b>149.3</b>	<b>0.41</b>	<b>6.0</b>	<b>31,683</b>
Dairy shed costs - electricity	1.2	59.7	0.16	2.4	12,669
Dairy shed costs - chemicals	0.8	38.8	0.11	1.6	8,237
<b>Shed costs</b>	<b>1.9</b>	<b>98.5</b>	<b>0.27</b>	<b>4.0</b>	<b>20,906</b>
<b>Total Variable Costs</b>	<b>29.7</b>	<b>1,515.0</b>	<b>4.16</b>	<b>61.0</b>	<b>321,511</b>
<b>Gross Margin - milk only</b>	<b>18.9</b>	<b>967.8</b>	<b>2.65</b>	<b>39.0</b>	<b>205,377</b>
<b>Gross Margin - whole farm</b>	<b>22.7</b>	<b>1,161.7</b>	<b>3.19</b>	<b>46.8</b>	<b>246,539</b>

Labour inputs		Stock		Production	
Unpaid labour	1.6	Cows (milking and dry)	212	Total litres sold	1,084,191
Paid labour	1.0	Mated heifers	38	Litres/cow	5,109
Total labour units	2.6	Other heifers	107		
		Areas			
Litres/labour unit	418,145	Useable area (ha)	205	Protein Total (kg)	3.20% 34,709
kg MS/labour unit	29,842	Milking area (ha)	99	Butterfat Total (kg)	3.94% 42,667
Cows/labour unit	82	Irrigation (ha)	9	Milk solids (kg)	77,376
		Stocking rate (cows/useable ha)	1.0	Milk solids/cow	365
		Stocking rate (cows/milking ha)	2.1		

Farms in report: 14

Report created: 11/11/2013 10:22 AM



## 10.10 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

#### Profitability

- Return on asset managed – %
- Return on equity – %
- Operating profit margin – %
- Dairy operating profit –\$/cow

#### Solvency

- Equity% – %
- Debt to equity ratio

#### Efficiency - Capital

- Asset turnover ratio
- Total liabilities per cow – \$/cow
- Interest per cow – \$/cow

#### Efficiency - Production

- Feed related cost – c/L
- Margin over feed related costs – \$/cow
- Total variable cost – c/L
- Gross margin milk – \$/cow

#### Efficiency – Physical

- 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 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*

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.

